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November 14, 2000
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- A. Protecting Endangered Species - Bulletin - San Joaquin County
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- D. Regulatory Setting - Reference
- E. Local General Plan Consistency
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1. EXECUTIVE SUMMARY

BACKGROUND AND PLANNING PROCESS

1.1 EXECUTIVE SUMMARY

1.1.1 PURPOSE (For details, see Chapter 1, Section 1.3)

The key purpose of the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP or Plan), is to provide a strategy for balancing the need to conserve Open Space and the need to Convert Open Space to non-Open Space uses while protecting the region's agricultural economy; preserving landowner property rights; providing for the long-term management of plant, fish and wildlife species, especially those that are currently listed, or may be listed in the future, under the Federal Endangered Species Act (ESA) or the California Endangered Species Act (CESA); providing and maintaining multiple-use Open Spaces which contribute to the quality of life of the residents of San Joaquin County; and accommodating a growing population while minimizing costs to Project Proponents and society at large.

1.1.2 PLAN TERM AND SETTING [For details, see Chapter 2 (Setting) and Chapter 8, Section 8.3 (Term)]

The SJMSCP is a 50-year Plan and all assessments for the SJMSCP are based on a 50-year planning horizon.

San Joaquin County's past and future (2001-2051) growth has affected and will continue to affect 97 special status plant, fish and wildlife species in 52 vegetative communities scattered throughout San Joaquin County's 1,400+ square miles and 900,000+ acres, which include 43% of the Sacramento-San Joaquin Delta's Primary Zone. The SJMSCP encompasses all of San Joaquin County except for federally-owned lands (e.g., Lawrence Livermore National Lab Site 300) and areas encompassing those projects not covered by the SJMSCP listed in Section 8.2.2. Past and future Open Space land Conversions also have resulted and will result in the loss of Open Space for plants, fish and wildlife, agricultural use, recreational use, scenic enjoyment, and other beneficial Open Space uses.

1.1.3 SJMSCP PERMITTED ACTIVITIES/SJMSCP COVERED SPECIES (Section 8.2.1--Permitted Activities; Table 2-2 for SJMSCP Covered Species)

The SJMSCP, in accordance with ESA Section 10(a)(1)(B) and CESA Section 2081(b) Incidental Take Permits, provides compensation for the Conversion of Open Space to non-Open Space uses which affect the plant, fish and wildlife species covered by the Plan, hereinafter referred to as "SJMSCP Covered Species". In addition, the SJMSCP provides some compensation to offset the impacts of Open Space land Conversions on non-wildlife related resources such as recreation, agriculture, scenic values and other beneficial Open Space uses. The SJMSCP compensates for Conversions of Open Space for the following activities: urban development, mining, expansion of existing urban boundaries, non-agricultural activities occurring outside of urban boundaries, levee maintenance undertaken by the San Joaquin Area Flood Control Agency, transportation projects, school expansions, non-federal flood control projects, new parks and trails, maintenance of existing facilities for non-federal irrigation district projects, utility installation, maintenance activities, managing Preserves, and similar public agency projects. These activities will be undertaken by both public and private individuals and agencies throughout San Joaquin County and within the County's incorporated cities of Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton and Tracy. Public agencies including Caltrans (for transportation projects), and the San Joaquin Council of Governments (for
transportation projects) also will undertake activities which will be covered by the SJMSCP. In addition, 5,340 acres is allocated for anticipated projects (e.g., annexations, general plan amendments) pursuant to Section 8.2.1(10). Section 8.2.2 identifies projects and activities which are not covered by the SJMSCP.

A Clean Water Act regional general permit, or equivalent, from the U.S. Army Corps of Engineers will be pursued after the initial adoption of the SJMSCP. This permit is expected to cover, among other activities, agricultural activities which may trigger Section 404 of the Federal Clean Water Act and/or which are subject to the ESA—for example, Conversion of vernal pool grasslands to orchards and vineyards). Until issuance of the CWA regional general permit or equivalent, acquisition of a Section 404 permit by Project Proponents shall continue to occur as required by existing regulations.

Species coverage will be variable under the SJMSCP as described in Chapter 2 and in Table 2-2 and will range from full coverage under federal and state law to CEQA coverage only. The 97 SJMSCP Covered Species are listed in Table 2-2 and include 25 state and/or federally listed species. The SJMSCP Covered Species includes 27 plants (6 listed), 4 fish (2 listed), 4 amphibians (1 listed), 4 reptiles (1 listed), 33 birds (7 listed), 15 mammals (3 listed) and 10 invertebrates (5 listed).

1.1.4 EFFECTS OF OPEN SPACE CONVERSIONS ADDRESSED IN THE SJMSCP (For details, See Chapter 4, all)

The SJMSCP is intended to comprehensively minimize and mitigate impacts to plant, fish and wildlife habitat and compensation for some impacts to recreational, agricultural, scenic enjoyment and other beneficial Open Space uses resulting from the Conversion of 109,302 acres of Open Space to non-Open Space uses projected to occur between 2001 and 2051.

Table 4.3-1 lists estimated Take for all SJMSCP Covered Species. Table 1-1 lists estimates of overall habitat Conversion anticipated for the 50-year term of the SJMSCP.

1.1.4.1 Incidental Take/Habitat Loss

As required by the Federal Endangered Species Act (ESA) and California Endangered Species Act (CESA), the SJMSCP addresses, as one of several components of the overall Conversion of Open Space in the County, the Conversion of threatened and endangered species' habitat which could result in Incidental Take. Take is defined in the CESA and the ESA.

The ESA defines "Take" as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." "Harass" is further defined by federal regulation implementing the ESA to include "an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding or sheltering" (50 CFR 17.3). "Harm," as defined by regulation means, "an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering" (50 CFR 17.3).

Once the SJMSCP Permits are issued by the U.S. Fish and Wildlife Service and the California Department of Fish and Game and local agencies approving the Plan adopt enabling ordinances and/or resolutions, Plan Participants under the SJMSCP may conduct SJMSCP Permitted Activities that result in or may result in "Incidental Take" of listed species and other unlisted species should they become listed. Incidental Take is defined by the ESA as Take of a fish or wildlife species listed as threatened or endangered pursuant to the Act "that is incidental to, and not the primary purpose of, the carrying out of an otherwise lawful activity."
SJMSCP Covered Species habitat loss which will result in Incidental Take, as a result of the total Open Space land Conversions of 109,302 acres at full buildout, is estimated at 71,837 acres. However, the entire 109,302 acres of habitat loss resulting from Open Space Conversions are covered by the SJMSCP Permits because the SJMSCP provides measures to offset not only Incidental Take pursuant to ESA and CESA, but also provides mitigation to offset cumulative impacts to common plant, fish and wildlife species and to offset other impacts associated with Open Space Conversions (e.g., impacts to agricultural lands, impacts to scenic resources, and similar impacts) which must be addressed pursuant to the California Environmental Quality Act (CEQA).

1.1.4.2 Multi-Purpose Open Spaces

In addition to the 71,837 acres of Open Space Conversion that will result in Incidental Take, 37,465 acres of other Open Space lands will be Converted to non-Open Space uses between 2001 and 2051. The Conversion of these Multi-Purpose Open Space Lands is not anticipated to result in Incidental Take, but are addressed in the SJMSCP because of their value for the following purposes:

A. For common plant, fish and wildlife species which are not included in the list of SJMSCP Covered Species,
B. As recreational areas,
C. For agricultural use,
D. As flood control or for water regeneration uses,
E. As scenic areas,
F. For educational purposes, and
G. For other beneficial Open Space uses.

The details of these estimates of SJMSCP Covered Species habitat losses and associated Incidental Take, and estimates of the losses of Multi-Purpose Open Spaces which are considered valuable, but are not considered essential to SJMSCP Covered Species, as they relate to total land Conversions and requirements for Preserve lands, are detailed as follows:
<table>
<thead>
<tr>
<th>Natural Lands to Be Converted including Submerged Aquatic Habitat</th>
<th>14,202</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Habitat Lands to Be Converted (non-orchard and non-vineyard)</td>
<td>57,635</td>
</tr>
<tr>
<td>SJMSCP Covered Species Habitat Conversion Subtotal</td>
<td>71,837</td>
</tr>
<tr>
<td>Full Buildout of General Plans (Acres)</td>
<td></td>
</tr>
<tr>
<td>Multi-Purpose Open Space Lands to Be Converted</td>
<td>37,465</td>
</tr>
<tr>
<td>Total Lands To Be Converted after 2001</td>
<td>109,302</td>
</tr>
<tr>
<td>Preserve Lands required to compensate for potential impacts to SJMSCP Covered Species which wander off SJMSCP Preserves and onto lands neighboring SJMSCP Preserves</td>
<td>600</td>
</tr>
<tr>
<td>Preserve Lands Required to Compensate for Impacts to SJMSCP Covered Species /e/</td>
<td></td>
</tr>
</tbody>
</table>

/a/ See Table 1-2 for details on the distribution of this acreage across the various habitat types.
/b/ SJMSCP Permitted Activities affecting submerged aquatic habitat are listed in Section 8.2.1(4).
/c/ Per Sections 4.1 and 4.3, Conversion of Agricultural Habitat Lands and Natural Lands triggers requirements to create Preserves. Conversions of Multi-Purpose Open Spaces is not considered to result in Incidental Take, but is considered to contribute to cumulative impacts to common plant, fish and wildlife species and to contribute to other impacts associated with Converting Open Spaces to non-Open Space uses (e.g., agricultural impacts, scenic impacts). Therefore, fees collected.
due to Conversions of Multi-Purpose Open Spaces to non-Open Space uses will contribute to the overall cost of creating and managing Preserves, but Conversion of Multi-Purpose Open Spaces does not trigger requirements to add new Preserve acres to the SJMSCP Preserve system. **These compensation requirements apply only to SJMSCP Permitted Activities.** Agricultural activities are not covered by the SJMSCP (except that Conversion of wetlands as a result of agricultural activities requiring a Section 404 permit pursuant to the Federal Clean Water Act and/or subject to the ESA may use the SJMSCP to compensate for impacts to listed vernal pool species). Therefore, change of agricultural use of Agricultural Habitat Lands, Natural Lands, Multi-Purpose Open Space Lands or any lands by agricultural activities, except as noted above, triggers no actions or requirements related to the SJMSCP. Changes of agricultural uses of Agricultural Habitat Lands, Natural Lands, Multi-Purpose Open Space Lands or any lands by agricultural activities remain subject to the same legal requirements, including the need to comply with the Federal Endangered Species Act and/or CESA even when permits are not required pursuant to the Federal Clean Water Act, as were in effect before adoption of the SJMSCP. Individuals are encouraged to consult with local, state and federal agencies to determine applicable regulations.

/d/ See Glossary (Chapter 10) and Section 2.2.1.3 for a description of Multi-Purpose Open Spaces
/e/ Per compensation ratios established by the Plan in Section 4.1. See Section 1.1.5 for a summary of compensation ratios.
/f/ The term "Agricultural Habitat Land" is not equivalent to similar terms used in the 1996 Federal Farm Bill.

<table>
<thead>
<tr>
<th>TABLE 1-2</th>
<th>LAND CONVERSION - FULL BUILDOUT (2001-2051)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESTIMATED DISTRIBUTION ACROSS INDEX ZONES AND HABITAT TYPES</td>
<td></td>
</tr>
<tr>
<td><strong>Index Zone</strong></td>
<td><strong>Natural Land (Acres)</strong></td>
</tr>
<tr>
<td>Central and Central/Southwest Transition Zone</td>
<td>6,392</td>
</tr>
<tr>
<td>Primary Zone of the Delta</td>
<td>374</td>
</tr>
<tr>
<td>Southwest Zone</td>
<td>1,542</td>
</tr>
<tr>
<td>Vernal Pool Zone</td>
<td>5,894/b/</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>14,202.00</td>
</tr>
</tbody>
</table>

/a/ This total acreage includes both wetted vernal pool surface area and surrounding upland grasslands.
/b/ This total represents 8% of the 73,614 acres of vernal pool grasslands mapped within all of San Joaquin County as estimated by the SJMSCP Biological Analysis (Appendix K)

1.1.5 **COMPENSATION** For details, see Sections 4.1 and 5.3.1)

Compensation for Open Space Conversions resulting in Incidental Take of SJMSCP Covered Species are as summarized in the following table:

November 14, 2000
### TABLE 1-3: SJMSCP COMPENSATION RATIOS

<table>
<thead>
<tr>
<th>HABITAT TYPE CONVERTED FROM OPEN SPACE USE</th>
<th>REQUIRED COMPENSATION RATIO</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Habitat Lands</td>
<td>1:1</td>
<td>One acre of Preserve acquired, enhanced and managed in perpetuity for each acre of habitat Converted from Open Space use</td>
</tr>
<tr>
<td>Natural Lands - Non-Wetlands (e.g., oak woodlands)</td>
<td>3:1</td>
<td>Three acres of Preserve acquired, enhanced and managed in perpetuity for each acre of habitat Converted from Open Space use</td>
</tr>
<tr>
<td>Natural Lands - Vernal Pools within Vernal Pool Zone</td>
<td>2:1 Preservation plus 1:1 Creation (3:1 total)</td>
<td>Create one acre of habitat and preserve two acres of existing habitat for each acre Converted from Open Space use--resulting in three total acres of Preserve. Preserves include both wetted surface area and upland grasslands surrounding vernal pools and protecting their watersheds. Creation component shall emphasize restoration of pre-existing vernal pools, wherever feasible.</td>
</tr>
<tr>
<td>Natural Lands - Wetlands Other than Vernal Pools</td>
<td>At least 1:1 Creation Plus 2:1 Preservation (3:1 total)</td>
<td>SJMSCP may: (1) create one acre habitat, preserve two existing acres of habitat; (2) create two acres habitat, preserve one acre existing habitat; or (3) create three acres of habitat, preserve zero acres of existing habitat. All options result in three acres of Preserve.</td>
</tr>
</tbody>
</table>

These compensation requirements apply only to SJMSCP Permitted Activities. Agricultural activities are not covered by the SJMSCP (except that Conversion of wetlands as a result of agricultural activities requiring a Section 404 permit pursuant to the Federal Clean Water Act and/or subject to the ESA may use the SJMSCP to compensate for impacts to listed vernal pool species). Therefore, change of agricultural use of Agricultural Habitat Lands, Natural Lands, Multi-Purpose Open Space Lands or any lands by agricultural activities, except as noted above, triggers no actions or requirements related to the SJMSCP. Changes of agricultural uses of Agricultural Habitat Lands, Natural Lands, Multi-Purpose Open Space Lands or any lands by agricultural activities remain subject to the same legal requirements, including the need to comply with the Federal Endangered Species Act and/or CESA even when permits are not required pursuant to the Federal Clean Water Act, as were in effect before adoption of the SJMSCP. Individuals are encouraged to consult with local, state and federal agencies to determine applicable regulations.

The goal of the SJMSCP is to provide 100,841 acres of Preserves based on an estimated Conversion acreage of 109,302 acres. The SJMSCP anticipates acquiring land primarily through conservation easements and fee title at a ratio of approximately 90% easements to 10% fee title acquisition. Establishment and/or use of mitigation banks, and in-lieu land dedications also will play a role in preserving habitats under the SJMSCP (see Chapter 5, Sections 5.3.2 and 5.3.3, for details).

**1.1.6 IMPLEMENTING STRATEGY** (For details, see Chapter 8, all)
1.1.6.1 Pay-As-You-Go (see Section 8.5)

The requirement for compensation is triggered by new development. The SJMSCP will be a "Pay-As-You-Go" Plan. This means that acquisition of Preserve lands will occur when, and at roughly the same pace, that new development occurs. While compensation is not required until development occurs, the JPA is permitted to and shall pursue opportunities to purchase surplus lands to "get ahead" and establish Preserves in advance of Open Space Conversions whenever feasible.

1.1.6.2 Jump-Start (see Section 8.6)

To avoid project delays, an initial "jump-start" of Preserve lands will be secured by the JPA within six months of the issuance of the SJMSCP permits. The jump-start Preserve lands will total approximately 350 acres. As long as the initial 350+ Preserve acres are in place, the acquisition of additional Preserve lands need not balance Incidental Take until approximately 1,000 acres of development have occurred under the SJMSCP Permits. This deferral will allow funds to accumulate sufficiently to purchase significant blocks of Preserve lands. If 350 acres of jump-start Preserve lands are not in place within six months, the Permitting Agencies may pursue appropriate remedies as established in Section 16 of the Implementation Agreement (revocation, suspension, termination).

After the first 1,000 acres of development involving SJMSCP Permitted Activities, and so long as the 350 acre jump-start remains in place (Section 8.6) acquisition of Preserve lands must conform to the compensation ratios set forth in Section 4.1 of the SJMSCP; provided, however, that if the JPA possesses funds sufficient to acquire Preserve lands in accordance with the compensation ratios, acquisition may occur up to 24 months from the land Conversion or development requiring compensation. The JPA shall possess sufficient funds for the purposes of this provision if it has allocated sufficient existing funds to purchase Preserve lands at the per acre cost identified in Table 7-1 of the SJMSCP (and adjusted annually for inflation pursuant to SJMSCP Section 7.5.2.2) to compensate for all such land Conversion or development that has occurred pursuant to the SJMSCP. If there is insufficient funding, the funding shortfall provisions of Section 7.5.2.4 shall apply. To defer Preserve land acquisitions, the JPA must possess sufficient funds, whether or not fees have been collected for the Conversion or development requiring compensation.

Vernal Pools. Limits on the amount of Conversion acres of vernal pool grasslands is limited within this 24-month deferral period pursuant to Sections 5.5.2.5 and 5.5.7 and requires a jump-start acquisition of up to six wetted acres of vernal pools within twelve months of issuance of the SJMSCP Permits.

VELB. Pursuant to SJMSCP Section 5.5.4, a 25-acre jump-start acquisition also is required to offset impacts to the Valley elderberry longhorn beetle. The first 10 acres of the jump-start shall be acquired within twelve months of issuance of the SJMSCP Permits and the remainder shall be acquired within three years of the issuance of SJMSCP Permits.

This will allow the accumulation of funds sufficient to acquire larger tracts of significant Preserve lands than could occur if acquisition funds had to be immediately expended. This also allows the JPA some flexibility to make Preserve acquisitions during periods when land prices are deflated and to delay land acquisitions when land prices are inflated.

1.1.6.3 Timing of Fee Collections/In-Lieu Land Dedications/Mitigation Bank Purchases

A description of the basis for the following is found in Section 5.3.2.3.
For so long as the 350-acre jump-start (Section 8.6) remains in place, the timing of compensation pursuant to the SJMSCP shall be as stated in Section 5.3.2.3 as follows:

A. **Collection of Fees/Purchase of Mitigation Banking Credits for Projects Less Than or Equal to 350 Acres in Size (projects equivalent in size or smaller than the jump-start):** Collection of fees or purchase of banking credits will occur prior to or at the time of issuance of Building Permits so long as Site Disturbance without compensation (i.e., grading or vegetation removal has occurred with or without permits, but Building Permits have not yet been issued) does not exceed 500 acres total at any time during the term of the SJMSCP for SJMSCP Permitted Activities undertaken by project proponents opting for coverage pursuant to the SJMSCP. When Site Disturbances without compensation pursuant to this provision reaches 500 acres total, then the JPA and Permittees shall require the fee collections or purchase of banking credits for projects less than or equal to 350 acres in size to occur pursuant to the same schedule as required for projects exceeding 350 acres as described in paragraph B.

B. **Collection of Fees/Purchase of Mitigation Banking Credits for Projects Exceeding 350 Acres:** Collection of fees for land acquisition or purchase of banking credits will occur either:

1. Prior to issuance of a Grading Permit (or prior to Ground Disturbance if no Grading Permit is required); or,

2. The Project Proponent may bond for payment of the applicable SJMSCP fees prior to the issuance of a Grading Permit (or prior to the commencement of Ground Disturbance if no Grading Permit is required). Bonds posted pursuant to this provision shall be released, to the extent possible, after full project buildout and after all appropriate fees have been paid with respect to each building permit associated with the project. Provisions for releasing portions of the bond as buildout progresses may be established on a case-by-case basis upon request of the Project Proponent.

C. **Collection of Fees/Purchase of Mitigation Banking Credits for Conversion of Vernal Pool Grasslands to Orchards and Vineyards** shall occur prior to ground disturbance.

D. **Land Dedications in Lieu of Fee Payments or in Lieu of Mitigation Banking Regardless of Project Size:** Shall occur prior to ground disturbing activities (i.e., prior to the issuance of a Grading or Building Permit, whichever occurs first) unless an extension is requested, in writing to the JPA, by the Project Proponent and granted to a date certain by the TAC, with the concurrence of the Permitting Agencies' TAC representative, based upon the following findings:

1) The time extension will not jeopardize the proper functioning of SJMSCP, and

2) The time extension will not adversely affect any SJMSCP Covered Species.

The TAC, with the concurrence of the Permitting Agencies' TAC representative, may impose conditions on the time extension as necessary to provide assurances to the JPA that the Project Proponent shall provide compensation pursuant to the SJMSCP consistent with the requirements of the SJMSCP.

If the 350-acre jump-start ceases to exist, then the provisions of paragraph B shall apply for all SJMSCP Permitted Activities, regardless of size and regardless of the compensation method selected (i.e., fees, land dedications in-lieu of fee payments, or purchase of mitigation banking credits).

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1.1.6.4 Voluntary Plan (see Section 8.4)

The SJMSCP is a voluntary plan for both local jurisdictions (i.e., the cities and San Joaquin County) and for Project Proponents. This means that:

A. The cities, San Joaquin County and other potential Permittees will determine for themselves whether or not to become Plan Participants. The determination to participate or not participate in the Plan will be made through a public hearing at the San Joaquin County Board of Supervisors, for San Joaquin County, and, for the cities, through public hearings at the city councils of Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton and Tracy. It is noted that, should any of the preceding jurisdictions opt not to adopt the SJMSCP, then the biological analysis supporting the biological opinion and any subsequent decision documents shall require modification to reflect the actual SJMSCP participants prior to issuance of the SJMSCP Permits. For other potential Plan Participants, public hearings to consider adoption of the SJMSCP are not required, but may be held at the discretion of the individual agency.

B. Project Proponents in jurisdictions which do not opt for coverage under the SJMSCP will not have the opportunity to mitigate pursuant to the SJMSCP or to obtain ESA and CESA Incidental Take authority under the SJMSCP's associated permits.

C. Project Proponents who opt for SJMSCP coverage in jurisdictions which have opted for coverage under the SJMSCP, have the following options, unless their activities are otherwise exempted per Section 8.2.2.2 or 8.2.5, herein:

1. Pay the appropriate fee as indicated in Sections 7.4.1 and 7.4.1.3; or
2. Dedicate, as conservation easements or fee title, habitat lands (in-lieu dedications) as specified in Sections 5.3.2.1 and 5.3.2.2, herein; or
3. Purchase approved mitigation bank credits as specified in Section 5.3.2.4
4. Propose an alternative mitigation plan, consistent with the goals of the SJMSCP and equivalent in biological value to options 1-3, above, subject to approval by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC.

D. Project Proponents who opt against SJMSCP coverage in jurisdictions which have opted for SJMSCP coverage (i.e., non-participants in the SJMSCP) shall satisfy applicable ESA, CESA, NEPA, CEQA, and other applicable local, state and federal laws and regulations provisions through consultations with the Permitting Agencies and local planning agencies.

E. To ensure sufficient participation in the Plan as necessary to provide adequate Plan funding and to meet the requirements established in the SJMSCP conservation strategy, given the voluntary nature of the Plan, the following limitations to non-participation in the SJMSCP apply:

1. Non-participation by Project Proponents Converting Multi-Purpose Open Space lands while undertaking SJMSCP Permitted Activities shall not exceed 25% of the total acres of Multi-Purpose Open Space Lands Converted by Project Proponents undertaking SJMSCP Permitted Activities for the period commencing with the Effective Date of the SJMSCP Permits and ending December 31st of the current
year of SJMSCP implementation (i.e., if the SJMSCP has been operating for one year, the one-year average for non-participation of Project Proponents Converting Multi-Purpose Open Space Lands as of December 31st of the first year shall not exceed 25% of the total acres of Multi-Purpose Open Space Lands Converted in the past year by Project Proponents undertaking SJMSCP Permitted Activities—similarly, if the SJMSCP has been operating for five years, the five-year average for non-participation of Project Proponents Converting Multi-Purpose Open Space Lands for SJMSCP Permitted Activities as of December 31st of the fifth year shall not exceed 25% of the total acres of Multi-Purpose Open Space Lands Converted in the past five years). If the average non-participation of Project Proponents Converting Multi-Purpose Open Space lands exceeds 25% of the total acres of Multi-Purpose Open Space lands Converted since the commencement of the SJMSCP, as indicated in the SJMSCP Annual Report (Section 5.9.1.1), the JPA shall meet and confer with the Permitting Agencies to assess the impact of the non-participation on the scope and validity of the Take authorizations and to cooperatively develop a strategy intended to address any deficiencies and to maintain a level of conservation and Incidental Take authorization afforded by the permits until identified deficiencies can be remedied (TAC meetings attended by the Permitting Agencies' TAC representatives fulfill this meet and confer requirement so long as the Permitting Agency TAC representatives concur with the findings of the TAC). If the Parties cannot develop such a strategy, the Permitting Agencies can act pursuant to Section 16 of the Implementation Agreement (revocation/suspension/termination).

Mitigation undertaken pursuant to a Section 7, a habitat conservation plan other than the SJMSCP, or negotiated with the Permitting Agencies that is consistent with the SJMSCP (e.g., a private landowner negotiates mitigation and compensation directly with CDFG for a project site upon which biological surveys have been completed and a state-listed species is found), shall not be counted as part of the 25% non-participation acreage limit. In addition, unmapped SJMSCP Activities which are subject to a case-by-case review pursuant to Section 3.4 also shall not be counted as part of the 25% non-participation acreage limit. Multi-Purpose Open Space Conversions exempted from the SJMSCP pursuant to SJMSCP Section 8.2.2.2 or Section 8.2.5 also shall not be counted as part of the 25% non-participation acreage limit.

Funding shortfalls are not anticipated as a result of the provisions contained within the preceding paragraph. However, the JPA recognizes its responsibility to provide sufficient compensation pursuant to the SJMSCP for Open Space land Conversion activities which are undertaken pursuant to the SJMSCP and will use its authorities to correct identified deficiencies. If a potential funding shortfall is identified, the funding shortfall shall be addressed pursuant to the requirements established in Section 7.5.2.4 of the SJMSCP.

2. Non-participation by Project Proponents Converting Vernal Pool Grassland habitats within the SJMSCP Vernal Pool Zone (mapped as G3 vegetation on the SJMSCP Vegetation Maps) shall not exceed 25% of the total acres of Vernal Pool Grassland habitats (G3) Converted within the Vernal Pool Zone for the period commencing with the Effective Date of the SJMSCP Permits and ending December 31st of the
current year of SJMSCP implementation (i.e., if the SJMSCP has been operating for one year, the one-year average for non-participation of Project Proponents Converting Vernal Pool Grassland habitats within the Vernal Pool Zone as of December 31st of the 1st year shall not exceed 25% of the total acres of Vernal Pool Grassland habitats within the Vernal Pool Zone Converted in the past year -- similarly, if the SJMSCP has been operating for 5 years, the 5-year average for non-participation of Project Proponents Converting Vernal Pool Grassland habitats within the Vernal Pool Zone as of December 31st of the 5th year shall not exceed 25% of the total acres of Vernal Pool Grassland habitats within the Vernal Pool Zone Converted in the past 5 years). If the average non-participation of Project Proponents Converting Vernal Pool Grassland habitats within the Vernal Pool Zone exceeds 25% of the total acres of Vernal Pool Grassland habitats within the Vernal Pool Zone Converted since the commencement of the SJMSCP, as indicated in the SJMSCP Annual Report (Section 5.9.1.1), then the JPA shall meet and confer with the Permitting Agencies to assess the impact of the non-participation on the scope and validity of the Take authorizations and to cooperatively develop a strategy intended to address any deficiencies and to maintain a level of conservation and Incidental Take authorization afforded by the permits until identified deficiencies can be remedied (TAC meetings attended by the Permitting Agencies' TAC representatives fulfill this meet and confer requirement so long as the Permitting Agency TAC representatives concur with the findings of the TAC). If the Parties cannot develop such a strategy, the Permitting Agencies can act pursuant to Section 16 of the Implementation Agreement (revocation/suspension/termination). The JPA recognizes its responsibility to provide sufficient compensation pursuant to the SJMSCP for Open Space land Conversion activities which are undertaken pursuant to the SJMSCP and will use its authorities to correct identified deficiencies.

Unmapped SJMSCP Activities which are subject to a case-by-case review pursuant to Section 3.4 shall not be counted as part of this 25% non-participation acreage limit.

3. Project Proponents opting for non-participation for projects involving property located within the San Joaquin kit fox movement corridor identified in Appendix G (those lands located southwest of I-580 and designated as core or buffer areas) shall provide minimization and mitigation consistent with the goals of the SJMSCP and equivalent in biological value to the requirements established within the SJMSCP.

4. In the event of a funding shortfall resulting from a lack of SJMSCP participation due to the voluntary nature of the SJMSCP, as described in paragraphs 1-3, above, the funding shortfall shall be addressed pursuant to the requirements established in Section 7.5.2.4 of the SJMSCP.

5. All non-participation occurring pursuant to paragraphs 1-3, above, shall be reported in the SJMSCP Annual Report pursuant to Section 5.9.1.1.

The SJMSCP is not responsible for providing compensation to offset either plant, fish and wildlife or non-wildlife impacts associated with the Conversion of Open Spaces to non-Open Space uses for activities undertaken by those Project Proponents opting against SJMSCP coverage unless such non-participation will threaten the SJMSCP's ability to achieve conservation goals or to otherwise fully compensate for Open Space
land Conversions which are covered by the SJMSCP for Project Proponents opting for Plan participation as described above in E(1), E(2) and E(4).

1.1.7 APPLICABLE REGULATIONS (For details, see Appendix D; Chapter 4, Section 4.1)

The SJMSCP intends to provide comprehensive compensation for impacts to threatened, endangered, rare and unlisted SJMSCP Covered Species and other wildlife and compensation for some non-wildlife related impacts to recreation, agriculture, scenic values and other beneficial Open Space uses.

Comprehensive mitigation for impacts to plants, fish and wildlife means that Open Space goals adopted under the SJMSCP are intended to adequately compensate for impacts to plants, fish and wildlife for SJMSCP Permitted Activities pursuant to local, state and federal regulations.

At the state and federal levels, the SJMSCP is expected to provide adequate compensation for impacts to plants, fish and wildlife for SJMSCP pursuant to the California Endangered Species Act (CESA), the California Native Plant Protection Act, the Federal Endangered Species Act (ESA), Section 404 of the Federal Clean Water Act (CWA), Section 10 of the Rivers and Harbors Act of 1899\(^1\), and the Migratory Bird Treaty Act (MBTA) for ESA-listed SJMSCP Covered Bird Species also protected under this Act as these laws relate to the California Department of Fish and Game's (CDFG), United States Fish and Wildlife Service's (USFWS), and the U.S. Army Corps of Engineers' (USACE) responsibilities for Covered Species with respect to SJMSCP Permitted Activities located within the boundaries of San Joaquin County.

Adoption and implementation of the SJMSCP by local planning jurisdictions provides adequate compensation and minimization measures for impacts to plants, fish and wildlife for SJMSCP Permitted Activities as necessary to implement conservation and Open Space policies of local general plans, resolution, ordinances, and other regulations as they pertain to plants, fish and wildlife and as necessary to fulfill the obligations of local jurisdictions with respect to the analysis and mitigation of impacts to plants, fish and wildlife pursuant to the state and federal laws described above and pursuant to the California Environmental Quality Act (CEQA), the National Environmental Policy Act (NEPA), the Planning and Zoning Law, the State Subdivision Map Act, the Porter-Cologne Act, and the Cortese-Knox Act as these laws relate to the Permittees' responsibilities for Covered Species with respect to SJMSCP Permitted Activities located within the boundaries of San Joaquin County.

1.1.8 PERMITS, AUTHORIZATIONS, OPINIONS AND CONSULTATIONS (For details, see Appendix D; Chapter 4, Section 4.1; Chapter 10, Glossary)

To formalize the acceptance of the SJMSCP as comprehensive mitigation for impacts to threatened, endangered, rare and other unlisted SJMSCP Covered Species, the following authorizations shall be secured:

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\(^1\) A Clean Water Act regional general permit, or equivalent, from the U.S. Army Corps of Engineers will be pursued after the initial adoption of the SJMSCP. This permit is expected to cover, among other activities, agricultural activities which may trigger Section 404 of the Federal Clean Water Act and/or which are subject to the ESA—(for example, Conversion of vernal pool grasslands to orchards and vineyards). Until issuance of the CWA regional general permit or equivalent, acquisition of a Section 404 permit by Project Proponents shall continue to occur as required by existing regulations.
A. A CESA Section 2081(b) Incidental Take Permit to authorize Incidental Take of state-listed species including authorization of Take of state-listed species, and other unlisted species should they become listed, resulting from land use changes and other disturbances associated with SJMSCP Covered Activities, mitigation activities, management, monitoring and operation of the SJMSCP Preserve system including Neighboring Land Protections and for scientific purposes (e.g., trapping, handling, and marking of SJMSCP Covered Species). This Section 2081(b) Permit also will authorize Incidental Take of vernal pool and aquatic species which are covered by the SJMSCP for SJMSCP Covered Activities that do not require a permit under Section 404 of the Federal Clean Water Act, Section 10 of the Rivers and Harbors Act or other federal regulations that would trigger CESA. See also Section 5.6.1 for additional information related to the relationship of the SJMSCP and the SJMSCP's planned future regional general permit, or equivalent, expected to be secured from the U.S. Army Corps of Engineers pursuant to Section 404 of the Federal Clean Water Act;

B. An ESA Section 10(a)(1)(B) Permit to authorize Incidental Take of federally-listed species, and other unlisted species should they become listed, including authorization of Take of federally-listed species resulting from impacts of land use changes and other disturbances associated with SJMSCP Covered Activities, mitigation activities, management, monitoring and operation of the SJMSCP Preserve system including Neighboring Land Protections and for scientific purposes (e.g., trapping, handling, and marking of SJMSCP Covered Species). This Section 10(a)(1)(B) Permit also will authorize Incidental Take of vernal pool and aquatic species which are covered by the SJMSCP for SJMSCP Covered Activities that do not require a permit under Section 404 of the Federal Clean Water Act, Section 10 of the Rivers and Harbors Act or other federal regulations that would trigger an ESA consultation. See also Section 5.6.1 for additional information related to the relationship of the SJMSCP and the SJMSCP's planned future regional general permit, or equivalent, expected to be secured from the U.S. Army Corps of Engineers pursuant to Section 404 of the Federal Clean Water Act;

C. The ESA Section 10(a)(1)(B) Permit (see B, above) will allow for Take, as defined by the MBTA pursuant to 50 C.F.R. 21.27, of those birds covered by the SJMSCP that are protected by the MBTA and federally-listed under the ESA, except for bald and golden eagles, pursuant to the Migratory Bird Treaty Act of 1918, as amended (16 U.S. C. Sections 703-712); and

D. Coverage pursuant to the California Environmental Quality Act for impacts to SJMSCP Covered Species occurring as a result of SJMSCP Covered Activities.

The SJMSCP Implementation Agreement establishes the necessary requirements to commence Incidental Take for local city and County jurisdictions, special districts, and third parities. Implementing ordinances and/or resolutions adopted in conjunction with the requirements of the Implementation Agreement by local jurisdictions and special districts will formalize their acceptance of the SJMSCP as adequate compensation for and minimization of impacts to plants, fish and wildlife, and as partial mitigation for non-wildlife related impacts to recreation, agricultural lands, scenic values, and other beneficial Open Space uses. Further, these ordinances and/or resolutions adopted by local jurisdictions and special districts shall include findings that an agreement for payment of environmental review fees to the California Department of Fish and Game pursuant to Assembly Bill 3158 is not required for projects undertaken in compliance with the SJMSCP.

After the requirements of the Implementation Agreement relative to activation of the SJMSCP Permits are
fulfilled as necessary to authorize the commencement of Incidental Take pursuant to the SJMSCP, the SJMSCP Joint Powers Authority intends to obtain the following permits and/or authorizations:

A. A programmatic streambed alteration agreement (either as Plan amendment or as a separate, but supplemental, permit to the SJMSCP) with the California Department of Fish and Game pursuant to Section 1600 et seq. of the California Fish and Game Code to provide a blanket agreement for SJMSCP Permitted Activities affecting streams. The California Department of Fish and Game indicates that the mitigation contained within the SJMSCP can be used as a basis for establishing mitigation for plant, fish and wildlife species and their habitats pursuant to the proposed programmatic streambed alteration agreement (see Appendix V);

B. An ESA Section 10 (a)(1)(B) Permit to authorize Incidental Take of anadromous fish species including the Winter-run Chinook salmon (*Oncorhynchus tshawytshca*), Fall-run Chinook salmon (*Oncorhynchus tshawytshca*), Spring-run Chinook salmon (*Oncorhynchus tshawytshca*) and steelhead trout (*Oncorhynchus mykiss gairdneri*) from the National Marine Fisheries Services (NMFS);

C. A program to encourage individuals to undertake activities which are not otherwise subject to local, state or federal plant, fish and wildlife regulations, to provide plant, fish and wildlife enhancements on their properties without fear of prosecution or limitations on pre-existing legal activities should those plant, fish and wildlife enhancements attract SJMSCP Covered Species to their property. This program is outlined in Section 5.4. Adoption of this program will be pursued by the JPA after state and federal agencies have adopted guidelines and/or rules in conjunction with:

1. California's newly adopted legislation for addressing Incidental Take associated with routine and ongoing activities (i.e., Section 2086 et seq. of the California Fish and Game Code); and

2. the federal safe harbor program (note: the Final Rule for this program has been published).

D. A general permit(s) pursuant to Section 404(e) of the Federal Clean Water Act [33 CFR 322.2(f) and 323.2(h)], or an alternative equivalent authorization(s), issued by the U.S. Army Corps of Engineers in consultation with the U.S. Fish and Wildlife Service covering Waters of the United States for SJMSCP Permitted Activities affecting up to 707 acres of vernal pool wetted surface area and equivalent to 5,894 acres of vernal pool grasslands, 1,233 acres of Riparian habitats and 4,790 acres of Water Features;

E. A water quality certification or waiver from the California State Water Resources Control Board or Central Valley Regional Water Quality Control Board pursuant to Section 401 of the Federal Clean Water Act after issuance of the Section 404(e) general permit(s), or equivalent, for the activities covered in the Section 404(e) general permit(s), or equivalent, to be issued after initial adoption of the SJMSCP; and

F. Within three years of the Effective Date of the SJMSCP, the JPA shall secure a Federal Clean Water Act Section 404 regional general permit, or equivalent, from the U.S. Army Corps of Engineers or the JPA shall adopt a strategy to ensure that impacts to wetlands resulting from SJMSCP Covered Activities shall include compensation in the form of...
interconnected Preserves, consistent with the requirements of the SJMSCP rather than resulting in small, scattered Preserves as now occurs. Approval of an alternative strategy in lieu of a Section 404 Permit, or its equivalent from the U.S. Army Corps of Engineers, shall require review of the TAC, with the concurrence of the Permitting Agencies.

1.1.9 PERMITTING AGENCIES (For details, see Section 8.1.1)

The Permitting Agencies are the California Department of Fish and Game and the U.S. Fish and Wildlife Service. The U.S. Army Corps of Engineers may become a Permitting Agency after issuance of a Section 404 Regional General Permit, or equivalent, in association with the SJMSCP under a future action.

1.1.10 PERMITTEES/PLAN PARTICIPANTS (For details, see Section 8.1.2)

The anticipated SJMSCP Permittees (Permit Holders) are: the cities of Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton, and Tracy; San Joaquin County [on behalf of San Joaquin County and the San Joaquin County Superintendent of Schools (for new schools and school expansions)]; Stockton East Water District; East Bay Municipal Utility District; California Department of Transportation; San Joaquin Council of Governments; San Joaquin Area Flood Control Agency; and the South San Joaquin Irrigation District. The preceding are, collectively, the Plan Participants. Participation by individual jurisdictions is subject to local approval by each agency. Local agencies shall maintain local implementation responsibilities including collection of fees, maintenance of implementing ordinances/resolutions and coordinating with the JPA for annual reporting requirements.

1.1.11 IMPLEMENTING ENTITY - SJMSCP JOINT POWERS AUTHORITY (JPA) AND TECHNICAL ADVISORY COMMITTEE (TAC) (For details, see Sections 8.1.3 and 8.1.4)

The SJMSCP will be administered on behalf of the Plan Participants by a Joint Powers Authority that has adequate authority to carry out the Plan. The JPA shall be formed within 120 calendar days of the issuance of SJMSCP Permits. The San Joaquin Council of Governments (COG) shall contact each participating jurisdiction which shall name an elected official to the JPA. The COG shall organize the first meeting of the JPA representatives to formally establish the JPA and adopt governing rules for that organization consistent with the California Government Code as it applies to JPAs. The JPA shall consist of one representative from each of the cities that adopts the Plan, except that two representatives shall serve from the City of Stockton, and two representatives from the San Joaquin County Board of Supervisors, if the County adopts the Plan. Representatives on the JPA shall be elected officials from the participating local jurisdictions. Permitting Agency and Plan Participants who are not elected officials may serve in an advisory capacity, at their agency's discretion, as follows:

A. Permitting Agency representatives shall serve in an ex-officio capacity at the discretion of the individual Permitting Agencies.

B. Representatives of non-city and non-County Permittee agencies or organizations shall serve

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2 Per Webster’s new Encyclopedic Dictionary: “because of an office"
as ad hoc\(^3\) members at the discretion of their individual agencies or organizations.

The JPA shall create and consult with citizen advisory groups as needed and appropriate. The JPA shall create and consult with a Technical Advisory Committee (TAC) as described in Section 8.1.4.

1.1.12 **MONITORING AND ENFORCEMENT** (For details, see Chapter 5, Sections 5.9.1 to 5.9.4)


In summary, the Annual Report process requires the submittal of an Annual Report to the Permitting Agencies identifying acres of Open Space Converted, Preserve land to be acquired to compensate, Preserve land that has been acquired to compensate and, when determinable, information on the numbers of individual SJMSCP Covered Species Taken during SJMSCP Permitted Activities.

The SJMSCP Biological Monitoring Plan establishes recommended procedures for:

A. Monitoring losses to Covered Species and their habitats and identify Incidental Take Minimization requirements and opportunities on project sites;

B. Monitoring habitat quality changes resulting from management and enhancement activities on Preserve lands through time;

C. Assessing the status of the Covered Species on Preserve lands through periodic general multi-species inventories and focused species status monitoring;

D. Periodically assessing the status and development of the Preserve system; and,

E. Identifying places for improving the Plan which may be addressed through implementation of the Adaptive Management Plan.

The SJMSCP Compliance Monitoring Program emphasizes a process for monitoring compliance with required procedures, ensuring the implementation of Incidental Take Minimization Measures, maintaining the *SJMSCP Geographic Information System (GIS) Database* and *SJMSCP Vegetation Maps*, keeping appraised of and encouraging new information related to SJMSCP Covered Species, and monitoring compliance with conservation easements.

The Adaptive Management Plan provides methods for refining enhancement and management practices, revising Incidental Take Minimization Measures, implementing experimental techniques, revising the Biological Monitoring Plan, reintroducing SJMSCP Covered Species, establishing new Preserve design criteria, response during emergencies, refining compensation requirements for the Valley elderberry longhorn beetle and revising the SJMSCP, to the extent feasible, in response to recovery plans and changed Programmatic Opinions.

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\(^3\) Per Webster’s New Encyclopedic Dictionary: "for the particular purpose or case at hand."

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1.1.13 IMPLEMENTATION AGREEMENT (For details, see Appendix J)

The Implementation Agreement is the formal agreement between the Permitting Agencies and the Permittees to carry out the details of the SJMSCP. In addition to incorporating the SJMSCP document, the agreement describes how the SJMSCP will deal with Changed and Unforeseen Circumstances and the listing of new species; the roles and responsibilities of the Permittees; the roles and responsibilities of the Permitting Agencies; and remedies for non-performance under the SJMSCP, including termination of the Agreement by either the Permittee or Permitting Agencies. The Implementation Agreement is hereby incorporated by reference and attached as Appendix J.

1.1.14 ENVIRONMENTAL EFFECTS OF THE SJMSCP ON SJMSCP COVERED SPECIES (For details, see Chapter 6)

Chapter 6 provides an assessment of the biological effects of the SJMSCP on SJMSCP Covered Species.

In addition, a draft and final joint Environmental Impact Report (EIR)/Environmental Impact Statement (EIS) have been prepared for this project to assess the environmental impacts of implementation of the SJMSCP (including assessments of the SJMSCP's effects on agriculture and County economics). The environmental document will be finalized prior to, or concurrently with, the issuance of the SJMSCP Permits. Copies of the EIR/EIS (draft and final) may be acquired from the San Joaquin Council of Governments located at 6 South El Dorado St., Suite 400, Stockton, California 95202, or by calling (209) 468-3913.

A Biological Opinion is being prepared by the U.S. Fish and Wildlife Service. Copies of that document may be acquired, upon its completion, at 2800 Cottage Way, Sacramento, CA 95825, or by calling (916) 414-6600.

1.1.15 PLAN COSTS, FUNDING, COST-BENEFIT ANALYSIS (For details, see Chapter 7, all)

The following summarizes the SJMSCP's anticipated costs, establishment of the fair share distribution of Plan costs, the funding strategy for the SJMSCP and the cost-benefit analysis for the Plan.

1.1.15.1 Plan Costs (For details, see Chapter 7, Section 7.2)

Anticipated costs to acquire, enhance, and manage 100,841 acres of Preserve lands and to administer the Plan are found in Table 1-4.
TABLE 1-4

TOTAL ESTIMATED PLAN COSTS PER ACRE/a/
ALL PRESERVE TYPES
100,841 Acres of Preserves

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<tr>
<th>Component</th>
<th>Cost Per Preserve Acre/b/</th>
<th>Total Cost/b/</th>
<th>Percentage of Total Cost</th>
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<td>$170,624,060</td>
<td>65%</td>
</tr>
<tr>
<td>Enhancement</td>
<td>$368</td>
<td>$37,137,400</td>
<td>14%</td>
</tr>
<tr>
<td>Land Management</td>
<td>$433</td>
<td>$43,654,400</td>
<td>17%</td>
</tr>
<tr>
<td>Administration</td>
<td>$100</td>
<td>$10,084,200</td>
<td>4%</td>
</tr>
<tr>
<td><strong>TOTAL COST</strong></td>
<td><strong>$2,593</strong></td>
<td><strong>$261,500,060</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

/a/ Totals are from Table 7.2.5-2
/b/ Rounded to nearest dollar.
/c/ Including transaction costs.

1.1.15.2 Fair Share Allocation of Costs (For details, see Chapter 7, Section 7.3)

The SJMSCP planners resolved that the current threats to the long-term survival of SJMSCP Covered Species and the current need to preserve agricultural lands, scenic and recreational resources, and other beneficial Open Space uses in the County cannot be blamed solely on new development projected to occur between 2001 and 2051. Past, unmitigated impacts to SJMSCP Covered Species prior to 2001 (e.g., agriculture, urban and rural development, public utility projects, flood control projects, pesticide use in foreign countries (impacting Swainson's hawk populations), and similar activities occurring since at least 1848) have contributed to the current declining status of SJMSCP Covered Species, and other beneficial Open Space uses in San Joaquin County and throughout California. Because of this, SJMSCP planners decided that SJMSCP costs shall be shared between those undertaking new development projects pursuant to the SJMSCP and other (non-development) funding sources.

To determine how the percentage of the total SJMSCP costs would be allocated, the SJMSCP planners turned to history. The SJMSCP planners resolved that an allocation of costs based upon the relationship of past Open Space Conversions (1849÷- 2001) to future Open Space Conversions (2001-2051) would be the most straightforward and defensible means of determining a fair share allocation of the costs of mitigation for future Open Space Conversions.

Pursuant to this approach, new costs are not added to the SJMSCP, additional fees will not be collected to pay
for past impacts to Open Spaces, and, while implementation of the SJMSCP may offset some past impacts to Open Spaces, it is not the intent of this approach to mitigate past impacts to Open Spaces.\textsuperscript{4} This cost allocation approach is used by the SJMSCP only to equitably distribute the costs of mitigating for Open Space Conversions occurring between 2001 and 2051 in a manner which is both legally defensible and politically acceptable.

The result, as illustrated in the following table, is the allocation of 62%± of total Plan costs to those undertaking projects pursuant to the SJMSCP with other (non-development) funding sources providing 38%± of the total Plan costs.

\begin{table}[h]
\centering
\begin{tabular}{|l|c|c|}
\hline
\textbf{LAND USE CATEGORY} & \textbf{ACRES} & \textbf{PERCENT OF TOTAL} \\
\hline
\textbf{PAST CONVERSION} & & \\
Existing Urban Development & 59,299 & 36\% \\
Existing Barren & 3,585 & 2\% \\
\textit{Subtotal Past Conversion} & 62,884 & 38\% \\
\hline
\textbf{FUTURE CONVERSION} & & \\
Future Urban Development & 75,608 & 45\% \\
Aggregate Mining & 10,770 & 6\% \\
Public Agency Activities & 3,655 & 2\% \\
Other Permitted Activities & 8,387 & 5\% \\
Anticipated Projects per Section 8.2.1 & 4,988 & 3\% \\
\textit{Subtotal Future Conversion} & 103,408/\textit{a}/ & 62\% \\
\hline
\textbf{TOTAL CONVERSION} & 166,292 & 100\% \\
\hline
\end{tabular}
\caption{Past and Future Open Space Land Converted in San Joaquin County by SJMSCP Permitted Activities Through Buildout}
\end{table}

/\textit{a}/ This figure is different from that given in Table 1-2 because the purpose of this table is to establish the cost allocation for that part of Open Space land Conversion in San Joaquin County to which both past and future activities have substantially contributed. Vernal pool Conversions (5,894 acres) are not included in the table because, for reasons explained in the following paragraph, they are attributed entirely to new development.

The allocation of costs based on the preceding fair share allocation are determined by first removing the costs attributed to vernal pools. The costs for vernal pool habitat is removed because, per the fair share allocation table, historically, most land Conversion in the past occurred on the valley floor where few vernal pools were

\textsuperscript{4} The role of achieving recovery for a particular species (often by addressing both past and future impacts) is normally assigned to Recovery Plans established, and frequently implemented, by the Permitting Agencies.
present (most vernal pools are located in the eastern foothills of the County while other wetlands, such as marshlands, were located on the valley floor). Therefore, all future vernal pool Conversion costs are attributed entirely to new development. The fair share distribution of costs is then applied to the remaining net costs of the SJMSCP as indicated in the following table:

### TABLE 1-6
**Allocation of Total SJMSCP Cost Based on Past and Future Land Conversion**

<table>
<thead>
<tr>
<th>COST ALLOCATION</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total SJMSCP Cost (see Table 7.2.5-2)</td>
<td>$261,497,465</td>
</tr>
<tr>
<td>Minus Cost for Acquiring, Enhancing, Managing, and Administering 600 Acres</td>
<td>-$1,199,500</td>
</tr>
<tr>
<td>Neighboring Land Protection Preserves</td>
<td></td>
</tr>
<tr>
<td>Minus Total Cost for Vernal Pool Habitat and Open Space Acquisition,</td>
<td>-$48,121,110</td>
</tr>
<tr>
<td>Enhancement, Creation, Management, and Administration Excluding Neighboring</td>
<td></td>
</tr>
<tr>
<td>Land Protection Preserves (see Table 7.2.5-2)</td>
<td></td>
</tr>
<tr>
<td>Net SJMSCP Cost</td>
<td>$212,176,855/a/</td>
</tr>
<tr>
<td>Costs to be Paid by Other Funding Sources (40% of net cost)</td>
<td>$84,870,742/b/</td>
</tr>
<tr>
<td>Costs to be Paid by New Development Funding Sources (60% of net cost)</td>
<td>$127,306,113/c/</td>
</tr>
</tbody>
</table>

/a/ Rounds to 212,000,000  
/b/ Rounds to 84,900,000  
/c/ Rounds to 127,300,000

1.15.3 Plan Fees (For details, see Section 7.4.1)

As indicated in the previous section, the allocation of costs to those undertaking new development projects pursuant to the SJMSCP for Conversion of Open Spaces between 2001 and 2051 is approximately 60% of the total Plan cost. Those undertaking new development projects and opting for coverage pursuant to the SJMSCP shall contribute to the Plan costs primarily through the payment of development fees. The 60% Plan cost allocated to those undertaking new development pursuant to the SJMSCP translates into the following proposed fees to be paid on a per acre basis for SJMSCP Permitted Activities undertaken on the habitat type indicated:

November 14, 2000
### TABLE 1-7
PROPOSED FEES

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>FEE PER ACRE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vernal Pool Conversion Wetted Surface Area/a/</td>
<td>$30,000</td>
</tr>
<tr>
<td></td>
<td>Upland grassland/a/</td>
</tr>
<tr>
<td>Agricultural Habitat Lands and Non-Vernal Pool Natural Lands Conversion/b/</td>
<td>$1,500</td>
</tr>
<tr>
<td>Multi-Purpose Open Space Conversion</td>
<td>$750</td>
</tr>
</tbody>
</table>

/a/ Average cost/acre is $8,000 based on 12% average wetted surface area per acre assumption.

/b/ These fees apply only to SJMSCP Permitted Activities. Agricultural activities are not covered by the SJMSCP (except that conversion of wetlands as a result of agricultural activities requiring a Section 404 permit pursuant to the Federal Clean Water Act and/or subject to the ESA may use the SJMSCP to compensate for impacts to vernal pool species). Therefore, change of agricultural use of Agricultural Habitat Lands, Natural Lands, Multi-Purpose Open Space Lands or any lands by agricultural activities, except as noted above, triggers no actions or requirements related to the SJMSCP. Changes of agricultural uses of Agricultural Habitat Lands, Natural Lands, Multi-Purpose Open Space Lands or any lands by agricultural activities remain subject to the same legal requirements, including the need to comply with Section 9 of the Federal Endangered Species Act and/or CESA even when permits are not required pursuant to the Federal Clean Water Act, as were in effect before adoption of the SJMSCP. Individuals are encouraged to consult with local, state and federal agencies to determine applicable regulations.

A detailed description of the process used to derive the fees indicated in the preceding table is found in Chapter 7, Section 7.4.1. These fees will be adjusted to 2001 dollars pursuant to the California Construction Cost Index (CCCI) and Section 7.5.2.2 six months after the SJMSCP's Effective Date. Thereafter, fees will be adjusted annually as provided in Section 7.5.2.2.

In addition to these fees, a special fee category for maintenance activities shall apply when removal of elderberries occurs for maintenance. The fee shall be paid to a VELB mitigation bank approved by the Permitting Agencies. The current fee, as established in the VELB Conservation Fund Account managed by the Center for Natural Lands Management, and approved by the USFWS, is $1,800 per VELB Unit (one unit=one stem over 1" in diameter at ground level which is removed). See SJMSCP Section 7.4.1.4 for additional details.

1.1.15.4 Proposed Funding Strategy for the SJMSCP (For details, see Chapter 7, Section 7.4)

The SJMSCP proposes multiple funding sources, including the development fees described in the preceding section. The identified funding sources represent estimates only and do not supersede or limit the Permittees' obligation to create Preserve lands or implement other measures required under the SJMSCP. The overall SJMSCP Funding Plan, based on the fair share allocation of costs described in Section 1.1.15.2, is summarized in the following table:
<table>
<thead>
<tr>
<th>SJMSCP FUNDING SOURCE</th>
<th>ACRES OF CONVERSION 2001-2051</th>
<th>IMPACT FEE PER ACRE</th>
<th>TOTAL REVENUE</th>
<th>PERCENT OF TOTAL FUNDING</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEVELOPMENT FEES INCLUDING FEES PAID AS A RESULT OF AGRICULTURAL ACTIVITIES TRIGGERING CWA SECTION 404, AND CONVERSION OF SUBMERGED AQUATIC HABITAT (FUTURE URBAN AND RURAL DEVELOPMENT CONVERSION PLUS CONVERSIONS FOR AGRICULTURAL ACTIVITIES TRIGGERING CWA 404) /a/</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vernal Pool Habitat Mitigation Fund/a, b/ - Wetted Surface Area</td>
<td>707</td>
<td>$30,000</td>
<td>$21,210,000</td>
<td>8%</td>
</tr>
<tr>
<td>Upland Grasslands</td>
<td>5187</td>
<td>$5,000</td>
<td>$25,935,000</td>
<td>10%</td>
</tr>
<tr>
<td>Agricultural Habitat Lands, Submerged Aquatic Habitat and Non-Vernal Pool Natural Lands Mitigation Fund</td>
<td>65,943</td>
<td>$1,500</td>
<td>$98,914,500</td>
<td>38%</td>
</tr>
<tr>
<td>Multi-Purpose Open Space Mitigation Fund</td>
<td>37,465</td>
<td>$750</td>
<td>$28,098,750</td>
<td>11%</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>109,302</td>
<td><strong>$174,158,250</strong></td>
<td></td>
<td>67%</td>
</tr>
<tr>
<td>OTHER FUNDING SOURCES (PAST CONVERSION AND NEIGHBORING LAND PROTECTION PRESERVES)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other State and Federal Sources</td>
<td></td>
<td></td>
<td><strong>$42,267,969</strong></td>
<td>16%</td>
</tr>
<tr>
<td>Revolving Fund/Re-sales/c/</td>
<td></td>
<td></td>
<td><strong>$26,483,131</strong></td>
<td>10%</td>
</tr>
<tr>
<td>Conservation Bank Revenue /d/</td>
<td></td>
<td></td>
<td><strong>$5,261,613</strong></td>
<td>2%</td>
</tr>
<tr>
<td>Lease Revenue &amp; Other/e/</td>
<td></td>
<td></td>
<td><strong>$13,329,097</strong></td>
<td>5%</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td></td>
<td></td>
<td><strong>$87,341,810</strong></td>
<td>33%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td><strong>$261,500,060</strong></td>
<td>100%</td>
</tr>
</tbody>
</table>
Wetted surface areas of vernal pools are $30,000/acre, while upland grasslands are $5,000/acre. This averages $8,000 for vernal pool grasslands based on an assumption of an average 12% wetted surface area/acre for vernal pool grasslands.

The fair share cost allocation in Section 7.3 establishes that new development shall pay approximately 62% of the SJMSCP costs (rounded to 60%). All development fees for the SJMSCP were calculated based upon a 60% share for new development. New development was defined for the purposes of the fair share allocation as urban and rural new development (agricultural activities triggering CWA Section 404 and/or subject to the ESA were not included in the fair share allocation analysis). Agricultural activities were not originally considered for SJMSCP coverage. However, Conversion of 5,000 acres of vernal pool grasslands, primarily for agricultural activities (e.g., Conversion of vernal pool grasslands to orchards and vineyards) which trigger Section 404 of the Federal Clean Water Act and/or are subject to the ESA, were added to the SJMSCP long after all fee calculations for urban and rural new development were finalized. The addition of 5,000 acres of vernal pool grasslands did not raise the fees for the SJMSCP for new urban and rural development, because the Vernal Pool Habitat Mitigation Fund fees are not based on the fair share allocation formula but rather are based only on the total costs of preserving and creating vernal pool habitat (see Section 7.3 for discussion of why vernal pool Conversions were excluded from the fair share allocation analysis). Urban and rural new development continues to pay a 60% share of the total SJMSCP costs (approximately 13% of the Vernal Pool Habitat Mitigation Fund plus 47% divided between the Multi-Purpose Open Space Mitigation Fund and the Agricultural Habitat Lands/Non-Vernal Pool Natural Lands Mitigation Fund). Agricultural activities which trigger CWA Section 404 and/or subject to the ESA contribute (by payment of fees) an additional (and separate from the fair share allocation) 5% to the 60% fair share paid by urban and rural new development.

Intended to be a revolving fund. Under this category, lands are purchased in fee title, conservation easement are placed on the land and land is re-sold with easements. Proceeds are used to purchase additional lands.

Funded by sale of additional vernal pool mitigation credits to offset impacts to vernal pool habitat from activities not covered by the SJMSCP.

Assumes $50 per acre per year net lease revenue on 10 percent of agricultural Preserve acres and some net return on re-sales of Preserves for agricultural use. Remainder of net return on re-sales is included under /c/. "Other" potential sources of funding include private fund-raising, hunting revenues, license plate revenues (if pursued), land dedications (charitable contributions) and investments (e.g., purchase of non-Preserve lands for future re-sale and profit).
1.1.15.5 Funding Assurances  (For details, see Section 7.5)

The SJMSCP provides assurances that adequate funding will be maintained to carry out the requirements of the SJMSCP. These assurances include provisions for addressing partial participation in the SJMSCP, monitoring of Plan funding, providing annual index adjustments to fees, a definition of a funding shortfall, a procedure for assessing the impacts of a funding shortfall and a process for providing sufficient funding in the event of a funding shortfall.

1.1.15.6 Cost-Benefit Analysis  (For details, see Chapter 7, Section 7.6)

Hausrath Economics Group quantified the benefits of the SJMSCP in terms of cost-savings to local taxpayers, local governments, to state and federal agencies, to Project Proponents and to other interests. The analysis found that, over the 50-year life of the SJMSCP, more than 318 million dollars could be saved. These cost-savings will be realized primarily through the elimination of biological surveys, staff/development costs, consulting costs and legal costs. The following is a summary of the highlights of the Cost-Benefit analysis conducted by Hausrath Economics Group for the SJMSCP. These quantified cost-benefits do not include the non-monetary benefits which also will result from the Plan (e.g., quality of life, avoiding new listings of species, neighboring land protections, etc.).

<table>
<thead>
<tr>
<th>INTERESTED PARTIES</th>
<th>QUANTIFIED COST SAVINGS PROJECTIONS (ANNUALLY)</th>
<th>QUANTIFIED COST SAVINGS PROJECTIONS (50-YEAR PLAN)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residents, Taxpayers of San Joaquin County/a/</td>
<td>$248,150</td>
<td>$12,407,500</td>
</tr>
<tr>
<td>Local Governments</td>
<td>$222,300</td>
<td>$11,115,000</td>
</tr>
<tr>
<td>Permitting Agencies</td>
<td>$278,550</td>
<td>$13,927,500</td>
</tr>
<tr>
<td>Project Proponents/b/</td>
<td>$5,790,000</td>
<td>$289,500,000</td>
</tr>
<tr>
<td>Legal: Conservation, Project Proponents and Governmental Agency interests/d/</td>
<td>$81,000</td>
<td>$4,050,000</td>
</tr>
<tr>
<td><strong>TOTAL COST SAVINGS UNDER THE SJMSCP/e/</strong></td>
<td><strong>$6,371,850</strong></td>
<td><strong>$318,592,500</strong></td>
</tr>
</tbody>
</table>

/a/ These costs savings are included in the $5,790,000 annual savings contained within the “Project Proponent” category. These costs are those saved by public agencies when those agencies undertake public projects. These cost savings are counted only once in the total Plan savings of $6,371,850 annually.

/b/ Savings are found primarily through elimination of biological surveys by Project Proponents, staff/development costs, consulting costs and legal costs. Please refer to the detailed analysis for an accounting of subcategories with increased, decreased or unchanged costs which result in this total savings found in Appendix Q, the SJMSCP Economic Analysis.
This cost savings reflects the savings after subtracting administration costs for the SJMSCP.

These cost savings could range as high as $200,000 per year. The total indicates an anticipated average.

In addition to these costs savings:

**MONIES GENERATED FOR THE PURCHASE OF EASEMENTS AND FEE TITLE TO BE PAID TO LANDOWNERS.** The Plan would generate approximately $160,000,000 for easement payments and purchase of fee title from landowners for Preserve lands.

1.1.16 **CONSISTENCY WITH LOCAL GENERAL PLANS** (Appendix E)

The SJMSCP will assist in the implementation of the resources management and Open Space management goals and policies of local general plans. For a listing of all goals, policies and programs which will be either fully or partially implemented by the SJMSCP, by jurisdiction, see Appendix E.

1.2 **BACKGROUND AND PLANNING PROCESS**

The catalyst for the SJMSCP originated with conflicts between proposed development and habitat lands for the Swainson's hawk, listed as threatened under the California Endangered Species Act (CESA), and the San Joaquin kit fox, listed as endangered pursuant to the Federal Endangered Species Act (ESA).

On January 2, 1990, the City of Stockton adopted a general plan (Michael Paoli and Associates 1989) that required the preparation of conservation plans to provide a mechanism to preserve and mitigate impacts on sensitive species within the planning area based on a concept of "no net loss" of habitat. Because no mechanism was in place to effectively mitigate impacts to Swainson's hawks, and because of the rapid pace of development in Stockton, the city recognized a need to implement a mitigation mechanism that could be applied easily to all development projects within the planning area. The development of a draft habitat conservation plan for the hawk resulted in December, 1990.

On the heels of this endeavor, came the County's effort to address clashes between new developments proposed in the southwestern portion of the County and habitat for the San Joaquin kit fox. This resulted in a June, 1993, draft habitat conservation plan for the San Joaquin kit fox.

In the midst of these efforts, business and government leaders joined together to address the critical issues facing San Joaquin County in VISION 2000.

Through each of these efforts, it became obvious that the fragmented approach currently being used to mitigate impacts to threatened and endangered species and their habitats on a case-by-case basis was not only biologically unreliable and did not meet long-term species goals, but this approach was not an effective approach to planning new development. In late 1993, the San Joaquin Council of Governments was approached to oversee the preparation of a regional plan to address the management of biological resources in San Joaquin County.

In 1994, the Council of Governments established a steering committee to guide the planning process. The steering committee was divided into a policy committee, the Habitat Policy Advisory Committee (HPAC), and a technical committee, the Habitat Staff Working Group (HSWG). These committees were composed of representatives from San Joaquin County; Caltrans; the U.S. Army Corps of Engineers; the California Department of Fish and Game; the U.S. Fish and Wildlife Service; agriculture; conservation; the Building
Industry Association of the Delta; the Business Council; the Delta Protection Commission; the Delta Habitat Conservancy; the Central Valley Rock, Sand and Gravel Association; and representatives from the cities of Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton and Tracy.

Other interested persons regularly attending the twice-monthly public steering committee meetings included representatives from the San Joaquin Farm Bureau, Senator Patrick Johnston's office, Assembly member Mike Machado's office, Congressman Richard Pombo's office, the Audubon Society, the San Joaquin County Mosquito and Vector Control District, and others.

A complete list of steering committee members is found prefacing the SJMSCP and interested parties contributing to the Plan are listed in Appendix INT-1.

During the early phases of the planning process, it was recognized that management of Open Space lands for species also could provide recreational benefits, preserve scenic values, and assist in preserving agricultural lands and Open Space lands for other beneficial uses. As stated in the October, 1994, Memorandum of Understanding adopted for the SJMSCP, a primary objective of the SJMSCP planning process is to "Provide a basis for a County-wide multiple-use Open Space plan which contributes to the quality of life of the residents of San Joaquin County."

Pursuant to this guiding purpose and over the nearly seven-year planning process, two technical documents, in addition to this SJMSCP, were produced:


During the three-year planning process, a public and agency education and participation program to solicit public and agency input included:

A. A quarterly newsletter.

B. A slide program presented upon request to local and state, public and private groups and individuals.

C. A series of three public workshops held in June, 1995, to discuss the public's goals for the SJMSCP.

D. Twice-monthly meetings of the Steering Committees open to the public.

E. Update presentations to each of the seven city councils and the County Board of Supervisors.

F. Public hearings held on February 6, 1997, and March 5, 1997, to solicit input on the content of the draft Environmental Impact Report and Environmental Impact Statement for the SJMSCP.

G. A final series of hearings will be held before each of the seven city councils and the County Board of Supervisors with at least one additional public meeting to be held to consider approval of the final SJMSCP and its accompanying CEQA/NEPA document.

November 14, 2000
1.3 OBJECTIVES

On October 10, 1994, the San Joaquin Council of Governments, Caltrans, the U.S. Fish and Wildlife Service, the California Department of Fish and Game and the cities of Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton, and Tracy signed a memorandum of understanding which established the objectives of the Plan.

The objectives of the SJMSCP, as established in the Plan's MOU and resulting from the process described above, are to:

A. Establish a program for managing biological resources which addresses the economic, agricultural, conservation and public interests unique to San Joaquin County while complying with local, state and federal conservation laws;

B. Provide consistent and predictable treatment of development proposals throughout the County to reduce costs and uncertainty and ensure a healthy economic environment for citizens and industries;

C. Lessen or avoid both site specific and cumulative impacts to species by replacing project-by-project reviews with long-term strategies for conserving, protecting and maintaining viable populations of multiple native special status species;

D. Replace confrontations between local, state and federal individuals and agencies with consensus-building, compromise and partnerships to encourage a streamlined permitting process, eliminate redundant efforts, reduce unnecessary expenditures of funds and manpower, promote the consolidation of scattered resources and replace litigation with effective mitigation.

E. Provide a basis for a County-wide multiple-use Open Space plan which contributes to the quality of life of the residents of San Joaquin County; and

F. Identify a financing and acquisition strategy which spreads implementation costs equitably among all beneficiaries and which is affordable to the region.
1.4 DESCRIPTION OF ALTERNATIVES CONSIDERED

The following alternatives were considered in formulating the SJMSCP to achieve the objectives described in Section 1.3:

1.4.1 ALTERNATIVE 1 - NO PROJECT/NO ACTION

This alternative would maintain the existing, project-by-project, evaluation and mitigation procedures and agency negotiations process currently in effect for the evaluation of impacts to plants, fish and wildlife and plant, fish and wildlife habitats. The SJMSCP's joint environmental impact report/environmental impact statement provides a detailed analysis of this alternative in comparison to the proposed SJMSCP.

1.4.2 ALTERNATIVE 2 - REDUCED LAND ACQUISITION WITH INCREASED PRESERVE ENHANCEMENTS

This alternative considered a compensation ratio of one-half acre of Preserve for every one acre of agricultural land Converted, with a 50% enhancement requirement for Preserve lands. The proposed SJMSCP proposes a one acre of Preserve compensation for every one acre of agricultural land Converted, with a 10% enhancement ratio for Preserves. The 50% enhancement of lands, in particular of existing productive agricultural lands under this alternative, was determined by the Steering Committees to be both more expensive than the proposed SJMSCP and could create a potential adverse decline in the income generated from agricultural activities within San Joaquin County. The SJMSCP's joint environmental impact report/environmental impact statement provides a more detailed analysis of this alternative in comparison to the proposed SJMSCP.

1.4.3 ALTERNATIVE 3 - ELIMINATION OF WETLANDS COVERAGE

This alternative would eliminate the acquisition of a General Section 404 Permit from the U.S. Army Corps of Engineers to cover impacts to vernal pools within San Joaquin County. The current project-by-project review procedure would remain in effect. The SJMSCP's joint environmental impact report/environmental impact statement provides a more detailed analysis of this alternative in comparison to the proposed SJMSCP. As noted in the Final EIR/EIS for the SJMSCP, initial SJMSCP adoption will not include issuance of a regional general Federal Clean Water Act Section 404 Permit from the U.S. Army Corps of Engineers. Therefore, the impacts associated with this alternative will occur until and unless the SJMSCP is amended after initial adoption to include a Section 404 Permit, or its equivalent. The SJMSCP Project Description has been revised to include a requirement for adoption of a Section 404, an equivalent permit or alternative strategy within three years to avoid impacts identified for this alternative [see above Section 1.1.8(F)].

1.4.4 ALTERNATIVE 4 - ALLOWING THE LOCATION OF SOME PRESERVES OUTSIDE OF THE COUNTY

This alternative would allow the location of some Preserves outside of the San Joaquin County boundaries. The SJMSCP Proposed Project expects all Preserves to be located within San Joaquin County. The SJMSCP's joint environmental impact report/environmental impact statement provides a more detailed analysis of this alternative in comparison to the proposed SJMSCP.

1.4.5 ALTERNATIVE 5 - ALTERNATIVE FEE STRUCTURE

The SJMSCP Steering Committee considered using a single-fee rather than a tiered fee structure. However,
the economic consultants for the project and the Steering Committee concluded that a tiered fee was more desirable because:

1. Given the broad range of Open Space values, the legal nexus for a tiered fee was more defensible.

2. Given the wide range in the cost of wetlands (vernal pool) mitigation versus that of mitigating for other lands, again the legal nexus for a tiered fee was determined to be more legally defensible.

1.4.6 ALTERNATIVE 6 - FIVE-ACRE EXEMPTIONS

The Steering Committee and the economic consultant determined that a large portion of lands five acres or smaller in size are on lower value habitats and the inclusion or exclusion of such lands from the Plan is unlikely to increase either the overall cost for the Plan or the biological benefits of the Plan significantly.

1.4.7 ALTERNATIVE 7 - ELIMINATION OF NON-LISTED, SPECIAL STATUS SPECIES COVERAGE

The biological consultant determined that a total of only approximately 3% of habitat lands in the County are occupied only by non-listed species (without the presence also of a state or federally listed or candidate species). Therefore, there is no appreciable reduction in the costs of the Plan realized by eliminating non-listed, special status species. The elimination would only result in increasing the risk of new listings and potentially trigger the need to reevaluate the Plan at a future date.

1.4.8 ALTERNATIVE 8 - REDUCED COVERAGE FOR SWAINSON'S HAWK AND ASSOCIATED SPECIES

The Habitat Policy Advisory Committee considered reducing the compensation ratio for the Swainson's hawk on agricultural lands to something less than one acre of Preserve for every acre of Conversion. The California Department of Fish and Game evaluated this alternative and found that a reduced ratio for the Swainson's hawk of .9 acre (rather than one acre) of Preserve for every acre of Conversion was consistent with that agency's adopted management guidelines for the hawk. However, the U.S. Fish and Wildlife Service indicated that it may be unable to issue an Incidental Take Permit for the Swainson's hawk at a reduced compensation level due, in large part, to the extensive list of species which shared the hawk's habitat and for which the Plan also requested federal Incidental Take coverage. The California Department of Fish and Game agreed that it too, could not issue a State Incidental Take Permit for species sharing the Swainson's hawk's habitat at the less than one-to-one compensation ratio. The Habitat Policy Advisory Committee evaluated this alternative and the list of 40 non-listed special-status species which would remain with no

---

5 That list included, Merlin, Burrowing Owl, Suisun marsh aster, Rose mallow, Western pond turtle, Great egret, Great blue heron, Northern harrier, White-tailed kite, Long-billed curlew, White-faced ibis, Heartscale, Brittlebush, Mt. Hamilton coreopsis, Recurved larkspur, Sanford's arrowhead, Moestan blister beetle, Molestan blister beetle, San Joaquin Whipsnake, California horned lizard, Western grebe, Golden eagle, Short-eared owl, Ferruginous hawk, Yellow warbler, Snowy egret, California horned lark, Prairie falcon, Yellow breasted chat, Loggerhead shrike, Black-crowned night heron, Osprey, White pelican, Double-crested cormorant, California mastiff bat, Small-footed myotis, Yuma myotis, Pale big-eared bat, Pacific western big-eared bat, and American badger.
Incidental Take coverage under this reduced coverage alternative. The reduced cost of such a Plan would be a $1400/$700 per acre fee in comparison to a full coverage Plan which anticipates a $1500/$750 per acre fee. This savings of $100/$50 per acre was determined to be too small in light of the vastly increased risks associated with not covering an additional 40 plant, fish and wildlife species. The Habitat Policy Advisory Committee concluded that the alternative failed to meet the Plan's primary objective of obtaining comprehensive coverage necessary to guarantee a streamlined environmental review process. Therefore, this reduced coverage/reduced cost Plan was eliminated from further consideration.

1.4.9 ALTERNATIVE 9 - INCLUDING MORE EXTENSIVE COVERAGE FOR PROJECTS RELATED TO FISHERIES

The conservation strategy for fisheries pursuant to the SJMSCP excludes regulation of water releases. This approach was used since the most feasible method of managing fisheries, especially in the Delta and the County's rivers, is to control water releases. However, the control of water releases is multi-agency and multi-jurisdictional and is outside of the jurisdiction of the agencies involved in the SJMSCP planning process either partially or entirely.

While NEPA recommends, and the steering committee did consider, alternatives outside of the jurisdiction of the involved agency, the land use and biological analysis discovered that there was, more importantly, very little need for managing fisheries through controlling water releases as a result of the types of activities to be covered by the Plan. Therefore, since there was no appreciable need for mitigation measures involving water releases to address fisheries issues associated with the SJMSCP Permitted Activities, this alternative was eliminated from further consideration.

As a result, the SJMSCP addresses the conservation of fisheries through the application of Incidental Take Minimization Measures and through establishing Preserves for a narrowly defined list of SJMSCP Permitted Activities in SJMSCP Section 8.2.1(4).

1.4.10 ALTERNATIVE 10 - PARTIAL PARTICIPATION ALTERNATIVE

The participants in the SJMSCP planning process realized that it is possible that all potential participants may not ultimately adopt the SJMSCP. This could affect the cost of the Plan to individuals participating in the Plan. Several potential participation alternatives were, therefore, evaluated by the economic consultant. These alternatives are included as part of the SJMSCP Proposed Project and the appropriate fees shall be adopted pursuant to the schedule included in Section 7.5.1 of the SJMSCP and the process described in Section 7.5.1 of the SJMSCP.

1.4.11 ALTERNATIVE 11 - NO TAKE

In contrast with the No Project Alternative (Alternative 1), the No Take Alternative analyzes conditions that would result if Take of state and/or federally listed species and their habitats were not allowed at all within San Joaquin County. The No Take Alternative assumes that no Incidental Take of state and/or federally listed species would be allowed pursuant to Section 9 of the ESA and that the Section 7 and Section 10 processes under the ESA and Section 2081 processes under the CESA would not be used as a vehicle to permit such Incidental Take. This alternative assumes that all development impacts on state and/or federally listed species and their habitats constituting "harm" under the ESA and therefore "Take," under either the ESA or CESA
would be precluded, and that modification of habitat would be prohibited on any lands where Take would be allowed under the Proposed Project (SJMSCP) and the other alternatives considered in the SJMSCP's EIR/EIS.
2. OPEN SPACE SETTING

2.1 ENVIRONMENTAL SETTING

The SJMSCP covers all of San Joaquin County except for those lands which are federally-owned (e.g., the Lawrence Livermore National Laboratory/Site 300) and areas encompassing those projects not covered by the SJMSCP listed in Section 8.2.2.

The 900,000+ acre, 1,400+ square-mile County is characterized by an extensive north-south trending valley floor through the central County with gentle foothills rising along the eastern County, the Sacramento-San Joaquin Delta in the northwest, and the beginning of the coastal foothills to the southwest. San Joaquin County is bordered to the north by Sacramento County, to the west by Contra Costa and Alameda Counties, to the south by Stanislaus County and to the west by Amador, Calaveras and Stanislaus Counties.

The Mokelumne River to the north, the Calaveras River and Mormon Slough in the center and the Stanislaus River along the County's southern border flow through the County predominantly east to west. The San Joaquin River flows north into the Delta through the south-central portion of the County. Old River forms a portion of the County's western boundary and defines the southern boundary of the Primary Zone of the Delta6 within the County.

The Delta-Mendota Canal and the California Aqueduct trend northwest to southeast in the southwest portion of the County.

Primary creeks in the County include Dry Creek to the north; Corral Hollow, Hospital Creek, and Lone Tree Creek in the southwest; Little Johns Creek, Duck Creek, and a second Lone Tree Creek in the southeast; Mosher Slough, Bear Creek and Paddy creeks in the northeast and Potter Creek in the mideast portion of the County. The northwest portion of the County is covered by the extensive sloughs and rivers of the Sacramento-San Joaquin Delta. 43% of the Sacramento/San Joaquin Delta Primary Zone is located in San Joaquin County.

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6 The Primary Zone of the Delta are boundaries around the core of the Delta established by the State's Delta Protection Act of 1992 to protect the core of the Delta from potential urban and suburban encroachment, and to maintain the quality of the Delta environment by preserving agriculture, wildlife habitat, and recreational areas.
SJMSCP PLAN AREA
### 2.2 BIOLOGICAL SETTING

#### 2.2.1 VEGETATION TYPES

The *SJMSCP Biological Analysis* identified 52 vegetation types in the County. Each vegetation type is mapped on the *SJMSCP Geographic Information System (GIS) Database* which is hereby incorporated by reference. The *SJMSCP Geographic Information System (GIS) Database* is currently housed on the Valley-Wide GIS at the Merced Data Special Services Section (MDSS) of the Merced Association of Governments in Merced, CA. Detailed descriptions of each vegetation type are found in the *SJMSCP Biological Analysis* prepared by Toyon Environmental Consultants, Inc., which is hereby incorporated by reference as Appendix K. 38 USGS 7.5 Minute topographic maps, the *SJMSCP Vegetation Maps*, have been produced to indicate the vegetation coverage of the County and all are hereby incorporated by reference.

Vegetation types were mapped in the following USGS 7.5 quadrangles and include a buffer of 2,000 feet beyond the perimeter of the County:

<table>
<thead>
<tr>
<th>Name</th>
<th>USGS Number</th>
<th>Name</th>
<th>USGS Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avena</td>
<td>37121 G1</td>
<td>Midway</td>
<td>37121 F5</td>
</tr>
<tr>
<td>Bouldin Island</td>
<td>38121 A5</td>
<td>Mt. Boardman</td>
<td>37121 D4</td>
</tr>
<tr>
<td>Bruceville</td>
<td>38121 C4</td>
<td>Peters</td>
<td>37121 H1</td>
</tr>
<tr>
<td>Cedar Mountain</td>
<td>37121 E5</td>
<td>Ripon</td>
<td>37121 F2</td>
</tr>
<tr>
<td>Clay</td>
<td>38121 C2</td>
<td>Riverbank</td>
<td>37120 F8</td>
</tr>
<tr>
<td>Clements</td>
<td>38121 B1</td>
<td>Salida</td>
<td>37121 F1</td>
</tr>
<tr>
<td>Clifton Court Forebay</td>
<td>37121 G5</td>
<td>Solyo</td>
<td>37121 E3</td>
</tr>
<tr>
<td>Escalon</td>
<td>37120 G8</td>
<td>Stockton East</td>
<td>37121 H2</td>
</tr>
<tr>
<td>Farmington</td>
<td>37120 H8</td>
<td>Stockton West</td>
<td>37121 H3</td>
</tr>
<tr>
<td>Galt</td>
<td>38121 C3</td>
<td>Terminous</td>
<td>38121 A4</td>
</tr>
<tr>
<td>Goose Creek</td>
<td>38121 C1</td>
<td>Thornton</td>
<td>38121 B4</td>
</tr>
<tr>
<td>Holt</td>
<td>37121 H4</td>
<td>Tracy</td>
<td>37121 F4</td>
</tr>
<tr>
<td>Isleton</td>
<td>38121 B5</td>
<td>Union Island</td>
<td>37121 G4</td>
</tr>
<tr>
<td>Lathrop</td>
<td>37121 G3</td>
<td>Valley Springs SW</td>
<td>38120 A8</td>
</tr>
<tr>
<td>Linden</td>
<td>38121 A1</td>
<td>Vernalis</td>
<td>37121 F3</td>
</tr>
<tr>
<td>Lockeford</td>
<td>38121 B2</td>
<td>Wallace</td>
<td>38120 B8</td>
</tr>
<tr>
<td>Lodi North</td>
<td>38121 B3</td>
<td>Waterloo</td>
<td>38121 A2</td>
</tr>
<tr>
<td>Lodi South</td>
<td>38121 A3</td>
<td>Woodward Island</td>
<td>37121 H5</td>
</tr>
<tr>
<td>Lone Tree Creek</td>
<td>37121 E4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manteca</td>
<td>37121 G2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
INSERT QUADRANGLE KEY HERE
The following is a list of the 52 vegetation types identified in the SJM SCP Biological Analysis and one vegetation type identified by the USFWS (SG) addressed by the SJM SCP:

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>MAPPED VEGETATION TYPE</th>
<th>SYMBOL</th>
<th>MAPPED VEGETATION TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Barren</td>
<td>R</td>
<td>Great Valley Riparian Forest</td>
</tr>
<tr>
<td>B2</td>
<td>Quarries</td>
<td>R2</td>
<td>Great Valley Valley Oak Riparian Forest</td>
</tr>
<tr>
<td>B3</td>
<td>Landfills</td>
<td>R3</td>
<td>Great Valley Cottonwood Riparian Forest</td>
</tr>
<tr>
<td>B4</td>
<td>Feedlots/Nurseries</td>
<td>R4</td>
<td>Arroyo Willow Thicket</td>
</tr>
<tr>
<td>B5</td>
<td>Dredge Tailings</td>
<td>R5</td>
<td>Great Valley Mixed Riparian Forest</td>
</tr>
<tr>
<td>BCN</td>
<td>Blue Oak-Conifer Savanna (&lt; 10% canopy closure)</td>
<td>S</td>
<td>Great Valley Riparian Scrub</td>
</tr>
<tr>
<td>BCN2</td>
<td>Blue Oak-Conifer Woodland (10-33% canopy closure)</td>
<td>S2</td>
<td>Elderberry Savanna</td>
</tr>
<tr>
<td>BCN3</td>
<td>Blue Oak-Conifer Forest (34-75% canopy closure)</td>
<td>S3</td>
<td>Diablan Sage Scrub</td>
</tr>
<tr>
<td>BCN4</td>
<td>Blue Oak-Conifer Forest (&gt;75% canopy closure)</td>
<td>SG</td>
<td>A mix of riparian scrub and valley grassland</td>
</tr>
<tr>
<td>BL</td>
<td>Blue Oak Savanna</td>
<td>U</td>
<td>Urban/Industrial/Built</td>
</tr>
<tr>
<td>BL2</td>
<td>Blue Oak Woodland</td>
<td>U2</td>
<td>Scraped/Paved Areas</td>
</tr>
<tr>
<td>BL3</td>
<td>Blue Oak Forest</td>
<td>U3</td>
<td>Golf Courses/Cultivated Parks</td>
</tr>
<tr>
<td>BL4</td>
<td>Blue Oak Forest</td>
<td>V</td>
<td>Valley Oak Savanna</td>
</tr>
<tr>
<td>C</td>
<td>Cropland</td>
<td>V2</td>
<td>Valley Oak Woodland</td>
</tr>
<tr>
<td>C2</td>
<td>Orchards and Vineyards</td>
<td>V3</td>
<td>Valley Oak Forest</td>
</tr>
<tr>
<td>C3</td>
<td>Row and Field Crops (ditched)</td>
<td>V4</td>
<td>Valley Oak Forest (&gt;75% canopy closure)</td>
</tr>
<tr>
<td>C4</td>
<td>Row and Field Crops (unditched)</td>
<td>V5</td>
<td>Freshwater Lake, Pond or Vernal Pool</td>
</tr>
<tr>
<td>C5</td>
<td>Ruderal</td>
<td>W</td>
<td>River/Deep Water Channel</td>
</tr>
<tr>
<td>D</td>
<td>Drainage Ditch</td>
<td>W2</td>
<td>Tributary Stream</td>
</tr>
<tr>
<td>G</td>
<td>Valley Grasslands</td>
<td>W3</td>
<td>Creek</td>
</tr>
<tr>
<td>G2</td>
<td>Foothill Grasslands</td>
<td>W4</td>
<td>Dead-End Slough</td>
</tr>
<tr>
<td>G3</td>
<td>Vernal Pool Grasslands</td>
<td>W5</td>
<td>Freshwater Lake, Pond or Vernal Pool</td>
</tr>
<tr>
<td>I</td>
<td>Channel Islands</td>
<td>W6</td>
<td>Sewer Treatment Ponds</td>
</tr>
<tr>
<td>I2</td>
<td>Tule Island and Mud Flat</td>
<td>W7</td>
<td>Freshwater Emergent Wetland</td>
</tr>
<tr>
<td>O/G</td>
<td>Mixed Oak Savanna</td>
<td>W8</td>
<td>Vernal or Seasonal Wetland</td>
</tr>
<tr>
<td>O2</td>
<td>Mixed Oak Woodland (&lt;10-33% canopy closure)</td>
<td>W9</td>
<td>Canal</td>
</tr>
<tr>
<td>O3</td>
<td>Mixed Oak Forest (10-33% canopy closure)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>O4</td>
<td>Mixed Oak Forest (&gt;75% canopy closure)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Modifiers used with the above symbols on the SJM SCP Vegetation Maps, SJM SCP Biological Analysis (See Appendix K), and in Chapter 5 of the SJM SCP:

- i = intermittent; p = perennial; b = brackish; f = flooded

NOTE: Vegetation symbols may occur in combinations to describe particular areas.
The SJMSCP classifies each of these vegetation types into one of four general categories for the purposes of evaluating impacts of Open Space Conversions to non-Open Space uses and to assist in determining compensation to offset these Conversions. These categories are: Natural Lands, Agricultural Habitat Lands, Multi-Purpose Open Space Lands, and Urban Lands. However, some Urban Land use types are included in the Multi-Purpose Open Space Lands category (see Section 2.2.1.4).

The Conversion of Natural Lands and Agricultural Habitat Lands trigger the compensation requirements, as described in Section 4.1, based on the high plant, fish, or wildlife habitat value of these Open Space lands to SJMSCP Covered Species.

Funds generated by SJMSCP Permitted Activities occurring on Natural Lands, Agricultural Habitat Lands and Multi-Purpose Open Space Land, share the costs of providing these Preserves as detailed in Sections 4.1 and 7.3.

2.2.1.1 Natural Lands (see also, Chapter 10, Glossary)

Natural Lands are lands which retain natural vegetation and which are not irrigated or cultivated agricultural land. These primarily include riparian, vernal pool and grassland habitats. Natural Lands are found primarily as grasslands southwest of I-580, in the vernal pool grasslands of the eastern foothills and extreme northern county, in the Delta and as riparian vegetation along the County's rivers and larger creeks. A very limited number of acres designated as Natural Lands, associated with water features, are man-made. These "non-natural" lands are included in the Natural Lands category since they attract plants, fish and/or wildlife.

Natural Lands are considered to have the highest Open Space value of the three categories since Natural Lands provide the most valuable plant, fish and wildlife habitat, provide opportunities for recreational trails along linear waterways, and provide outstanding scenic value, generally in the context of large expanses of Open Space.

Natural Lands includes the following SJMSCP mapped vegetation types:
**NATURAL LANDS**

<table>
<thead>
<tr>
<th>Blue Oak-Conifer Savanna (&lt; 10% canopy closure)</th>
<th>Great Valley Riparian Forest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue Oak-Conifer Woodland (10-33% canopy closure)</td>
<td>Great Valley Valley Oak Riparian Forest</td>
</tr>
<tr>
<td>Blue Oak-Conifer Forest (34-75% canopy closure)</td>
<td>Great Valley Cottonwood Riparian Forest</td>
</tr>
<tr>
<td>Blue Oak-Conifer Forest (&gt;75% canopy closure)</td>
<td>Arroyo Willow Thicket</td>
</tr>
<tr>
<td>Blue Oak Savanna (&lt; 10% canopy closure)</td>
<td>Great Valley Mixed Riparian Forest</td>
</tr>
<tr>
<td>Blue Oak Woodland (10-33% canopy closure)</td>
<td>Great Valley Riparian Scrub</td>
</tr>
<tr>
<td>Blue Oak Forest (34-75% canopy closure)</td>
<td>Scrub/grassland</td>
</tr>
<tr>
<td>Blue Oak Forest (&gt;75% canopy closure)</td>
<td>Elderberry Savanna</td>
</tr>
<tr>
<td>Drainage Ditches</td>
<td>Valley Oak Savanna (&lt;10% canopy closure)</td>
</tr>
<tr>
<td>Valley Grasslands</td>
<td>Valley Oak Woodland (10-33% canopy closure)</td>
</tr>
<tr>
<td>Foothill Grasslands</td>
<td>Valley Oak Forest (34-75% canopy closure)</td>
</tr>
<tr>
<td>Vernal Pool Grasslands</td>
<td>Valley Oak Forest (&gt;75% canopy closure)</td>
</tr>
<tr>
<td>Channel Islands</td>
<td>River/Deep Water Channel (&gt; 200 feet wide)</td>
</tr>
<tr>
<td>Tule Island and Mud Flat</td>
<td>Tributary Stream (100-200 feet wide)</td>
</tr>
<tr>
<td>Mixed Oak Savanna (&lt;10% canopy closure)</td>
<td>Creek (20-100 feet wide)</td>
</tr>
<tr>
<td>Mixed Oak Woodland (10-33% canopy closure)</td>
<td>Dead-End Slough</td>
</tr>
<tr>
<td>Mixed Oak Forest (34-75% canopy closure)</td>
<td>Freshwater Lake, Pond or Vernal Pool</td>
</tr>
<tr>
<td>Mixed Oak Forest (&gt;75% canopy closure)</td>
<td>Sewer Treatment Ponds</td>
</tr>
<tr>
<td>Diablan Sage Scrub</td>
<td>Freshwater Emergent Wetland</td>
</tr>
<tr>
<td>Canals*</td>
<td>Vernal or Seasonal Wetlands</td>
</tr>
</tbody>
</table>

* Only in the presence of riparian vegetation; in the absence of riparian vegetation, such...
as on cement-lined canals, see Multi-Purpose Open Space Lands.
The estimated amount of disturbance to specific Natural Land vegetation types as a result of land Conversions from Open Space uses between 2001 and 2051 is indicated in Table 2-1. The figures presented in Table 2-1 are approximations only.

**TABLE 2-1**

**NATURAL VEGETATION TYPES/a/**

<table>
<thead>
<tr>
<th>NATURAL LAND VEGETATION TYPE/b/</th>
<th>TOTAL ACRES IN COUNTY</th>
<th>ESTIMATED CONVERSION ACRES - 2001-2051</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue Oak/Conifer (BCN, BCN2, BCN3)</td>
<td>27,642</td>
<td>3</td>
</tr>
<tr>
<td>Blue Oak (BL, BL2, BL3)</td>
<td>3,167</td>
<td>0</td>
</tr>
<tr>
<td>Ditches (D)</td>
<td>3,568</td>
<td>730</td>
</tr>
<tr>
<td>Valley and Foothill Grasslands (G, G2)</td>
<td>81,511</td>
<td>1,069</td>
</tr>
<tr>
<td>Vernal Pool Grasslands (G3)</td>
<td>73,614</td>
<td>5,894</td>
</tr>
<tr>
<td>Channel Islands, Tule Marshes (I, I2)</td>
<td>3,609</td>
<td>3</td>
</tr>
<tr>
<td>Mixed Oak (OG, O2, O3)</td>
<td>3,914</td>
<td>134</td>
</tr>
<tr>
<td>Riparian (S, R, R2, R3, R4, R5)</td>
<td>13,121</td>
<td>1,233</td>
</tr>
<tr>
<td>Scrub (S2, S3)</td>
<td>2,716</td>
<td>55</td>
</tr>
<tr>
<td>Valley Oak (V, V2, V3)</td>
<td>595</td>
<td>145</td>
</tr>
<tr>
<td>Water Features (W, W2, W3, W4, W5,</td>
<td>45,665</td>
<td>4,790 /f/</td>
</tr>
<tr>
<td>Submerged Aquatic /e/</td>
<td>/e/</td>
<td>3</td>
</tr>
<tr>
<td>Total Natural Lands Mapped/c/</td>
<td>259,122.00</td>
<td>14,059.00/h/</td>
</tr>
</tbody>
</table>

/a/ These estimates of Natural Land disturbance acreages do not rely solely on GIS analyses, but include estimates by local planners of Natural Land Conversions occurring from projects anticipated to be undertaken outside of the SJMSCP Proposed Land Use Map urban boundaries.

/b/ Not all water features qualify as Natural Lands. Some water features, such as cement-lined aqueducts and ditches with no riparian vegetation were assigned to the Multi-Purpose Open Space category. Some ruderal lands (C5) were classified as Natural Land, however many acres were classified as Multi-Purpose Open Space Lands due to a lack of vegetation and, therefore, are not included in this overview of Natural Lands.

/c/ Total lands mapped include those Natural Lands within a 2,000 foot buffer around the County.

/d/ Total anticipated Conversion of Natural Lands over the next 50 years is based on 14,202 acres. The above table is an approximation for each vegetation type and rounds to 14,061 acres. Please refer to Table 1.1.4-2 which details the distribution of the 14,202 acres of Natural Land Conversions anticipated across Index Zones. SJMSCP Preserve and cost projections are based upon a Natural Land Incidental Take acreage of 14,202 acres.

/e/ Submerged aquatic habitat was not mapped for San Joaquin County: 1) due to the very limited scope of number and size of SJMSCP Permitted Activities which are anticipated to affect this habitat type and 2) because the existence and extent of submerged aquatic habitat can vary over time (i.e., new submerged aquatic habitat may generate during the term of the SJMSCP or existing submerged aquatic habitat could disappear due to changes in river levels, variable tidal influences, changes in salinity and other factors). Anticipated conversion of this habitat type was projected from projects anticipated to occur at least partially underwater over the 50-year term of the SJMSCP and described in Section 8.2.1(4) and 8.2.1(5).

/f/ These activities do not involve Section 404 of the Federal Clean Water Act as indicated in Section 8.2.1(4) until and unless a regional general permit is issued by the Corps pursuant to Section 5.6 or unless a CWA Section 404 permit has been issued.

November 14, 2000

2-11
and the Project Proponent has been authorized to mitigate pursuant to the SJM SCP.

/g/ Due to rounding and plan refinements, the preceding estimates do not precisely total 14,202–the total acreage of Natural Lands anticipated to be Converted from Open Space use pursuant to the SJM SCP.

/h/ Due to rounding, these numbers do not total the 14,202 acres covered by the SJM SCP.

In cases where the SJM SCP Vegetation Maps conflict with the SJM SCP Compensation Zone Maps, the SJM SCP Compensation Zone Maps shall take precedence. Amendments to the SJM SCP Compensation Zone Maps to change vegetation types to a lower habitat value may occur only with aerial photo evidence (aerial photo evidence shall be dated prior to or on the date of SJM SCP Permit issuance). Amendments which reduce the overall acreage of Incidental Take of habitat lands shall be limited to a maximum of 10%, or 1420 acres of Natural Lands, in a 50 year period. Procedures for correcting the SJM SCP Compensation Zone Maps with respect to the presence of Natural Lands or the presence of Agricultural Habitat Lands are detailed in Section 8.8.2.1.

2.2.1.2 Agricultural Habitat Lands (see also Chapter 10, Glossary)

Agricultural Habitat Lands include perennial and annual croplands and some ruderal vegetation types. Agricultural Habitat Lands are found primarily on the County's valley floor and in the Delta. Although agricultural, rangelands are primarily classified as Natural Lands since they are primarily grasslands or vernal pool grasslands. Orchards and vineyards are classified as Multi-Purpose Open Space Land.

It is estimated that approximately 57,635 acres of Agricultural Habitat Land will be Converted from Open Space use between 2001 and 2051.

In cases where the SJM SCP Vegetation Maps conflict with the SJM SCP Compensation Zone Maps, the SJM SCP Compensation Zone Maps shall take precedence. Amendments to the SJM SCP Compensation Zone Maps to change vegetation type designations to a lower habitat value may occur only with aerial photo evidence (aerial photo evidence shall be dated prior to or on the date of SJM SCP Permit issuance). Amendments which reduce the overall acreage of Incidental Take of habitat lands shall be limited to a maximum of 10%, or 5,764 acres of Agricultural Habitat Lands, in a 50 year period. Procedures for correcting the SJM SCP Compensation Zone Maps with respect to the presence of Natural Lands or the presence of Agricultural Habitat Lands are detailed in Sections 8.11.1.2 and 8.11.3 of the SJM SCP.

2.2.1.3 Multi-Purpose Open Space Lands (see also Chapter 10, Glossary)

Multi-Purpose Open Space Lands include lands which do not qualify as Natural Lands, Agricultural Habitat Lands, or Urban Lands but, if Converted, Multi-Purpose Open Space Lands contribute to the overall loss of Open Space for agriculture, recreation, scenic values and other beneficial Open Space uses. In part, Conversion of these lands also reduces the food supply to SJM SCP Covered Species, restricts habitat opportunities for some SJM SCP Covered bat species, restricts the ability
of plants to disperse through and fish and wildlife to move along Open Space corridors throughout the County and introduces exotic plants and animals which outcompete some species of plants, fish and wildlife. Hence, the Conversion of Multi-Purpose Open Space Lands also affects plants, fish and wildlife.

Multi-Purpose Open Space Lands are scattered throughout the County, but are primarily barren lands or orchards and vineyards. Orchards and vineyards share the valley floor with Agricultural Habitat Lands. Vineyards extend into the vernal pool grasslands of the extreme northern county and eastern foothills. Multi-Purpose Open Space Lands mapped on the SJMSCP GIS Database are: Barren (B, B2, B3, B4, B5), Cropland (C), Orchards and vineyards (C2), ruderal (C5–may also be classified as Agricultural Habitat Lands where habitat value is high), Cultivated parks and golf courses (C3) and some water features (e.g. cement lined aqueducts and ditches without riparian vegetation). Please note that some vacant infill parcels were mapped as U (Urban/Industrial/Built) or U2 (Scraped, Paved) on the SJMSCP Vegetation Maps, but are considered as Multi-Purpose Open Space Lands and are subject to the SJMSCP as indicated on the SJMSCP Compensation Zone Maps because they are undeveloped, do not yet have final approval for development plans, or have approved development plans which include conditions permitting coverage pursuant to the SJMSCP.

Approximately 37,465 acres of Multi-Purpose Open Space Lands, including some infill of urban lands, will be Converted between 2001 and 2051.

2.2.1.4 Urban Lands (see also Chapter 10, Glossary)

Urban Lands are those lands which are already Converted from Open Space use by urban uses as of January 1, 2001. These include the following vegetation categories mapped on the SJMSCP Compensation Zone Maps (which are the equivalent of the SJMSCP Vegetation Maps which have been field checked and corrected by agency staff): U (Urban/Industrial/Built) and U2 (Scraped/Paved). Please note that some vacant infill parcels were mapped as U or U2 on the SJMSCP Vegetation Maps, but are considered as Multi-Purpose Open Space Lands and are subject to the SJMSCP as indicated on the SJMSCP Compensation Zone Maps because they are undeveloped, do not yet have final approval for development plans, or have approved development plans which include conditions permitting coverage pursuant to the SJMSCP.

Approximately 59,299 acres of urban land uses already exist in San Joaquin County per the SJMSCP Vegetation Maps.

2.2.2 SJMSCP COVERED SPECIES

In assessing impacts to plants, fish and wildlife due to the Conversion of
Open Space lands to non-Open Space uses, the SJMSCP has conducted a
detailed analysis of the SJMSCP Covered Species occupying the Plan
Area (see Section 2.2.2.2).

The 97 species covered by the SJMSCP include species listed under the
California and Federal Endangered Species Acts as threatened or
endangered (or rare, in accordance with the CESA); federal candidate
species; species proposed for listing as threatened or endangered; birds
covered by the Migratory Bird Treaty Act (where they are also included
on another state or federal list); species protected by the Bald and Golden
Eagle Protection Act (the golden eagle, but not the bald eagle, is a
SJMSCP Covered Species) and species which may be of concern pursuant
to the California Environmental Quality Act (CEQA) and National
Environmental Policy Act (NEPA) including California Native Plant
Society (CNPS) list CNPS 1A, CNPS 1B, and CNPS 2 plants; state-listed
species of special concern; state-listed special animals and special plants;
state-designated fully protected species; and federal species of concern.

Species in the following categories are covered by the SJMSCP:

**FEDERAL**

C = Taxa for which the USFWS has on file sufficient information on biological
vulnerability and threats to support proposals to list them as endangered or threatened
species
E = endangered
T = threatened
PE = proposed endangered
PT = proposed threatened
R = Taxa for which currently available information does not support issuance of a
proposed listing
SPOC = Species of Concern
CH = Critical Habitat
ESA = Federal Endangered Species Act

**STATE**

E = endangered
T = threatened
R = rare
SA = California Natural Diversity Database special animal (may include taxa considered
endangered or rare under Section 15380(d) of CEQA guidelines; taxa that are biologically
rare, very restricted in distribution or declining throughout their range; population(s) in
California that may be peripheral to the major portion of a taxon's range, but which are
threatened with extirpation in California; and taxa closely associated with habitat that is
decaying in California --e.g. wetlands, riparian, old growth forest, desert aquatic systems,
native grasslands); this category may apply to species at specific stages--e.g. wintering,
rookery, breeding, nesting activities.
SP = California Natural Diversity Database special plant
SSC = California Department of Fish and Game Species of Special Concern (may apply to
species at particular stages--e.g. wintering, rookery, breeding, or nesting activities)
FPS = California Department of Fish and Game fully protected species, as described in
Section 4700 of Chapter 8, Section 5050 of Chapter 2, Division 6, Chapter 1, Section 5515
of the California Fish and Game Code
CESA = California Endangered Species Act
CEQA = California Environmental Quality Act

OTHER

CNPS = California Native Plant Society
CNPS 1A = plants presumed extinct in California but which may occur in the Plan area over the life of the SJMSCP Permits.
CNPS 1B = plants rare, threatened, or endangered in California and elsewhere
CNPS 2 = plants rare, threatened or endangered in California, but more common elsewhere
MBTA = birds protected under the Migratory Bird Treaty Act (16 U.S.C. 703 et seq.) which implements treaties with Great Britain (for Canada), Mexico, Japan and Russia for protection of migratory birds whose welfare is a federal responsibility
BGEPA = the Bald and Golden Eagle Protection Act (USC Sections 668-668d) which prohibits the taking of bald and golden eagles.
NK = No killing of individuals of the species
NCO= No Conversion of habitat known to be occupied by the species
LCA=Species is covered for limited SJMSCP Covered Activities
TABLE 2-2
SJMSCP COVERED SPECIES

The 97 species covered by the SJMSCP are:

<table>
<thead>
<tr>
<th>SPECIES NAME</th>
<th>Federal Status</th>
<th>State Status</th>
<th>Other Status</th>
<th>Presence confirmed in County/d/</th>
<th>Type of Coverage</th>
<th>Limitations to Take Coverage</th>
<th>Proposed ESA Coverage to be Pursued After HCP Adoption</th>
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<td>Greater sandhill crane (Grus canadensis tabida)</td>
<td>T</td>
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<td>X</td>
<td>X</td>
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<td>T</td>
<td>MBTA,</td>
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<td>X</td>
<td>X</td>
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<td>Bank swallow (Riparia riparia)</td>
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<td>X</td>
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<td><strong>Other SJMSCP Covered Species</strong></td>
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<td>Suisun marsh aster (Aster leonis)</td>
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<td>Hoover's calycadenia (Calycadenia hooveri)</td>
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<td>CNPS 1B</td>
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<td>Brittle sedge (Carex comosa)</td>
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<td>Slough thistle (Cirsium evansicola)</td>
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<td>SP</td>
<td>CNPS 1B</td>
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<td>Diamond-petaled poppy/diamond-petaled California poppy (Escholzia rhombipetala)</td>
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<td>CNPS 1A</td>
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<td>CNPS 2</td>
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<td>Red Bluff dwarf rush (Lucus leiospermus var. leiospermus)</td>
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<td>Delta tule pea (Lathyra japonica var. japonica)</td>
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<td>Legenere (Legenere limosa)</td>
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<td>Shovny madi (Madia radiana)</td>
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<td>Sanford's arrowhead/Sanford's sagittaria (Sagittari sanfordii)</td>
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<td>CNPS 1B</td>
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<td>Mad-dog skullcap (Scutellaria lawrencei)</td>
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<td>Moestan blister beetle (Lytta moesta)</td>
<td>SPOC</td>
<td></td>
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<tr>
<td>Molecular blister beetle (Lytta molesta)</td>
<td>SPOC</td>
<td></td>
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<tr>
<td>Green sturgeon (Acipenser medirostris)</td>
<td>SPOC</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Longfin smelt (Spizothus thaleichthys)</td>
<td>SPOC</td>
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<tr>
<td>California tiger salamander (Ambystoma californienae)</td>
<td>C</td>
<td>SSC</td>
<td>X</td>
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<tr>
<td>Foothill yellow-legged frog (Rana boylii)</td>
<td>SPOC</td>
<td>SSC</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Western spadefoot toad (Scaphiopus hammondi)</td>
<td>SPOC</td>
<td>SSC</td>
<td>X</td>
<td>X</td>
<td></td>
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<tr>
<td>Western pond turtle (Clemmys marmorata)</td>
<td>SPOC</td>
<td>SSC</td>
<td>X</td>
<td>X</td>
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<tr>
<td>San Joaquin whip cracked (Masticophis flagellum reddocki)</td>
<td>SPOC</td>
<td>SSC</td>
<td>X</td>
<td>X</td>
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<tr>
<td>California horned lizard (Phrynosoma coronatum frontale)</td>
<td>SSC</td>
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<tr>
<td>Cooper's hawk (Accipiter cooperi)</td>
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<td>SSC</td>
<td>MBTA</td>
<td>X</td>
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<tr>
<td>Sharp-shinned hawk (Accipiter striatus)</td>
<td></td>
<td>SSC</td>
<td>MBTA</td>
<td>X</td>
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<tr>
<td>Western gnat (Grus canadensis)</td>
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<tr>
<td>Tricolored blackbird (Agelaius tricolor)</td>
<td>SPOC</td>
<td>SSC</td>
<td>MBTA</td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>Hell's sage sparrow (Amphispiza belli belli)</td>
<td>SPOC</td>
<td>SSC</td>
<td>MBTA</td>
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<tr>
<td>Golden eagle (Aquila chrysaetos)</td>
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<td>SSC</td>
<td>FP</td>
<td>MBTA</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Great egret (Egretta albus formerly Casmerodius albus)</td>
<td>SA</td>
<td>MBTA</td>
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<tr>
<td>Great blue heron (Ephippia herodias)</td>
<td></td>
<td>SA</td>
<td>MBTA</td>
<td>X</td>
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<tr>
<td>Short-eared owl (Asio flammeus)</td>
<td></td>
<td>SSC</td>
<td>MBTA</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ferruginous hawk (Buteo regalis)</td>
<td>SPOC</td>
<td>SSC</td>
<td>MBTA</td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>Northern harrier (Circus cyanus)</td>
<td></td>
<td>SSC</td>
<td>MBTA</td>
<td>X</td>
<td></td>
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<tr>
<td>Yellow warbler (Dendroica petechia brevirostris)</td>
<td>SSC</td>
<td>MBTA</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Snowy egret (Egrettta thula)</td>
<td></td>
<td>SA</td>
<td>MBTA</td>
<td>X</td>
<td></td>
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<tr>
<td>White-tailed kite (Elanus leucurus - formerly Elanus caeruleus)</td>
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<tr>
<td>California horned lark (Eremophila alpestris actia)</td>
<td>SPOC</td>
<td>SSC</td>
<td>MBTA</td>
<td>X</td>
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<tr>
<td>Merlin (Falco columbarius)</td>
<td></td>
<td>SSC</td>
<td>MBTA</td>
<td>X</td>
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<tr>
<td>Prairie falcon (Falco mexicanus)</td>
<td></td>
<td>SSC</td>
<td>MBTA</td>
<td>X</td>
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<tr>
<td>Yellow-breasted chat (Locustella virens)</td>
<td>SA</td>
<td>MBTA</td>
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</tr>
<tr>
<td>Loggerhead shrike (Lanius ludovicianus)</td>
<td>SPOC</td>
<td>SSC</td>
<td>MBTA</td>
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November 14, 2000

2-18
<table>
<thead>
<tr>
<th>SPECIES NAME</th>
<th>Federal Status</th>
<th>State Status</th>
<th>Other Status</th>
<th>Presence confirmed in County/d/</th>
<th>Type of Coverage</th>
<th>Limitations to Take Coverage</th>
<th>Proposed ESA Coverage to be Pursued After HCP Adoption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long-billed curlew (Numenius americanus)</td>
<td>SPOC</td>
<td>SSC</td>
<td>MBTA</td>
<td>X</td>
<td>ESA CESA CEQA</td>
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<tr>
<td>Black-crowned night heron (Nycticorax nycticorax)</td>
<td>SA</td>
<td>MBTA</td>
<td>X</td>
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<tr>
<td>Osprey (Pandion haliaetus)</td>
<td>SSC</td>
<td>MBTA</td>
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<tr>
<td>American white pelican (Pelecanus erythrorhynchus)</td>
<td>SSC</td>
<td>MBTA</td>
<td>X</td>
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<tr>
<td>Double-crested cormorant (Phalacrocorax auritus)</td>
<td>SSC</td>
<td>MBTA</td>
<td>X</td>
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<tr>
<td>White-faced ibis (Plegadis chihi)</td>
<td>SPOC</td>
<td>MBTA</td>
<td>X X X</td>
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<tr>
<td>Burrowing owl (Speotyto cunicularia)</td>
<td>SCC</td>
<td>MBTA</td>
<td>X X X</td>
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<tr>
<td>Ringtail/vintail cat (Bassaricyon astutus)</td>
<td>FPS/f</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Berkeley kangaroo rat (Dipodomys heyi berkeleyensis)</td>
<td>SA</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Greater western mustang bat aka California mustang bat (Eumops perotis californicus)</td>
<td>SPOC</td>
<td>SSC</td>
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<tr>
<td>Red Bat (Lasiurus cinereus)</td>
<td>SCC/a</td>
<td>X/g</td>
<td>X X</td>
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<tr>
<td>Small-footed myotis/bat (Myotis cinctus)</td>
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<td>X</td>
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<tr>
<td>Long-eared myotis/bat (Myotis evotis)</td>
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<tr>
<td>Fringed myotis/bat (Myotis thysanodes)</td>
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<tr>
<td>Long-legged myotis/bat (Myotis volans)</td>
<td>SPOC</td>
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<tr>
<td>Yuma myotis/bat (Myotis yumanensis)</td>
<td>SPOC</td>
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<tr>
<td>San Joaquin pocket mouse (Pseudosorex nanus)</td>
<td>SA</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Pale big-eared bat (Plecotus townsendii pallidus aka Corynorhinus townsendii pallidus) aka Pacific western big-eared bat (Plecotus townsendii townsendii aka Corynorhinus townsendii townsendii)</td>
<td>SPOC</td>
<td>SSC</td>
<td>X X X</td>
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<tr>
<td>American badger (Taxidea taxus)</td>
<td>SA</td>
<td>X</td>
<td>X</td>
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</tr>
</tbody>
</table>

/a/ This species is currently pending designation and is believed to be widely distributed in the County.
/b/ The Western and Southwestern Pond Turtles (Clemmys marmorata marmorata and Clemmys marmorata pallida, respectively) have been combined into a single category for the SJMSCP due to disagreements among experts as to the correct taxonomic classification.
/c/ The Mid-Valley fairy shrimp (Branchinecta sp. nova) is a newly discovered species of fairy shrimp which is not yet fully described, but has the potential for federal listing.
/d/ This species is currently pending designation and is believed to be widely distributed in the County. Blanks indicate that habitats for these species exist and/or that the species range is in the County, however, occurrences for these species are not confirmed in the County. Dates provided indicate recent dates of discovery for the indicated species.
/e/ Requested addition by USFWS.
/f/ Pursuant to Fish and Game Code Sections 5511, 4700, 5050, and 5515 these are fully protected species. Fully protected species may not be "taken" or possessed at any time. "Take," for the purposes of these Fish and Game Code Sections, means kill of individuals of the species. Incident Take Permits for these species are included in the SJMSCP, to allow for the Conversion of habitat for these species with appropriate creation of compensatory habitat for these species and the implementation of appropriate minimization measures. Therefore, to fulfill the requirements of the Fish and Game Code regarding fully protected species, Incidental Take Minimization Measures have been designed to avoid any kill of individuals of these species, while allowing Conversion of habitats, pursuant to Sections 5.2.4.12, 5.2.4.19, 5.2.4.21 and 5.2.4.26.
/g/ Personal Communication (September, 2000) - Elizabeth Pierson and Steve Stocking confirm identification and collection of species in San Joaquin County.
/h/ The USFWS has been petitioned to list this species by the Southwest Center for Biodiversity, et al. in 1999.
/i/ Limited kill of individuals permitted within Preserves for monitoring activities and during pre-construction surveys to allow net sampling to determine presence of the species.
/j/ Limited Conversion of habitats or kill of individuals may be allowed upon consultation with the Permitting Agencies pursuant to the provisions specified in Sections 55.2.2.
2.2.2.1 Species Considered, but not Included in the Plan

The following species were considered for coverage under the SJMSCP, but were not included, for the reasons indicated:

TABLE 2-3
SPECIES CONSIDERED, BUT NOT INCLUDED IN THE SJMSCP

<table>
<thead>
<tr>
<th>SPECIES NAME</th>
<th>FEDERAL STATUS</th>
<th>STATE STATUS</th>
<th>OTHER STATUS</th>
<th>REASON NOT INCLUDED ON SJMSCP COVERED SPECIES LIST</th>
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</thead>
<tbody>
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<tr>
<td><em>FEDERALLY AND/OR STATE-LISTED</em></td>
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<tr>
<td><strong>Birds</strong></td>
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<tr>
<td>Willow Flycatcher (<em>Empidonax traillii extemis</em> - nesting)</td>
<td>E</td>
<td>MBTA</td>
<td>Listed in 1994. Inclusion requested 1/29/96 by USFWS. Per 3/21/96 memorandum from Waldo Holt, <em>Empidonax traillii extemis</em> is believed to be the species which used to breed in San Joaquin County (1890s), but disappeared from the Central Valley after the clearing of riparian forests and following the arrival of the Brown-headed cowbird in the early 1900s.</td>
<td></td>
</tr>
<tr>
<td>American Peregrine Falcon (<em>Falco peregrinus anatum</em>)</td>
<td>E</td>
<td>E</td>
<td>MBTA</td>
<td>1/95 Toyon recommends deletion since the bird is represented by only a single point on the database and the County lacks suitable nesting cliffs, therefore the species is unlikely to be a problem for planners. In the remote case that peregrines are reintroduced into the Co, the contribution to the survival of the species of urban falcons using manmade structures should be considered. 1/23/95 W. Holt agreed the falcon does not breed in the County, though it may winter here.</td>
</tr>
<tr>
<td>Bald Eagle (<em>Haliaeetus leucocephalus</em> - nesting and wintering)</td>
<td>E</td>
<td>E</td>
<td>MBTA, BGEPA</td>
<td>1/95 Toyon recommends deletion of this species because it will not necessarily benefit from the creation of geographically limited Preserves since it is a) only an occasional visitor and rarely or never breeds in the County and/or b) its habitat requirements are well distributed throughout the County. 1/23/95 W. Holt agrees that a special Preserve for bald eagles is not needed in the County.</td>
</tr>
<tr>
<td>SPECIES NAME</td>
<td>FEDERAL STATUS</td>
<td>STATE STATUS</td>
<td>OTHER STATUS</td>
<td>REASON NOT INCLUDED ON SJMSCP COVERED SPECIES LIST</td>
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<tr>
<td><strong>Reptiles</strong></td>
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<tr>
<td>Blunt-nosed Leopard Lizard (<em>Gambelia sila</em> aka <em>silus</em>)</td>
<td>E</td>
<td>E</td>
<td></td>
<td>1/95 recommended for deletion by Toyon because there are no records in the CNDDB in the County, however, two specimens were collected in 1961 from what is now the Carnegie OHV park in the collection at the California Academy of Sciences. However, given the attention to the Corral Hollow area by herpetologists (UC Berkeley, Cal State Hayward, Cal State San Jose etc. regularly conduct field surveys in the area) and that no specimens have been found since 1961, it is likely that the species is no longer in the County.</td>
</tr>
<tr>
<td><strong>Plants</strong></td>
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<tr>
<td>Ferris’ palmate bird’s-beak/palmate-bracted bird’s beak (<em>Cordylanthus palmatus</em>)</td>
<td>E</td>
<td>E</td>
<td>CNPS1B</td>
<td>Removed from covered species list in 2000 by USFWS - insufficient information regarding species. Personal Communication, S.Stocking (9/2000) - unlikely to occur in County due to lack of alkali habitat.</td>
</tr>
<tr>
<td>Colusa grass (<em>Neostapfia colusana</em>)</td>
<td>T</td>
<td>E</td>
<td>CNPS1B</td>
<td>Removed from covered species list in 2000 by USFWS-No historical records from county. Occurrence is considered unlikely due to absence of suitable potential habitat.</td>
</tr>
<tr>
<td><strong>OTHER STATUS</strong></td>
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<tr>
<td><strong>Mammals</strong></td>
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<tr>
<td>Merced Kangaroo Rat (<em>Dipodomys heermanni dixoni</em>)</td>
<td>SA</td>
<td></td>
<td></td>
<td>Requested for consideration by USFWS on 1/29/96. No evidence of occurrences or habitat for species found in County and deleted per discussion with S. Larsen USFWS.</td>
</tr>
<tr>
<td><strong>Birds</strong></td>
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</tr>
<tr>
<td>Western Snowy Plover - inland (<em>Charadrius alexandinus nivosus</em> - breeding)</td>
<td>SSC</td>
<td>MBTA</td>
<td></td>
<td>1/95 Toyon recommends deletion since the bird's range does not include San Joaquin Co. 6/5/96 Waldo Holt reports that this species should be considered a rare migrant.</td>
</tr>
<tr>
<td>Little willow flycatcher (<em>Epidonax traillii brewsteri</em>)</td>
<td>SPOC</td>
<td>MBTA</td>
<td></td>
<td>Requested 1/29/96 by USFWS. 3/21/96, USFWS clarified that it was requesting inclusion of <em>Empidonax traillii brewsterii</em>, an FC2 until 2/28/96 when it was reclassified as a SPOC. <em>E. traillii brewsterii</em> is not known to occur in the County. Per 3/21/96 T/C with Waldo Holt, that species breeds in the Sierra Nevada.</td>
</tr>
<tr>
<td>SPECIES NAME</td>
<td>FEDERAL STATUS</td>
<td>STATE STATUS</td>
<td>OTHER STATUS</td>
<td>REASON NOT INCLUDED ON SJMSCP COVERED SPECIES LIST</td>
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</tr>
<tr>
<td>Yellowthroat (<em>Geothlypis trichas sinuosa</em>)</td>
<td></td>
<td>SSC</td>
<td>MBTA</td>
<td>Appeared in database, but was questioned by USFWS. Occurrences in County confirmed by Dan Gifford of CDFG not to be the subspecies on the SSC list. 6/5/96 Waldo Holt confirmed that there are numerous subspecies of this bird and the species of special concern referenced does not occur here.</td>
</tr>
<tr>
<td>Western Least Bittern (<em>Ixobrychus exilis hesperis</em> - nesting)</td>
<td></td>
<td>SSC</td>
<td>MBTA</td>
<td>1/23/95 W. Holt reports that the species does not occur in County and would occur only if habitat developed for species.</td>
</tr>
<tr>
<td>SPECIES NAME</td>
<td>FEDERAL STATUS</td>
<td>STATE STATUS</td>
<td>OTHER STATUS</td>
<td>REASON NOT INCLUDED ON SJMSCP COVERED SPECIES LIST</td>
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</tr>
<tr>
<td><strong>Invertebrates</strong></td>
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</tr>
<tr>
<td>Sacramento Anthicid Beetle (<em>Anthicid sacramento</em>)</td>
<td></td>
<td></td>
<td>1/95 Toyon recommends deletion since only one occurrence found for the species and no records are in the CNDDB for the County. Local entomology expert, Kirby Brown, is not aware of the species occurring in the County. Hence the species is either no longer here or is so widely dispersed and/or so little is known about it that species cannot benefit from Preserve designs.</td>
<td></td>
</tr>
<tr>
<td>California linderiella (<em>Linderiella occidentalis</em>)</td>
<td></td>
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<td>Status no longer warrants protection.</td>
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<tr>
<td><strong>Plants</strong></td>
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<tr>
<td>California Androsace (<em>Androsace elongata</em>)</td>
<td>CNPS 4</td>
<td></td>
<td>1/95 Toyon recommends deleting this species since it is not considered rare or endangered. 1/23/95 San Joaquin area planning agencies agreed that this status does not warrant protection or consideration pursuant to the jurisdictions' application of CEQA.</td>
<td></td>
</tr>
<tr>
<td>Crownscale (<em>Atriplex coronata</em> var. <em>coronata</em>)</td>
<td>CNPS 4</td>
<td></td>
<td>1/95 Toyon recommends deleting this species since it is not considered rare or endangered. 1/23/95 San Joaquin area planning agencies agreed that this status does not warrant protection or consideration pursuant to the jurisdictions' application of CEQA.</td>
<td></td>
</tr>
<tr>
<td>San Joaquin Spearscale (<em>Atriplex joaquiniana</em>)</td>
<td>CNPS 1B</td>
<td></td>
<td>1/23/95 S. Stocking reports that this species is not present in County</td>
<td></td>
</tr>
<tr>
<td>Big Tarplant (<em>Blepharizonia plumosa</em> ssp. <em>plumosa</em>)</td>
<td>CNPS 1B</td>
<td></td>
<td>1/23/95 S. Stocking reports that this species is not present in County</td>
<td></td>
</tr>
<tr>
<td>Small-flowered Morning Glory (<em>Convolvulus simulans</em>)</td>
<td>CNPS 4</td>
<td></td>
<td>1/95 Toyon recommends deleting this species since it is not considered rare or endangered. 1/23/95 San Joaquin area planning agencies agreed that this status does not warrant protection or consideration pursuant to the jurisdictions' application of CEQA.</td>
<td></td>
</tr>
<tr>
<td>Hoover's Cryptantha (<em>Cryptantha hooveri</em>)</td>
<td>CNPS 4</td>
<td></td>
<td>1/95 Toyon recommends deletion since the species has no state or federal status. 1/23/95 San Joaquin area planning agencies agreed that this status does not warrant protection or consideration pursuant to the jurisdictions' application of CEQA.</td>
<td></td>
</tr>
<tr>
<td>Gypsum-loving larkspur (<em>Delphinium gypsophilum</em> var. <em>gypsophilum</em>)</td>
<td>CNPS 4</td>
<td></td>
<td>1/95 Toyon recommends deleting this species since it is not considered rare or endangered. 1/23/95 San Joaquin area planning agencies agreed that this status does not warrant protection or consideration pursuant to the jurisdictions' application of CEQA.</td>
<td></td>
</tr>
<tr>
<td>SPECIES NAME</td>
<td>FEDERAL STATUS</td>
<td>STATE STATUS</td>
<td>OTHER STATUS</td>
<td>REASON NOT INCLUDED ON SJMSCP COVERED SPECIES LIST</td>
</tr>
<tr>
<td>------------------------------------------</td>
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<td>---------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Mt. Diablo Buckwheat</td>
<td></td>
<td></td>
<td></td>
<td>1/95 Toyon recommends deletion because the CNDDB has no records of occurrences in the County and local experts confirm the species has never been in the County. 1/23/95 S. Stocking reports that this species is not present in County.</td>
</tr>
<tr>
<td>Contra Costa Wallflower</td>
<td></td>
<td></td>
<td></td>
<td>1/95 Toyon recommends deletion because the CNDDB has no records of occurrences in the County and local experts confirm the species has never been in the County. 1/23/95 S. Stocking reports that this species is not present in County.</td>
</tr>
<tr>
<td>Serpentine linanthus</td>
<td></td>
<td></td>
<td>CNPS 4</td>
<td>1/95 Toyon recommends deleting this species since it is not considered rare or endangered. 1/23/95 San Joaquin area planning agencies agreed that this status does not warrant protection or consideration pursuant to the jurisdictions' application of CEQA.</td>
</tr>
<tr>
<td>Sierra monardella</td>
<td></td>
<td></td>
<td>CNPS 4</td>
<td>1/95 Toyon recommends deleting this species since it is not considered rare or endangered. 1/23/95 San Joaquin area planning agencies agreed that this status does not warrant protection or consideration pursuant to the jurisdictions' application of CEQA.</td>
</tr>
<tr>
<td>Antioch Dunes Evening Primrose</td>
<td></td>
<td></td>
<td></td>
<td>1/95 Toyon recommends deletion because the CNDDB has no records of occurrences in the County and local experts confirm the species has never been in the County. 1/23/95 S. Stocking reports that this species is not present in County.</td>
</tr>
<tr>
<td>Delta Woolly-Marbles</td>
<td></td>
<td></td>
<td>CNPS 4</td>
<td>1/95 Toyon recommends deleting this species since it is not considered rare or endangered. 1/23/95 San Joaquin area planning agencies agreed that this status does not warrant protection or consideration pursuant to the jurisdictions' application of CEQA.</td>
</tr>
<tr>
<td>Valley Oak (Quercus lobata)</td>
<td></td>
<td></td>
<td></td>
<td>1/95 Toyon recommends deletion since the species has no state or federal status. Species is included in a vegetation type under the Plan. However, the County will use general plan policies, not the SJMSCP, to address conservation needs of individual trees.</td>
</tr>
<tr>
<td>Showy Indian Clover</td>
<td></td>
<td></td>
<td></td>
<td>1/95 Toyon recommends deletion because the CNDDB has no records of occurrences in the County and local experts confirm the species has never been in the County. 1/23/95 S. Stocking reports that this species is not present in County.</td>
</tr>
</tbody>
</table>
After issuance of initial SJMSCP permits, the SJMSCP Joint Powers Authority intends to investigate the feasibility of obtaining Incidental Take coverage for anadromous fish species including the Winter-run Chinook salmon (Oncorhynchus tsawytscha), Fall-run Chinook salmon (Oncorhynchus tsawytscha), Spring-run Chinook salmon (Oncorhynchus tsawytscha), Green Sturgeon (Acipenser medirostris), Longfin smelt (Spirinchus thaleichthys) and steelhead trout (Oncorhynchus mykiss gairdneri) from the National Marine Fisheries Services (NMFS) and the Mid-valley fairy shrimp (Branchinecta sp. nova), and curved-foot hygrotis diving beetle (Hygrotis curvipes) from the U.S. Fish and Wildlife Service.

2.2.2 Summary of Data Collected and Analyzed for Covered Species/Species Needs

Data on each of the SJMSCP Covered Species was collected and analyzed by Toyon Environmental Consultants, Inc. in the SJMSCP Biological Analysis Technical Report, dated July 12, 1996, previously incorporated by reference and contained in Appendix K. The U.S. Fish and Wildlife Service reviewed the species descriptions in October, 1997, and refined descriptions for those species included in the Recovery Plan for Upland Species of the San Joaquin Valley, California (USFWS, Region 1, 9/30/98). The following summarizes species needs for each of the SJMSCP Covered Species. Estimates of Open Space Conversions resulting in Incidental Take for each species are listed in Table 4.3-1.

A. PLANTS

Amsinckia grandiflora
Large-flowered fiddleneck

Amsinckia grandiflora, an annual member of the forget-me-not family, has a historic range along the Inner Coast Range in Alameda, Contra Costa, and San Joaquin counties. Known currently from only three natural occurrences in the Corral Hollow area of San Joaquin County, it is currently being experimentally introduced into several areas within its historic range. In its natural occurrences, large-flowered fiddleneck occupies north-facing slopes in the upper elevations of grasslands near the blue oak belt. Soil type, livestock grazing and air quality have been suggested as limiting habitat features.

Aster lentus
Suisun Marsh aster

Aster lentus is a perennial herb in the aster, or sunflower, family. It is known strictly from five counties in the Delta region. There are 95 records for this species in the project database in San Joaquin County, primarily the Bouldin Island, Isleton, Holt, Terminous, and Woodward Island quads. Forty-seven of those records are considered robust enough to define
occupied habitat. The habitat for the species is at the water's edge, in places where water is brackish and there is some tidal influence.

**Astragalus tener var. tener**  
**Alkali milk-vetch**

*Astragalus tener* var. *tener*, an annual member of the pea family, has a historic range including the eastern San Francisco Bay region, the Delta, and western San Joaquin Valley south to the lower Salinas and San Benito valleys. Of the 13 counties from which it has been recorded, it is presumed extant in only three, Merced, Solano, and Yolo. It has been reported historically from a single collection in the Stockton West quad in San Joaquin County, where it is presumed extirpated. The habitat for this species is grassy alkaline flats and vernaly moist meadows at elevations below 500 ft.

**Atriplex cordulata**  
**Heartscale**

*Atriplex cordulata*, an annual herb in the goosefoot family, is reported from the Central Valley and interior valleys of the Coast Range from Butte to Kern counties. Although there was an old collection record from San Joaquin County, the population is presumed extirpated. Since there have been no recent collections in the County, no records have been entered into the database for this species. The habitat for heartscale is saline or alkaline sandy soils in grassland or saltbush scrub.

**Atriplex depressa**  
**Brittlescale**

*Atriplex depressa* is an annual herb in the goosefoot family. Its range includes the Central Valley from Kern to Yolo counties. There are no collection records for San Joaquin County, although the County lies within the known range of the species. The habitat for brittlescale is alkaline or clay soils in grasslands, saltbush scrub, and at the edge of playas.

**Calycadenia hooveri**  
**Hoover's calycadenia**

*Calycadenia hooveri* is an annual herb in the aster, or sunflower, family. It is known from the east side of the San Joaquin Valley, from Calaveras to Madera counties. There are no known populations, current or historic, from San Joaquin County, although it is near the known range of the species. The habitat for *Calycadenia hooveri* is on rocky outcrops of tuffaceous sandstone, in grasslands or open woodlands of the low foothills.

**Carex comosa**
Bristly sedge

*Carex comosa*, a perennial member of the sedge family, is a widespread yet uncommon and seldom collected species, reported from the San Francisco Bay region, North Coast, Modoc Plateau, and northern San Joaquin Valley regions, Idaho, Washington and Oregon, as well as a questionable locality in San Bernardino County. It is known in San Joaquin County from a single record on the Holt quad; correspondence in the CNDDB files indicates that it is considered an extirpated site. The habitat for bristly sedge is reported as wet places, such as lake margins, marshes, or at low elevations.

Castilleja campestris ssp. succulenta

*Succulent or fleshy owl's-clover*

*Castilleja campestris* ssp. *succulenta*, an annual member of the figwort or snapdragon family, is known from the eastern side of the northern San Joaquin Valley, from San Joaquin County to Fresno County. A new record, discovered in connection with this study, extends the northernmost range of this species to the Lockeford quad in northern San Joaquin County. Succulent owl's-clover occurs in relatively deep vernal pools where standing water is held for some days or weeks during the winter rainy season.

Cirsium crassicaule

*Slough thistle*

*Cirsium crassicaule*, an annual member of the aster, or sunflower family, is known from the central portions of the San Joaquin Valley in Kings, Kern and San Joaquin counties. Within San Joaquin County, there are seven records from the Lathrop and Vernalis quads; all but two of these sites are located in areas that are now cultivated or urbanized. The habitat for slough thistle is freshwater marshes, sloughs, and slow moving water. It apparently occurs both in natural waterways and occasionally in agricultural waterways. The population is reported to fluctuate widely from year to year.

Coreopsis hamiltonii

*Mt. Hamilton coreopsis*

*Coreopsis hamiltonii* is an annual herb in the aster, or sunflower, family. It is known from about ten localities in the Mt. Hamilton Range, in Santa Clara and Stanislaus counties. Although there are no records for this species in San Joaquin County, the known range is nearby and additional populations could be discovered there. The habitat for *Coreopsis hamiltonii* is rocky places in oak woodland.

Delphinium californicum ssp. interius
Hospital Canyon larkspur

*Delphinium californicum* ssp. *interius* is a perennial member of the buttercup, or crowsfoot, family. It is known from the east side of the Coast Ranges, from Alameda County south to San Luis Obispo County. Within San Joaquin County, it is known from a single record in Hospital Canyon, on the Solyo quad. It is an old and imprecise record, but is presumed extant since the land use there is apparently unchanged. The habitat for the Hospital Canyon larkspur is mesic slopes in open woodlands.

**Delphinium recurvatum**  
Recurved larkspur

*Delphinium recurvatum* is a perennial herb in the buttercup, or crowsfoot family. Its range includes the central and southern portions of the Central Valley, from Butte County to Kern County. In San Joaquin County there is one record for this species from an area near Clifton Court Forebay that is now cultivated. The habitat for this species is poorly drained, fine alkaline soils in grassland and saltbush scrub.

**Eryngium racemosum**  
Delta button-celery

*Eryngium racemosum* is an annual or perennial herb in the carrot, or celery, family. Its historic range is somewhat disjunct within the San Joaquin Valley and eastern foothills of the Sierra Nevada: Calaveras, Fresno, San Joaquin and Stanislaus counties. However, populations in the latter two counties are considered by the California Native Plant Society to have been extirpated. The project database includes 11 collections from the Clifton Court Forebay, Lathrop, Peters, Ripon, and Vernalis quads; however, none is used to define occupied habitat. The habitat of this species consists of vernally mesic clay depressions, often associated with riparian scrub.

**Eschscholzia rhombipetala**  
Diamond-petaled California poppy

*Eschscholzia rhombipetala* is an annual herb in the poppy family. The diamond-petaled poppy has been seen so infrequently that little is known about the species. Flowering specimens were collected in March and April. Near La Panza, diamond-petaled California poppies were found on nearly barren areas of clay soils in association with the San Benito thornmint (*Acanthomintha obovata*) and large-leaved filaree (*Erodium macrophyllum*) (Hoover 1970, Bittman in litt. 1986b). Clark (1993) indicated that diamond-petaled California poppies have been found in fallow fields. The historical sites for the poppy were found between 9 and 1,000 meters (30 to 3,300 feet) in elevation (CDFG 1995).
The diamond-petaled California poppy resembles the Tejon poppy and Lemmon's poppy in many respects. However, the diamond-petaled California poppy may have erect nodding buds, the flowers are small and yellow, and the bases of the leaves are fleshy (Hoover 1970; Clark 1993; Clark in litt. 1979). The fruits of the diamond-petaled poppy are conspicuous because they are 4 to 7 cm. (1.5 to 3 inches) long, which may nearly equal the height of the plants (Hoover 1970). Diamond-petaled California poppies are distinguished from frying pans (E. lobbii), another poppy that occurs in the same general area, by leaf position and seed characteristics (Clark 1993).

The diamond-petaled California poppy was known historically from seven sites in the inner Coast Ranges: Corral Hollow in Alameda County (located very near to southwestern San Joaquin County); sites in Colusa County; Antioch and the hills south of Byron in Contra Costa County; the La Panza area and near Yeguas Creek in San Luis Obispo County; and Del Puerto Canyon in Stanislaus County (Hoover 1970; Clark 1993; CDFG 1995; Clark in litt. 1979; Bittman in litt. 1986b). Hoover (1970) mentioned that the species occurred in San Joaquin County, but no specimens remain to document this report (Skinner and Pavlik 1994).

The current distribution of the diamond-petaled poppy is unknown. The species had not been observed since 1950 (Skinner and Pavlik 1994; Skinner et al. 1995) until it was recently discovered on Site 300 within San Joaquin County (Bob Pine, U.S. Fish and Wildlife Service, pers. comm., 11/3/97).

The reasons for the decline of the plant are unknown. Natural lands remain in most of the areas where it was collected historically.

**Gratiola heterosepala**

*Boggs Lake hedge-hyssop*

*Gratiola heterosepala* is an annual herb in the figwort, or snapdragon, family. This rather inconspicuous species has an apparently spotty distribution, and, as an annual occupying the deepest portions of the deepest vernal pools, appears irregularly or not at all in dry years. However, new records resulting from specific surveys are tending to fill in its distributional range. The currently known distribution includes Fresno County in the south to Lassen and Modoc counties in the northeast, as well as records in Oregon. Within San Joaquin County, there are a number of recent records from vernal pools in the Goose Creek quad; similar habitat may exist elsewhere on the eastern and northern side of the County. The habitat of this species is vernal pools and the margins of shallow lakes.

**Hibiscus lasiocarpus**

*Rose mallow or California hibiscus*
Hibiscus lasiocarpus is a perennial herb in the mallow family. Its distribution includes the Central Valley of California, as well as populations in eastern North America. Although known from a great many individual occurrences from the Delta and Sacramento River as far north as Sutter County, most populations are extremely small, consisting of only one or a few individuals. In the project database there are 200 occurrence records for this species, of which 96, all along the waterways of the Delta, define occupied habitat.

Juncus leiospermus var. leiospermus
Red Bluff dwarf rush

Juncus leiospermus var. leiospermus is an annual in the rush family. Its known distribution includes Butte, Shasta and Tehama counties. There are no known records from San Joaquin County, but since habitat similar to that known for the species may exist in the County, this species has been included in the SJMSCP. The habitat for Juncus leiospermus var. leiospermus is vernally mesic soils at the edge of vernal pools, in swales in grasslands, in chaparral, or in oak woodland.

Lathyrus jepsonii var. jepsonii
Delta tule pea

Lathyrus jepsonii var. jepsonii is a perennial herb in the pea family. Although known primarily from the water's edge in the brackish and fresh-water portions of the Delta region, there are also records of this species from Fresno, Marin, San Benito, and Santa Clara counties. Within San Joaquin County, this species is known from 42 records in the project database. Sixteen of these records define occupied habitat, all closely associated with the waterways of the Delta.

Legenere limosa
Legenere

Legenere limosa is an inconspicuous annual herb in the bellflower family. It is known from the southern North Coast Ranges, and the Central Valley from San Joaquin and Solano counties to Tehama County. Within San Joaquin County, there are four recent records defining occupied habitat in the Goose Creek area. The habitat for Legenere limosa is vernal pools, usually relatively deep, well-defined ones. Like Gratiola heterosepala, it may not appear in below-normal rainfall years.

Lilaeopsis masonii
Mason's lilaeopsis

Mason's lilaeopsis, a small perennial herb in the carrot family, is a rare plant endemic to Alameda, Contra Costa, Marin, Napa, Sacramento, San Joaquin, and Solano counties of California. It occurs in riparian, and
freshwater and brackish marshes from sea level to 25 feet in elevation. Known populations occur in water salinities from 0 ppt. to 8.5 ppt. Peaty soils or clay soils are preferred. Activities including agriculture, dredging, flood control projects, widening of Delta channels for water transport and riprapping; changes in water quality due to decreased flows in the Delta; erosion from boat wakes, tidal action and high flows; cattle grazing; and trampling from fishing and other human activities threaten Mason's lilacopsis (CDFG 1991; Golden and Fielder 1991; CNNDB 1994).

In San Joaquin County, there are 230 records of this species, of which 154 define occupied habitat. This large number is the result of thorough resource surveys conducted in the Delta region.

**Limosella subulata**

*Delta mudwort*

*Limosella subulata* is an annual herb in the figwort, or snapdragon, family. It is known from several occurrences in the Sacramento-San Joaquin Delta region, including records in Contra Costa, Sacramento, San Joaquin, and Solano counties, as well as a possible record at Pt. Reyes in Marin County, and some records in Oregon and the East Coast of North America. In the project database, there are 29 records, all of which define occupied habitat, closely associated with the waterways of the Delta. The habitat for this species is reported as muddy or sandy intertidal flats at low elevations.

**Madia radiata**

*Showy madia*

*Madia radiata* is an annual herb in the aster, or sunflower, family. It apparently occurs as very scattered populations at only a few locations throughout its range (Skinner and Pavlik 1994). Its overall distribution is in the San Joaquin Valley, lower Sierra Nevada foothills, and eastern Inner Coast Ranges, from Contra Costa to San Luis Obispo counties. There are two records from San Joaquin County, one each in the Lone Tree Creek and Midway quads. Both are old, imprecisely located records that cannot be used to identify occupied habitat. The habitat for this species is reported as grassy slopes and open woodlands below 2700 feet.

**Sagittaria sanfordii**

*Sanford's arrowhead*

*Sagittaria sanfordii* is a perennial herb belonging to the arrowweed family. Its historic range in California is the Central Valley from Butte County to Fresno County and along the coast from Del Norte County to Ventura County. It is mostly extirpated from the Central Valley due to channel and flow alteration of the major waterways. There are three records for this species from San Joaquin County, two from the Isleton quad and one from the Waterloo quad. The two records on the Isleton quad identify occupied habitat.
habitat. *Sagittaria sanfordii* is an emergent plant, growing in shallow, slow moving waters. Although its natural habitat is along streams and rivers, it also is sometimes found along man-made channels.

**Scutellaria lateriflora**  
*Mad-dog skullcap*

*Scutellaria lateriflora* is a perennial herb in the mint family. It has been collected from only two disjunct localities in California, in Saline Valley in Inyo County and on the Bouldin Island quad in San Joaquin County. The latter record is quite old and notations in the California Natural Diversity Data Base indicate that this population has been searched for in recent years without success. Therefore, this species is presumed extirpated from San Joaquin County. The habitat for *Scutellaria lateriflora* is mesic meadows, marshes, and swamps.

**Trichocoronis wrightii var. wrightii**  
*Wright's trichocoronis*

*Trichocoronis wrightii var. wrightii* is an annual member of the aster, or sunflower, family. Its historic range is in the Central Valley from Sutter and Colusa counties south to Merced County, a disjunct population in Riverside County, and from Texas. Taxonomic problems appear to exist; it is not clear whether the California populations constitute a separate species. In any case, it is presumed extirpated from all known localities in the Central Valley, including the single record from the Lathrop quad. The habitat for *Trichocoronis wrightii var. wrightii* is reported as moist places, mudflats, and shores.

**Tropidocarpum capparideum**  
*Caper-fruited tropidocarpum*

*Tropidocarpum capparideum* is an annual herb in the mustard family. Its historic range is from Glenn to Monterey counties, although recent attempts to find the plant have been unsuccessful; it is currently listed as "presumed extinct" by CNPS (Skinner and Pavlik 1994). There are seven records in the project database, all from the western side of San Joaquin County. All are in areas that have been urbanized or cultivated. The habitat for *Tropidocarpum capparideum* is described as low, alkaline hills.

**Tuctoria greenei**  
*Greene's tuctoria*

*Tuctoria greenei* is an annual member of the grass family. Its historic range is the Central Valley from Shasta to Tulare county, although it is extirpated from several of the southern counties for which records exist. In San Joaquin County, there are two records from 1987 for *Tuctoria greenei*, from the Escalon and Farmington quads. Both populations are presumed extirpated. The habitat for this species is large, relatively deep vernal pools, which

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often are located on low-lying lands suitable for agriculture.

B. INVERTEBRATES

*Aegialia concinna*
Ciervo aegialian scarab beetle

The *Ciervo* aegialian scarab beetle was first discovered in the *Ciervo* Hills of Fresno County, giving rise to its common name. It has since been recorded from inland sand dunes along the east side of the Inner Coast Ranges from San Joaquin County southward to Kern County. There is a single record from San Joaquin County near Manteca. This population is presumed extirpated, and there is believed to be limited potential for the discovery of additional populations, since the sand dunes that comprise their habitat have been destroyed by agriculture, urbanization, and sand and gravel mining.

FAIRY SHRIMP

Sexually mature adults have been observed in vernal pools three to four weeks after the pools had been filled. A portion of the cysts hatch immediately and the rest enter diapause and remain in the soil to hatch during later rainy seasons.

Fairy shrimp habitat loss is caused by a variety of activities including urban development, water supply/flood control projects, and conversion of land to agricultural use.

Holland (1978) estimated that between 67 and 88 percent of the habitat that once supported vernal pools, the endemic habitat of the vernal pool fairy shrimp, had been destroyed by 1973. In the ensuing 23 years, a substantial amount of remaining habitat has been converted for human uses. The rate of loss of vernal pool habitat in the state has been estimated at two to three percent per year. The Sacramento District of the U.S. Army Corps of Engineers has several thousand vernal pools under its jurisdiction, which includes most of the known populations of the fairy shrimp species. Coe (1988) estimated that within 20 years, 60 to 70 percent of these pools will be destroyed by human activities. (Sources: Holland and Jain 1988; Coe 1988; USFWS 1997)

Fairy shrimp have delicate elongate bodies, large stalked compound eyes, no carapace, and 11 pairs of swimming legs. They swim or glide gracefully upside down by means of complex beating movements of the legs that pass in a wavelike anterior to posterior direction. Nearly all fairy shrimp feed on (1) algae, (2) bacteria, (3) protozoa, (4) rotifers, and (5) bits of detritus. The females carry cysts in an oval or elongate ventral
brood sac. The cysts are either dropped to the pool bottom or remain in the brood sac until the female dies and sinks. The "resting" or "summer" cysts are capable of withstanding heat, cold, and prolonged desiccation. When the pools refill in the same or subsequent seasons some, but not all, of the cysts may hatch. The cyst bank in the soil may be comprised of the cysts from several years of breeding. The cysts hatch when pools fill with rainwater. The early life history stages of the fairy shrimp develop rapidly into adults. These non-dormant populations often disappear early in the season, long before the pools dry up.

**Branchinecta conservatio**

*Conservancy fairy shrimp*

There are no known occurrences of this species in the County, which was added at the request of the USFWS.

Conservancy fairy shrimp are similar in size, shape, and habit to vernal pool fairy shrimp. They differ in that conservancy fairy shrimp carry eggs in a spindle-shaped, ventral brood sac and the distal ends of the male antennae have a small anterior hump and a large posterior hump (Eng et al. 1990, Belk personal communication 1998a).

Conservancy fairy shrimp generally inhabit large to very large vernal pools and vernal lakes although they also have been found in alkaline pools (Helm 1998). Individuals have been observed in vernal pools ranging in area from 30 square meters (0.01 acre) to a 36-hectare (89-acre) vernal lake. The depth of known, occupied habitats ranges from 13 cm. (5 inches) to 47 cm. (18.5 inches).

All known populations of Conservancy fairy shrimp inhabit sites in California. The geographic range of this species encompasses the Sacramento Valley and the northern San Joaquin Valley, and the eastern flank of the central coastal range; an additional disjunct population has been identified in central Ventura County (Belk pers. com. 1998b, CDFG 1998). Based on the geographic range of this species, the Service considers appropriate habitats in the following counties to potentially support Conservancy fairy shrimp: Alameda, Butte, Colusa, Contra Costa, Glenn, Merced, western Placer, Sacramento, San Joaquin, Solano, Stanislaus, Sutter, Tehema, Ventura, Yolo, and Yuba.

**B. longiantenna**

*Longhorn fairy shrimp*

There are no known occurrences of this species in the County, which was added at the request of the USFWS.

Longhorn fairy shrimp are similar in shape and habit to vernal pool fairy shrimp, although they are typically smaller (e.g., 2 cm. [0.8 inch]).
Female longhorn fairy shrimp carry eggs in a cylindrical, ventral brood sac. The male antennae are relatively long, and have low, wart-like mounds on the medial surface of the distal end of their basal segments (Eng et al. 1990, Belk pers. com. 1998a).

Longhorn fairy shrimp generally inhabit moderately deep, medium to large-sized grass-bottomed and clay-bottomed alkaline pools and moderately deep, small to medium-sized rock outcrop pools (Eng et al. 1990, Helm 1998); however, individuals have been observed in pools less than one square meter (0.0002 acre) in area to pools as large as 0.3 hectares (0.7 acre). The depth of known, occupied habitats ranges from 20 cm. (8 inches) to 51 cm. (20 inches).

All known populations of longhorn fairy shrimp inhabit sites in California. The geographic range of this species encompasses the western San Joaquin Valley and the eastern flank of the central and southern coastal range (Belk, pers. com. 1998b, CDFG 1998). Based on the geographic range of this species, the Service considers appropriate habitats in the following counties to potentially support longhorn fairy shrimp: Alameda, Contra Costa, western Fresno, western Kern, Kings, western Madera, Merced, eastern Monterey, San Benito, San Joaquin, eastern San Luis Obispo, Santa Clara, and Stanislaus.

**B. sp. nova**

**Mid-Valley fairy shrimp**

There are no known occurrences of this species in the County, which was added at the request of the USFWS. For purposes of the SJMSCP, the habitat needs of this species are assumed to duplicate the habitat needs for **B. lynchi** described below.

**Branchinecta lynchi**

**Vernal pool fairy shrimp**

A complete description of the vernal pool fairy shrimp is found in 59 Federal Register 48136, the final rule listing this species under the Federal Endangered Species Act. This crustacean is restricted to vernal pools and swales and other seasonal aquatic habitats in California. Eng et al. (1990) and Simovich et al. (1992) provide further details on the life history and ecology of the vernal pool fairy shrimp.

The vernal pool fairy shrimp inhabits vernal pools with tea-colored water, most commonly in grass or mud bottomed swales, or basalt flow depression pools in unplowed grasslands. This fairy shrimp has been collected from early December to late May. Thirty-two populations of the vernal pool fairy shrimp are known to exist: (1) extending from Stillwater Plain in Shasta County through most of the length of the Central Valley to Pixley in Tulare County, and, (2) along the central Coast Range from
northern Solano County to Pinnacles National Monument in San Benito County.

Vernal pool fairy shrimp are known in San Joaquin County from the northeastern part of the County (Clements, Goose Creek, Lockeford, Lodi North, Goose Creek, and Valley Springs SW quads). There are 15 records in the SJMSCP GIS Database that meet the criteria for occupied habitat.

**Lepidurus packardi**  
**Vernal pool tadpole shrimp**

A complete description of the vernal pool tadpole shrimp is found in 59 Federal Register 48153, the final rule listing this species under the Federal Endangered Species Act. This crustacean is restricted to vernal pools and swales and other seasonal aquatic habitats in California. Eng et al. (1990) and Simovich et al. (1992) provide further details on the life history and ecology of the vernal pool tadpole shrimp.

The vernal pool tadpole shrimp has dorsal compound eyes, a large shield-like carapace that covers most of the body, and a pair of long cercopods at the end of the last abdominal segment. Tadpole shrimp climb or scramble over objects, as well as plow along in bottom sediments. Their diet consists of organic detritus and living organisms, such as fairy shrimp and other invertebrates. The vernal pool tadpole shrimp is known from 18 populations in the Central Valley, ranging from east of Redding in Shasta County south to the San Luis National Wildlife Refuge in Merced County, and from a single vernal pool complex located on the San Francisco Bay National wildlife Refuge in the City of Fremont, Alameda County.

This invertebrate inhabits vernal pools containing clear to highly turbid water, and ranging in size from 54 square feet in the Mather Air Force Base area of Sacramento County, to the 89-acre Olcott Lake at Jepson Prairie. The life history of the vernal pool tadpole shrimp is linked to the phenology of the vernal pool habitat. After winter rainwater fills the pools, the populations are reestablished from diapause eggs that lie dormant in the dry pool sediments.

**Desmocerus californicus dimorphus**  
**Valley elderberry longhorn beetle**

The valley elderberry longhorn beetle was listed as a threatened species (45 Federal Register 52803) on August 10, 1980. Two areas along the American River in the Sacramento metropolitan area have been designated as critical habitat for the beetle. In addition, an area along Putah Creek, Solano County, and the area east of Nimbus Dam along the American River Parkway, Sacramento County, are identified as important habitat in the recovery plan for the species. These areas support large numbers of mature elderberry shrubs with extensive evidence of use by the beetle.
The valley elderberry longhorn beetle is dependent on its host plant, elderberry (*Sambucus* species), which is a common component of the remaining riparian forests of the Central Valley. Use of the plants by the animal, a wood borer, is rarely apparent. Frequently, the only exterior evidence of a shrub's use by the beetle is an exit hole created by the larva just prior to the pupal stage. The 1984 Valley Elderberry Longhorn Beetle Recovery Plan (USFWS 1984) and Barr (1991) contain further details on the beetle's life history.

Extensive conversion of California's Central Valley riparian forests has occurred during the last 150 years for agricultural and urban uses. Based on a 1979 aerial survey, only about 102,000 acres out of an estimated 922,000 acres of Central Valley riparian forest remain. This loss of riparian habitat strongly suggests that the range of the beetle has been reduced and its distribution fragmented. Historical loss of non-riparian habitat where elderberry occurs (e.g., savanna and grassland adjacent to riparian areas, oak woodland, mixed chaparral-woodland), and where the beetle has been recorded, suggests further reduction of the beetle's range and increased fragmentation of its upland habitat.

The beetle's current distribution is patchy throughout the remaining habitat of the Central Valley from Redding to Bakersfield. Surveys conducted in 1991 found evidence of beetle activity at 28 percent of the 230 sites with elderberry. The beetle appears to be only locally common (i.e., found in population clusters which are not evenly distributed across available elderberry shrubs). Frequently only particular clumps or trees in study areas are found to harbor the beetle. Plants used by the beetle usually show evidence of repeated use over a period of several years, but sometimes only one or two exit holes are present. Similar observations on the clustered distribution of exit holes were made by Jones and Stokes (1987). Barr (1991) noted that elderberry shrubs and trees with many exit holes were most often large, mature plants; young stands were seldom infested. (Sources: USFWS 1984; USFWS 1997; Katibah 1983; Thompson 1961; Katibah et al. 1981; Barr 1991; Jones and Stokes 1987).

Within San Joaquin County distribution of the valley elderberry longhorn beetle includes elderberry savanna and all valley floor riparian and foothill habitats that support elderberry. The *SJMSCP GIS Database* includes 9 records used to identify occupied habitat. An additional 246 records indicate suspected presence of the valley elderberry longhorn beetle based on the presence of elderberry bushes. Most of these bushes were noted during recent systematic surveys in the Delta.

*Hygrotis curvipes*

Curve-footed diving beetle

There are no known occurrences of this species in San Joaquin County, although occurrences are known in adjacent counties. This species was
added at the request of USFWS. Its habitat is assumed to overlap that of *B. lynchi* for the purposes of the SJMSCP.

*Lytta moesta/L. molestae*
Moestan blister beetle/molestan blister beetle

The moestan and molestan blister beetles are poorly known species that are parasitic on ground nesting bees. There are collection records known from the Central Valley, Coast Range, and Sierra Nevada foothill areas. In San Joaquin County, there is one poorly located record for *L. moesta* from Manteca; CDFG presumes it to be extant. However, the general area is highly developed and there are few remnants of natural habitats nearby that could provide habitat. Habitat for both species includes annual grassland, foothill woodland, and saltbush (*Atriplex*) scrub. It is likely that other populations may occur elsewhere in San Joaquin County.

C. FISH

*Acipenser medirostris*
Green sturgeon

Two species of sturgeon (green and white) inhabit the Sacramento-San Joaquin estuary. The life history and ecology of the green sturgeon have received comparatively little study, presumably due to their generally low abundance in most estuaries and their low commercial and sport-fishing value in the past. The San Francisco Bay system, comprising San Francisco Bay, San Pablo Bay, Suisun Bay and the Delta, is home to the southernmost reproducing population of green sturgeon.

The habitat requirements of green sturgeon are poorly known, but spawning and larval ecology are probably similar to that of white sturgeon. The green sturgeon is anadromous and spends most of its life in brackish or salt water, returning to fresh water to spawn. Preferred spawning substrate likely is large cobble, but can range from sand to bedrock. Eggs are broadcast-spawned and externally fertilized in relatively fast-flowing water and probably in depths of over three meters. Although the importance of water quality is uncertain, silt is known to prevent the eggs from adhering to each other. Spawning occurs at water temperatures from 8-14 °C. In general, green sturgeon are bottom feeders which utilize food organism items most readily available to them (e.g., juvenile fish, opossum shrimp and amphipods).

The green sturgeon has always been comparatively uncommon, but it appears to be declining throughout its range. Over fishing in the late 1800's of both sturgeon species greatly reduced the populations long before any biological research was conducted. CDFG has conducted tagging studies, intermittently since 1954, in the Sacramento-San Joaquin Estuary and identified 15,894 sturgeon of both species. Based on these data, a green sturgeon to white sturgeon ratio range of between 1:76-1:9
was derived, although these numbers should be regarded as very crude estimates, due to tenuous assumptions. A particularly heavy concentration was found in shallow water of the lower San Joaquin River in the summer of 1964; all the fish appeared to be juveniles. The relatively high catch of green sturgeon in the San Joaquin River during that summer suggested an abrupt movement into this area. These fish are believed to move upriver from the bay, perhaps to feed. In recent years, juvenile green sturgeon have been collected within San Joaquin County at Mossdale Landing during CDFG’s chinook salmon smolt trapping study (1987-present), but specific numbers have either not been recorded or are considered unreliable by CDFG. In addition, variable numbers of juvenile green sturgeon have been salvaged at the state and federal pumping facilities near Tracy. The sturgeon which are salvaged and lost each year at the facilities probably reach this area via rivers in San Joaquin County (e.g., Old River, Middle River). At the Central Valley Project pumps, 1,374 green sturgeon were rescued and recorded in 1985, 49 in 1986, 91 in 1987, and none in 1988-1990. The estimated total number of green sturgeon reported at the state pumping facility were: 7,311 in 1974; 2,285 in 1975, 767 in 1978, 1 and 0-423 in each of the remaining years.

The very low abundance of green sturgeon has hindered scientific study of the species, but it is believed to be declining throughout its range. Factors contributing to the decline locally include: (1) sport fishing; (2) modifications of spawning and rearing habitat; (3) entrainment at the state and federal pumps; and (4) toxic substances from heavy metals to pesticides. Clearly, more research is needed to assess the life history and ecological requirements for the green sturgeon within its range, including research and surveys in the rivers and sloughs within San Joaquin County.


*Hypomesus transpacificus*

**Delta smelt**

Delta smelt are endemic to the upper Sacramento-San Joaquin estuary and inhabit open, surface waters of the Delta and Suisun Bay. This species has been found as far upstream in the Sacramento River as the mouth of the Feather River, and as far as Mossdale on the San Joaquin River. Their normal downstream limit appears to be western Suisun Bay, although during high outflows they can be washed into San Pablo and San Francisco bays.

The basic life history of the delta smelt is reasonably well known. The distribution of delta smelt is apparently affected by outflow and related entrapment zone phenomena (mixing zone at the saltwater-freshwater interface), where the salinity is approximately two parts per thousand; they
are rarely found at salinities greater than 10 parts per thousand. As flows increase and saltwater is repelled, more of the delta smelt population occurs in Suisun and San Pablo bays and less occurs in the Delta.

Spawning appears to occur from December to the end of June, a strategy probably dictated by the highly variable hydrologic conditions in the watershed. This species tolerates a wide range of conditions such as temperature (15-23 °C) and salinity, and utilizes both shallow water and deep-water habitat. Delta smelt have a relatively low fecundity and are broadcast spawners; survival of the adhesive eggs and larvae, therefore, is probably significantly influenced by hydrology at the time of spawning. Possible spawning locations are reported to include dead-end sloughs, inshore areas of the Delta, edges of rivers, or river areas under tidal influence with moderate to fast flows. Spawning occurs in the water column above vegetation or in open water above sandy or rocky substrates. Delta smelt eggs likely attach to rocks, gravel, tules, cattails, tree roots, and emergent vegetation. After hatching, the larvae float to the surface and drift with the currents downstream toward the entrapment zone. The location of the entrapment zone in the estuary depends on flow conditions (e.g., water export rates, Delta cross-channel open or closed, outflow, etc.). Delta smelt feed entirely on zooplankton.

Although, historically, the delta smelt was widespread and occurred from Mossdale Landing on the San Joaquin River, upstream to the confluence of the Feather River on the Sacramento River, the population declined precipitously, beginning somewhere between 1982 and 1985. The causes of the decline in delta smelt are believed to be multiple and synergistic and include: (1) reduction in outflows; (2) high outflows; (3) entrainment losses, due to water diversions; (4) changes in food organisms; (5) toxic substances (e.g., agricultural pesticides); and (6) loss of genetic integrity. As a result of the degradation of habitat, the habitat for this species has been constricted to the less productive, deep-water river channels of the Delta. The above impacts, together with severe drought years appear to have reduced the capacity of this species to recover from natural seasonal fluctuations in hydrology. The legal description of critical habitat for the delta smelt includes the entire San Joaquin Estuary.

The delta smelt has been collected in the following areas within San Joaquin County: San Joaquin River; Old River; Middle River; North Canal; Rock Slough; Holland Cut; Turner Cut; Grant Line Canal; Mokelumne River; South Fork Mokelumne River; Little Potato Slough; Disappointment Slough; and, in the vicinity of Bouldin and Woodward islands. In recent years, delta smelt have been collected at Mossdale Landing during CDFG’s chinook salmon smolt trapping study (1987-present), but specific numbers have either not been recorded or are considered unreliable by CDFG. Finally, the estimated tens of thousands of delta smelt (larvae and eggs, primarily) salvaged and lost each year at the state and federal pumping facilities reach this area via rivers in San Joaquin County (e.g., Old River, Middle River).
A recovery plan for the delta smelt (USFWS, 1995) was approved in November, 1996. The plan cites the following actions needed for the recovery of the delta smelt:

1. Enhance and restore aquatic and wetland habitat in the Sacramento-San-Joaquin River estuary.
2. Reduce effects of commercial and recreational harvest.
3. Reduce effects of introduced aquatic species on Delta native fishes.
4. Change and improve enforcement of regulatory mechanisms.
5. Conduct monitoring and research on fish biology and management requirements.
6. Assess recovery management actions and re-assess prioritization of actions.
7. Increase public awareness of importance of Delta native fishes.

Given the scope of SJMSCP Permitted Activities and the jurisdictions of the Permittees, the SJMSCP conservation strategy emphasizes the enhancement and restoration of aquatic and wetland habitats in the Sacramento-San-Joaquin River estuary.

USFWS and CDFG are currently undertaking studies to identify specific ecological requirements and detailed life history information for the delta smelt.


**Delta Smelt Critical Habitat**

Critical habitat has been designated by the USFWS for the delta smelt. In designating critical habitat, the USFWS identified the following primary elements as essential to the conservation of the delta smelt: physical habitat, water, river flow, and salinity concentrations required to maintain delta smelt habitat for spawning, larval and juvenile transport, rearing, and adult migration. Critical habitat for delta smelt is contained within Contra Costa, Sacramento, San Joaquin, Solano, and Yolo counties.

Specific areas that have been identified as important delta smelt spawning habitat include Barker, Lindsey, Cache, Prospect, Georgiana, Beaver, Hog and Sycamore creeks and sloughs; the Sacramento River within the Delta; and tributaries of northern Suisun Bay. Adequate river flow has been identified as the necessary element for transporting larvae and juveniles from upstream spawning areas to rearing habitat in Suisun Bay and to ensure that rearing habitat is maintained in Suisun Bay. To ensure this,
freshwater/saltwater interface of two parts per thousand (X2) must be located westward of the confluence of the Sacramento-San Joaquin Rivers, near Collinsville (confluence), during the period when larvae or juveniles are being transported, according to historical salinity conditions. This salinity is important because the "entrapment zone" or zone where particles, nutrients, and plankton are "trapped," leading to an area of high productivity, is associated with its location. Habitat conditions suitable for transport of larvae and juveniles may be needed by the species as early as February 1 and as late as August 31, because the spawning season varies from year to year and may start as early as December and extend until July.

An area extending eastward from the Carquinez Straits, including Suisun, Grizzly, and Honker bays, Montezuma Slough and its tributary sloughs, up the Sacramento River to its confluence with Three Mile Slough, and south along the San Joaquin River including Big Break, defines the specific geographic area critical to the maintenance of suitable rearing habitat. Three Mile Slough represents the approximate location of the most upstream extent of historical tidal incursion. Rearing habitat is vulnerable to impacts from the beginning of February to the end of August.

Adequate flow and suitable water quality are needed to attract migrating adults in the Sacramento and San Joaquin river channels and their associated tributaries, including Cache and Montezuma sloughs and their tributaries. These areas are vulnerable to physical disturbance and flow disruption during migratory periods. (Source: USFWS 1995).

**Pogonichthys macrolepidotus**
**Sacramento splittail**

The Sacramento splittail is endemic to California and was once widely distributed in lakes and rivers throughout the Central Valley. The species was federally listed as threatened in February, 1999. Historically, this species was found as far south as the present-day Friant Dam on the San Joaquin River, as far north as Redding on the Sacramento River, and as far upstream as the current Oroville Dam site on the Feather River and Folsom Dam site on the American River.

The splittail has a moderately complex life cycle. The spawning period seems to vary, depending on environmental conditions such as water temperature, photo-period, seasonal runoff, and possibly endogenous factors. Although, the timing of spawning varies, depending upon locale, the spawning time ranges from late January through early June. Spawning success has been correlated with outflow, with the timing and magnitude of winter and spring runoff significant in determining spatial and temporal distribution. Splittail appear to prefer large sloughs and dead-end sloughs, fed by freshwater streams. Juveniles and adults utilize shallow edgewater
areas lined by emergent aquatic vegetation. Submerged vegetation provides abundant food sources and cover to escape predators. Shallow, seasonally flooded vegetation is also apparently the preferred spawning habitat of adult splittail. The eggs are adhesive and hatch within a week or less, depending upon water temperatures. After absorbing their yolk sac, the larvae begin to feed. Young-of-the-year splittail appear to seek out shallow, vegetated areas, protected from strong currents near spawning ground and move downstream, as they grow.

Sacramento splittail populations fluctuate annually, depending upon freshwater outflow and availability of shallow-water habitat with submerged vegetation. The onset of spawning is associated with rising temperature, and peak spawning occurs from March through May, although records of spawning exist for late January to early July. Spawning occurs over flooded vegetation in tidal freshwater and euryhaline habitats of estuarine marshes, sloughs, and slow moving reaches of large rivers. The larvae remain in shallow, weedy areas adjacent to the spawning areas and move into deeper water as they mature.

Although primarily a freshwater species, the splittail can tolerate salinities as high as 10 to 18 parts per thousand. In recent years, this fish has been collected most often in slow-moving reaches of rivers and sloughs and dead-end sloughs. Because they require flooded vegetation for spawning and rearing, splittail are frequently found in areas subject to flooding, such as the major flood basins distributed through the San Joaquin and Sacramento valleys.

Similar to other non-commercial or non-recreational fish species, there have been no systematic, rangewide surveys to sample the splittail population. However, during the past 15 years, the Sacramento splittail population has declined by 62 percent. It is primarily threatened by large freshwater exports from San Joaquin and Sacramento River diversions, prolonged drought, loss of shallow-water habitat, introduced aquatic species, and agricultural and industrial chemicals. The Sacramento splittail is now restricted to a small portion of its former range; it is largely confined to the Delta, Suisun Bay, Suisun Marsh, and Napa Marsh.

Analyses of Sacramento splittail survey data collected since 1967 by the USFWS, CDFG, and U.C. Davis indicate the following: (1) Successful reproduction is highly correlated with wet years, but within these wet years, the numbers of young-of-the-year (YOY) have declined; (2) A strong relationship exists between YOY abundance and outflow; (3) Lower than expected numbers of splittail young persisted throughout the recent six-year drought in California; (4) Splittail are most abundant in shallow areas of Suisun and Grizzly bays and are vulnerable to increased salinities (produced by increased water exports); (5) Splittail are particularly susceptible to dredging and diking and filling of wetlands; and (6) Splittail distribution has shifted upstream into the South Delta and lower Sacramento River since 1983. Because state and federal water
project pumps are located near the South Delta and lower Sacramento River, this upstream shift in splittail distribution increases splittail mortality at the pumps. To ensure that Sacramento splittail are protected, the San Joaquin and its tributaries must be protected from physical disturbance (e.g., dredging) and flow disruption.

Splittail have been collected in the following areas within San Joaquin County: San Joaquin River; Old River; North Canal; Rock Slough; Holland Cut; Grant Line Canal; Mokelumne River; South Fork Mokelumne River; Beaver Slough; Potato Slough; Little Potato Slough; Sycamore Slough; Disappointment Slough; Bishop Cut; and, in the vicinity of Bouldin and Woodward islands. In addition, Old River, within San Joaquin County, is one of the rivers which transports the splittail eggs and larvae juvenile salvaged each year at the state and federal pumps. The USFWS and CDFG are currently undertaking studies to identify ecological requirements and life history information for the Sacramento splittail.

To better understand the life cycle and ecology of the splittail, studies are needed in a range of shallow fresh- and brackish-water habitats through all seasons.

Sources: Moyle et al. 1989; Rutter 1908; Caywood 1974; Daniels and Moyle 1983; Wang 1986; Meng 1993; Recovery Plan for the Sacramento/San Joaquin Delta Native Fishes 1996.

*Spirinchus thaleichthys*

*Longfin smelt*

The longfin smelt is a small fish found in several Pacific coast estuaries from Prince William Sound, Alaska, to San Francisco Bay. Historically, it seems likely that their range extended as far up into the Delta as the salt water intruded because longfin smelt seldom occur in fresh water except to spawn. Prior to construction of Shasta Dam, salt water would invade the Delta as far upstream as Sacramento during the dry months. The development of agriculture and water projects are believed to have restricted the range of the longfin smelt before any studies of their biology were begun.

The longfin smelt is a euryhaline species with a two-year life cycle. Peak spawning occurs from February to April, although spawning may take place as early as November and extend into June. Upon hatching, the larvae move up into surface waters and are transported downstream into brackish-water nursery areas. San Joaquin-Sacramento river outflow into Suisun and San Pablo Bays has been positively correlated with longfin smelt recruitment; higher outflow increases larval dispersal and available rearing area. The longfin smelt feed primarily on opossum shrimp, although copepods and other crustaceans are also eaten. Longfin smelt
play an important role in maintaining the structure and function of estuarine ecosystems, because they are important food for birds and piscivorous fishes (e.g., striped bass).

Longfin smelt were once one of the most abundant fish caught by trawl surveys in the Sacramento-San Joaquin River System. Although numbers fluctuated widely in the past, abundance has dropped dramatically since 1983 and has remained at record lows. Longfin smelt numbers have declined by 90 percent since 1984 and by 50 percent annually since 1987. The decline in longfin smelt abundance is associated with fresh water diversions from the Delta, as well as drought conditions. Strong relationships between outflow and longfin smelt abundance indicate that outflows less than 3,600 cubic feet per second (cfs) result in reproductive failure for longfin smelt. Due to the two-year life span, such flows for more than two or three consecutive years could push this species toward extinction. Movement of the entrapment zone up-river, due to low outflows has constricted the range of the longfin smelt and made it increasingly vulnerable to diversion into man-made structures.

The longfin smelt appears most abundant in Suisun and San Pablo Bays, although within San Joaquin County, they have been collected in Disappointment Slough, Little Potato Slough, and the Mokelumne River. In addition, the hundreds of longfin smelt (larvae and eggs, primarily) salvaged and lost each year at the state and federal pumps reach the pumps via rivers within San Joaquin County (e.g., Old River, Middle River).

The USFWS and CDFG are currently undertaking studies to identify ecological requirements and life history information for the longfin smelt.

Sources: Meng 1993; Moyle and Yoshiyama 1992.

D. AMPHIBIANS

*Ambystoma californiense*
California tiger salamander

The California tiger salamander is known from the Central Valley and Coast Ranges of California. Most records are reported from elevations below 1,000 ft (300 m). There are records for this species on both the west side and east side of San Joaquin County; the project database includes 38 occurrences, of which 30 define occupied habitat. The California tiger salamander inhabits grasslands, and requires temporary pools (such as vernal pools or stock ponds) for successful reproduction. Pools holding water for several months are adequate for larval transformation; permanent pools generally contain important predators of larval salamanders (such as introduced fish and bullfrogs) and are therefore unsuitable for breeding purposes. After the breeding season, tiger salamanders return to estivation...
burrows created by ground squirrels and other animals. Although these estivation sites may be as far as 3,000 ft (1,000 m) from the breeding ponds, they are usually much closer.

Like some other SJMSCP Covered Species (e.g., giant garter snake, California red-legged frog, foothill yellow-legged frogs), California tiger salamanders need both aquatic and terrestrial habitat to complete their life cycle, and cannot exist in a landscape that does not provide proper conditions for both. California tiger salamanders breed in wetlands, where they lay eggs, and where their aquatic larvae complete their development and metamorphose into mobile juvenile salamanders. At the onset of the dry season, metamorphose juveniles and adults retreat to burrows in nearby uplands and enter a state of inactivity (estivation) that lasts approximately 9 months, after which adults migrate back to breeding ponds. Migration distances between estivation and breeding sites vary widely, but have been observed to vary from 330 feet to 1 miles, with an average distance of approximately 3,000 feet.

California tiger salamanders occur in low elevation grasslands and oak woodlands in the Southwest Zone, and alongside the eastern edge of San Joaquin County in the Vernal pool Zone and inter-fingered natural habitats of the Central Zone (see maps in SJMSCP Section 5.1.2). Eastern San Joaquin County is part of the Sacramento Valley population of California tiger salamanders; the southwestern county occurrences are part of the Bay Area population. Vernal pools and other seasonal ponds are the primary breeding areas used by California tiger salamanders. They are known in the southeastern Sacramento Valley, Southern Sierra Foothills, and Livermore vernal pool regions within the SJMSCP Plan Area, and may occur in seasonally flooded wetlands in the grassland and oak woodlands of the Central Zone that lie between the Vernal Pool Zone fragments. However, California tiger salamanders require a longer inundation period to complete their life cycle than do vernal pool crustaceans, so not all vernal pools and seasonal wetlands that support listed crustacean species provide breeding habitat for California tiger salamander.

*Rana aurora draytoni*
California red-legged frog

The California red-legged frog is a pond-dwelling species of the Coast Ranges and west side of the Sierra Nevada. Although apparently recorded from the Central Valley as well, it now is apparently extirpated from the lower elevations (Stebbins 1985).

The habitat of the California red-legged frog is permanent ponds and streamsides in grasslands, woodlands and forests with emergent vegetation that provides cover and which have still water. Red-legged frogs require cool water. Intermittent streams must retain surface water in pools year-round in order for frogs to survive (Jennings et. al. 1993).
Valley drainage area, Hayes and Jennings (1988) found red-legged frogs about twice as frequently in intermittent aquatic habitats, probably due to their exclusion from permanent aquatic habitats occupied by bullfrogs and non-native fish (Hayes and Jennings 1988). Deep pools are necessary for many aspects of the frog's life cycle. In a study of the Central Valley drainage area, Hayes and Jennings (1988) found California red-legged frogs almost exclusively (99%) at sites with some water at least 70 centimeters deep. The predator response behavior of northern red-legged frogs is to flee directly into the water and swim to the deepest part of the channel or pool (Gregory 1979), a pattern also observed in California red-legged frogs (Jennings, personal communication).

Adult red-legged frogs require dense riparian vegetation that is in contact with, or close to, water 0.7 meter or greater in depth (Hayes and Jennings 1988). Vegetation structures are important for escape cover from predators and possibly also as shading to maintain cool water temperature (Hayes and Jennings 1988). Vegetation often includes, but is not limited to, cattails (Typha spp.), bulrushes (Scirpus spp.), and willows (Salix spp.). At sites with adult California red-legged frogs, vegetation typically shades a substantial portion of water surface area with a dense matrix right at or near water level (Hayes and Jennings 1988). Vegetation is often sufficiently dense to prevent the entry of predators such as birds and raccoons.

Telemetry studies indicate that the California red-legged frog leaves riparian zones during the non-breeding season and move into adjacent upland forests or aquatic habitats between breeding and foraging sites (Jennings et al. 1993).

California red-legged frogs have a highly variable diet, probably taking any prey they can subdue that is not distasteful (Hayes and Tennant 1985). Other amphibians and small mammals may form a significant portion of their diet (Hayes and Tennant 1985).

The frogs breed from late November to early April (Jennings and Hayes 1989). Timing is probably to ensure that water is cool enough for embryonic survival and that sufficient water exists for larval growth and metamorphosis. Egg masses are typically attached to emergent vegetation with a vertical orientation. Wading birds, particularly bitterns (Botaurus lentiginosus) and black-crowned night herons (Nycticorax nycticorax) are likely significant predators on adult California red-legged frogs (Jennings and Hayes 1989). Juveniles, which are more active during the day than adults, are probably preyed upon by garter snakes (Thamnophis atratus, T. elegans, T. hammondii, and T. sirtalis tetrataenia) (Fitch 1940; Fox 1951, 1952; and Barry 1978).

This species has been much reduced by water developments, agriculture, urbanization, and competition with the introduced bullfrog. There are 14 records in the SJMSCP GIS Database for the California red-legged frog in San
Joaquin County, all of which define occupied habitat. This species persists in the extreme western part of San Joaquin County, and suitable habitat also exists in the eastern and northeastern portions of the County.

*Rana boylei*
Foothill yellow-legged frog

The foothill yellow-legged frog is a species of streams and rivers. It is known from the Coast Ranges and west side of the Sierra Nevada northward through the central Cascades. There are four records for this species from San Joaquin County, three of which define occupied habitat. The foothill yellow-legged frog was recorded from the Corral Hollow area as recently as 1977, although the population appeared to be on the decline (Ed Ely, personal communication with Byron Wilson). Because the land use has not changed, these three records are used to define occupied habitat. The present status of this species in western San Joaquin County is unknown. Likewise, its presence in eastern San Joaquin County, where suitable habitat does exist, is also unknown.

*Scaphiopus hominid*
Western spadefoot toad

The western spadefoot toad has a range that includes all of the Central Valley and surrounding foothills, Coast Range valleys and southern coastal California, as well as northern Baja California. It is reported as extinct throughout much of lowland California (Stebbins 1985). There are 16 records in the project database, from both the eastern and western sides of the Central Valley floor where natural pools still remain. Ten of these records define occupied habitat. The spadefoot toad prefers areas of open vegetation and sandy to gravelly soil; it is found in grasslands, savannas, and open chaparral. It breeds in temporary waters such as vernal pools or intermittent streams.

E. REPTILES

*Clemmys marmorata*
Western pond turtle

The western pond turtle occurs from the Pacific Northwest through the Central Valley, southern Coast Ranges, and northern Baja California. The Central Valley is an area of intergradation of two subspecies, the northwestern (*C. m. marmorata*) and southwestern pond turtle (*C. m. pallida*), that are recognized by some workers. Pond turtles inhabit ponds, marshes, streams, and ditches that typically have a rocky or muddy substrate and support emergent vegetation (Stebbins 1985). The lack of natural, permanent water in the San Joaquin Valley has nearly eliminated this species from the Valley floor. There are 171 records for the western pond.
turtle in the project database, of which 143 define occupied habitat. Although most of these records were reported from the Delta region, the species also occurs in the southwestern and northeastern parts of the County.

*Masticophis flagellum ruddocki*
San Joaquin whipsnake

The San Joaquin whipsnake (or San Joaquin coachwhip) occurs primarily from the Delta region southward in the San Joaquin Valley and the Coast Ranges to Kern and Santa Barbara counties. It is known from ten records in the vicinity of Corral Hollow. All of these records are used to define occupied habitat in San Joaquin County. This species is known from a variety of habitats, including grassland, savanna, chaparral, and woodland; as a result, suitable habitat may be present on the eastern side of the County as well.

*Phrynosoma coronatum frontale*
California horned lizard

The California horned lizard is known from the Central Valley and South Coast Ranges. There are 12 records from San Joaquin County, all from the west side on the Clifton Court Forebay, Midway and Tracy quads and all define occupied habitat. In addition to grasslands, this species inhabits oak woodlands and chaparral. Suitable habitat is also present on the eastern side of the County.

*Thamnophis gigas*
Giant garter snake

The original reported range of the giant garter snake was the San Joaquin Valley from the vicinity of Sacramento and Antioch southward to Buena Vista Lake, Kern County. The present known distribution extends from the vicinity of Gridley, Butte County, to the vicinity of Burrel, Fresno County (CDFG 1989). It is now considered extirpated from the Buena Vista Lake and Tulare Lake Basin (CDFG 1990 in Renshaw 1991). Throughout its remaining range, the species and its supporting habitat are depleted (CDFG 1989). There are 14 records for the giant garter snake in the project database, eight of which identify occupied habitat. The giant garter snake is one of the most aquatic of garter snakes and is usually found in streams, marshes, and sloughs with mud bottoms (Stebbins 1985). It also occurs in drainage canals and irrigation ditches (CDFG 1989).

Giant garter snake habitat includes marshes, sloughs, ponds, small lakes, low gradient streams, other waterways and agricultural wetlands such as irrigation and drainage canals, rice fields and the adjacent uplands. Essential habitat components consist of (1) adequate water (either
permanent aquatic habitat, or seasonally flooded during the snake’s active season, early spring through mid-fall) to provide a prey base and cover; (2) emergent, herbaceous wetland vegetation, such as cattails and bulrushes, for escape cover and foraging habitat; (3) upland habitat, including grassy banks, for basking, cover and retreat sites; and (4) higher elevations uplands for cover and retreat sites during the snake’s active season and refuge from flood waters during the dormant season. Giant garter snakes are typically absent from larger rivers and other water bodies that support introduced populations of large predatory fish, and from wetlands with sand, gravel, or rock substrates. Riparian woodlands typically do not provide suitable habitat because of excessive shade, lack of basking sites, and absence of giant garter snake prey.

Giant garter snakes are apparently absent from large rivers, and from wetlands with sand, gravel or rock substrates (G. Hansen, 1980, Rossman and Stewart 1987, Brode 1988, G. Hansen 1988). Surveys have failed to detect giant garter snakes along larger rivers within the Central Valley. However, channelization, flood control, land reclamation for agriculture, and alterations of flows and substrate from hydraulic mining may have removed suitable habitat associated with these larger waterways. Historically, oxbows, overflow areas, and backwater sloughs or channels could have provided suitable habitat. Riparian woodlands do not typically provide suitable habitat because of excessive shade, lack of basking sites, and the absence of prey populations (G. Hansen 1980).

Giant garter snakes have fairly specific habitat requirements that are compatible with certain agricultural practices, such as rice farming, but are incompatible with a number of human uses, including recreation, flood control, and even winter waterfowl management. Since they are aquatic hunters, they must have permanent, though not necessarily extensive, water. They have probably lost much potential habitat because young snakes are preyed upon by introduced predaceous game fish such as bass.

Flooding destroys winter hibernacula (chambers above the highest flood level used for hibernation); the giant garter snake must have a protected, non-flooding upland site in which to overwinter. Unlike most of the SJMSCP Covered fish species and riparian-associated birds, giant garter snakes are not greatly benefitted by tree and shrub cover on banks; on the contrary, they require banks covered with vegetation and high grass as cover against predators (e.g., notably egrets, herons, and northern harriers that are plentiful in the Valley) on which to bask and from which to dive when alarmed. When disturbed by human activity, they will move great distances, possibly out of the areas set aside for their protection. All of these factors may contribute to the current rarity of this species.

F. BIRDS
Where breeding records are not available or not current for birds, the source material was evaluated for indications of presence at the proper time of year, observed activity and other factors. The species is considered a breeding resident (for the planning purposes of the SJMSCP) when such observations are consistent with breeding and the species' nesting range is generally accepted to include San Joaquin County, or where the species was reported in Grinnell's standard reference for California in the 1940s (Grinnell and Miller 1944) or the Audubon Society Encyclopedia of North American Birds (Terres 1994), and habitat is still available. In some cases, this results in a "presumption of presence" of a species where the biological arguments are convincing, but such a presumption does not always meet the standards of more critical tests, e.g., current observational data from the Audubon Society.

**Accipiter cooperii**  
Cooper's hawk

The Cooper's hawk ranges over most of North America, and may be seen throughout California. It is more common as a winter migrant, and nesting pairs have declined throughout the lower elevation, more populated, parts of the state. There are only two records for this species in the project database, one a confirmed occurrence from the Tracy quad used to define occupied habitat and the second an observation on the Clements quad. The former observation was of a single adult foraging in mid-summer (EIP 1993); the latter a suspected breeding evaluation made by Jones & Stokes in 1990 (JSA 1990). Based on these indications and the breeding range accepted for the species (see introductory comments to this section on birds), Cooper's hawks are considered to breed in the County. The Cooper's hawk forages in open woodlands and wood margins (Robbins et al. 1966) and apparently nests in tall trees, often in riparian areas.

**Accipiter striatus**  
Sharp-shinned hawk

The sharp-shinned hawk occurs in most of North America and is a resident species throughout California. There are two records for the sharp-shinned hawk in San Joaquin County; the former from the Tracy quad in September, 1990 (EIP 1991) and the latter a winter observation on Goose Creek. Although the latter observation is not suggestive of breeding, the open woodlands and riparian woodland margins in the Corral Hollow area are suitable habitat, and sharp-shinned hawks are therefore considered to breed in the County.

**Aechmophorus occidentalis**  
Western grebe

The western grebe winters along the Pacific Coast and Central Valley, and breeds from the Central Valley north and eastward through central and
western Canada. There are eight records of western grebes in San Joaquin County, clustered in three groups. Two groups are on the Bouldin Island quad and one near Camanche Reservoir on the Clements quad. This species is a fairly common sight in winter. Although only one record is from the breeding season, it involves many individuals. This, taken together with historic records from Grinnell and Miller (1944), suggest that the species probably breeds in the County. The western grebe nests in colonies in marshy lakes, where it feeds primarily on small fish.

*Agelaius tricolor*

**Tricolored blackbird**

Tricolored blackbirds occur chiefly (99 percent) in California in the Central Valley, surrounding foothills, coastal areas, and scattered inland areas of northern and southern California. DeHaven et al. (1975) estimated that in the 35 years prior to 1972, the Central Valley population of tricolored blackbird had declined, "perhaps by more than 50 percent." Today the total population is declining (Terres 1980). There are 29 records for the tricolored blackbird in the project database, of which 22 define occupied habitat. For breeding, tricolored blackbirds historically have been reported from dense tule marshes or patches of tules, cattails, or other emergent vegetation; more recently, the trend has been for more colonies to occur in blackberry thickets, and certain spiny grain crops such as wheat and barley. Breeding marshes may be wet or dry.

More recent studies (Cook, 1999) indicate that San Joaquin, may, as part of the Sacramento-San Joaquin Delta be important wintering habitat. The 1999 study also evaluates breeding success and cautions that observations of large numbers of tricolors—even those appearing to be producing second clutches—while indicative of breeding, do not always equate with reproductive success for the species. Low reproductive success has recently been found in deep water marshes of cattails (*Typha* spp.) and bulrush (*Scirpus acuta*) due, primarily to predation from herons (black-crowned night herons and great blue herons) and raccoons. In contrast, reproductive success is often high for colonies nesting in armored vegetation—especially the Himalaya blackberry (*Rubus procerus*)—which protects nests from many predators. High-value foraging habitats for breeding tricolors include irrigated and unirrigated grasslands and pastures, and vernal pool grassland complexes, and hay fields of alfalfa or other species, especially if recently cut and flood-irrigated (Cook, 1999). Foraging sites must be within a few miles of the nesting site.

*Amphispiza belli belli*

**Bell's sage sparrow**

Bell's sage sparrow is a sedentary year-round resident in the mountainous southwest corner of San Joaquin County. These birds were considered by Grinnell and Miller (1944) to occupy the Sierra foothills from El Dorado south to Mariposa County. Within San Joaquin County, the Bell's sage sparrow could occupy dry chaparral on rocky ground, possibly in the foothills or on the south slopes of the higher hills southwest of Tracy. They do not use grasslands. They particularly thrive in chaparral regrowing after periodic fires; accordingly, fire suppression efforts may
have diminished their numbers (England 1993).

**Aquila chrysaetos**  
**Golden eagle**

The golden eagle ranges throughout North America and is resident throughout California, although its numbers have declined near populated areas (Remsen 1978). There is one confirmed breeding record for the golden eagle in San Joaquin County, from two nests active in 1992, in blue oak trees on steep slopes on the Tracy quad (EIP 1993). This species was observed in three other locations on the Goose Creek, Solyo, and Vernalis quads. There may be other breeding pairs in the more remote portions of the western and eastern portions of the County, although the normal population density for this species is low (Remsen 1978). Golden eagles nest in rocky cliffs, and forage over open country where they prey upon rodents.

**Ardea alba, formerly Casmerodius albus**  
**Great egret**

The great egret is a striking large white bird, a resident of the Central Valley of California, coastal Mexico, and the Gulf States, and breeding throughout much of the Great Plains. In San Joaquin County it has been reported from 38 localities; 24 of these are used to define occupied habitat. The great egret is a wading bird, foraging for snakes, frogs, and invertebrates in shallow water. Egrets nest colonially, similar to herons, in trees or shrubs near water (Cogswell 1977).

**Ardea herodias**  
**Great blue heron**

The great blue heron is a widespread species, a common resident along the entire Pacific Coast and central to southern North America. In San Joaquin County it is known from rookeries, or colonial nesting sites, in six quads – Bouldin Island, Clements, Clifton Court Forebay, Goose Creek, and Terminous. The great blue heron hunts in shallow water by wading slowly, then catching small reptiles, amphibians, and invertebrates. The critical habitat feature is the rookery, which is used by large numbers of individuals for many years.

**Asio flammeus**  
**Short-eared owl**

The short-eared owl occurs in small numbers throughout North America, wintering from Central California southward and breeding from the
Central Valley northward. This species has been observed at four locations in the Delta by David Yee (1995). Although these are winter records (November, December and February on the Isleton and Terminous quads), and Remsen (1978) speculates that it no longer breeds in the San Joaquin Valley, range and habitat considerations argue for presuming the species is extant in the County as a breeding resident. The short-eared owl nests in a variety of habitats, both upland and wetland (Call 1978). It forages in open country over plains, sloughs and marshes.

**Branta canadensis leucopareia**  
Aleutian Canada goose

The Aleutian Canada goose is a winter resident in the Central Valley; it breeds much farther north in Canada and Alaska. The project database includes four confirmed records from the Ripon quad, and one each from the Salida and Thornton quads. While wintering in the Central Valley, the Aleutian Canada goose tends to graze in open fields within commuting distance from water.

**Buteo regalis**  
Ferruginous hawk

The ferruginous hawk is primarily a bird of the Great Plains, Rockies, and California, the latter only for wintering (with a single exception from Lassen County). There are only two records of this species from San Joaquin County. It is an uncommon wintering species throughout the Central Valley, but is probably a more frequent winter visitor than these records indicate (Holt, pers. comm., 1996). The ferruginous hawk forages over open country, where it preys exclusively on rodents.

**Buteo swainsoni**  
Swainson's hawk

Swainson's hawks were once found throughout California except in the mountainous regions of the state, including the Central Valley, all of the Coast Ranges south of Marin County, the Tehachapi Range, the Colorado River area, the Mojave Desert, the Great Basin, and the Modoc Plateau. Today Swainson's hawks are mainly limited to a few areas of the Central Valley and the Great Basin. In historic times (ca. 1900) Swainson's hawks may have maintained a population in excess of 17,000 pairs. Today the statewide population is estimated to be only about 550 pairs (JHA 1992). There are hundreds of records of Swainson's hawks for San Joaquin County, including many nests in isolated trees. However, the best habitat is concentrated along permanent waterways with a more or less continuous canopy of trees with grassland, irrigated pasture, alfalfa or grain fields nearby. Swainson's hawks require large trees in which to nest, and nearby open grasslands, pastures, grain or alfalfa fields in which to forage. Vineyards, orchards, rice and cotton crops are unsuitable foraging habitat.
for this species.

**Charadrius montanus**  
Mountain plover

The mountain plover is a shorebird that winters in the Central Valley east to Texas and southward to Mexico. Within San Joaquin County, the mountain plover has two records, in the Clifton Court Forebay and Terminous quads. This species may be more common than these two records would suggest, since, when not in large groups, detection of the species can be difficult (Terres 1991). However, systematic surveys have not been made to determine the location of wintering sites, and the species' breeding range does not currently include California. The mountain plover prefers very open country in which to forage, short grasslands or barren fields.

**Circus cyaneus**  
Northern harrier

The northern harrier occurs as a migratory species throughout much of North America. Wintering birds are commonly seen throughout the Central Valley. It still breeds throughout the state, but its numbers are much reduced (Remsen 1978). There are 21 records in the project database, 14 of which define occupied habitat. The northern harrier is a ground nester and is sensitive to disturbances by grazing and agriculture. Northern harriers feed primarily on rodents.

**Coccyzus americanus occidentalis**  
Western yellow-billed cuckoo

The western yellow-billed cuckoo historically nested along rivers and streams from Shasta County to southern California and along the Colorado River. Because of the decimation of riparian habitat in California and predation of nests by cowbirds, only remnant populations of this species now persist along the Sacramento, Feather, South Fork Kern, Santa Ana, Amargosa and Colorado rivers, and in the Owens Valley (CDFG 1978). There is only one record of breeding cuckoos in the project database. That observation was made in 1977 and the species is considered extirpated from San Joaquin County. Western yellow-billed cuckoos are insect-feeders, foraging in the dense forest canopy found along major river systems. A breeding pair requires about 25 acres of suitable habitat (CDFG 1978).

**Dendroica petechia brewsteri**  
Yellow warbler

This subspecies was once a common to locally abundant summer resident throughout cismontane California (Remsen 1978). Its breeding and
foraging habitat has been reduced with the loss of natural habitat, and Remsen indicates that populations in the Central Valley have virtually disappeared (Remsen 1978). There are four observational records from San Joaquin County, all four within the breeding season, two of which identify occupied habitat. The pair on the Lockeford quad was recorded along the Mokelumne River during SJMSCP reconnaissance, but systematic surveys have not been carried out to assess the full area of occupied habitat. Yellow warblers were considered by Grinnell and Miller (1944) to be County breeding residents, inhabiting willow thickets at the edges of permanent water.

_Egretta thula_

_Snowy egret_

The snowy egret is a common resident in coastal and central California, both coasts of Mexico, the Gulf and Southeastern coastal areas of the United States. It breeds inland in the Mississippi basin and Great Basin in the western United States. There is only one record for San Joaquin County in the project database, the low level of reporting no doubt the result of the species being regarded as common.

_Elanus leucurus, formerly E. caeruleus_

_White-tailed kite_

The white-tailed kite has a disjunct distribution, occurring as a resident along the Gulf Coast in Texas and Mexico and in the valley and coastal regions of central and southern California. There are 18 records for the white-tailed kite in the project database, mostly on the west side of the County, but also in the Delta and northeastern areas as well. Eleven records define occupied habitat. White-tailed kites are found in open country such as grasslands, marshes, row crops and alfalfa, where they hover while foraging for rodents and insects.

_Eremophila alpestris actia_

_California horned lark_

The California horned lark is a common species throughout the Central Valley and coastal valleys and foothills. Although there are only five records in the project database used to identify occupied habitat, this species can be commonly seen in grasslands throughout San Joaquin County. Suitable habitat has been much reduced by agriculture. Horned larks forage in large groups in open grasslands, nesting in hollows on the ground (Harrison 1975), and are also (Holt, pers. comm., 1996) regularly found breeding on the Valley floor in suitable habitat (levees, cleared fields, etc.).

_Falco columbarius_

_Merlin_
The merlin is found throughout North America, wintering in California, the Southwest, and the Gulf and Southeastern coastal areas, breeding in the Rocky Mountains and northern states northward to Canada. In San Joaquin County there are 18 records for this species, mainly in the Delta area. Twelve records from eight locations define occupied habitat. This bird forages over open ground and marshes, feeding on shorebirds, pigeons, mice and insects (Robbins et al. 1966).

*Falco mexicanus*

**Prairie falcon**

The prairie falcon is a permanent resident throughout California except at high elevations and in the northwest coast (Remsen 1978). The total population in California is reported as very small, and there seem to be few reproductive pairs in the Central Valley (Remsen 1978). There are four confirmed records for the prairie falcon in the project database, all from the Tracy quad, used to identify occupied habitat. This species was also observed on the Farmington and Goose Creek quads. The prairie falcon is a swift hunter over open plains and lightly wooded areas, and almost always nests in crevices or holes in cliffs (Call 1978).

*Grus canadensis tabida*

**Greater sandhill crane**

The greater sandhill crane is an uncommon permanent resident in California, breeding in northeastern California. The other subspecies, *Grus canadensis canadensis*, winters in the Central Valley. The project database includes 35 records for confirmed wintering occurrences of the greater sandhill crane, concentrated on the Isleton and Thornton quads. The SJMSCP area is extremely important to wintering sandhills: Pogson and Lindstedt (1990) report that the Thornton and Cosumnes regions in the Sacramento-San Joaquin Delta hosted 56-76% of the total wintering population. Wintering sandhills require shallow standing water for resting habitat and nearby grain fields in which to forage.

*Icteria virens*

**Yellow-breasted chat**

The yellow-breasted chat was once a fairly common summer resident in riparian habitat throughout California, but is now much reduced in numbers. It is considered a rare and local breeder in the San Joaquin Valley. There are 18 records for San Joaquin County, in the Delta region in the Bouldin Island, Terminous and Woodward Island quads, and a single occurrence along the Mokelumne River just below Camanche Reservoir (Clements quad). The habitat for this species is riparian woodland, where it forages for insects.

*Lanius ludovicianus*
Loggerhead shrike

Loggerhead shrikes are resident throughout most of California and the continental United States (Robbins et al. 1966). Although they have not been eliminated from large parts of their range, they have lost much breeding and foraging habitat due to urbanization and agricultural Conversion, resulting in fragmentation of habitat. There are five records of loggerhead shrikes in the project database. Three of the records define nesting habitat in the Clements, Solyo, and Tracy quads. No doubt there are a number of other breeding localities within the County, but this species has not been carefully studied. Loggerhead shrikes seem to prefer fairly open country with infrequent, taller perching locations.

Laterallus jamaicensis coturniculus
California black rail

The California black rail is a secretive bird of salt and freshwater marshes. It ranges from Tomales Bay southward along the coast to northern Baja California, and in freshwater in the Delta region and along the Colorado River. The project database includes 55 records for this species. Twenty-seven records, all in densely vegetated waterways in the Delta, define occupied habitat. Nesting habitat for the California black rail is at the water's edge, under dense herbaceous canopy (Harrison 1975).

Numenius americanus
Long-billed curlew

The long-billed curlew is migratory, breeding in southwestern Canada and in the United States east of the Cascades, including northeastern California, through the western Great Plains. It winters from the Central Valley of California to southern Arizona, southeastern New Mexico, and the Texas panhandle south. It is found in the San Joaquin Valley during the winter months as a migrant. The one record for wintering long-billed curlews in the project database is on the Tracy quad. The long-billed curlew is found in grasslands, meadows and pastures, and also may be found on tideflats, beaches and salt marshes in winter. Although long-billed curlews may be seen on fallow agricultural fields, Conversion of Natural Lands to agriculture greatly diminishes the available forage for these wintering birds. The most highly preferred habitats have been natural marshes and grasslands, irrigated pastures, and alfalfa fields.

Nycticorax nycticorax
Black-crowned night heron

The black-crowned night heron occurs regularly at low elevations throughout California, especially where marshes or other permanent water supports dense vegetation. Within San Joaquin County, there are 18 records from nine locations for this species, mainly localities in the Delta.
region and several in the vicinity of Camanche Reservoir. All records are used to identify occupied habitat. The habitat for the black-crowned night heron is near marshes, lakes and large streams. The species nests and roosts in dense stands of trees and feeds on small fish, crustaceans, large insects, and occasionally small mammals.

Pandion haliaetus
Osprey

The osprey is found near seacoasts, lakes and rivers throughout North America, and winters along the coast in Florida, Mexico, and southern California. Although it formerly bred throughout much of California, it now is found only in a few areas of northern California (Remsen 1978). There are two records for the osprey in the project database, both from the Clements quad. One of these is used to identify occupied habitat. Ospreys feed on fish and nest in snags or on platforms, usually near water.

Pelecanus erythrorhynchos
White pelican

The white pelican historically bred in the San Joaquin Valley in the vast marshes that filled the Tulare and Buena Vista lakebeds, as well as in the Delta and in smaller marshes throughout the Sacramento and San Joaquin valleys. Today they breed from Canada to northeastern California, wintering in the Central Valley. There are six records at two locations for the white pelican in San Joaquin County. All are used to identify occupied habitat. White pelicans forage on small fish and other vertebrates and invertebrates.

Phalacrocorax auritus
Double-crested cormorant

The double-crested cormorant historically bred on coastal California cliffs and offshore islands, and large interior marshes in the Central Valley, northeastern California, and the Salton Sea. It has disappeared as a breeding bird from the Central Valley and Salton Sea. In San Joaquin County there are seven records at two locations for the double-crested cormorant, all of wintering birds, and all from the Bouldin Island and Stockton West quads. All records are used to identify occupied habitat. The double-crested cormorant feeds on fish and medium-sized crustaceans. It occurs regularly in freshwater habitats, nesting in colonies on cliffs, trees, or occasionally power lines (Cogswell 1977).

Plegadis chihi
White-faced ibis

The white-faced ibis is a rare breeder in the Central Valley and northeastern California, although it formerly was more common in the
Central Valley (Cogswell 1977). The white-faced ibis requires tall vegetation, usually emergent marsh vegetation, in which to nest. However, the ibis normally visits San Joaquin County for foraging, rather than breeding, during its fall migration along the Pacific Flyway as it moves south, to Mexico. Within San Joaquin County, the ibis normally is found during the fall on flooded fields where it forages in shallow water or mud for invertebrates. There are three records of this species, all used to identify occupied habitat, in San Joaquin County.

*Riparia riparia*
**Bank swallow**

The bank swallow once bred locally throughout much of California in the lowlands and along the coast south of Santa Barbara, but it has since disappeared as a breeding bird from southern California. Within the Central Valley, the only known breeding sites were in the Sacramento area (Remsen 1978). Juvenile bank swallows have been observed repeatedly for periods up to two weeks long near the Lodi Sewage Ponds on the Terminous quad; however, breeding within San Joaquin County has not been confirmed. Bank swallows breed in colonies, usually on river embankments, and feed on insects.

*Speotyto cunicularia*
**Burrowing owl**

Burrowing owls inhabit open grasslands and shrublands in the Central Valley, coastal regions, and deserts of California. They live and breed in burrows created by badgers and ground squirrels. They occur in a patchy distribution throughout San Joaquin County, but recent studies have shown a decline of over 50 percent in the number of breeding pairs in the Central Valley. There are 88 records in San Joaquin County, of which 46 define occupied habitat. Burrowing owls occur in open ground and forage on small rodents and larger insects. They require burrows dug by fossorial mammals; burrowing owls take over when the burrows are abandoned by the original resident.

G. MAMMALS

*Bassariscus astutus*
**Ringtail**

The ringtail is a slender member of the family that includes raccoons. It inhabits brushy and wooded areas at lower and middle elevations, preferring to live along watercourses (Jameson and Peeters 1988). Its overall range includes the North and South Coast Ranges, Sierra Nevada, Cascades, and the mountainous areas of the Mojave Desert. There is a single record in the project database of an occurrence on the Clements quad. It is used to identify occupied habitat.
**Dipodomys heermanni berkeleyensis**  
*Berkeley kangaroo rat*

The Berkeley kangaroo rat is a nocturnal, seed-eating rodent. It inhabits brushy and grassy slopes and flats in the San Francisco Bay area. There are three records of occurrences in the project database; all are used to identify occupied habitat. All are from the dry hills on the western side of the County.

**Eumops perotis ssp. californicus**  
*California mastiff bat aka Greater western mastiff bat*

The greater western mastiff bat occurs from Central California south to Mexico. This bat roosts colonially in old houses and large cracks in rocky areas where there are abundant roost locations. Mastiff bats eat insects they catch on the wing. Originally, this species was widespread in the San Joaquin Valley. It is believed that current populations are significantly below historic levels. Population declines for this species are thought to be the result of wetlands losses, agricultural land conversion, and possibly the use of insecticides.

Until recently, the western mastiff bat was known in California primarily in the southern portion of the state, particularly from the Los Angeles basin south through San Diego County and the southeastern desert. Recent surveys have extended the range northward almost to the Oregon border. The species occurs along the west side of the Sierra Nevadas, primarily at low to mid-elevations, but is detected up to above 8,000 feet in the summer. It is more widely distributed in the southern coast ranges than was previously realized, and at times, many occur east of the Sierras. It is also known from southern Nevada.

The greater western mastiff bat is found in a variety of habitats, from desert scrub to chaparral to montane coniferous forest. It has been detected in montane meadows above 8,000 feet and in giant sequoia habitat. Distribution is tied to the availability of suitable roosting habitat, and can sometimes be predicted based on presence of significant rock features—e.g., large granite or basalt formations. It is a year-round resident, and is active all winter at lower elevations.

This bat roosts in the day primarily in crevices in cliff faces, and cracks in boulders, occasionally in buildings. Crevices normally open downward and buildings, with similar sheltering spaces, are sometimes used. The bat generally roosts in groups fewer than 100. One young is produced per year, with birth occurring in June to July. Females form maternity colonies, although males are sometimes also present.

Diet appears primarily to be moths but also includes beetles and crickets in California. Foraging occurs in the open and ranges to high altitude of...
1,000 feet. Some individuals are known to travel more than 25 miles to reach feeding grounds. Western mastiff bats have been detected most frequently over desert washes, grasslands, or meadows, but also feed above forest canopy.

There have been serious declines in western mastiff bats in the Los Angeles basin. This is due to recreational climbing, water impoundments, pest control exclusion, building demolition, highway projects, and loss of foraging habitat due to urban/suburban expansion. Source: Williams 1986.

There is one record in the SJMSCP GIS Database and it defines occupied habitat.

*Lasiurus borealis*

Red bat

The red bat is found throughout California in wooded areas at lower elevations. The bat winters in the lowlands of California. The red bat prefers snags and trees with moderately dense canopies for roosting and may roost as low as 4 feet off the ground among dense foliage which provides shade during the day and which is open below to allow escape for feeding at night. The red bat is often associated with riparian habitats and has been found in the Sacramento-San Joaquin Delta. A red bat was recently collected on the Delta College Campus in Stockton (S. Stocking 2000, Personal Communication). It is expected that additional red bats will be found throughout San Joaquin County, especially in association with the Primary Zone of the Delta and other riparian habitats. (Pierson 1998, Personal Communication)

The red bat's primary foods include crickets, cicads, moths, beetles, plant hoppers, ants and flies. Food is taken in flight and the bat is reported to follow regular flight paths during feeding and to forage at decreasing heights as the sky darkens. The species is normally solitary in summer and more colonial in winter. Up to four young are produced, normally in June. The young are usually independent within 4-5 weeks.

There are no records within the SJMSCP GIS Database for this species, although they are known to exist in the county, because it is pending addition to the California Species of Special Concern list and has previously not been investigated in the County. However, as reported above, the red bat has been found in the Sacramento-San Joaquin Delta in the vicinity of the San Joaquin County line and on the Delta College Campus.

*Myotis ciliolabrum*

Small-footed myotis

The small-footed myotis is found throughout California and Nevada, primarily at the middle and higher elevations, greater than 6,000 feet and
also at low elevations in the California desert. It inhabits a variety of habitats including desert scrub, grasslands, oak, and pinyon-juniper woodlands, into pine forests. It is a year-round resident that hibernates. In some areas it may tolerate drier and colder winter retreats than other species.

Roosts have been found in mines and trees. A tree roost is located in Laguna Mountains in San Diego County. A large group of hibernating individuals were found in a Nevada mine at a depth of about 400 feet. Roosting preferences are expected to be similar to those for *Myotis californicus*.

These bats have one young per year with birth occurring in May to June. Females may form small maternity colonies, generally fewer than 30 individuals although one maternity colony roost in California desert has more than 50. Food items include small moths, flies, ants, and beetles with foraging occurring in the open and generally early in the evening.

Small-footed myotis are widespread and regionally common. The main threats are mine reclamation, renewed mining, water impoundments, and timber harvest. There are no records for this species within the project SJMSCP GIS Database, although it is likely to have occurred in San Joaquin County in the past and to persist in areas of suitable habitat.

*Myotis evotis*

**Long-eared myotis**

The long-eared myotis is widespread in California, but normally avoids the arid regions of the Central Valley and hot deserts. It can be found along the entire coast, in the Sierra Nevada and Cascade mountains, and the Great Basin from the Oregon border south through the Tehachapi mountains to the Coast ranges. The long-eared myotis is found in nearly all brush, woodland, and forest habitats. This species roosts in buildings, crevices, spaces under bark, and snags. Caves are used primarily as night roosts. The loss of suitable roosting habitat is thought to contribute to the decline in populations of *M. evotis*.

The long-eared myotis is found primarily at the higher elevations associated with coniferous forest, although in California it is found in lower elevation mixed coniferous/hardwood forests, in the high desert, and near sea level with appropriate habitat. It is one of the most abundant species in giant sequoia habitat.

It is primarily a forest associated species in California and is found in mixed hardwood/conifer forest and montane conifer forest in northern California in pinyon-juniper, mesquite scrub, and pine/oak woodland in southern California. It is a year-round resident, presumed to be non-migratory, and to hibernate locally. Hibernating individuals have been found in caves in northern California.
Long-eared myotis have day roosts in hollow trees, under exfoliating bark, crevices in rock outcrops, and occasionally in mines, caves, and buildings. It has been found in rimrock in Oregon, in a road cut in southern California, and in a rip-rap boulder jumble in northern California. It has been found roosting under bark of small black oak snags in northern California; in juniper snags in New Mexico. The night roosts are in caves, mines, and under bridges, with the animals resting singly or in small groups.

Reproduction is one young per year with birth occurring in June to July. Females may form small maternity colonies with generally fewer than 40 individuals.

Food items include moths, small beetles, and flies. Foraging occurs near vegetation and the ground with a flexible foraging strategy: catching insects by both substrate gleaning and aerial pursuit. It forages along rivers and streams, over ponds, and within cluttered forest environments. Night roost use of caves and mines may involve feeding within the structure gleaning moths from the rock walls.

Long-eared myotis are widely distributed, but uncommon almost everywhere. They may need mature forest in portions of their range. Stressors include timber harvest, recreational caving, mine reclamation, renewed mining, highway projects, bridge replacement, and building demolition.

There are no records for this species within the SJMSCP GIS Database, although it is likely to have occurred in San Joaquin County in the past and to persist in areas of suitable habitat.


*Myotis thysanodes*
Fringed myotis

The fringed myotis occurs throughout California, and is most frequent in coastal and montane forests and near mountain meadows (Jameson and Peeters 1988). There are no records for this species within the project database, although it is likely to have occurred in the County in the past and to persist in areas of suitable habitat. This species forms nursery colonies in caves and old buildings (Jameson and Peeters 1988).

*Myotis volans*
Long-legged myotis

The long-legged myotis is common in California, occurring in the coastal ranges from Oregon to Mexico, the Cascade/Sierra Nevada ranges to southern California, most of the Great Basin region, and in several Mojave
Desert mountain ranges. It is generally absent from the Central Valley floor, the Colorado and Mojave desert, and from eastern Lassen and Modoc counties. This species is most common in woodland and forest habitats above 4,000 feet. *M. volans* also forages in chaparral, coastal scrub, Great Basin shrub habitats, and in early successional stages of woodlands and forests. The long-legged myotis hibernates during winter, and is fairly cold-tolerant. It has been recorded as using caves in winter, but its winter range is poorly known. It may, as with other bat species, move to lower elevations within the foothills of the Central Valley during periods of cooler temperatures (Larry Host, pers. comm.). This species feeds over water and open habitat, using denser woodlands and forests for cover and reproduction. The loss of this habitat is thought to be the primary contributing factor in the decline of this species.

Day roosts are primarily in hollow trees, particularly large diameter snags or live trees with lightning scars. It also uses rock crevices, mines, and buildings. Caves and mines may be used for night roosts. Winter retreats are generally mines or caves.

Long-legged myotis have one young per year with birth occurring in June to July. Maternity colonies are up to 200-500 females. They feed primarily on moths, but also feed on other taxa, including beetles, flies, and termites. Foraging occurs in open areas, often at canopy height.

The status of the long-legged myotis is not well known with relatively few records of maternity colonies in California. Main threats come from timber harvest, aerial pesticide spraying, recreational caving, mine reclamation, renewed mining, building demolition, and pest control.

There are no records in the *SJMSCP GIS Database* for this species, although this is more likely due to a lack of systematic survey effort than to an absence of this species.


*Myotis yumanensis*

*Yuma myotis*

The *Yuma myotis* is found throughout most of California at lower elevations, and in the southern and western half of Nevada, primarily at low to mid elevations. It is found in a wide variety of habitats from the coast to mid elevation. It is one of the bat species most tolerant of human habitation, and one of the few that survives in a relatively urbanized environment (e.g., occurs within the city limits of San Francisco) and it is associated with most low elevation reservoirs in California. It is found both in buildings and in heavily forested settings. It is a year-round resident and hibernates, although no large winter aggregations have been found.
The Yuma myotis has day roosts in buildings, trees, mines, caves, bridges, and rock crevices. Night roosts are usually associated with buildings, bridges or other man-made structures. Colonies have been found inside hollow redwoods in coastal California.

Yuma myotis have one young per year with birth occurring in June to July. Maternity colonies can be large, 200 to several thousand, and contain only adult females and their young. Males roost singly or in small groups. Feeding is primarily on emergent aquatic insects, such as caddis flies and midges. Foraging occurs directly over the surface of open water and above vegetation. It occurs over relatively still water—ponds, reservoirs, or pools in streams and rivers. The Yuma myotis is locally common and its main threats come from timber harvest, building demolition, pest control exclusion, bridge replacement, mine reclamation, and renewed mining.

There is a single record in the SJM SCP GIS Database, from the Ripon quad, of an individual caught in a mist net during trapping at Caswell State Park.

*Plecotus (Corynorhinus) townsendii pallescens* - Pale big-eared bat
*Plecotus (Corynorhinus) townsendii townsendii* - Pacific western big-eared bat
aka Townsend's big-eared bat

The Townsend's big-eared bat, is found throughout California and is divided into two subspecies:

- **Coastal subspecies**, Pacific Townsend's (western) big-eared bat (*C. townsendii townsendii*) lives in a variety of habitats throughout California, preferring coastal conifer, broad-leaf woodlands and open grasslands; and

- **Interior subspecies**, pale Townsend's (western) big-eared bat (*C. townsendii pallescens*), which also occurs throughout the State (except in coastal areas) in a variety of habitats including valley oak savanna, riparian forest, and California prairie.

The Townsend's big-eared bat feeds on flying insects, primarily moths and rarely seeks shelter in cracks and crevices, roosting instead in exposed places, often within reach of humans. Populations statewide have declined steeply over the last 40 years. The primary threat to the pale Townsend's big-eared bat is human disturbance and destruction of natal roost sites. Subpopulations are highly vulnerable to local population extirpation as individuals remain in and continue to roost near their natal site.

Townsend's big-eared bats are concentrated in areas offering mines or caves as roosting habitat. They are found primarily in rural settings from inland deserts to coastal redwoods; oak woodland of California inner coast ranges and Sierra foothills; lower to mid-elevation mixed coniferous-
deciduous forests from low desert to high mountain habitats. It is a year-round resident and hibernates in mixed sex aggregations of a few to many hundred individuals. Periodically it arouses during winter and moves to alternate roosts. It actively forages and drinks throughout the winter. Hibernation is prolonged in colder areas, and intermittent where climate is predominantly non-freezing.

Roost sites are mines, caves, and buildings. The Townsend's bat is one of the bat species most dependent on mines and caves with buildings needing to offer "cave-like" spaces in order to be suitable. It will night roost in more open settings, including under bridges.

Townsend's bats have one young per year with birth occurring in May to July, depending on latitude and local climate. Females form maternity colonies and males roost singly. Historically, maternity colonies typically contained several hundred females. Now, colony size is typically 35-150, with few larger (i.e., larger than 200) colonies known.

Food items are primarily small moths with foraging occurring near vegetation and other surfaces and prey is probably gleaned from these surfaces. In California, it has been shown to forage preferentially in association with native vegetation.

There have been serious population declines in the past forty years in parts of California. This is due to disturbance of roost sites, mining, mine reclamation, water impoundments, loss of building roosts, and bridge replacement.

There are two confirmed records in the SJMSCP GIS Database used to identify occupied habitat for the Pacific western big-eared bat, both on the Midway quad.


*Neotoma fuscipes riparia*
Riparian woodrat aka San Joaquin Valley woodrat

The San Joaquin Valley woodrat, also known as the riparian woodrat, historically occupied extensive riparian forests on the floor of the San Joaquin Valley and along the San Joaquin and Tuolumne Rivers. Today, they are known to exist in and immediately adjacent to Caswell Memorial State Park, along the Stanislaus River in San Joaquin County. Pursuant to recent studies (Williams 2000), the species also exists in at least one additional location downstream from Caswell on the Stanislaus River. The extent of remaining habitat is not known specifically, but undoubtedly is extremely small.

This species requires healthy riparian growth. Regulation of stream flow,
stream channelization, cultivation of floodplains, and brush and tree
removal have diminished available riparian habitat. The San Joaquin
Valley woodrat nests in cavities in trees, snags, or logs, spaces in talus, or
lodges built of downed woody materials. Students at California State
University Stanislaus have noted that woodrats occasionally use nest
boxes placed in trees for wood ducks along the lower San Joaquin and
Tuolumne rivers.

If current trends continue, additional habitat losses can be expected along
with associated decline in riparian woodrat populations. During floods,
there are few or no refuges for woodrats as nearly all land bordering the
river is cultivated. Urban and rural home construction, agricultural fields,
gold dredging, gravel and sand mining, and dams have collectively
Converted potential habitat for the San Joaquin woodrat.

Unlike many other sensitive species in the San Joaquin Valley, the life
history of the riparian woodrat is well known through studies on another
subspecies, the dusky-footed woodrat.


*Perognathus inornatus inornatus*
**San Joaquin pocket mouse**

The San Joaquin pocket mouse occurs along the west side of the San
Joaquin Valley and possibly in the Sacramento Valley (Williams 1986). There
are seven records for the San Joaquin pocket mouse in the project
database, four of which are used to identify occupied habitat. The habitat
for the San Joaquin pocket mouse is friable soils in grasslands and blue
oak savannas up to 1,500 ft in elevation.

*Sylvilagus bachmani riparius*
**Riparian brush rabbit**

The riparian brush rabbit has limited coverage pursuant to the SJMSCP,
as described in Section 5.2.4.23 of the SJMSCP.

The historic range of the riparian brush rabbit is believed to have extended
along the San Joaquin River from Stanislaus County to the Delta region
(Williams 1986). One of two presently known populations is found on the
lower Stanislaus River in Caswell State Park (Williams 1986). Pursuant
to recent studies (Williams 2000), a second population has been identified
near Stewart Tract along the San Joaquin River and its tributaries. The
habitat for this species apparently is the dense brush and nearby openings
associated with the banks of the Stanislaus River and San Joaquin River.
In 1985, the total population at Caswell was estimated at less than 100
individuals although this number may change with the recent discovery of
a new population.
The riparian brush rabbit is considered the most sensitive mammal in California because of its susceptibility to floods, fire, disease, predations, human disturbance, and flood control activities. A census conducted during January 1993 found that the Caswell State Park population at that time was 213 to 312 individuals. The floods of January 1997 left 85 percent of Caswell State Park under 2-10 feet of water for more than two weeks. Visual surveys in March and April found some signs of the rabbit. Trapping surveys initiated in May 1997, after flood waters had completely receded, also resulted in a visual sighting, fresh rabbit tracks and other signs, but no rabbits were successfully trapped. While it is evident some number of rabbits survived the flood event, the current population size at Caswell State Park is unknown.

Unlike other rabbits, the riparian brush rabbit occupies riparian forests within the natural floodplains, which have an ample brushy understory in association with the forest, plus suitable upland areas for cover and retreat from annual floods. This habitat can be restored through a comprehensive program that strives to restore or reactivate ecological processes, functions, and habitat elements on a systematic basis.

Overall, the decline of the riparian brush rabbit has resulted from the destruction, fragmentation, and degradation of the San Joaquin Valley native riparian forest habitat within the rabbit's historic range, with less than 6% of the original habitat remaining. Furthermore, due to the fragmentation of suitable remaining habitat, the rabbit has no means of dispersing from Caswell State Park to other areas. A genetic comparison of the Caswell State Park and Stewart Tract populations which may shed light on the relationship between the two populations is pending.

Consistent with the USFWS's Draft San Joaquin Recovery Plan, the SJMSCP emphasizes the establishment of other viable populations within the species' historical range. Potential translocation sites exist on state and federal lands, and lands covered by federal plant, fish and/or wildlife habitat easements along or adjacent to several stretches of the Stanislaus and San Joaquin Rivers. This species would also benefit from flood protection measures, limits on wood cutting near occupation sites, retention of logs and limbs, and curtailment of livestock grazing, especially along several stretches of the Stanislaus River downstream from Caswell State Park.

*Taxidea taxus*

American badger

The American badger ranges throughout the state except the northwestern forests. Their numbers have declined drastically in California within the last century. In the late 1930s they were still numerous in the Central Valley, but now survive only in low numbers in peripheral parts of the valley and adjacent lowlands to the west in eastern Monterey, San Benito,
and San Luis Obispo counties (Williams 1986). There are seven confirmed records for the badger in the project database; all are used to identify occupied habitat. Badgers occupy a variety of habitats, including grasslands, savannas, and mountain meadows where soils are suitable for digging for their preferred prey, large rodents such as ground squirrels, gophers, kangaroo rats and marmots. Although agriculture and urbanization are generally incompatible with badgers, they persist in San Joaquin County in the less populated peripheral areas on the western and eastern fringes of the County.

*Vulpes macrotis mutica*

**San Joaquin kit fox**

Biological information on the San Joaquin kit fox is available in the USFWS's draft *San Joaquin Valley Recovery Plan*. The distribution of kit foxes in California includes all or portions of Alameda, Contra Costa, Fresno, Kern, Kings, Merced, Monterey, San Benito, San Joaquin, San Luis Obispo, Santa Barbara and Tulare counties. Morrell (1975) estimated the size of the San Joaquin kit fox population to be between 5,066 and 14,800 individuals with an average of 10,000 in 1975. O'Farrell (1983) later revised this 1975 estimate to about 7,000.

Habitat loss is the primary cause of the decline of the kit fox in the northern portion of its range. Most of the preferred valley bottom grassland and alkali scrub habitats in the northern range have been eliminated by agricultural, suburban, and industrial development. Direct poisoning and prey reductions have been identified as major factors limiting kit fox occurrence in the northern portion of its range. Other factors that may affect kit fox populations include road kills, illegal shooting, trapping, lack of adequate denning sites, predation by coyotes (*Canis latrans*), and possible competition with or predation by introduced red foxes (*Vulpes vulpes*). In addition, the kit fox population may have declined due to the impacts of a prolonged drought throughout their range.

The preferred prey items of kit fox are kangaroo rats (*Dipodomys* sp.), ground squirrels (*Spermophilis beecheyi*), and black-tailed hares (*Lepus californicus*). They will also feed on other rodents, insects, birds, and carrion. Morrell (1972) and Egoscue (1956) suggested that movements of den sites may often be in response to fluctuations in prey availability. The kit fox is a wide ranging species with established home ranges generally between 1-3 square miles, but they can be as large as 12 square miles. Kit foxes in the northern range are found in higher elevations than those in the southern range. Dens have been found at elevations between 1,400 and 1,460 feet on slopes generally less than 30 percent.

Consistent with the draft *San Joaquin Valley Recovery Plan*, the SJMSCP emphasizes maintenance of the north/south trending movement corridor for kit foxes through the southwest portion of San Joaquin County. The *SJMSCP GIS*
Database includes 31 records considered adequate to identify occupied habitat. Except for one recent record in a small grassland near Clifton Court Forebay, all are on the Lone Tree Creek, Midway, and Tracy quads. There are also 47 SJMSCP GIS Database records too old or imprecisely located, or where the current land use is incompatible with kit foxes, to be considered occupied habitat.

Sources: Chadwick and Odenweller 1988; O'Farrell 1983; USFWS 1983; USFWS 1990; USFWS 1997; Orloff et al. 1986; Orloff 1990; Morrell 1972; White and Ralls 1993)

2.3 AGRICULTURAL SETTING

Acreage in agricultural production in San Joaquin County varies from year to year, however average acres in agricultural production and agricultural Open Space acres can be estimated. The SJMSCP Vegetation Maps identified 605,638 acres of agricultural land in the County (i.e., classified as Agricultural Habitat Lands) with an additional 3,352 acres classified as ruderal. With the inclusion of dryland grasslands used for agricultural grazing (classified by the SJMSCP as Natural Lands), total lands in San Joaquin County under agricultural use reaches approximately 808,838 acres, or nearly 90% of the County's total land acreage. Of this total acreage, 147,107 acres are orchards and vineyards with the bulk of the remainder being row and field crops.

Much of the past Conversion of 59,299 acres of land to urban uses occurred on agricultural Open Space lands. Between 2001 and 2051, it is estimated that approximately 57,635 additional acres of row and field crops (Agricultural Habitat Land) and ruderal lands will be Converted to non-Open Space land uses. An additional 30,907± acres will be Converted from orchards and vineyards and other Multi-Purpose Open Space uses to non-agricultural use between 2001 and 2051. Approximately 7,519 acres of grasslands, used primarily for dry land grazing, also will be Converted. This means that approximately 96,061 acres of agricultural Open Space will be Converted to non-Open Space uses between 2001 and 2051.

Williamson Act lands in San Joaquin County compose approximately 65% of the land area of the County and approximately 59% of the total land in the County. San Joaquin County has 527,314 acres of land under Williamson Act Land Conservation Contract. Of this, owners of 20,938 acres have filed notices of non-renewal. 368,387 acres under contract are prime agricultural land, with approximately 130,000 acres of this being prime agricultural land within three miles of a city with 25,000 or more persons (urban prime). The remaining 158,927 acres are non-prime
agricultural land.\textsuperscript{7}

San Joaquin County was ranked 6th out of California's 58 counties in terms of agricultural production value in 1998,\textsuperscript{8} with the gross value of agricultural production estimated at $1,320,403,000--down from an all time high of 1,487,476,000 in 1997 due to El Nino related weather.\textsuperscript{9}

The County's leading agricultural crops in 1997 were:

\begin{table}[h]
\centering
\caption{Leading Agricultural Crops in San Joaquin County}
\begin{tabular}{|l|l|}
\hline
CROP & \% of Total Gross Value \\
\hline
Grapes & 21\
Milk & 21\
Tomatoes & 7\
Almond Meats & 6\
Asparagus & 5\
English Walnuts & 4\
Hay & 4\
Apples & 3\
Corn/Grain & 3\
Cattle/Calves & 2\
All Other Crops & 25 \\
\hline
\end{tabular}
\end{table}

In 1997, San Joaquin County led the state in the production of cherries, asparagus, apples, corn (grain), walnuts and fresh tomatoes; was ranked second for dry beans and cucumbers and ranked fifth for all grape types.

The preservation of 100,841 acres of Open Space land pursuant to the SJMSCP will include approximately 57,635 acres of Agricultural Habitat

\textsuperscript{7} California Department of Conservation Division of Land Conservation statistics as of 1/1/98.
\textsuperscript{8} California Department of Finance, Economic Research Division, 6/24/99.
\textsuperscript{9} San Joaquin County Agricultural Commissioner's 1998 Annual Crop Report.

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Lands. In addition, approximately 17,682 acres of dry-land grazing lands are anticipated to be preserved pursuant to the Plan. In addition to its agricultural productivity, agricultural Open Space lands are a primary component of the County's scenic character. In addition, many of the species covered by the SJMSCP benefit from existing agricultural practices. Therefore, a key goal of the SJMSCP is to maintain agricultural production values on Preserve lands both for plants, fish and wildlife, ongoing agricultural productivity and scenic values. This goal will be a guiding factor in negotiating conservation easements on productive agricultural lands with willing sellers.

In addition, the SJMSCP includes, as a Permitted Activity, Conversion of up to 5,000 acres of vernal pool grasslands (600 acres wetted surface area) wetlands as a result of agricultural activities requiring a Section 404 permit pursuant to the Federal Clean Water Act and/or subject to the ESA may be covered pursuant to the SJMSCP. Interested individuals can voluntarily request the Section 404 coverage through the SJMSCP to assist them in streamlining the Section 404 process for these agricultural activities [(see Section 8.2.1(7)]. All other agricultural activities remain subject to the same legal requirements, including the need to comply with the Federal Endangered Species Act and/or CESA even when permits are not required pursuant to the Federal Clean Water Act, as were in effect before adoption of the SJMSCP. Individuals are encouraged to consult with local, state and federal agencies to determine applicable regulations.

2.4 RECREATIONAL SETTING

The SJMSCP Planned Land Use Map identifies 4,110 acres of land with either existing parks or Open Space lands proposed for use as parks. The addition of 100,841 acres of Preserve lands under the SJMSCP will assist in providing additional recreational opportunities to the County.

Permitted uses on Preserve lands include recreational uses where those uses do not interfere with plants, fish and wildlife. It is anticipated that some Preserve lands, with property owner permission, can be used for passive recreational purposes such as bird watching and photography, or more intensive recreational uses, such as bike riding and hiking along trails and hunting in some wetland areas outside of critical breeding seasons. It is anticipated that other recreational uses will be identified during the life of the SJMSCP.

2.5 SCENIC SETTING

The scenic Open Space character of central San Joaquin County is characterized largely by the expansive agricultural lands surrounding cities. Valley agricultural lands are dominated by large, open fields, and
expanses of orchards and vineyards. In the eastern portion of the County, blue oak woodlands and rolling annual grassland foothills dominate. In the southwest, the Sacramento-San Joaquin Delta provides a profusion of sloughs and rivers meandering through open agricultural fields, tule islands, and marshlands. To the southwest, the sloping hills of the Diablo Range rise unobstructed above the landscape.

The preservation of 100,841 acres of Open Space lands under the SJMSCP will assist in preserving many of these scenic Open Space values.

### 2.6 Multi-Purpose Open Space Setting

In addition to agricultural use, recreational use, plant, fish and wildlife use and scenic values, Open Spaces provide other uses including flood control, groundwater recharge and, especially in parks and nature reserves, educational opportunities. The *SJMSCP Planned Land Use Map* identifies 9,050 acres of Open Space and conservation lands existing in the County (see Section 3.3.4). These mapped lands are used primarily for plant, fish and wildlife habitat, visual buffers, groundwater recharge, flood plain, and passive recreation activities. Some communities have considered the use of Open Spaces between existing cities to ensure that individual cities can maintain a separate identity from adjoining cities.

As the population of the County grows from 533,200 in 1996 to nearly 1.5 million in 2048 (July, 1996, projection from the State Department of Finance, Demographic Research Unit), the demand for Open Space for groundwater recharge, flood control, educational study and other beneficial uses will increase. The preservation of 100,841 acres of Open Space pursuant to the SJMSCP will assist in filling this need.
3. LAND USE

3.1 SJMSCP PLANNED LAND USE MAP

As part of the SJMSCP planning process and Biological Analysis, Toyon Environmental Consultants, Inc. prepared a Land Use Map. The SJMSCP Planned Land Use Map reflects, primarily, the general plans of San Joaquin County and the incorporated cities of Escalon, Lathrop, Manteca, Stockton, Tracy and Ripon. The map was prepared under the guidance of the Habitat Staff Working Group and the planning staffs from the County and cities. The map reflects both existing land use and those uses proposed in the general plans of the participating entities and was used, in conjunction with the SJMSCP Vegetation Maps and species occurrences data in the SJMSCP GIS Database, to estimate Incidental Take using a geographic information system.

In preparing the SJMSCP Planned Land Use Map, spheres of influences were not considered, rather, the general plan boundaries and specifically proposed land uses were mapped.

Local general plans often identify differing land uses for areas currently located within the realm of San Joaquin County, but adjacent to targeted growth areas for cities. When an area was given different planning designations by the San Joaquin County General Plan 2010 and the nearby city's general plan, the more intensive land use was mapped. For example, if the County designates an area as agriculture and a city designated land as Urban, the land was mapped as Urban. However, that convention was not followed for one area designated as Open Space in the Escalon General Plan Revision and as Agriculture in the San Joaquin County General Plan 2010 because the California Department of Fish and Game identifies it as most suitable for Swainson's hawk foraging. Accordingly, Escalon determined that the area should remain Open Space for habitat preservation.

The SJMSCP Planned Land Use Map also identifies the boundaries for expected urban development and anticipated annexation areas.

3.2 SOURCES

The SJMSCP Planned Land Use Map includes land use information from the following sources:


J. City of Tracy and The Planning Center. 1993b. City of Tracy Urban Management Plan/General Plan.


3.3 MAPPED LAND USE DESIGNATIONS

Seven generalized planning designations were used for the SJMSCP Planned Land Use Map: Agriculture, Urban, Mineral Resources, Parks, Open Space/Conservation, Site 300, and Undeveloped Public Lands.

**TABLE 3-1**

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<thead>
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<th>DESIGNATION</th>
<th>AREA (ACRES)</th>
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<td>Undeveloped Public Lands</td>
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<td><strong>TOTAL</strong></td>
<td><strong>908,939</strong></td>
</tr>
</tbody>
</table>

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3.3.1 AGRICULTURE

The dominant land use designation in San Joaquin County is Agriculture. Land uses within the Agriculture category, as mapped on the SJMSCP Planned Land Use Map, include field crops, orchards, livestock ranges, animal husbandry, nurseries, greenhouses, and agriculturally related structures and residences. Oil and gas exploration and production facilities are also located on land designated as Agriculture. Such lands have soils that are capable of producing a variety of crops and have large enough parcel sizes to support commercial agricultural activities.

The Conversion of up to 5,000 acres of vernal pools for the creation of orchards and vineyards triggers and requires permitting under Section 404 of the Federal Clean Water Act, is not initially covered by the SJMSCP, but is anticipated to be covered upon acquisition of a Federal Clean Water Act Section 404 permit after initial adoption of the SJMSCP (see Sections 1.8 and 5.6.1 for additional details). In addition, agricultural-related activities located within urban boundaries, such as canneries, are covered by the SJMSCP. Also, non-agricultural activities on agriculturally-zoned properties located outside the identified SJMSCP Planned Land Use Map boundaries also are covered by the SJMSCP and are identified in Section 8.2.1.

3.3.2 URBAN

The Urban planning designation (as indicated on the SJMSCP Planned Land Use Map) is composed of land targeted for residential, commercial, industrial, public/institutional, transportation and mixed uses.

Residential development comprises the majority of existing uses and proposed land use under the SJMSCP. Residential development is expected to occur in four primary areas in the County: the cities (Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton, and Tracy), the unincorporated areas near the cities where services are available, new communities (e.g., Mountain House, New Jerusalem), and existing unincorporated communities (Acampo, Banta, Chrisman, Clements, Collierville, Coopers Corner, Glenwood, Farmington, French Camp, Lammersville, Lockeford, Linden, Morada, Noble Acres, Peters, Stoneridge, Thornton, Vernalis, Victor and Woodbridge).

Commercial activities include shopping malls, grocery stores, offices, auto service stations, medical facilities, and restaurants. Commercial development is concentrated and proposed in communities and along the major transportation routes.
Industrial facilities include warehouses, research and development facilities, distribution facilities, manufacturing and processing facilities, and food processing facilities. Industrial parks may contain Open Space as part of their design.

Public/Institutional uses include those activities that support governmental, civic, educational, infrastructure, and health activities of the County. School sites identified on the SJMSCP Planned Land Use Map are approximate locations. Each elementary school site is estimated to be 10 acres in size. High school sites are estimated to be 40-50 acres.

Transportation projects were included in the estimates of impacts occurring as a result of Open Space Conversions for the SJMSCP. The list of transportation projects considered were those described by the San Joaquin Council of Governments (COG), Caltrans, and the 1998 Regional Transportation Plan (RTP) prepared by the San Joaquin County Council of Governments and local general plans. The RTP is a long-term planning effort designed to create an efficient and effective multi-modal transportation system for a 22-year period, from Fiscal Year 1998/99 to Fiscal Year 2019/20. Both local and regional transportation projects were included in the assessment of impacts occurring from transportation projects to be mitigated by the SJMSCP. Transportation projects involve the construction of new facilities and improvements to existing highways, regional and local streets, railways and airports. All of the projects identified by Caltrans, COG and in the RTP are located within urban areas (mapped as urban and located with the urban boundaries indicated on the SJMSCP Planned Land Use Map) or along mapped highways (highway transportation projects generally include highway widening and maintenance located within the rights-of-ways of existing highways including and adjacent to existing highways indicated on the SJMSCP Planned Land Use Maps), so they were not mapped separately on the SJMSCP Planned Land Use Map, but all of these unmapped facilities are covered by the SJMSCP as indicated.

Mixed uses include planned developments, commercial/employment centers, recreation commercial facilities, and master planned communities. Open Space may be a component of mixed use development.

Land mapped as Urban on the SJMSCP Planned Land Use Map includes land designated as Agriculture-Urban Reserve on the local jurisdiction's land use maps. Such reserves are expected to be developed in the future and are typically used for agricultural uses until the need for additional urban land is demonstrated and infrastructure is available to service the development.

Neighborhood parks, undeveloped public land, and other relatively small areas (20 acres or less) of undeveloped land that are surrounded by development are designated Urban on the SJMSCP Planned Land Use Map.
3.3.3 PARKS

The Parks category includes regional parks and golf courses. General locations of proposed regional parks were mapped on the SJMSCP Planned Land Use Map under this land use designation and are estimated to be 70 acres each. Parks in urban areas that are less than 20 acres in size are designated Urban on the SJMSCP Planned Land Use Map.

3.3.4 OPEN SPACE/CONSERVATION

The Open Space/Conservation land use designation on the SJMSCP Planned Land Use Maps includes existing undeveloped areas for plants and wildlife habitat, visual buffers, groundwater recharge, flood plain, and passive recreation activities. Conservation areas identified in local jurisdiction general plans along waterways were not mapped in the SJMSCP Planned Land Use Maps because those areas overlie other planning designations and they are highly variable in extent and use. Conservation areas along waterways were classified according to their underlying land use planning designation.

3.3.5 MINERAL RESOURCES

The primary mineral resources in the County are sand and gravel, mostly used for construction materials such as asphalt and concrete. Under the State Mining and Reclamation Act, local jurisdictions must identify mineral resource reserves and protect them for future use. The Division of Mines and Geology (DMG) has classified mineral resources in the County according to the presence or absence of significant sand, gravel, and stone deposits that are suitable as sources of Portland cement concrete aggregate. The DMG land classification identifies Mineral Reserve Zones (MRZ). Land is classified as MRZ-2 if adequate information indicates that significant mineral deposits are present, or it is judged that a high likelihood exists for their presence. In addition, MRZ-2 must contain a minimum threshold value ($12.5 million in 1995 dollars) of suitable aggregate that can be extracted profitably by current mining technology, or technology that can reasonably be expected to existing in the foreseeable future.

MRZ-2 areas on the DMG maps were mapped on the SJMSCP Planned Land Use Map except for land developed or planned for urbanization before its designation as MRZ-2. These areas are designated as Urban on the SJMSCP Planned Land Use Map and include areas in Lathrop, Ripon and south of Tracy.

The SJMSCP recognizes that aggregate extraction is permitted by San Joaquin County on lands in addition to those classified as MRZ-2. Incidental Take as a result of mineral extraction outside of MRZ-2 zones is only covered by the SJMSCP if it meets the criteria for a minor revision [See Sections 8.2.1, 8.8.3(45)]. Otherwise, coverage may be obtained through a minor amendment [Section 8.8.4(D)] or major amendment pursuant to Section 8.8.5(l) -- depending on the extent of the anticipated
3.3.6 SITE 300

The federal government owns and operates the Lawrence Livermore National Laboratory located southwest of Tracy. The area it encompasses is known as Site 300 and was mapped on the SJMSCP Planned Land Use Map as Site 300. Land uses at Site 300 include laboratories, offices, industrial fabrication and assembly areas, warehouse facilities and Open Space with restricted access. This site is not covered pursuant to the SJMSCP.

3.3.7 UNDEVELOPED PUBLIC LAND

Undeveloped public land in San Joaquin County is owned by a variety of entities including the federal government, State of California, San Joaquin County, Port of Stockton, water districts, reclamation districts, cities and towns. Landfills are included in this planning category.

3.3.8 LAND USES MAPPED ON THE SJMSCP VEGETATION MAPS

One of the SJMSCP Covered Activities (SJMSCP Section 8.2.1) is mapped not by the location of the proposed land use, but rather by the location of the vegetation type upon which the land use will occur. Specifically, the Conversion of vernal pool grasslands (G3 vegetation type) to orchards or vineyards is a land use to be covered by the SJMSCP subject to the future acquisition of a Federal Clean Water Act Section 404 permit, or equivalent as noted in SJMSCP Section 1.8.

The exact location of potential Conversions of vernal pool grasslands to orchards or vineyards is not known. However, the boundaries within which the land use will occur is known. The land use will occur within the Vernal Pool Index Zone (SJMSCP Section 5.1.2.4). The SJMSCP Vegetation Maps include all all of San Joaquin County’s known G3 (vernal pool) habitat and establishes the boundaries within which the Conversion of vernal pool grasslands to orchards or vineyards may occur (an general overview of the G3 habitat in San Joaquin County is shown in the map of the Vernal Pool Index Zone in SJMSCP Section 5.1.2).

In summary, after acquisition of a Federal Clean Water Act Section 404 permit, or equivalent, from the U.S. Army Corps of Engineers, it is anticipated that up to 5,000 acres of vernal pool grasslands may be Converted from Open Space use by orchards or vineyards pursuant to the SJMSCP. This land use will occur within the G3 vegetation type shown on the SJMSCP Vegetation Maps (i.e., the Vernal Pool Index Zone). To ensure that the
county’s highest quality vernal pool habitat is not converted by orchards and vineyards, SJMSCP coverage for conversion of vernal pool grasslands to orchards or vineyards requires the review of the TAC, with the concurrence of the Permitting Agency’s representative on the TAC pursuant to SJMSCP Section 8.2.1.

3.4 UNMAPPED LAND USES

Certain land uses within San Joaquin County occur over a wide area and their exact locations cannot be precisely known until submittal of a land development application to the San Joaquin County Community Development Department. For this reason, likely locations of such land uses and anticipated acreages for such land uses were predicted as a means to estimate potential Incidental Take. Predications were prepared by senior staff at the San Joaquin County Community Development Department based on their more than 25 years of planning experience with that agency. Because only likely or general locations for these land uses were known, they were not mapped on the SJMSCP Planned Land Use Map.

Coverage for these land uses shall be subject to a case-by-case review by the JPA’s Technical Advisory Committee (TAC) to ensure that the biological impacts of the proposed projects fall are within the parameters established by the SJMSCP as originally adopted.

For land uses which are consistent with the overall biological intent of the SJMSCP and which do not introduce significant new biological conditions into the Plan area or the SJMSCP’s conservation program or result in significant new or different environmental impacts, or for land uses which have impacts which are equal to or are less than those described in the SJMSCP originally adopted; then the TAC, with the concurrence of the TAC’s representative from the Permitting Agencies, may permit SJMSCP Coverage for the proposed land use activity or action pursuant to a Minor Revision as described in SJMSCP Section 8.8.3 (45).

For those land uses which have an effect on the SJMSCP Covered Species and levels of Incidental Take which are greater than, but not significantly different than, those described in the SJMSCP originally adopted; coverage of the proposed land use activity or action may be permitted subject to a Minor Amendment as described in SJMSCP Section 8.8.4(D).

For those land uses which have an effect which is significantly different (i.e., greater than) that those described in the SJMSCP originally adopted, coverage of the land use may be permitted subject to a Major Amendment as described in SJMSCP Section 8.8.5(I).

The following are unmapped land uses which are SJMSCP Covered Activities subject to case-by-case review as described in the preceding paragraphs:
### Table 3-2
UNMAPPED LAND USES

<table>
<thead>
<tr>
<th>Activity</th>
<th>Project Incidental Take Acreage (in acres of Open Space to be Converted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Golf Courses - Recreation</td>
<td>1,750</td>
</tr>
<tr>
<td>Religious Assembly</td>
<td>200</td>
</tr>
<tr>
<td>Communication Services</td>
<td>50</td>
</tr>
<tr>
<td>Funeral, internment services</td>
<td>20</td>
</tr>
<tr>
<td>Public Services - Police, Fire and similar</td>
<td>10</td>
</tr>
<tr>
<td>Tule/Channel Island</td>
<td>3</td>
</tr>
<tr>
<td>Major Impact - Landfills, hazardous Waste, Correctional Institutions, Other (e.g., composting etc.)</td>
<td>190</td>
</tr>
<tr>
<td>Recreation - Trails, Campgrounds</td>
<td>190</td>
</tr>
<tr>
<td>Recreation - Outdoor Sports Clubs</td>
<td>150</td>
</tr>
<tr>
<td>Utility Services</td>
<td>400</td>
</tr>
<tr>
<td>Miscellaneous-Museums and similar</td>
<td>200</td>
</tr>
<tr>
<td>Natural Gas Well Drilling/a/</td>
<td>800</td>
</tr>
<tr>
<td>Unmapped Mineral Resources (outside of MRZ-2 Zones) /b/</td>
<td>/b/</td>
</tr>
<tr>
<td>Homesites (2,200 @ 2 acres each)</td>
<td>4,400</td>
</tr>
<tr>
<td>Recreation: Parks/d, Trails</td>
<td>325</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>8,688</strong></td>
</tr>
</tbody>
</table>

/a/ The anticipated boundaries for natural gas well drilling are mapped within the county. However, due to the wide distribution of potential drilling areas, this category is included an “unmapped” activity.

/b/ The total Incidental Take acreage of mapped and unmapped mineral resources may not exceed 10,899 acres.

/c/ This total for unmapped activities excludes unmapped mineral resources. Incidental Take for unmapped mineral resources is subtracted from the 10,899 acres of Incidental Take allocated for mapped mineral resources.

/d/ Some parks are included within the existing boundaries of the SJMSCP Planned Land Use Map, these projects do not require additional review as described in this section prior to gaining coverage under the SJMSCP.

### 3.5 FUTURE LAND USE

Conversion of 109,302 acres from Open Space to non-Open Space uses are anticipated at full buildout under each of the general plans, and includes exhaustion of all identified mineral resources and construction of all anticipated transportation and other public projects in San Joaquin County between 2001 and 2051.

Future land use is anticipated to become increasingly urban in San Joaquin

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County with a corresponding loss of Open Space for agriculture, recreation, plants, fish and wildlife, scenic values and other beneficial Open Space uses.

A detailed description of these Open Space Conversions, broken down by activity type and by SJMSCP Covered Species affected, is provided in Tables 4.2-1 and 4.3-1, respectively.

### 3.6 CONSISTENCY WITH LOCAL GENERAL PLANS

The SJMSCP will assist in the implementation of the resources management and Open Space management goals and policies of local general plans. For a listing of all goals, policies and programs which will be either fully or partially implemented by the SJMSCP, by jurisdiction, see Appendix E.
4. ESTIMATED FUTURE OPEN SPACE CONVERSIONS

4.1 METHODOLOGY FOR DETERMINING WHEN OPEN SPACE CONVERSIONS RESULT IN INCIDENTAL TAKE VERSUS WHEN OPEN SPACES CONVERSIONS DO NOT RESULT IN INCIDENTAL TAKE

4.1.1 COMPREHENSIVE COMPENSATION PURSUANT TO LOCAL, STATE AND FEDERAL PLANT, FISH AND WILDLIFE REGULATIONS

The SJMSCP will provide comprehensive compensation for and measures for avoiding impacts to plants, fish and wildlife, especially for threatened, endangered, rare and other unlisted SJMSCP Covered Species, and compensation for some impacts to recreation, agriculture, scenic values and other beneficial Open Space uses.

Comprehensive mitigation for impacts to plants, fish and wildlife means that Open Space goals adopted under the SJMSCP are intended to adequately compensate for impacts to plants, fish and wildlife for SJMSCP Permitted Activities pursuant to local, state and federal regulations.

At the state and federal levels, the SJMSCP provides adequate compensation for and measures for avoiding impacts to plants, fish and wildlife for SJMSCP pursuant to the California Endangered Species Act (CESA), the California Native Plant Protection Act, the Federal Endangered Species Act (ESA), Section 404 of the Federal Clean Water Act (CWA), Section 10 of the Rivers and Harbors Act of 1899, and the Migratory Bird Treaty Act (MBTA) for listed SJMSCP Covered Bird Species also protected under the MBTA as these laws relate to the California Department of Fish and Game's (CDFG), United States Fish and Wildlife Service's (USFWS), and the U.S. Army Corps of Engineers' (USACE) responsibilities for Covered Species with respect to SJMSCP Permitted Activities located within the boundaries of San Joaquin County.

Adoption and implementation of the SJMSCP by local planning jurisdictions provides adequate compensation for and minimization of impacts to plants, fish and wildlife for SJMSCP Permitted Activities as necessary to implement conservation and Open Space policies of local general plans, resolution, ordinances, and other regulations as they pertain to plants, fish and wildlife and as necessary to fulfill the obligations of local jurisdictions with respect to the analysis, minimization and mitigation of impacts to plants, fish and wildlife pursuant to the state and federal laws described above and pursuant to the California Environmental Quality Act (CEQA), the National Environmental Policy Act (NEPA), the Planning and Zoning Law, the State Subdivision Map Act, the Porter-
Cologne Act, and the Cortese-Knox Act as these laws relate to the Permittees' responsibilities for Covered Species with respect to SJMSCP Permitted Activities located within the boundaries of San Joaquin County.

To achieve this broad coverage for impacts to plants, fish and wildlife, the SJMSCP provides the basis for acquiring the following:

A. A CESA Section 2081(b) Incidental Take Permit to authorize Incidental Take of state-listed species including authorization of Take of state-listed species, and other unlisted species should they become listed, resulting from land use changes and other disturbances associated with SJMSCP Covered Activities, mitigation activities, management, monitoring and operation of the SJMSCP Preserve system including Neighboring Land Protections and for scientific purposes (e.g., trapping, handling, and marking of SJMSCP Covered Species). This Section 2081(b) Permit also will authorize Incidental Take of vernal pool and aquatic species which are covered by the SJMSCP for SJMSCP Covered Activities that do not require a permit under Section 404 of the Federal Clean Water Act, Section 10 of the Rivers and Harbors Act or other federal regulations that would trigger CESA. See also Section 5.6.1 for additional information related to the relationship of the SJMSCP and the SJMSCP's planned future regional general permit, or equivalent, expected to be secured from the U.S. Army Corps of Engineers pursuant to Section 404 of the Federal Clean Water Act;

B. An ESA Section 10 (a)(1)(B) Permit to authorize Incidental Take of federally-listed species, and other unlisted species should they become listed, including authorization of Take of federally-listed species resulting from impacts of land use changes and other disturbances associated with SJMSCP Covered Activities, mitigation activities, management, monitoring and operation of the SJMSCP Preserve system including Neighboring Land Protections and for scientific purposes (e.g., trapping, handling, and marking of SJMSCP Covered Species). This Section 10(a)(1)(B) Permit also will authorize Incidental Take of vernal pool and aquatic species which are covered by the SJMSCP for SJMSCP Covered Activities that do not require a permit under Section 404 of the Federal Clean Water Act, Section 10 of the Rivers and Harbors Act or other federal regulations that would trigger an ESA Section 7 consultation. See also Section 5.6.1 for additional information related to the relationship of the SJMSCP and the SJMSCP's planned future regional general permit, or equivalent, expected to be secured from the U.S. Army Corps of Engineers pursuant to Section 404 of the Federal Clean Water Act;
C. The ESA Section 10(a)(1)(B) Permit (see B, above) will allow for Take, as defined by the MBTA and pursuant to 50 C.F.R. 21.27, of those birds covered by the SJMSCP that are protected by the MBTA and federally-listed under the ESA, except for bald and golden eagles, pursuant to the Migratory Bird Treaty Act of 1918, as amended (16 U.S. C. Sections 703-712); and

D. Coverage pursuant to the California Environmental Quality Act for impacts to SJMSCP Covered Species occurring as a result of SJMSCP Covered Activities.

The SJMSCP Implementation Agreement establishes the necessary requirements to commence Incidental Take for local city and County jurisdictions, special districts, and third parties. Implementing ordinances and/or resolutions adopted in conjunction with the requirements of the Implementation Agreement by local jurisdictions and special districts will formalize their acceptance of the SJMSCP as adequate compensation for and minimization of impacts to plants, fish and wildlife, and as partial mitigation for non-wildlife related impacts to recreation, agricultural lands, scenic values, and other beneficial Open Space uses. Further, these ordinances and/or resolutions adopted by local jurisdictions and special districts shall include findings that an agreement for payment of environmental review fees to the California Department of Fish and Game pursuant to Assembly Bill 3158 is not required for projects undertaken in compliance with the SJMSCP.

After the requirements of the Implementation Agreement relative to activation of the SJMSCP Permits are fulfilled as necessary to authorize the commencement of Incidental Take pursuant to the SJMSCP, the SJMSCP Joint Powers Authority intends to obtain the following permits and/or authorizations:

A. A programmatic streambed alteration agreement (either as Plan amendment or as a separate, but supplemental, permit to the SJMSCP) with the California Department of Fish and Game pursuant to Section 1600 et seq. of the California Fish and Game Code to provide a blanket agreement for SJMSCP Permitted Activities affecting streams. The California Department of Fish and Game indicates that the mitigation contained within the SJMSCP can be used as a basis for establishing mitigation for plant, fish and wildlife species and their habitats pursuant to the proposed programmatic streambed alteration agreement (see Appendix V);

B. An ESA Section 10 (a)(1)(B) Permit to authorize Incidental Take of anadromous fish species including the Winter-run Chinook salmon (*Oncorhynchus tshawytsha*), Fall-run Chinook

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salmon (*Oncorhynchus tshawytshca*), Spring-run Chinook salmon (*Oncorhynchus tshawytshca*) and steelhead trout (*Oncorhynchus mykiss gairdneri*) from the National Marine Fisheries Services (NMFS);

C. A program to encourage individuals to undertake activities which are not otherwise subject to local, state or federal plant, fish and wildlife regulations, to provide plant, fish and wildlife enhancements on their properties without fear of prosecution or limitations on pre-existing legal activities should those plant, fish and wildlife enhancements attract SJMSCP Covered Species to their property. This program is outlined in Section 5.4. Adoption of this program will be pursued by the JPA after state and federal agencies have adopted guidelines and/or rules in conjunction with:

1. California’s newly adopted legislation for addressing Incidental Take associated with routine and ongoing activities (i.e., Section 2086 et seq. of the California Fish and Game Code); and

2. the federal safe harbor program (note: the Final Rule for this program has been published).

D. A general permit(s) pursuant to Section 404(e) of the Federal Clean Water Act [33 CFR 322.2(f) and 323.2(h)], or an alternative equivalent authorization(s), issued by the U.S. Army Corps of Engineers in consultation with the U.S. Fish and Wildlife Service covering Waters of the United States for SJMSCP Permitted Activities affecting up to 707 acres of vernal pool wetted surface area and equivalent to 5,894 acres of vernal pool grasslands, 1,233 acres of Riparian habitats and 4,790 acres of Water Features;

E. A water quality certification or waiver from the California State Water Resources Control Board or Central Valley Regional Water Quality Control Board pursuant to Section 401 of the Federal Clean Water Act after issuance of the Section 404(e) general permit(s), or equivalent, for the activities covered in the Section 404(e) general permit(s), or equivalent, to be issued after initial adoption of the SJMSCP; and

F. Within three years of the Effective Date of the SJMSCP, the JPA shall secure a Federal Clean Water Act Section 404 regional general permit, or equivalent, from the U.S. Army Corps of Engineers or the JPA shall adopt a strategy to ensure that impacts to wetlands resulting from SJMSCP Covered Activities shall include compensation in the form of large, interconnected Preserves, consistent with the requirements of the SJMSCP rather than resulting in small, scattered Preserves as now occurs. Approval of an alternative strategy in lieu of a Section 404 Permit, or its equivalent from the U.S. Army Corps of Engineers, shall require review of the TAC, with the concurrence of the Permitting Agencies.
4.1.2 DETERMINING WHEN OPEN SPACE CONVERSIONS RESULT IN INCIDENTAL TAKE AND REQUIRE COMPENSATION

In determining which Open Space Conversions result in Incidental Take, the SJMSCP relies upon the current definition of Take as defined in the Federal Endangered Species Act (ESA). The ESA defines "Take" as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." "Harass" is further defined by federal regulation implementing the ESA to include "an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding or sheltering" (50 CFR 17.3). "Harm," as defined by regulation means, "an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering" (50 CFR 17.3). "Incidental Take," as used in the SJMSCP refers to all forms of Take as defined in the Federal Endangered Species Act and implementing regulations unless specifically noted otherwise.

Once the provisions of state and federal Incidental Take Permits are issued, Project Proponents undertaking SJMSCP Permitted Activities under the jurisdiction of Permittees may conduct SJMSCP Permitted Activities that result in or may result in "Incidental Take" of listed species. Incidental Take is defined by the ESA as Take of a fish or wildlife species listed as threatened or endangered "that is incidental to, and not the primary purpose of, the carrying out of an otherwise lawful activity."

According to Chapter 8 of the SJMSCP Biological Analysis (see Appendix K), Natural Lands and Agricultural Habitat Lands are used by SJMSCP Covered Species for breeding, feeding and sheltering. Therefore, it has been determined that the Conversion of Open Space lands classified as Natural Lands or Agricultural Habitat Lands may result in Incidental Take. Conversion of lands in these Open Space categories requires compensation pursuant to the SJMSCP as follows:

A. One acre of compensation, in the form of Preserve land acquisition, for every one acre of Agricultural Habitat Land Converted from Open Space use (see Section 2.2.1.2 for a description of Agricultural Habitat Land);

B. Three acres of compensation, in the form of Preserve land acquisition, for every one acre of Natural Land, (see Section 2.2.1.1 for a description of Natural Land) Converted from Open Space use excepting Natural Lands which qualify as...
jurisdictional areas or Other Waters of the United States which are addressed below in paragraph #3; and

C. For every one acre of Natural Land Converted from Open Space use which qualifies as a jurisdictional area or Other Waters of the United States, compensation shall be in the form of three acres of Preserve land acquisition. For vernal pools, two of the three acquired Preserve acres shall preserve existing vernal pools and one acre of the three Preserve acres shall be used for the creation of vernal pools. For non-vernal pools jurisdictional areas or Other Waters of the United States, the JPA has the option of creating at least one, and up to all three, acres of compensation as required pursuant to this paragraph (e.g., the JPA may replace one acre of tule marsh by: acquiring easements to conserve two acres of existing tule marsh and creating one additional acre of tule marsh; acquiring easements to conserve one acre of existing tule marsh and creating two additional acres of tule marsh; or by acquiring no existing tule marsh lands and creating all three acres of tule marsh).

For the purposes of providing compensation for jurisdictional areas or Other Waters of the United States, the term “creation” shall differ depending upon the type of wetland involved. Chapter 10 includes a definition of “creation” as it applies to each wetland category.

These represent compensation ratios of 1:1, 3:1, and 3:1 respectively. These compensation ratios are summarized in Table 5.3-1.

These compensation requirements apply only to SJMSCP Permitted Activities. Agricultural activities are not covered by the SJMSCP (except that Conversion of wetlands as a result of agricultural activities requiring a Section 404 permit pursuant to the Federal Clean Water Act and/or subject to the ESA may use the SJMSCP to compensate for impacts to listed vernal pool species). Therefore, change of agricultural use of Agricultural Habitat Lands, Natural Lands, Multi-Purpose Open Space Lands or any lands by agricultural activities, except as noted above, triggers no actions or requirements related to the SJMSCP. Changes of agricultural uses of Agricultural Habitat Lands, Natural Lands, Multi-Purpose Open Space Lands or any lands by agricultural activities remain subject to the same legal requirements, including the need to comply with the Federal Endangered Species Act and/or CESA even when permits are not required pursuant to the Federal Clean Water Act, as were in effect before adoption of the SJMSCP and individuals are encouraged to consult with local, state and federal agencies to determine applicable regulations.

In contrast to Natural Lands and Agricultural Habitat Lands, the
Conversion of Multi-Purpose Open Space Lands does not result in Incidental Take and does not require compensation in the form of Preserve acquisition. Instead, compensation for Multi-Purpose Open Space Lands is as follows:

**Multi-Purpose Open Space Lands:** According to the SJMSCP Biological Analysis and the Permitting Agencies, the Conversion of Multi-Purpose Open Space Lands is important to common plant, fish and wildlife species and may, indirectly, provide limited benefits to SJMSCP Covered Species (e.g., as movement corridors, supplemental foraging areas, etc.). Because of the relatively limited importance of Multi-Purpose Open Space Lands to SJMSCP Covered Species, the SJMSCP Biological Analysis and the Permitting Agencies determined that activities contributing to the Conversion of SJMSCP Multi-Purpose Open Spaces does not require compensation in the form of establishing Preserves. However, pursuant to the California Environmental Quality Act, the cumulative impact of eliminating Multi-Purpose Open Spaces is significant and adverse to common plant, fish and wildlife species and, therefore, the Conversion of Multi-Purpose Open Spaces shall share in the costs of enhancing, maintaining and administering Open Space Preserves pursuant to the SJMSCP. In this manner, the Conversion of Multi-Purpose Open Space lands does not trigger a requirement to add Preserve acres to the SJMSCP Preserve system. Instead, the Conversion of Multi-Purpose Open Space lands triggers a requirement to assist in financing the SJMSCP Preserve system by supporting a portion of the enhancement, management and administration costs associated with the Preserve system.

In addition to this biological approach to compensation for Open Spaces, the SJMSCP also takes a non-biological approach to Open Space compensation. As noted in Section 7.3, the SJMSCP is a multi-species habitat conservation and Open Space plan. This means that, in addition to plant, fish and wildlife benefits, the SJMSCP considers the non-wildlife value of Open Spaces including agricultural, educational, recreational, scenic, flood control and other beneficial Open Space uses. These non-wildlife benefits are provided by Agricultural Habitat Lands, Natural Lands and Multi-Purpose Open Space lands.

This non-biological view of Open Spaces is supported by the general plan policies of San Joaquin County's seven cities and the County itself. These general plans contain policies establishing the value and importance of environmentally sensitive lands and Open Space resources to agricultural productivity, biodiversity, and the welfare of county residents (see Appendix E). These general plans call for programs to offset both the biological and non-biological impacts of Converting Open Spaces to non-Open Space use. The SJMSCP recognizes the multiple uses and benefits of Open Spaces and, while its primary purpose is to provide
comprehensive mitigation to offset impacts to plant, fish and wildlife and habitats, the establishment of Open Space Preserves will also offset many non-biological impacts associated with the Conversions of Open Spaces consistent with the directives of local general plans.

Consistent with this multi-use/multi-benefit view of Open Spaces, the proposed funding plan spreads costs of permanently preserving Open Space and habitat land in San Joaquin County among not only new development, but also among other beneficiaries of the SJMSCP. Therefore, fees will be paid, pursuant to the SJMSCP, for the Conversion of all Open Space land categories: Agricultural Habitat Lands, Natural Lands (vernal pool lands as described above and non-vernal pool lands as described here), and Multi-Purpose Open Space Lands. The method for calculating fees on this basis is described, in detail, in Section 7.4.1.2 of the SJMSCP.

Because the compensation ratios for Agricultural Habitat Lands and Natural Lands differ (1:1 and 3:1 respectively), and are directly related to Incidental Take, whereas the Conversion of Multi-Purpose Open Space Lands does not carry with it a requirement to increase the total mitigation acreage requirement of the Plan to offset Incidental Take, the SJMSCP analyses the extent and effects of Conversion of Open Space lands for these three categories: Agricultural Habitat Lands, Natural Lands and Multi-Purpose Open Space Lands.

The SJMSCP addresses over 109,302 acres of new land Conversions from Open Space to non-Open Space uses at full buildout (estimated to occur between 2001-2051). The SJMSCP Permits will authorize Incidental Take on all 109,302 acres Converted from Open Space uses. Of this 109,302 acres of Open Space Conversion, the Conversion of 71,837 acres of Agricultural Habitat Lands and Natural Lands will result in a compensation requirement of 100,841 acres of Preserves. The Conversion of the remaining 37,465 acres of Multi-Purpose Open Space Land Conversions will contribute to the costs of managing, monitoring, and enhancing the 100,841 acres of Open Space Preserves for the SJMSCP, but does not increase the total compensation requirement of 100,841 acres.

The details of the projected Open Space Conversions resulting from SJMSCP Permitted Activities and the distribution of these Conversions over the three categories of Open Space lands recognized by the SJMSCP are detailed in the following tables. These Open Space Conversion acreages are the primary guide used for assessing the impacts to SJMSCP Covered Species. Pursuant to the preceding discussion, Incidental Take is expressed in the following tables as the total acres of Natural Lands, Agricultural Habitat Lands and Multi-Purpose Open Space Lands to be Converted from Open Space use by SJMSCP Permitted Activities occurring between 2001 and 2051. However, while SJMSCP Permitted Activities occurring on all categories of Open Space lands contribute to
the cost of the SJMSCP, only the Natural Land and Agricultural Habitat Land categories are used to determine total Preserve acreage requirements for the SJMSCP (one Preserve acre for each Converted acre of Agricultural Habitat Land and three acres of Preserve for each acre of Natural Land Converted). In these tables, Take of habitat is expressed in acres. See Chapter 8, Section 8.2.1 and Appendices L and X for a complete description of SJMSCP Permitted Activities.
### 4.2 ESTIMATED ACRES OF OPEN SPACE CONVERSION

#### TABLE 4.2-1
**ESTIMATED OPEN SPACE CONVERSION BY PERMITTED ACTIVITY - 2001-2051 (in acres)**

<table>
<thead>
<tr>
<th>Category</th>
<th>Activity</th>
<th>Natural Land</th>
<th>Agricultural Habitat Land</th>
<th>Multi-Purpose Open Space Land</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban Development (GIS Mapped)</td>
<td>Urban Development/a/</td>
<td>4,100/b/</td>
<td>47,453/c/</td>
<td>24,217</td>
<td>75,770</td>
</tr>
<tr>
<td>Aggregate Mining (GIS Mapped and Unmapped)</td>
<td>Aggregate Mining/d/</td>
<td>1,769</td>
<td>1,813</td>
<td>7,317</td>
<td>10,899</td>
</tr>
<tr>
<td>Public Agency Activities</td>
<td>Highway Construction</td>
<td>201</td>
<td>506</td>
<td>293</td>
<td>1,000</td>
</tr>
<tr>
<td></td>
<td>Highway Maintenance</td>
<td>187</td>
<td>520</td>
<td>293</td>
<td>1,000</td>
</tr>
<tr>
<td></td>
<td>Non-Federal Flood Control Projects/k/</td>
<td>56/a/</td>
<td>250/b/</td>
<td>65/c/</td>
<td>365</td>
</tr>
<tr>
<td></td>
<td>Irrigation District/k/</td>
<td>50</td>
<td>100</td>
<td>--</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>Levee Maintenance/g/</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>Lodi Wastewater/k/</td>
<td>0</td>
<td>756</td>
<td>444</td>
<td>1,200</td>
</tr>
<tr>
<td>Non-Ag Activities on Ag-zoned Land (Unmapped)</td>
<td>Communication Services</td>
<td>16</td>
<td>23</td>
<td>11</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Funeral Interment Services</td>
<td>0</td>
<td>13</td>
<td>7</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Major Impact: Landfills</td>
<td>15</td>
<td>14</td>
<td>11</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Major Impact: Hazardous Waste Disposal</td>
<td>3</td>
<td>9</td>
<td>8</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Major Impact: Correctional Institutions</td>
<td>8</td>
<td>24</td>
<td>18</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Major Impact: Other (composting etc.)</td>
<td>29</td>
<td>30</td>
<td>21</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>Public Services: Police, Fire Stations, and Similar Uses</td>
<td>0</td>
<td>7</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Recreation: Campgrounds</td>
<td>11</td>
<td>36</td>
<td>13</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>Recreation: Parks</td>
<td>48</td>
<td>123</td>
<td>44</td>
<td>215</td>
</tr>
<tr>
<td></td>
<td>Recreation: Trails (45 miles X 20 ft.)</td>
<td>26</td>
<td>64</td>
<td>20</td>
<td>110</td>
</tr>
<tr>
<td></td>
<td>Recreation: Golf Courses</td>
<td>600</td>
<td>800</td>
<td>350</td>
<td>1,750</td>
</tr>
<tr>
<td></td>
<td>Recreation: Outdoor Sports Clubs</td>
<td>22</td>
<td>90</td>
<td>38</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>Religious Assembly (20 @ 10 acres)</td>
<td>30</td>
<td>107</td>
<td>63</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>Utility Services</td>
<td>135</td>
<td>179</td>
<td>86</td>
<td>400</td>
</tr>
<tr>
<td></td>
<td>Homesites (2,200 @ 2 acres)/</td>
<td>714</td>
<td>2,127</td>
<td>1,559</td>
<td>4,400</td>
</tr>
<tr>
<td></td>
<td>Miscellaneous</td>
<td>55</td>
<td>97</td>
<td>48</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>Natural Gas Well Drilling/d/</td>
<td>112</td>
<td>575</td>
<td>113</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td>See SJMSCP Section 8.2.1.5</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Submerged Aquatic Habitat</td>
<td>Agricultural Activities/ Trigger</td>
<td>Conversion of Vernal Pool Grasslands</td>
<td>5,000</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Growth/h/</td>
<td>1018</td>
<td>1899</td>
<td>2423</td>
<td>5,340</td>
</tr>
<tr>
<td></td>
<td>Anticipated Projects Section 8.2.1(10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Open Space Conversion Acres</td>
<td></td>
<td>14,202.00</td>
<td>57,635.00</td>
<td>37,465.00</td>
<td>109,302.00</td>
</tr>
<tr>
<td>Acreage Used to Establish SJMSCP Preserve Requirements/m/</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>71,837</td>
</tr>
</tbody>
</table>
Includes public and private activities such as new commercial, residential, industrial construction; agricultural activities requiring a discretionary permit pursuant to the California Environmental Quality Act; aggregate mining; new schools; transportation projects; and public infrastructure projects located within the urban boundaries indicated on the SJMSCP Planned Land Use Map. Activities located outside of the SJMSCP Planned Land Use Map urban boundaries are covered by the other listed categories.

Reduced from 13,332 due to the removal of Tracy Hills (5,200 acres) which already has reached an agreement with USFWS and CDFG for compensation. Also reflects the removal of 3,832 acres to adjust for counting water surface areas in all water features including rivers and canals.

Previous total from the SJMSCP Biological Analysis of 54,411 acres was adjusted by 47 acres due to revisions by USFWS and CDFG in occupied and potential habitat estimates for all species; additional reduction of 6,053 acres from agreement by Permitting Agencies to recognize some crops receive lower use by Swainson's hawks than other crops; and a reduction of 858 acres of on-site dedications anticipated for the Swainson's hawk for Gold Rush City as partial compensation for that project. 6,100 acres was added to the Multi-Purpose Open Space Land category and 858 acres of this was not added to the Multi-Purpose Open Space Land total.

Natural gas well coverage is for up to 400 wells at 2 acres each.

Reduced by 7,450 acres due to the removal of the American River Water Resources Investigation Project (which totaled 3,653 acres). Total continues to include compensation for the San Joaquin Area Flood Control District flood project. Flood control improvements undertaken by this agency are required pursuant to directives of the Federal Emergency Management Agency. The project is currently 98% completed and mitigation for the project, pursuant to agreements with the Permitting Agencies as adopted in the project EIR, has provided payments earmarked for the SJMSCP unless the SJMSCP is not adopted (in which case the monies shall be spent on specific mitigation identified within the project EIR). Funding for the project is from local assessments and not from federal sources. 1/10 of 1% of the project involved a jurisdictional wetland associated with a bridge crossing. Permits associated with the wetland have been secured and work has been completed. Because this project is predominantly local and mitigation was approved by the Permitting Agencies pursuant to an EIR, the project is considered an SJMSCP Permitted Activity.

Added during adjustment which removed the American River Water Resources Investigation Project. The addition is based on the San Joaquin Area Flood Control District flood project draft Environmental Impact Report's conclusions that approximately 200 acres of Agricultural Habitat Lands shall be disturbed and approximately 65 acres of orchards and vineyards. 50 acres of Natural Lands also are included for the San Joaquin Area Flood Control project.

Levee maintenance activities covered by the SJMSCP are those undertaken by the San Joaquin Area Flood Control Agency.

As described in Section 8.2.110.

Airports not primarily serving agriculture.

See Appendix L for more detailed descriptions of these activities. This category also includes airport expansions, reroutes and freeway commercial service facilities. An additional 340 acres is added to this category due to removal of 340 acres of activities elsewhere in the table.

These homesites will be located on existing parcels located outside of urban/defined community boundaries as indicated on the SJMSCP Planned Land Use Map. Fees shall be collected at Building Permit stage.

i.e., That acreage which was assumed to result in Take for the purposes of SJMSCP.
<table>
<thead>
<tr>
<th>SJMSCP Index Zone</th>
<th>Natural Land (Acres)</th>
<th>Agricultural Habitat Land (Acres)</th>
<th>Multi-Purpose Open Space Land (Acres)</th>
<th>Total Land (Acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central and Central/Southwest Transition Zones</td>
<td>6,392</td>
<td>56,344</td>
<td>36,580</td>
<td>99,316</td>
</tr>
<tr>
<td>Primary Zone of the Delta</td>
<td>41374</td>
<td>1,041</td>
<td>314</td>
<td>1,729</td>
</tr>
<tr>
<td>Southwest Zone</td>
<td>1,542</td>
<td>0</td>
<td>200</td>
<td>1,742</td>
</tr>
<tr>
<td>Vernal Pool Zone</td>
<td>5,894/b/</td>
<td>250</td>
<td>371</td>
<td>6,515</td>
</tr>
<tr>
<td>Total</td>
<td>14,202.00</td>
<td>57,635.00</td>
<td>37,465.00</td>
<td>109,302.00</td>
</tr>
</tbody>
</table>

Acreage Used to Establish SJMSCP Preserve Requirements (acres)/a/ 71,837

/a/ i.e., That acreage which was assumed to result in Take for the purposes of SJMSCP.
/b/ 8% of the 73,614 acres of vernal pool grasslands mapped within all of San Joaquin County.
4.3 ESTIMATED INCIDENTAL TAKE BY SPECIES

The following is an estimate of Incidental Take of threatened, endangered, rare and unlisted SJMSCP Covered Species expressed as acres of occupied and potential habitat to be Converted from Open Space for each SJMSCP Covered Species. The estimated Open Space Conversions of Natural Lands and Agricultural Habitat Lands, in acres, described in Section 4.2, and the Take estimates described in this section, are the primary guide for assessing the impacts to SJMSCP Covered Species. Incidental Take estimates presented here are intended to provide an overview of the "worst case" scenario for full buildout that could occur as a result of SJMSCP Permitted Activities. Actual Open Space Conversions over the term of the Plan could be less, but shall not exceed 109,302 acres, without first securing a Major Plan Amendment pursuant to Section 8.8.5.

The estimated amount of Conversion of habitat for some species overlap with the estimated amount of Conversion of habitat for other species, and the total of estimated amount of Conversion of habitat for each species does not equal the total estimated Take for all species, collectively, for the SJMSCP.

Additions and refinements to the SJMSCP related to project descriptions, activities to be covered or not covered by the SJMSCP, and to total Conversion of habitat by acreage were made after the completion of the initial draft of the SJMSCP Biological Analysis. While the final SJMSCP Biological Analysis incorporated these changes into total estimates of Open Space Conversions (in acres), these same refinements, as specified on page 9-6 of the SJMSCP Biological Analysis, were not made in the estimates for individual species habitat Conversion calculations. Those changes include:

A. Removal of the American River Flood Control Project (3,635 acres of Natural Lands) from SJMSCP Permitted Activities.
B. Removal of the Tracy Hills project (5,200 acres of Natural Lands) due to a separate agreement with the Permitting Agencies establishing wildlife and habitat mitigation for that project.
C. Removal of on-site dedication lands planned for Gold Rush City (858 acres of credit for 900 acres on-site) pursuant to the approval of a 2081(b) Incidental Take Permit by the California Department of Fish and Game since these lands already are

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10 The definitions and parameters for establishing occupied and potential habitat for each SJMSCP Covered Species is detailed in Chapter 8 of the SJMSCP Biological Analysis. Instructions for securing copies of the SJMSCP Biological Analysis are included in Appendix K.
designated for Open Space Preserves (and therefore will not be Converted from Open Space use as previously expected).

D. 47-acre reduction based on CDFG and USFWS requested revisions to occupied and potential habitat descriptions. NOTE: Already incorporated in the SJMSCP Biological Analysis, but not in the GIS projection for vegetation type disturbance.

E. 6,053 acres adjustment due to low usage of some row and field crop types by the Swainson's hawk and all species overlapping with the hawk pursuant to a memorandum contained in Appendix M and approved by CDFG and the USFWS.

F. Adjustment of 3,832 acres from Natural Land Take to compensate for including water surface areas in calculations for water features. The SJMSCP biological consultant, Toyon Environmental Consulting, Inc., determined that the SJMSCP Geographic Information System Database had calculated Conversion of Open Spaces on wide open water areas, such as the area included 150 feet offshore along Delta waterways, the San Joaquin River, the Stanislaus River and similar waterways. However, the portions of waterways located far offshore will not be Converted from their current uses by SJMSCP Permitted Activities. This change was reviewed and approved by the Permitting Agencies during the SJMSCP planning process.

G. Addition of the South San Joaquin Irrigation District Project (50 acres natural and 100 acres Agricultural Habitat Lands) per April 22, 1996, correspondence from the South San Joaquin Irrigation District. This project is detailed in Appendix L.

H. Addition of 5,000 acres of agricultural activities to the SJMSCP to analyze the Conversion of up to 5,000 acres of vernal pool grasslands to orchards, vineyards and for similar agricultural purposes when such agricultural activities trigger requirements of Section 404 of the Federal Clean Water Act and/or the ESA [see Section 8.2.1(7)].

In addition, the SJMSCP Geographic Information System Database inadvertently eliminated 3 polygons of C3f (flooded crop field) habitat from occupied habitat for the giant garter snake when the database intended only to eliminate this habitat from the potential habitat total. These occupied polygons totaled 8,677 acres. The database correction changed the total occupied and potential habitat acres for the giant garter snake to 12,351 acres, thereby reducing the percentage of overall Take from 83% of total habitat to 25% of total habitat.

These refinements have been incorporated into individual species Take estimates as provided in Table 4.3-1. Table 4.3-1 presents an estimate of the Incidental Take acres of occupied and potential habitat expected to occur for each SJMSCP Covered species as a result of SJMSCP Permitted Activities through 2051.
### TABLE 4.3-1
INCIDENTAL TAKE OF SJMSCP COVERED SPECIES AT FULL BUILDOUT
(in acres of habitat Converted)

<table>
<thead>
<tr>
<th>SPECIES NAME</th>
<th>Species Code in GIS Database</th>
<th>Available Habitat in County</th>
<th>Limitations to Take Coverage</th>
<th>Estimated Conversion of Occupied and Potential Habitat (Acres)/a/</th>
<th>Take as % of Total Available Habitat</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Federally-Listed Species</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large-flowered fiddleneck (\textit{Amsinckia grandiflora})</td>
<td>AMGR</td>
<td>854</td>
<td>1,184</td>
<td>2,038</td>
<td>NK, NCO</td>
</tr>
<tr>
<td>Succulent owl's clover aka fleshy owl's clover (\textit{Castilleja campestris ssp. succulenta formerly Orthocarpus})</td>
<td>CACASU</td>
<td>371</td>
<td>74,691</td>
<td>75,062</td>
<td>NK, NCO</td>
</tr>
<tr>
<td>Orcutt grass/Greene's tuctoria (\textit{Tuctoria greenei})</td>
<td>TUGR</td>
<td>0</td>
<td>63,505</td>
<td>63,505</td>
<td>NK, NCO</td>
</tr>
<tr>
<td>Conservancy fairy shrimp (\textit{Branchinecta conservatio})</td>
<td>BRCO</td>
<td>0</td>
<td>77,806</td>
<td>77,806</td>
<td>NK, NCO</td>
</tr>
<tr>
<td>Longhorn fairy shrimp (\textit{Branchinecta longipennis})</td>
<td>BRLO</td>
<td>0</td>
<td>77,806</td>
<td>77,806</td>
<td>NK, NCO</td>
</tr>
<tr>
<td>Vernal pool fairy shrimp (\textit{Branchinecta lynchi})</td>
<td>BRLY</td>
<td>22,902</td>
<td>54,904</td>
<td>77,806</td>
<td>6,793</td>
</tr>
<tr>
<td>Valley elderberry longhorn beetle (\textit{Desmocerus californicus dimorphus})</td>
<td>DECADI</td>
<td>660</td>
<td>38,160</td>
<td>38,820</td>
<td>2,888</td>
</tr>
<tr>
<td>Vernal pool tadpole shrimp (\textit{Lepidurus packardi})</td>
<td>LEPA</td>
<td>0</td>
<td>77,806</td>
<td>77,806</td>
<td>5,378</td>
</tr>
<tr>
<td>Delta smelt (\textit{Hypomesus transpacificus})</td>
<td>/c/</td>
<td>/c/</td>
<td>65,963/g</td>
<td>65,963/g</td>
<td>3/d/</td>
</tr>
<tr>
<td>Sacramento splittail (\textit{Pogonichthys macrolepidotus})</td>
<td>/c/</td>
<td>/c/</td>
<td>65,963/g</td>
<td>65,963/g</td>
<td>3/d/</td>
</tr>
<tr>
<td>California red-legged frog (\textit{Rana aurora draytoni})</td>
<td>RAAUD</td>
<td>256</td>
<td>7,070</td>
<td>7,326</td>
<td>440</td>
</tr>
<tr>
<td>Giant garter snake (\textit{Thamnophis gigas})</td>
<td>THGI</td>
<td>9,262</td>
<td>3,089</td>
<td>12,351</td>
<td>NK, NCO</td>
</tr>
<tr>
<td>Aleutian Canada goose (\textit{Branta canadensis leucopareia})</td>
<td>BRCALE</td>
<td>12,311</td>
<td>43,959</td>
<td>56,270</td>
<td>1,234</td>
</tr>
<tr>
<td>Mountain plover (\textit{Charadrius montanus})</td>
<td>CHMO</td>
<td>12,796</td>
<td>45,341</td>
<td>58,137</td>
<td>4,961</td>
</tr>
<tr>
<td>Riparian woodrat (\textit{Neotoma fuscipes riparia})</td>
<td>NEFURI</td>
<td>269</td>
<td>2,909</td>
<td>3,178</td>
<td>NK, NCO</td>
</tr>
<tr>
<td>SPECIES NAME</td>
<td>Available Habitat in County</td>
<td>Limitations to Take Coverage</td>
<td>Estimated Conversion of Occupied and Potential Habitat (Acres)%/a/</td>
<td>Take as % of Total Available Habitat</td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td>-----------------------------</td>
<td>-----------------------------</td>
<td>---------------------------------------------------------------</td>
<td>---------------------------------------</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Occupied (Acres)</td>
<td>Potential (Acres)</td>
<td>Total (Acres)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Riparian brush rabbit (Sylvilagus bachmani riparius)</td>
<td>269</td>
<td>877</td>
<td>1,146</td>
<td>NK, NCO</td>
<td>N/A</td>
</tr>
<tr>
<td>San Joaquin kit fox (Vulpes macrotis mutica)</td>
<td>28,461</td>
<td>21,760</td>
<td>50,221</td>
<td>1,778</td>
<td>4</td>
</tr>
</tbody>
</table>

**State-Listed Species that are not Federally-Listed**

<table>
<thead>
<tr>
<th>SPECIES NAME</th>
<th>Available Habitat in County</th>
<th>Limitations to Take Coverage</th>
<th>Estimated Conversion of Occupied and Potential Habitat (Acres)%/a/</th>
<th>Take as % of Total Available Habitat</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Occupied (Acres)</td>
<td>Potential (Acres)</td>
<td>Total (Acres)</td>
<td></td>
</tr>
<tr>
<td>Delta button-celer/Delta coyote thistle (Eryngium racemosum)</td>
<td>0</td>
<td>517</td>
<td>517</td>
<td>NK, NCO</td>
</tr>
<tr>
<td>Boggs Lake hedge-hyssop (Gratiola heterosepala)</td>
<td>1,717</td>
<td>73,345</td>
<td>75,062</td>
<td>6,097</td>
</tr>
<tr>
<td>Mason's lilaepoxis (Lilaepoxis masonii)</td>
<td>11,405</td>
<td>3,750</td>
<td>15,245</td>
<td>95</td>
</tr>
<tr>
<td>Swainson's hawk (Buteo swainsoni)</td>
<td>232,124</td>
<td>303,824</td>
<td>535,948</td>
<td>62,432</td>
</tr>
<tr>
<td>Western yellow-billed cuckoo (Coccyzus americanius occidentalis)</td>
<td>0</td>
<td>8,557</td>
<td>8,557</td>
<td>682</td>
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<tr>
<td>Greater sandhill crane (Grus canadensis tabida)</td>
<td>46,164</td>
<td>5,217</td>
<td>51,381</td>
<td>NK, FT, FPS</td>
</tr>
<tr>
<td>California black rail (Laterallus jamaicensis cotonniculus)</td>
<td>9,674</td>
<td>3,914</td>
<td>13,588</td>
<td>NTC, FPS</td>
</tr>
<tr>
<td>Bank swallow (Riparia riparia)</td>
<td>0</td>
<td>1,448</td>
<td>1,448</td>
<td>ST</td>
</tr>
</tbody>
</table>

**Other SJMSCP Covered Species**

<table>
<thead>
<tr>
<th>SPECIES NAME</th>
<th>Available Habitat in County</th>
<th>Limitations to Take Coverage</th>
<th>Estimated Conversion of Occupied and Potential Habitat (Acres)%/a/</th>
<th>Take as % of Total Available Habitat</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Occupied (Acres)</td>
<td>Potential (Acres)</td>
<td>Total (Acres)</td>
<td></td>
</tr>
<tr>
<td>Suisun marsh aster (Aster lentus)</td>
<td>807</td>
<td>6,940</td>
<td>7,747</td>
<td>20</td>
</tr>
<tr>
<td>Alkali milk-vetch (Astragalus tener var. tener)</td>
<td>ASTETE</td>
<td>0</td>
<td>0</td>
<td>NTC</td>
</tr>
<tr>
<td>Heartscale (Atriplex cordulata)</td>
<td>ATCO</td>
<td>0</td>
<td>39,386</td>
<td>39,386</td>
</tr>
<tr>
<td>Brittlescale (Atriplex depressa)</td>
<td>ATDE</td>
<td>0</td>
<td>19,047</td>
<td>19,047</td>
</tr>
<tr>
<td>Hoover's calycadenia (Claycadenia hooveri)</td>
<td>CAHO</td>
<td>0</td>
<td>94,786</td>
<td>94,786</td>
</tr>
<tr>
<td>Brittle sedge (Carex comosa)</td>
<td>CACO</td>
<td>0</td>
<td>0</td>
<td>NTC</td>
</tr>
<tr>
<td>Slough thistle (Cirsium crassicaule)</td>
<td>CICR</td>
<td>39</td>
<td>10,959</td>
<td>10,998</td>
</tr>
<tr>
<td>Mt. Hamilton coreopsis (Coreopsis hamiltonii)</td>
<td>COHA</td>
<td>0</td>
<td>23,582</td>
<td>23,582</td>
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<tr>
<td>Hospital Canyon larkspur (Delphinium californicum ssp. interius)</td>
<td>DECAIN</td>
<td>101</td>
<td>4,200</td>
<td>4,301</td>
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<tr>
<td>Recurved larkspur (Delphinium recurvatum)</td>
<td>DERE</td>
<td>0</td>
<td>4,100</td>
<td>4,100</td>
</tr>
<tr>
<td>Diamond-petaled poppy/diamond-petaled California poppy (Escholzia rhombipetala)</td>
<td>ESRH</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>California hibiscus/rose mallow (Hibiscus lasiocarpus)</td>
<td>HILA</td>
<td>1,173</td>
<td>3,579</td>
<td>4,752</td>
</tr>
<tr>
<td>Species Name</td>
<td>Species Code in GIS Database</td>
<td>Available Habitat in County</td>
<td>Limitations to Take Coverage</td>
<td>Estimated Conversion of Occupied and Potential Habitat (Acres)/a/</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------------------------</td>
<td>-----------------------------</td>
<td>------------------------------</td>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>Red Bluff dwarf rush (<em>Juncus leiospermus</em> var. <em>leiospermus</em>)</td>
<td>JULELE</td>
<td>0</td>
<td>75,824</td>
<td>75,824</td>
</tr>
<tr>
<td>Delta tule pea (<em>Lathyrus japonicus</em> var. <em>japonicus</em>)</td>
<td>LAJEJE</td>
<td>2,080</td>
<td>72,982</td>
<td>75,062</td>
</tr>
<tr>
<td>Legenere (<em>Legenere limosa</em>)</td>
<td>LELI</td>
<td>447</td>
<td>4,259</td>
<td>4,706</td>
</tr>
<tr>
<td>Delta mudwort (<em>Limosella subulata</em>)</td>
<td>LISU</td>
<td>261</td>
<td>4,384</td>
<td>4,609</td>
</tr>
<tr>
<td>Showy media (<em>Media radiata</em>)</td>
<td>MARA</td>
<td>12,488</td>
<td>61,864</td>
<td>74,352</td>
</tr>
<tr>
<td>Sanford's arrowhead/Sanford's sagittaria (<em>Sagittaria sanfordii</em>)</td>
<td>SASA</td>
<td>32,000</td>
<td>62,325</td>
<td>95,962</td>
</tr>
<tr>
<td>Mad-dog skullcap (<em>Scutellaria lateriflora</em>)</td>
<td>SCLA</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Wright's trichocorontis (*Trichocorontis wrightii var. <em>wrightii</em>)</td>
<td>TRWRW</td>
<td>65,963</td>
<td>65,963</td>
<td>65,963</td>
</tr>
<tr>
<td>Caper-fruit trediocarpum (<em>Trediocarpum capparideum</em>)</td>
<td>TRCA</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Ciervo aegialian scarab beetle (<em>Aegialia concinna</em>)</td>
<td>AECO</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>California tiger salamander (<em>Ambystoma californiense</em>)</td>
<td>AMCA</td>
<td>3,637</td>
<td>62,325</td>
<td>95,962</td>
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<tr>
<td>Foothill yellow-legged frog (<em>Rana boylii</em>)</td>
<td>RABO</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Western spadefoot toad (<em>Scaphiopus hammondi</em>)</td>
<td>SCHIA</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Western pond turtle (<em>Clemmys marmorata</em>)</td>
<td>CLMA</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>San Joaquin whipsnake (<em>Masticophis flagellum ruddockii</em>)</td>
<td>MAFLRU</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>California horned lizard (<em>Phrynosoma coronatum frontale</em>)</td>
<td>PHCOFR</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cooper's hawk (<em>Accipiter cooperi</em>)</td>
<td>ACCO</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sharp-shinned hawk (<em>Accipiter striatus</em>)</td>
<td>ACST</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>SPECIES NAME</td>
<td>Species Code in GIS Database</td>
<td>Available Habitat in County</td>
<td>Limitations to Take Coverage</td>
<td>Estimated Conversion of Occupied and Potential Habitat (Acres)a/</td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>------------------------------</td>
<td>-----------------------------</td>
<td>-----------------------------</td>
<td>-----------------------------------------------------------------</td>
</tr>
<tr>
<td>Western grebe (Aechmophorus occidentalis)</td>
<td>AEOC</td>
<td>Occupied (Acres) 8,126</td>
<td>Potential (Acres) 22,833</td>
<td>Total (Acres) 30,959</td>
</tr>
<tr>
<td>Tricolored blackbird (Agelaius tricolor)</td>
<td>AGTR</td>
<td>Occupied (Acres) 9,374</td>
<td>Potential (Acres) 47,193</td>
<td>Total (Acres) 56,567</td>
</tr>
<tr>
<td>Bell's sage sparrow (Amphispiza belli belli)</td>
<td>AMBEBE</td>
<td>/b</td>
<td>3,103</td>
<td>3,103</td>
</tr>
<tr>
<td>Golden eagle (Aquila chrysaetos)</td>
<td>AQCH</td>
<td>Occupied (Acres) 612</td>
<td>Potential (Acres) 169,084</td>
<td>Total (Acres) 169,696</td>
</tr>
<tr>
<td>Great egret (Ardea albus formerly Casmerodius albus)</td>
<td>CAAL</td>
<td>Occupied (Acres) 4,038</td>
<td>Potential (Acres) 63,956</td>
<td>Total (Acres) 67,994</td>
</tr>
<tr>
<td>Great blue heron (Ardea herodias)</td>
<td>ARHE</td>
<td>Occupied (Acres) 1,205</td>
<td>Potential (Acres) 64,404</td>
<td>Total (Acres) 65,609</td>
</tr>
<tr>
<td>Short-eared owl (Asio flamminens)</td>
<td>ASFL</td>
<td>Occupied (Acres) 13,368</td>
<td>Potential (Acres) 3,848</td>
<td>Total (Acres) 17,216</td>
</tr>
<tr>
<td>Ferruginous hawk (Buteo regalis)</td>
<td>BURE</td>
<td>Occupied (Acres) 830</td>
<td>Potential (Acres) 160,202</td>
<td>Total (Acres) 161,032</td>
</tr>
<tr>
<td>Northern harrier (Circus cyanus)</td>
<td>CICY</td>
<td>Occupied (Acres) 13,158</td>
<td>Potential (Acres) 513,852</td>
<td>Total (Acres) 527,010</td>
</tr>
<tr>
<td>Yellow warbler (Dendroica petechia brewsteri)</td>
<td>DEPEBR</td>
<td>Occupied (Acres) 9,241</td>
<td>Potential (Acres) 15,278</td>
<td>Total (Acres) 24,519</td>
</tr>
<tr>
<td>Snowy egret (Egretta thula)</td>
<td>EGTH</td>
<td>Occupied (Acres) 0</td>
<td>Potential (Acres) 133,783</td>
<td>Total (Acres) 133,783</td>
</tr>
<tr>
<td>White-tailed kite (Elanus leucurus - formerly Elanus caeruleus)</td>
<td>ELCA</td>
<td>Occupied (Acres) 674</td>
<td>Potential (Acres) 634,432</td>
<td>Total (Acres) 635,106</td>
</tr>
<tr>
<td>California horned lark (Eremophila alpestris actia)</td>
<td>ERALAC</td>
<td>Occupied (Acres) 17,292</td>
<td>Potential (Acres) 143,640</td>
<td>Total (Acres) 160,932</td>
</tr>
<tr>
<td>Merlin (Falco columbarius)</td>
<td>FACO</td>
<td>Occupied (Acres) 36,053</td>
<td>Potential (Acres) 423,117</td>
<td>Total (Acres) 459,170</td>
</tr>
<tr>
<td>Prairie falcon (Falco mexicanus)</td>
<td>FAME</td>
<td>Occupied (Acres) 28,454</td>
<td>Potential (Acres) 365,981</td>
<td>Total (Acres) 394,435</td>
</tr>
<tr>
<td>Yellow-breasted chat (Icteria sirens)</td>
<td>ICVI</td>
<td>Occupied (Acres) 784</td>
<td>Potential (Acres) 14,293</td>
<td>Total (Acres) 15,077</td>
</tr>
<tr>
<td>Loggerhead shrike (Lanius ludovicianus)</td>
<td>LALU</td>
<td>Occupied (Acres) 494</td>
<td>Potential (Acres) 26,592</td>
<td>Total (Acres) 27,086</td>
</tr>
<tr>
<td>Long-billed curlew (Numenius americanus)</td>
<td>NUAM</td>
<td>Occupied (Acres) 4,969</td>
<td>Potential (Acres) 612,083</td>
<td>Total (Acres) 617,052</td>
</tr>
<tr>
<td>Black-crowned night heron (Nycticorax nycticorax)</td>
<td>NYNY</td>
<td>Occupied (Acres) 11,900</td>
<td>Potential (Acres) 51,688</td>
<td>Total (Acres) 63,468</td>
</tr>
<tr>
<td>Osprey (Pandion haliaetus)</td>
<td>PAHA</td>
<td>Occupied (Acres) 188</td>
<td>Potential (Acres) 28,526</td>
<td>Total (Acres) 28,714</td>
</tr>
<tr>
<td>American white pelican (Pelecanus erthrorhynchos)</td>
<td>PEER</td>
<td>Occupied (Acres) 4,305</td>
<td>Potential (Acres) 76,758</td>
<td>Total (Acres) 81,063</td>
</tr>
<tr>
<td>Double-crested cormorant (Phalacrocorax auritus)</td>
<td>PHAU</td>
<td>Occupied (Acres) 505</td>
<td>Potential (Acres) 9,378</td>
<td>Total (Acres) 9,883</td>
</tr>
<tr>
<td>White-faced ibis (Plegadis chichi)</td>
<td>PLCH</td>
<td>Occupied (Acres) 14,268</td>
<td>Potential (Acres) 18,882</td>
<td>Total (Acres) 33,090</td>
</tr>
<tr>
<td>Burrowing owl (Speotyto cunicularia)</td>
<td>SPCU</td>
<td>Occupied (Acres) 84,749</td>
<td>Potential (Acres) 110,576</td>
<td>Total (Acres) 195,325</td>
</tr>
<tr>
<td>SPECIES NAME</td>
<td>Species Code in GIS Database</td>
<td>Available Habitat in County</td>
<td>Limitations to Take Coverage</td>
<td>Estimated Conversion of Occupied and Potential Habitat (Acres)/a/</td>
</tr>
<tr>
<td>------------------------------------------------------------------------------</td>
<td>------------------------------</td>
<td>-----------------------------</td>
<td>-----------------------------</td>
<td>-----------------------------------------------------------------</td>
</tr>
<tr>
<td>Ringtail/ringtail cat <em>(Bassaricus astutus)</em></td>
<td>BAAS</td>
<td>352</td>
<td>14,552</td>
<td>14,904</td>
</tr>
<tr>
<td>Berkeley kangaroo rat <em>(Dipodomys heermanni berkeleyensis)</em></td>
<td>DIHEBE</td>
<td>24,152</td>
<td>25,476</td>
<td>49,628</td>
</tr>
<tr>
<td>Greater western mastiff bat aka California mastiff bat <em>(Eumops perotis californicus)</em></td>
<td>EUPECA</td>
<td>39</td>
<td>159,817</td>
<td>159,856</td>
</tr>
<tr>
<td>Red bat <em>(Lasiurus borealis)</em></td>
<td>LABO</td>
<td>269</td>
<td>470,624</td>
<td>470,893</td>
</tr>
<tr>
<td>Small-footed myotis/bat <em>(Myotis ciliolabrum)</em></td>
<td>MYCI</td>
<td>0</td>
<td>191,399</td>
<td>191,399</td>
</tr>
<tr>
<td>Long-eared myotis/bat <em>(Myotis evotis)</em></td>
<td>MYEV</td>
<td>0</td>
<td>27,946</td>
<td>27,946</td>
</tr>
<tr>
<td>Fringed myotis/bat <em>(Myotis thysanodes)</em></td>
<td>MYTH</td>
<td>0</td>
<td>27,946</td>
<td>27,946</td>
</tr>
<tr>
<td>Long-legged myotis/bat <em>(Myotis volans)</em></td>
<td>MYVO</td>
<td>0</td>
<td>27,946</td>
<td>27,946</td>
</tr>
<tr>
<td>Yuma myotis/bat <em>(Myotis yumanensis)</em></td>
<td>MYYU</td>
<td>269</td>
<td>470,624</td>
<td>470,893</td>
</tr>
<tr>
<td>San Joaquin pocket mouse <em>(Perognathus inornatus inornatus)</em></td>
<td>PEININ</td>
<td>17,024</td>
<td>32,605</td>
<td>49,629</td>
</tr>
<tr>
<td>Pacific western big-eared bat <em>(Plecotus townsendii pallescens)</em> aka Pacific western big-eared bat <em>(Plecotus townsendii townsendii)</em></td>
<td>PLTOTO</td>
<td>16,725</td>
<td>170,296</td>
<td>187,021</td>
</tr>
<tr>
<td>American badger <em>(Taxidea taxus)</em></td>
<td>TATA</td>
<td>35,777</td>
<td>116,166</td>
<td>152,375</td>
</tr>
</tbody>
</table>

/a/ All of this total acreage is located within habitats classified as Natural Lands or Agricultural Habitat Lands and is subject to compensation pursuant to the SJMSCP.
/b/ Species added after completion of surveys and project database. Species distribution in County is relatively well-known, isolated and located outside of proposed development boundaries.
/c/ Occupied and Potential Habitat were not estimated for fish. Fish were not mapped in the SJMSCP GIS Database because it was not possible to describe locations for fish as a point due to their constant movements.
/d/ This Incidental Take estimate is for the Conversion of 3 acres of submerged fisheries habitats which is expected to have a direct impact on fisheries. In addition, the SJMSCP Permits provide Incidental Take coverage for indirect impacts to fisheries associated with Conversions of 5 acres of channel islands and tule marsh, 1,233 acres of riparian vegetation types, and 4,790 acres of water features are. Indirect impacts to fisheries are impacts associated with siltation which might occur during grading activities despite the implementation of extensive Incidental Take Minimization Measures as established in Section 5.2.4.30. Direct and indirect impacts to fish are addressed under the SJMSCP primarily through Incidental Take Minimization Measures (see Sections 5.2.4.30 and 5.2.4.31); SJMSCP Permitted Activities are not expected to directly or significantly alter habitats of SJMSCP Covered Fish Species. Also in compensation for direct impacts to fish species, the SJMSCP will acquire/create up to nine acres of emergent and submerged vegetation habitat (Submerged Aquatic) for fish-- a compensation ratio of three acres of Preserve for every one acre Converted from Open Space use. SJMSCP Permitted Activities which may impact fish or other aquatic species which rely on wetlands and/or jurisdictional areas other than vernal pools are listed in Section 8.2.3(c). Wetland and/or jurisdictional areas are all Natural Lands under the SJMSCP and, therefore, require a compensation ratio of 3:1. The term "jurisdictional areas" refers to areas under U.S. Army Corps of Engineers jurisdiction pursuant to the Federal Clean Water Act (see Chapter 10).
/e/ Includes the total channel island and tule marsh, riparian and water features habitat acreages in the County.
/f/ This species was recently re-discovered on Site 300 (Lawrence Livermore National Laboratory) which is located outside of the Plan Area.

An analysis of the affects of implementing the SJMSCP on each of these SJMSCP Covered Species and habitats associated with those species, is included in Chapter 6 of the SJMSCP.
5. CONSERVATION STRATEGY

5.1 OVERVIEW OF CONSERVATION STRATEGY

5.1.1 SUMMARY

The SJMSCP conservation strategy relies on minimizing, avoiding, and mitigating impacts for SJMSCP Covered Species.

Minimization of impacts to SJMSCP Covered Species takes a species-based approach emphasizing the implementation of Incidental Take Minimization Measures aimed at averting the actual killing or injury of individual SJMSCP Covered Species and minimization of impacts to habitat for such species on Open Space lands Converted to non-Open Space uses. Details of methods to be used to avoid Incidental Take of SJMSCP Covered Species are detailed in Section 5.2.

Mitigation of unavoidable impacts to SJMSCP Covered Species takes a habitat-based approach which emphasizes compensation for habitat losses through the establishment, enhancement and management-in-perpetuity of Preserves composed of a specific vegetation type or association of vegetation types (a habitat) upon which discrete groups of SJMSCP Covered Species rely (see Sections 5.4.1 through 5.4.3). Within these Preserves, impacts to occupied or potential habitat of SJMSCP Covered Species will be offset by preserving lands containing potential or occupied habitat for the SJMSCP Covered Species or group of SJMSCP Covered Species impacted or for which impacts were assumed. Preserves will normally be located outside of designated existing and planned urban boundaries predominantly on productive agricultural lands located throughout the County. The purchase of easements from landowners willing to sell urban development rights will be the primary method of acquiring Preserves. Details of the methods to be used in establishing, enhancing and managing Preserves are described in Sections 5.4.1 and 5.4.4 through 5.4.8.

To ensure that SJMSCP Permitted Activities will not result in jeopardy to SJMSCP Covered Species, the SJMSCP also establishes, as part of the mitigation component of its conservation strategy: (1) limits to the number of acres of Natural Lands which may be Converted from Open Space use countywide (Section 5.5.1); (2) limits to the number of acres of occupied and/or potential habitat that may be converted for selected SJMSCP Covered Species (Section 5.5.2); (3) special conservation and mitigation requirements for the San Joaquin kit fox, Valley elderberry longhorn beetle, valley oak woodlands, and vernal pools (Sections 5.5.3 through 5.5.7); and (4) mitigation emphasizing changes in project design for linear projects which may create barriers to dispersal for SJMSCP Covered Species or other plants, fish, or wildlife (Section 5.5.8).

In addition, the SJMSCP provides an alternative mitigation approach which allows complete avoidance of SJMSCP Covered Species and habitats through the implementation of measures established in Section 5.5.9 in which compensation is not required where the provisions of Section 5.5.9 are implemented. The SJMSCP conservation strategy also relies on monitoring the status of the SJMSCP Covered Species and success of its minimizing and mitigating actions and responding to deficiencies in those strategies through the application of an Adaptive Management Plan. The SJMSCP Monitoring and Adaptive Management Plans are detailed in Sections 5.9.2 and 5.9.4.

Finally, in addition to these methods and strategies, the JPA intends to include in the future a program to encourage individuals to undertake activities which are not otherwise subject to local, state or federal plant, fish and wildlife regulations, to provide plant, fish and wildlife enhancements on their properties without fear
of prosecution or limitations on pre-existing legal activities should those plant, fish and/or wildlife enhancements attract SJMSCP Covered Species to their property. This proposed program is outlined in Section 5.11. Adoption of this program will be pursued by the JPA consistent with adopted guidelines and/or rules in conjunction with:

A. California’s newly adopted legislation for addressing Incidental Take associated with routine and ongoing activities (i.e., Section 2086 et seq. of the California Fish and Game Code); and

B. The federal safe harbor program (NOTE: The final rule for safe harbor has been published in the Federal Register - 64FR 32706, June 17, 1999).

5.1.2 SJMSCP INDEX ZONES AS A BASIS FOR IMPLEMENTING THE CONSERVATION STRATEGY

The overall conservation strategy for the SJMSCP is built upon the division of the County into five distinct zones: The Central Zone, the Southwest Zone, the Vernal Pool Zone, the Primary Zone of the Delta and one transitional zone; the Southwest/Central Transition Zone. These SJMSCP Index Zones are mapped in the figures following Table 5.1-1.

Each of the SJMSCP Index Zones are distinguished by a discrete association of soil types, water regimes (e.g., Delta lands subject to tidal influence, irrigated lands, lands receiving only natural rainfall), elevation, topography and vegetation types. Individual vegetation types or combinations of vegetation types and their accompanying geographical characteristics (e.g., soil type, elevation, water regimes, topography etc.) are associated into habitat types within each SJMSCP Index Zone. Habitat types within each SJMSCP Index Zone are identified by different Preserve names identified in the SJMSCP as Preserve Types (e.g., the Row and Field Crop Preserve Type within the Central Zone represents a habitat composed of two vegetation types upon which the Swainson’s hawk and other SJMSCP Covered Species depend). The distinctive combination of geographical and biological features into Preserve (i.e., Habitat) Types within each SJMSCP Index Zone supports a defined suite of SJMSCP Covered Species (see Section 5.4.3 for the suite of SJMSCP Covered Species related to each SJMSCP Index Zone Preserve Type).

The smallest units defined within each SJMSCP Index Zone are the vegetation types. 52 vegetation types have been defined for the SJMSCP (see Chapter 2). These vegetation types are, in turn, grouped into three broad categories: Natural Lands, Agricultural Habitat Lands or Multi-Purpose Open Space Lands (see Chapter 2). Within each SJMSCP Index Zone, the SJMSCP Covered Species rely primarily on the vegetation types that compose the Natural Lands category and the vegetation types which compose the Agricultural Habitat Lands category (see Chapter 2). SJMSCP Species use these Natural and Agricultural Habitat Lands for breeding, feeding and sheltering. Vegetation types within the Multi-Purpose Open Space Land category normally receive only limited use by SJMSCP Covered Species as movement corridors, supplemental feeding areas, etc.

5.1.2.1 Southwest Zone

The Southwest Zone is bounded to the northeast by I-580, to the south and west by the Alameda County line and to the southeast by the Stanislaus County line. Elevations within the Southwest Zone range from a low of 300’ above sea level in the vicinity of I-580 to elevations exceeding 3,000 feet above sea level in the extreme southwest tip of the Southwest Zone. The Southwest Zone is composed almost exclusively of Natural Lands. The primary vegetative communities in the Southwest Zone are the valley grasslands (G), found almost exclusively at the lower elevations, and, at the higher elevations, expanses of diablan sage scrub (S3), blue oak-conifer savanna with a tree canopy closure of less than 10% (BCN), blue oak-conifer woodland with
a tree canopy closure of 10-33% (BCN2), and the more dense blue-oak conifer forest with a tree canopy closure of 34-75% (BCN3).

The primary drainage in the **Southwest Zone** is Corral Hollow Creek which is the largest creek in the **Southwest Zone** and is well-vegetated in many locations. Corral Hollow Creek includes stretches of great valley riparian forest (R) with long expanses of arroyo willow thicket (R4). Other, smaller, creeks within the **Southwest Zone** include Hospital Creek, which contains some scattered and relatively narrow expanses of great valley riparian forest (R), and Lone Tree Creek, which has a few patches of riparian vegetation and is classified simply as a creek (W3).

In addition, scattered vernal pools with the potential to support the Conservancy and longhorn fairy shrimp as well as California linderella and tiger salamander were identified within lands located southwest of I-580 by representatives of the U.S. Fish and Wildlife Service.¹¹

The proposed Tracy Hills community is located primarily in the **Southwest Zone**; because of previous agreements with the USFWS and CDFG, the Tracy Hills project is not covered by the SJMSCP. The Lawrence Livermore National Lab's Site 300 is located within the **Southwest Zone**, but is owned by the federal government and, therefore, is not included in the SJMSCP.

### 5.1.2.2 Central Zone

The **Central Zone** encompasses the lands surrounding each of the County's seven incorporated cities: Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton and Tracy and most of the County's unincorporated defined communities including Acampo, Banta, Clements, Cooper's Corner, Collierville, Farmington, French Camp, Glenwood, Linden, Lockeford, Morada, Noble Acres, Peters, Stoneridge, Victor, Woodbridge, and portions of Thornton, Vernalis and New Jerusalem. Any lands not contained in the other five SJMSCP Index Zones also are included in the **Central Zone**. Elevations within the **Central Zone** range from just above sea level as the **Central Zone** joins the **Primary Zone of the Delta** to nearly 200 feet as the **Central Zone** weaves through the **Vernal Pool Zone** in the eastern foothills adjoining Calaveras and Amador counties. The **Central Zone** is composed primarily of Agricultural Habitat Lands on the floor of the Central Valley including, primarily, row and field crops both ditched (C3) and unditched (C4).

These croplands are bisected by riparian corridors including the Mokelumne River, the Calaveras River, the Stanislaus River, Old River and the San Joaquin River. Where vegetated, these rivers contain, primarily, Great Valley riparian forest (R) and Great Valley valley oak riparian forest (R2) with patches of Great Valley riparian scrub (S). Major creeks within the **Central Zone** include Dry Creek, the north and south forks of Little John's Creek, Jahant Slough, Mosher Slough, Bear Creek, French Camp Slough, Duck Creek and Mormon Slough. These creeks, where vegetated, have isolated patches of, primarily, Great Valley riparian forest (R) and Great Valley oak riparian forest (R2) with isolated patches of Great Valley riparian scrub (S), freshwater emergent wetland (W7), and vernal or seasonal wetlands (W8) in association with the creeks.

Other wetland categories found within the **Central Zone** include numerous ditches (D) and scattered lakes and ponds (W5). The largest lake within the County is Camanche Reservoir mapped on the **SJMSCP Vegetation Maps** as W5.

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¹¹ Based upon site inspections conducted by Deblyn Mead and other representatives of the United States Fish and Wildlife Service on September 22, 1998.
Oak woodlands also are found in the Central Zone including some valley oak woodlands (V), mixed oak savanna with a tree canopy of less than 10% (O/G), blue oak savanna with a canopy of less than 10% (BL), and blue oak forest with a tree canopy of more than 34% and ranging up to a canopy of 75%. Both of the valley oak woodland and mixed oak savanna vegetation types contain valley oaks in most of the units mapped on the SJMSCP Vegetation Maps. Examples of valley oak woodland may be found at Oak Grove Regional Park, at Micke's Grove County Park where the valley oak and grassland vegetation types are mapped as O/G, and surrounding Tracy Lakes in the northern portion of the County along the Mokelumne River where the SJMSCP Vegetation Maps indicate O and O2 vegetation types (for oak communities ranging from mixed oak woodland to mixed oak forest). Valley oak vegetation types are also found along the Central Zone's rivers and some of its smaller streams. Blue oak vegetation types may be found scattered near the eastern foothills and in the northern portions of the County. Some of the most densely-treed blue oak patches may be found in clumps located near Dry Creek north of Liberty Road.

Valley grasslands (G) and foothill grasslands (G2) may be found surrounding the vernal pool grasslands in the northern and eastern portions of the County with isolated patches of valley grasslands scattered throughout the Central Zone.

The bulk of the County's Multi-Purpose Open Space Lands, in the form of orchards and vineyards (C2), are located within the Central Zone, especially surrounding the cities of Lodi, Escalon, Manteca and Ripon and the unincorporated communities of Acampo, Locke ford, Victor, Woodbridge, and portions of Clements, Linden (north of Highway 26), Vernalis and New Jerusalem.

The majority of existing urban development and proposed new development in the County exists or will exist within the Central Zone.

5.1.2.3 Primary Zone of the Delta

The boundaries of the SJMSCP's Primary Zone of the Delta coincide with those of the Primary Zone of the Delta established by the Delta Protection Act of 1992 for that portion of the statutory Primary Zone of the Delta located in San Joaquin County12.

The SJMSCP Primary Zone of the Delta includes: Union Island, Victoria Island, Middle Roberts Island, Upper and Lower Jones Tracts, Woodward Island Bacon Island, Mildred Island, McDonald Island, Rindge Tract, Mandeville Island, Medford Island, Venice Island, Empire Tract, King Island, Little Venice Island, Bouldin Island, Terminous Tract, Staten Island, Canal Ranch Tract, Bract Tract, Fabian Tract, Upper Roberts Island, the portion of New Hope Tract located west of Interstate 5, and the numerous small named and unnamed channel islands and tule islands adjacent to these islands.

Elevations within the Primary Zone of the Delta range from near or slightly (10 feet) above sea level to more than 15 feet below sea level. The Primary Zone of the Delta contains a mixture of Natural Lands, including many of the channel (I), tule islands (I2), vernal wetlands (W8), and great valley riparian scrub (S) mapped for the SJMSCP, with occasional patches of valley grasslands (G). Waterways in the Delta are plentiful and include a portion of the San Joaquin River (W), Stockton Deep Water Channel (W), and numerous sloughs (W4) which often contain patches of Great Valley Riparian Forest (R). Waterways in the Delta surround

12 The Primary Zone of the Delta, as established by the Delta Protection Act of 1992, also extends into Solano, Yolo, Sacramento, and Contra Costa Counties, however, those portions of the Primary Zone of the Delta located outside of San Joaquin County are excluded from the SJMSCP Primary Zone of the Delta.
islands composed primarily of Agricultural Habitat Lands including flooded row and field crops (C3f), row and field crops (C3), and ruderal lands (C5). Roads along the levees within the SJMSCP Primary Zone of the Delta have been mapped primarily as scraped/paved areas (U2).

The unincorporated community of Thornton is partially located within the Primary Zone of the Delta with the remainder of that community found in the Central Zone.

5.1.2.4 Vernal Pool Zone

The Vernal Pool Zone includes the mapped vernal pool grasslands (G3) within the County. These vernal pool grasslands are concentrated in the northernmost portion of the County near the Sacramento/San Joaquin County line and in San Joaquin County's eastern foothills. Elevations within the Vernal Pool Zone vary from near 65 feet above sea level in the area north of Liberty Road up to 350 feet in the foothills adjacent to Amador and Calaveras Counties. All lands within the Vernal Pool Zone are Natural Lands, the vernal pool grasslands (G3).

5.1.2.5 Central/Southwest Transition Zone

The Central/Southwest Transition Zone is bounded by I-580 and the Southwest Zone to the southwest. Old River and the Primary Zone of the Delta from the Alameda County Line to the intersection of J2 (Tracy Blvd) with Old River forms the northern boundary of the Central/Southwest Transition Zone. The northeastern boundary of the Central/Southwest Transition Zone is formed by moving south of the northern boundary of the Central/Southwest Transition Zone down J2 (Tracy Blvd.) to the Southern Pacific Railroad lines and following the tracks southeast to the Stanislaus County line. The Central/Southwest Transition Zone includes the Delta Mendota Canal and the Edmund G. Brown California Aqueducts, and portions of the incorporated city of Tracy.

The habitat types within the Central/Southwest Transition Zone are generally the same as those found within the Central Zone (the Row and Field Crop/Riparian Preserve Types as described in Section 5.3.3.3(D1). However, occurrence records for the San Joaquin kit fox indicate that this SJMSCP Covered Species occasionally wanders outside of the Southwest Zone and into the area along the common boundary between the Southwest Zone and the Central Zone. To recognize this transition, the Central/Southwest Transition Zone was created. When Conversions of Open Space occur within the Central/Southwest Transition Zone, they are regarded as impacting both the suite of species associated with habitats in the Southwest Zone Grassland Preserve Type and those habitat types associated with the Row and Field Crop/Riparian Preserves in the Central Zone. To offset impacts occurring with the Central/Southwest Transition Zone, Preserves may be established in either the Central Zone's Row and Field Crop/Riparian Preserve system (which includes habitat within the Central/Southwest Transition Zone) or within the Southwest Zone's Grassland Preserve system as described in Section 5.3.3.3(B1).

The proposed Mountain House community\(^{13}\) and a portion of the proposed Tracy Hills community\(^{14}\) are

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\(^{13}\) Conditions of project approval provide the project proponent's for Mountain House with the option of participating in the SJMSCP or relying upon alternative mitigation contained within the conditions of approval. Therefore, impacts associated with this project have been evaluated and coverage for this project is included in the SJMSCP coverage.

\(^{14}\) This project is not covered by the SJMSCP.
located in this SJMSCP Index Zone. Portions of the communities of Vernalis and New Jerusalem also are located in the Central/Southwest Transition Zone along the boundary dividing this SJMSCP Index Zone from the Central Zone. The Chrisman and Lammersville communities are located entirely within the Central/Southwest Transition Zone.

5.1.2.6 The Influence of SJMSCP Index Zones on the Compensation Requirements of the SJMSCP

One of the primary methods for mitigating impacts pursuant to the SJMSCP is to balance the disturbance of Natural Lands and Agricultural Habitat Lands, in acres, with the creation of Preserves within each SJMSCP Index Zone in accordance with the compensation ratios described in Section 4.1.

SJMSCP Index Zones were established, in part, to determine where compensation lands (i.e., Preserves) should be located. Specifically, impacts within a given SJMSCP Index Zone will normally require the acquisition of Preserves within the same SJMSCP Index Zone. For example, the Conversion of 600 acres of Open Space lands consisting of 200 acres of Natural Lands and 400 acres of Agricultural Habitat Lands in the Central Zone would be mitigated by the acquisition of 1000 acres of Preserve land consisting of 600 acres of Natural Lands (3:1 compensation ratio) and 400 acres of Agricultural Habitat Lands (1:1 compensation ratio) in the Central Zone.

Two exceptions to this strategy exist. The first allows some compensation for impacts occurring within the Central Zone to be located within the Primary Zone of the Delta. This is allowed for three reasons:

A. Because the suite of species associated with the Row and Field Crop/Riparian Preserve Type of the Central Zone often nest along the San Joaquin River and Old River and forage on adjoining row and field crops. The San Joaquin and Old Rivers divide the Central Zone from the Primary Zone of the Delta. Therefore, the SJMSCP Covered Species nesting (or even roosting) along the San Joaquin and Old Rivers may cross into either the Central Zone or Primary Zone of the Delta and Preserves for these species may, subsequently, be located in either the Central Zone or the Primary Zone of the Delta; and

B. The giant garter snake occupies sloughs which divide the Central Zone from the Primary Zone of the Delta and both uplands and sloughs used by the giant garter snake may be located partially within the Central Zone and partially within the Primary Zone of the Delta. Therefore, within areas with known occupation sites for the giant garter snake (primarily near White Slough, east of Interstate 5), disturbance to uplands and sloughs will be compensated for in both the Central Zone and in the Primary Zone of the Delta; and

C. Several of the suite of SJMSCP Covered Species which use the Central Zone's Row and Field Crop/Riparian Preserve Types may also forage within the habitats of the Primary Zone of the Delta Flooded Field Preserves (e.g., Swainson's hawk, northern harrier, white-tailed kite, long-billed curlew, great egret and great blue heron) and the uplands associated with those Preserves occurring at or above zero feet mean sea level along the common boundary between the Central Zone and the Primary Zone of the Delta. Similarly, the Aleutian Canada goose, greater sandhill crane, and snowy egrets foraging within the Primary Zone of the Delta Flooded Field Preserve Types may also forage along adjacent flooded fields in the Central Zone Row and Field Crop/Riparian Preserve Types. Therefore Conversions in the Central Zone may be compensated for in the Primary Zone of the Delta within specified locations (see Table 5.1-1)
The second exception is for the Central/Southwest Transition Zone. As described in the preceding section, the San Joaquin kit fox may occasionally wander outside of the Southwest Zone and into the Central/Southwest Transition Zone. To recognize this use, compensation for Open Space land Conversions in the Central/Southwest Transition Zone may be compensated for in the Southwest Zone, the Central Zone or in the Central/Southwest Transition Zone.

This strategy, and the recognized special circumstances under which compensation may cross SJMSCP Index Zone boundaries, are summarized as follows:
### TABLE 5.1-1
COMPENSATION LOCATIONS ACCORDING TO SJMSCP INDEX ZONES

<table>
<thead>
<tr>
<th>Location of Open Space Conversion (SJMSCP Index Zone)</th>
<th>Location of Compensation Preserve (SJMSCP Index Zone)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vernal Pool Zone</td>
<td>Vernal Pool Zone</td>
</tr>
<tr>
<td>Southwest Zone</td>
<td>Southwest Zone</td>
</tr>
<tr>
<td>Central Zone</td>
<td>Central Zone; Primary Zone of the Delta - Old River--especially along the southern boundary of Fabian Tract; Tom Pain Slough for a few miles below its confluence with Old River; Middle River--especially around Upper Roberts Island; the San Joaquin River--especially near Upper Roberts Island and along Stewart Tract; and Paradise Cut--especially along the southern boundary of Stewart Tract; flooded fields in the Primary Zone of the Delta located near or above 0' mean sea level [e.g., portions of New Hope Tract, portions of Canal Ranch Tract, portions of Brack Tract (especially near existing Preserves established by the CDFG), portions of Terminous Tract and portions of Union Island]; giant garter snake occupation sites and/or buffers in the Primary Zone of the Delta on portions of Terminous Tract and King Tract near or above sea level.</td>
</tr>
<tr>
<td>Primary Zone of the Delta</td>
<td>Primary Zone of the Delta</td>
</tr>
<tr>
<td>Central/Southwest Transition Zone</td>
<td>Southwest Zone, Central Zone or the Central/Southwest Transition Zone</td>
</tr>
</tbody>
</table>
SJMSCP
INDEX ZONES
INSERT SW ZONE
INSERT DELTA ZONE
CENTRAL ZONE MAP
VERNAL POOL ZONE MAP
TRANSITION ZONE MAP
5.2 MEASURES TO MINIMIZE IMPACTS - INCIDENTAL TAKE MINIMIZATION MEASURES

As noted in the preceding overview, efforts to minimize impacts to SJMSCP Covered Species are species-based emphasizing the implementation of Incidental Take Minimization Measures aimed at averting the actual killing or injury of individual SJMSCP Covered Species on Open Space lands being Converted to non-Open Space uses.

The following Incidental Take Minimization Measures represent the best management practices known at the time of adoption of the SJMSCP. These measures may be refined throughout the life of the Plan, pursuant to the SJMSCP's Adaptive Management Plan (see Section 5.9.4), in response to positive or negative results found in the application of these methods as identified in the SJMSCP's Monitoring Plan (see Sections 5.9.2 and 5.9.3) or to reflect improvements and new discoveries in methods of Incidental Take Minimization or other biological factors. Incidental Take Minimization Measures for the SJMSCP are described, in detail, in Section 5.2.4. Procedures for determining when these measures apply to projects are described as follows:

5.2.1 Establishing Conditions of Project Approval Related to Incidental Take Minimization Measures

5.2.1.1 Review Process and Condition Format

Plan Participants shall forward Advisory Agency Notices to the Joint Powers Authority (JPA), as required by Section 8.1.3.2, at the beginning of a discretionary project's application review process. The JPA shall respond, in writing, to the Plan Participants in accordance with the SJMSCP stating that either:

A. No Incidental Take Minimization Measures are necessary for the project; or,

B. Incidental Take Minimization Measures are necessary for the project. The JPA shall list the applicable Incidental Take Minimization Measures in the written response.

Plan Participants shall attach Incidental Take Minimization Measures, in accordance with Sections 5.2.3 and 5.2.4 of the SJMSCP, as conditions of project approval as provided by the JPA and including the substance of the following text to be included as part of the conditions of project approval or as an attachment to conditions of project approval:

"In reliance on the Section 10(a)(1)(B) Permit issued by the United States Fish and Wildlife Service and the Section 2081(b) Incidental Take Permit issued by the California Department of Fish and Game, the [City/County of __________] has [select one: issued a(n)/approved a(n)] [identify entitlement as appropriate: e.g., Conditional Use Permit/Site Development Permit/Subdivision Map/Parcel Map, etc.] to [name of Project Proponent/Applicant/Landowner], its successors, agents and assigns pursuant to the "Implementation Agreement for the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan" which will allow [name of Project Proponent/Applicant/Landowner], its successors, agents and assigns to construct, operate and maintain the Project commonly known as [name specific Project and cite document containing project description as approved by local jurisdiction] and located on [list parcel numbers and/or attach map] which may result in a legally permitted Incidental Take of the SJMSCP Covered Species in accordance with and subject to the terms and conditions of the [identify entitlement as appropriate: e.g., Conditional Use Permit/Site Development Permit/Subdivision Map/Parcel Map, etc.]. This
Certification applies only to activities on the subject parcel(s) which are carried out in full compliance with [identify entitlement as appropriate: e.g., Conditional Use Permit/Site Development Permit/Subdivision Map/Parcel Map, etc.], Section 10(a)(1)(B) Permit and Section 2081(b) Incidental Take Permit conditions.

5.2.1.2 Time Limits for JPA Review of Discretionary Projects

The JPA shall provide the written response required pursuant to Section 5.2.1.1 to Plan Participants within the following time periods commencing with the receipt of an Advisory Agency Notice from Plan Participants:

A. For projects 40 acres or less in size, written response will be provided by the JPA to the Plan Participants within 30 calendar days;

B. For projects of greater than 40 acres the JPA shall provide written responses to the Plan Participants within 60 calendar days;

C. For projects requiring an environmental impact report for other than biological reasons, time limits shall be extended to allow for surveys of SJMSCP Covered Plant Species during optimal blooming seasons.

Extensions of these time limits may be granted with the approval of the Project Proponent.

5.2.1.3 Completion of Incidental Take Minimization Measures-Responsibilities of the Project Proponent

Incidental Take Minimization Measures shall be completed prior to Site Disturbance (normally prior to grading) as indicated in the conditions of project approval. Some Incidental Take Minimization Measures will be carried out during project construction. The cost of implementing Incidental Take Minimization Measures is the responsibility of the Project Proponent. The JPA is responsible for costs and implementation of relocation efforts as approved by the Permitting Agencies and as determined necessary through preconstruction surveys.

The following paragraphs summarize the JPA's procedure for assessing the applicability of Incidental Take Avoidance Measures for individual projects.
5.2.2 PRECONSTRUCTION SURVEYS

5.2.2.1 Overview

There are four categories of preconstruction surveys necessary to the implementation of the SJMSCP:

A. Preconstruction surveys to verify vegetation types affected by the project and to determine if SJMSCP Covered Species are present and, if present, attaching Incidental Take Minimization Measures as conditions of project approval for individual projects (see Section 5.2.2.5 for survey methodologies and Section 5.2.2.4 for special provisions for conducting plant surveys). These preconstruction surveys shall be conducted in the field when a project is located on suitable habitat for one or more of the SJMSCP Covered Species;

B. Preconstruction surveys conducted prior to (or, for some Incidental Take Minimization Measures, during) ground-disturbing activities to determine if SJMSCP Covered Species have been successfully relocated and/or to determine if other Incidental Take Minimization Measures have been implemented, as specified in the conditions of project approval; and

C. Preconstruction surveys, conducted in compliance with current U.S. Fish and Wildlife Service protocols, to determine the presence or absence of Conservancy and/or longhorn fairy shrimp within vernal pools or other wetlands located southwest of I-580 in the Southwest Zone unless complete avoidance of vernal pools and/or wetlands is achieved in compliance with SJMSCP Section 5.5.9.

D. Preconstruction surveys conducted pursuant to the protocol established in Section 5.2.2.5(A-C) for:

- Large-flowered fiddleneck southwest of the 900 foot contour line in the Southwest Zone southwest of I-580;
- Showy madia in the Southwest Zone;
- Hospital canyon larkspur in the Southwest Zone;
- Diamond-petaled poppy in the Southwest Zone;
- Greene's tuctoria in the Vernal Pool Zone;
- Succulent owl's clover in the Vernal Pool Zone;
- Legenere in the Vernal Pool Zone;
- Delta button celery in the Central Zone in S(Scrub) vegetation types;
- Sanford's arrowhead in the Central Zone in W3, W4 and all I and R vegetation types; and
- Slough thistle in the Central and Central/Southwest Transition Zones in W4, R, R2, R3, R4 or R5 vegetation types— in particular where R touches or transitions to W.
The costs of conducting preconstruction surveys described in paragraphs A, B, and D, above, are calculated in the administrative costs for the SJMSCP and are included in funding estimates. The JPA shall conduct preconstruction surveys described in the paragraphs A, B, and D, above, at no additional cost to the Project Proponent. Preconstruction surveys required pursuant to paragraph C, above, are the responsibility of the Project Proponent.

5.2.2.2 Time Limits for Conducting JPA Preconstruction Surveys

The JPA shall conduct preconstruction surveys to determine the necessity of establishing Incidental Take Minimization Measures as conditions of project approval, as described above in 5.2.2.1(A and D) within the following time periods commencing from the date of receipt of Advisory Agency Notices from the Plan Participants except as provided in Section 5.2.2.5(B):

A. For projects of 40 acres or less, surveys shall be conducted within 30 calendar days

B. For projects of greater than 40 acres surveys shall be conducted within 60 calendar days,

C. For projects requiring an environmental impact report, the time limits shall be extended to allow for surveys for SJMSCP Covered Plant Species during optimal blooming seasons.

The JPA shall conduct preconstruction surveys prior to ground-disturbing activities to determine if SJMSCP Covered Species have been successfully relocated and/or to determine if other Incidental Take Minimization Measures have been implemented as specified in the conditions of project approval, as described above in Section 5.2.2.1(B), within two working days from the date that the JPA receives written or oral notice that the Project Proponent is ready to begin Site Disturbances except as provided in Sections 5.2.2.4(D) and 5.2.2.5(D) and 5.2.2.5(E). Extensions of these time limits may be granted with the approval of the Project Proponent.

While the time limits for responding to Advisory Agency Notices remain as described above, actual preconstruction survey time limits do not apply for the following:

A. For projects proposed within potential habitat for the following plant species: large-flowered fiddleneck (Amsinckia grandiflora); succulent owl’s clover (Castilleja campestris ssp. succulenta) Greene’s tectoria (Tectoria greenei), Delta button celery (Eryngium racemosum), Diamond-petaled California poppy (Escholzia rhombipetala), showy madi (Madi radiata), slough thistle (Cirsium crassicaule), legenere (Legenere limosa), Hospital Canyon larkspur (Delphinium californicum ssp. interius), and Sanford’s arrowhead (Sagittaria sandforii). For these plant species, preconstruction surveys shall occur based on blooming periods for the plants and in accordance with the provisions of Section 5.2.2.5(B) unless otherwise approved pursuant to Section 5.2.2.5(C), unless full avoidance of all potential suitable habitat for the species occurs pursuant to Sections 5.5.9 (F) for narrowly distributed plant species or unless no kill/no Conversion of occupied habitat limits are lifted pursuant to Section 5.5.2.1; and

B. For projects proposed within potential habitat for the longhorn fairy shrimp and Conservancy fairy shrimp. Preconstruction surveys for these species shall be in accordance with current USFWS survey protocols unless full avoidance of all potential habitat for these species occurs pursuant to Section 5.5.9(B) or unless no kill/no Conversion of occupied
habitat limits are lifted pursuant to Section 5.5.2.7.

5.2.2.3 Determining the Necessity for Site Visits as Part of Preconstruction Surveys

To assist in its assessment of the necessity for Incidental Take Minimization Measures, the JPA shall consult the SJMSCP GIS Database or other sources (e.g., current reports from Permitting Agency field personnel; published results of field surveys conducted by, or on behalf of, Permitting Agencies or other local, state or federal agencies; the SJMSCP Biological Analysis; or other sources that provide information related to the location of SJMSCP Covered Species), if necessary, to determine the likelihood for disturbing an SJMSCP Covered Species or Natural Land area (in particular vernal pools or other wetlands) based on information indicating known species occupation sites, vegetation types present and the potential for the site to be occupied by a species given the vegetation types and species needs. If insufficient information exists to make a determination, the JPA shall conduct a preconstruction survey to assess the likelihood of the occurrence of an SJMSCP Covered Species or any Natural Lands located within the project area. It is anticipated that preconstruction surveys occurring on the project site will occur on the majority (perhaps up to 90%) of project sites. Preconstruction surveys at the project site will always occur when suitable habitat is present or potentially present for one or more of the SJMSCP Covered Species. The estimated 10% of projects which are unlikely to require a preconstruction survey include, for example, infill areas within well-developed urban centers with extensive ground disturbance and extensive paving.

5.2.2.4 Special Provisions for Conducting Preconstruction Surveys for Plants

Since plants permanently occupy a given site (and therefore cannot easily be avoided by timing construction to avoid breeding seasons) and some plants may only be seasonally identified during sometimes brief blooming seasons, special provisions have been included in the SJMSCP for conducting pre-construction surveys for plants to ensure that Incidental Take Minimization Measures can be undertaken.

SJMSCP Covered Plant Species in San Joaquin County are located primarily on Natural Lands outside the boundaries of proposed development areas anticipated over the next 50 years as illustrated in the following maps located at the back of the SJMSCP:

- SJMSCP Planned Land Use Map - Illustrates boundaries of proposed development areas for the next 50 years.
- San Joaquin County Habitat Map Conservation and Open Space Plan Maps - Distribution of Existing Vegetation Habitat Types in San Joaquin County. Provides overview of the locations of Natural Lands, Natural Lands which are Wetlands, High and Low Habitat Value Agricultural Lands, and Urban Lands.
- San Joaquin County Habitat Map Conservation and Open Space Plan Maps - Species Occurrence. This map provides an overview of the distribution of SJMSCP Covered plants, birds, mammals, amphibians, reptiles, and invertebrates.

These three maps illustrate that most SJMSCP Covered Plant Species, with few exceptions (e.g., Delta slough thistle, Delta button celery and vernal pool species), are located almost exclusively on Natural Lands located outside of proposed development boundaries.

Further, based upon development patterns over the past 30+ years and the fact that proposed development
will occur primarily on highly disturbed and cultivated lands (Agricultural Habitat Lands) while most SJMSCP Covered Plant Species occur on Natural Lands, only minimal impacts are anticipated for most SJMSCP Covered Plant Species. In fact, **there is a much higher likelihood that most SJMSCP Covered Plant Species will be protected than they will be subject to Incidental Take under the SJMSCP.**

The following factors further support these conclusions:

**Southwest Zone.** This area consists primarily of grasslands (Natural Lands). Virtually no development (except for some minor mineral resource development and urbanization concentrated along I-580--see the *SJMSCP Proposed Land Use Map* at the back of the SJMSCP) is proposed in this zone.

While nearly devoid of proposed development, the following SJMSCP Covered Plant Species are located almost exclusively in the *Southwest Zone* and the likelihood of protecting these species within SJMSCP Preserves established for the San Joaquin kit fox are much higher than the likelihood of disturbing these species through SJMSCP Permitted Activities: Large-flowered fiddleneck (*Amsinckia grandiflora*), hospital canyon larkspur (*Delphinium californicum* ssp. *interius*), showy madia (*Madia radiata*) and recurved larkspur (*Delphinium recurvatum*). Alkali milk-vetch (*Astragalus tener var. tener*), brittlescale (*Atriplex depressa*), Mt. Hamilton coreopsis (*Coreopsis hamiltonii*), diamond-petaled California poppy (*Eschscholzia rhombipetala*), mad-dog skullcap (*Scutellaria lateriflora*), Wright's trichocoronis (*Trichocoronis wrightii* var. *wrightii*), and caper-fruited tropidocarpum (*Tropidocarpum capparideum*) also have their potential habitat in the *Southwest Zone*, although no known occurrences of these species exist in this zone. Similarly, heartscale (*Atriplex cordulata*) was found historically in the *Southwest Zone*, but has no current records identifying occupied habitat in the County. These species would be protected in the same manner as the other four plant species known to occur in the *Southwest Zone* should they be discovered over the life of the Plan.

In addition, ensuring that no disturbance will occur to the most narrowly distributed of these species, the SJMSCP Permits prohibit kill of individuals and conversion of occupied habitat for the large-flowered fiddleneck, diamond-petaled California poppy, showy madia and Hospital canyon larkspur unless special findings have been made upon consultation with the Permitting Agencies in accordance with the criteria established in Section 5.5.2.1. Special provisions for pre-construction surveys to ensure identification of these species are included in Section 5.2.2.5(B).

**Primary Zone of the Delta.** SJMSCP Covered Plant Species located in the *Primary Zone of the Delta* are well-documented due to extensive surveys undertaken in this zone by state and federal agencies often associated with the management of water resources in the Sacramento/San Joaquin Delta. In addition, the Delta Protection Act places strict limits on urban development and other SJMSCP Permitted Activities within the *Primary Zone of the Delta*. Therefore, SJMSCP Covered Plant Species in the *Primary Zone of the Delta* are both highly protected by state legislation and are easily located due to extensive study of this region and, as with the *Southwest Zone*, the likelihood of protecting SJMSCP Covered Plant Species within Preserves established for the California black rail and Valley elderberry longhorn beetle is much higher than the likelihood that SJMSCP Covered Plant species in the *Primary Zone of the Delta* will be subject to Incidental Take pursuant to the SJMSCP.
The following plants occur almost exclusively in the Primary Zone of the Delta: Suisun marsh aster (*Aster lentus*), California hibiscus (*Hibiscus lasiocarpus*), Delta tule pea (*Lathyrus jepsonii* var. *jepsonii*), Mason's lilacopsis (*Lilaeopsis masonii*), Delta mudwort (*Limosella subulata*) and Sanford's arrowhead (*Sagittaria sanfordii*).

As previously noted, to ensure that no disturbance will occur to narrowly distributed species, the SJMSCP Permits prohibit kill of individuals and conversion of occupied habitat for Sanford’s arrowhead unless special findings have been made upon consultation with the Permitting Agencies in accordance with the criteria established in Section 5.5.2.1. Special provisions for pre-construction surveys to ensure identification of this species are included in Section 5.2.2.5(B).

**Vernal Pool Zone.** The Conversion of up to 5,000 acres of vernal pool grasslands to orchards and vineyards, permitted pursuant to a pending U.S. Army Corps of Engineers Federal Clean Water Act Section 404 permit, or equivalent (as described in SJMSCP Section 5.6), is the primary activity anticipated to impact SJMSCP Covered Plant Species associated with vernal pools. This 5,000 acres of vernal pool grasslands contains approximately 707 acres of vernal pools (actual wetted surface area). Of the SJMSCP Covered Plant Species associated with vernal pools, only three are known to occur in San Joaquin County: succulent owl's clover (*Castilleja campestris* ssp. *succulenta*), Boggs Lake hedge-hyssop (*Gratiola heterosepala*), and legenere (*Legnere limosa*). The remaining plants have been proposed for coverage due to historical records of the species which are presumed extirpated within the County. The primary emphasis of the SJMSCP with respect to these presumed extirpated species is the potential reintroduction on an experimental basis as part of vernal pool creation efforts to be undertaken by the SJMSCP. These species are: Greene’s tuctoria (*Tuctoria greenei*), Hoover’s calycadenia (*Calycadenia hooveri*), bristly sedge (*Carex comosa*), and Red Bluff dwarf rush (*Juncus leiospermus*). In addition, due to their rarity, special protocols are required pursuant to Section 5.2.2.5(B) for conducting preconstruction surveys for Greene’s tuctoria, legenere and the succulent owl’s clover to protect against inadvertent take (i.e., kill of individuals or conversions of occupied habitat) of these species if these species are more widely distributed in the County than anticipated. Therefore, the SJMSCP includes special provisions for locating populations of the rarest of the vernal pool plant species and provides a potential for reintroducing populations for several extirpated vernal pool species in San Joaquin County.

As previously noted, to ensure that no disturbance will occur to narrowly distributed species, the SJMSCP Permits prohibit kill of individuals and conversion of occupied habitat for succulent owl’s clover, Greene’s tuctoria, and legenere unless special findings have been made upon consultation with the Permitting Agencies in accordance with the criteria established in Section 5.5.2.1.

**Central Zone.** Most SJMSCP Permitted Activities will occur within the Central Zone. While the majority of the Central Zone is composed of cultivated lands (i.e., Agricultural rather than Natural Lands), some Natural Lands associated with riparian corridors exists in this zone. These riparian corridors are associated with two plant species: the slough thistle (*Cirsium crassicaule*), and the Delta button-celery (*Eryngium racemosum*). In addition, Sanford’s arrowhead is known to occur in this zone. As previously noted, to ensure that no disturbance will occur to narrowly distributed species,
the SJMSCP Permits prohibit kill of individuals and conversion of occupied habitat for Sanford’s arrowhead, slough thistle and Delta button celery unless special findings have been made upon consultation with the Permitting Agencies in accordance with the criteria established in Section 5.5.2.1. Special provisions for pre-construction surveys to ensure identification of this species are included in Section 5.2.2.5(B).

All SJMSCP Index Zones. Based upon development proposals considered by local jurisdictions over the past 25 years, SJMSCP Planners conclude that new non-agricultural developments occurring on Natural Lands (the most likely location for SJMSCP Covered Plant Species) are almost always large developments which require long (i.e., often one year) review processes and preparation of environmental impact reports. Therefore, planners conclude, given the distribution of the SJMSCP Covered Plant Species and Natural Lands in San Joaquin County, approximately 95% of the SJMSCP Permitted Activities which will involve SJMSCP Covered Plant species will involve an environmental review process providing ample time (i.e., at least one year) to conduct both preconstruction surveys during optimal blooming seasons for SJMSCP Covered Plants and to implement appropriate mitigation measures (e.g., seed collections). The exception to this generalization is the Conversion of vernal pool grasslands to orchards and vineyards which is not subject to an environmental review process undertaken by local jurisdictions, but is normally subject to a Section 404 permit review process instead (thereby extending the project review period by a period of time similar to that of an environmental review and allowing for additional survey time).

All SJMSCP Index Zones. In addition to SJMSCP restrictions against kill and Conversion of occupied habitat for ten of the SJMSCP’s most narrowly distributed plant species (and, in fact true for all other non-plant SJMSCP Covered Species), two mechanisms are included in the SJMSCP to allow a reevaluation of the procedure for assessing impacts resulting from SJMSCP Permitted Activities (including impacts to SJMSCP Covered Plants) should development patterns within San Joaquin County shift from the patterns described above in paragraphs A-E change:

1. A requirement for permitting SJMSCP Covered Activities which are unmapped on the SJMSCP Planned Land Use Map as described in SJMSCP Section 3.4; and

2. A requirement for a Major Plan Amendment (Section 8.8.5) to change the urban boundaries as indicated on the SJMSCP Planned Land Use Map if that total changes to the boundaries exceed the 5,000 acre annexation allocation provided pursuant to Section 8.2.1(10).

Based on these factors, preconstruction surveys for SJMSCP Covered Plants within the various SJMSCP Index Zones shall

A. Be conducted pursuant to the protocols established in Section 5.2.2.5 (A-C) for large-flowered fiddleneck (Amsinckia grandiflora); succulent owl’s clover (Castilleja campestris ssp. succulenta) Greene’s tuctoria (Tuctoria greenei), Delta button celery (Eryngium racemosum), Diamond-petaled California poppy (Escholzia rhombipetala), showy madia (Madia radiata), slough thistle (Cirsium crassicaule), legenere (Legenere limosa), Hospital Canyon larkspur (Delphinium californicum ssp. interius), and Sanford’s arrowhead

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(Sagittaria sandfordii). No kill and no Conversion of occupied habitat for these species is permitted pursuant to the SJMSCP unless the findings of Section 5.5.2.1 are made with the concurrence of the Permitting agencies; or

B. Be undertaken for SJMSCP Covered Plants excluded from the preceding paragraph (A) during the discretionary project's application review process to provide ample opportunities to identify plants during the blooming seasons. The presence of SJMSCP Covered Plant Species can be determined on a project site well in advance of project construction, (with nearly no risk of a new SJMSCP Covered Plant Species moving in before construction), through reviewing the SJMSCP GIS Database and other current information sources and, when necessary, by conducting pre-construction surveys. Through this process, the JPA shall conduct pre-construction surveys during appropriate blooming seasons in areas of known SJMSCP Covered Plant Species occurrences or if the area's characteristics are likely to support SJMSCP Covered Plant Species.

C. If SJMSCP Covered Plant Species are identified and will not be fully avoided pursuant to provisions in Section 5.5.9, then seed collection may be undertaken by the JPA if the TAC recommends that such salvage has a high likelihood of resulting in a conservation benefit for the species and construction schedules permit, well in advance of project construction. Seed collection or other identified mitigation measures may occur immediately after or even before project approval with the consent of the landowner.

If SJMSCP Covered Species are identified by preconstruction surveys or are strongly suspected to be present based on the vegetation or habitat types present or if a Natural Land type is present, the JPA shall identify, in writing to the Plan Participant, the Incidental Take Minimization Measures applicable to the project and attach these as conditions of project approval per the procedure described in 5.2.1. All SJMSCP Covered Species identified by the JPA shall be recorded on both California Natural Diversity Database (CNDDB) and SJMSCP GIS Database forms, as needed.

When the JPA determines that an SJMSCP Covered Species does or may occur on a particular project site after completing the preceding process, the JPA will conduct a preconstruction survey prior to ground-disturbing activities to verify that the appropriate Incidental Take Minimization Measures have been implemented to protect individual SJMSCP Covered Species.

The following table shall be used to guide the timing of preconstruction surveys for SJMSCP Covered Plant Species when required as described in the preceding paragraphs. The blooming periods established in Table 5.2-1 represent the widest possible blooming season as compiled from: 1) California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California, February, 1994; 2) CEQA-Defined Or Endangered Plants Currently Known to Occur Along the Waterways of the Sacramento-San Joaquin Delta, B. Baba, CDFG Region 2, 1994; and 3) A California Flora and Supplement by Philip A. Munz; University of California Press, 1973 combined edition. All survey periods may be modified pursuant to the provisions of 5.2.2.5(B)(ii) and 5.2.2.5(C) or, based on updated scientific information evaluated and approved by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC.

**TABLE 5.2-1**

<table>
<thead>
<tr>
<th>SJMSCP COVERED PLANT SPECIES</th>
<th>BLOOMING PERIOD/SURVEY PERIOD</th>
</tr>
</thead>
</table>

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5-24
<table>
<thead>
<tr>
<th>Plant Name</th>
<th>Flowering Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large flowered fiddle-neck (Amsinckia grandiflora)</td>
<td>April-May</td>
</tr>
<tr>
<td>Suisun Marsh Aster (Aster lentus)</td>
<td>Late May through November</td>
</tr>
<tr>
<td>Alkali milk-vetch (Astragalus tener var. tener)</td>
<td>March - June</td>
</tr>
<tr>
<td>Heartscale (Atriplex cordulata)</td>
<td>May - October</td>
</tr>
<tr>
<td>Brittle scale (Atriplex depressa)</td>
<td>May - October</td>
</tr>
<tr>
<td>Hoover's calycadenia (Calycadenia hooverii)</td>
<td>July - September</td>
</tr>
<tr>
<td>Bristly sedge (Carex comosa)</td>
<td>May - September</td>
</tr>
<tr>
<td>Succulent owl's clover (Castilleja campestris ssp. succulenta fmr. Orthocarpus succulentus)</td>
<td>April - May</td>
</tr>
<tr>
<td>Slough thistle (Cirsium crassicaule)</td>
<td>May - August</td>
</tr>
<tr>
<td>Mt. Hamilton coreopsis (Coreopsis hamiltonii)</td>
<td>March - May</td>
</tr>
<tr>
<td>Hospital canyon larkspur (Delphinium californicum ssp. interius)</td>
<td>April - June</td>
</tr>
<tr>
<td>Recurved larkspur (Delphinium recurvatum)</td>
<td>March - May</td>
</tr>
<tr>
<td>Delta button celery/Delta coyote thistle (Eryngium racemosum)</td>
<td>June - October</td>
</tr>
<tr>
<td>Diamond-petaled poppy/Diamond-petaled California Poppy (Eschscholzia rhombipetala)</td>
<td>March - June</td>
</tr>
<tr>
<td>Bogg's lake hedge hyssop (Graziola heterosepala)</td>
<td>April - June</td>
</tr>
<tr>
<td>California hibiscus (Hibiscus lasiocarpus)</td>
<td>August - September</td>
</tr>
<tr>
<td>Red Bluff dwarf rush (Juncus leiospermus var. leiospermus)</td>
<td>March - May</td>
</tr>
<tr>
<td>Delta tule pea (Lathyrus jeponsii var. jeponsii)</td>
<td>May - September</td>
</tr>
<tr>
<td>Legener (Legenere limosa)</td>
<td>May - June</td>
</tr>
<tr>
<td>Mason's lilaeopsis (Lilaeopsis masonii)</td>
<td>April - October</td>
</tr>
<tr>
<td>Delta mudwort (Limosella subulata)</td>
<td>May - August</td>
</tr>
<tr>
<td>Showy madia (Madia radiata)</td>
<td>March - May</td>
</tr>
<tr>
<td>Sanford's arrowhead (Sagittaria sanfordii)</td>
<td>May - October</td>
</tr>
<tr>
<td>Mad-dog skullcap (Scutellaria lateriflora)</td>
<td>May - September</td>
</tr>
<tr>
<td>Wright's trichocoronis (Trichocoronis wrightii var. wrightii)</td>
<td>May - September</td>
</tr>
<tr>
<td>Caper-fruited tropidocarpum (Tropidocarpum capparideum)</td>
<td>March - April</td>
</tr>
<tr>
<td>Greene's tuctoria (Tuctoria greenei)</td>
<td>May - July</td>
</tr>
</tbody>
</table>

### 5.2.2.5 Preconstruction Survey Methodologies

**A.** Preconstruction survey methodologies, for preconstruction surveys undertaken in compliance with Section 5.2.2.1(A, Band D) and 5.2.2.2 through 5.2.2.4, and addressing all SJMSCP Covered Species, except as provided in paragraph B, below, shall be of sufficient scope, duration, and
intensity to determine the need (or lack of a need) for attaching Incidental Take Minimization Measures as conditions of project approval, obtain a gross determination of habitats present on the site, any species-specific information as may be readily obtained, and the relation of the site to surrounding land uses. Specific methodologies shall be formulated by the JPA with the concurrence of the Permitting Agencies’ representatives on the JPA’s Technical Advisory Committee (TAC) within one year of issuance of the SJMSCP’s associated state and federal permits. Methodologies shall be consistent with the SJMSCP’s budget for conducting preconstruction surveys. While qualified biologists shall routinely perform preconstruction surveys, methodologies should avoid approaches which may actually harm or harass individual species thereby requiring time-consuming acquisitions of Section 10(a)(1)(A) permits for those conducting surveys except as otherwise required in 5.2.2.5(F) for the riparian brush rabbit. Methodologies developed will include provisions for assuming the presence of certain SJMSCP Covered Species under circumstances where timing of preconstruction surveys to coincide with the presence of the SJMSCP Covered Species may be prohibitively expensive or result in project delays except as otherwise provided in 5.2.2.5 (B-G) for full avoidance species (large flowered fiddleneck, succulent owl’s clover, Greene’s tuctoria, Delta button celery, diamond petaled poppy, showy madia, slough thistle, legenere, Hospital Canyon larkspur, Sanford’s arrowhead, riparian brush rabbit, riparian woodrat, longhorn fairy shrimp, Conservancy fairy shrimp).

To ensure consistency over time, development of survey methodologies by the JPA and TAC as specified above shall include development of a standardized form to be used in conducting pre-construction surveys. While specific information to be collected is not designated by the Plan, the following data types are recommended:

1. Size of the project site;
2. Site configuration;
3. Adjacent land uses;
4. Habitat types present and acreages of each;
5. Presence of Covered Species on the site as determined by the SJMSCP GIS Database and preconstruction surveys;
6. Overall habitat quality;
7. Presence of exotic, non-native, or invasive vegetation;
8. Presence of roads and other disturbances on or adjacent to the project site;
9. Presence and distance to the nearest permanent Open Space;
10. Presence of any pest or predatory animals on the site; and
11. Any special habitat features on the site (e.g., wetlands, nest trees, dens or burrows, intermittent or perennial streams, unique plants etc.). The JPA and/or the relevant participating jurisdiction shall be informed of any Incidental Take Minimization needs identified, and such requirements shall be made a part of any development permits issued by
that jurisdiction, as appropriate (see Section 5.2.1).

B. Preconstruction surveys for the large-flowered fiddleneck (*Amsinckia grandiflora*); succulent owl’s clover (*Castilleja campestris* ssp. *succulenta*); Greene’s tutoria (*Tuctoria greenei*), Delta button celery (*Eryngium racemosum*), Diamond-petaled California poppy (*Escholzia rhombipetala*), showy madia (*Madia radiata*), slough thistle (*Cirsium crassicaule*), legenere (*Legenere limosa*), Hospital Canyon larkspur (*Delphinium californicum* ssp. *interius*), and Sanford’s arrowhead (*Sagittaria sandfordii*) conducted pursuant to Section 5.2.2.1(D) shall, in addition to the requirements in paragraph A,:

i. Be conducted in coordination with a site visit to one of the local reference populations of the species, if available (i.e., permission is required for entry onto private lands), to assess the appearance of the species, its preferred habitat, and if the population is blooming in the vicinity during preconstruction surveys. As of the Effective Date of the SJMSCP, reference sites exist in San Joaquin County for large-flowered fiddleneck (public and private land), diamond-petaled poppy (public land) and succulent owl’s clover (public land), legenere and Sanford’s arrowhead. No known reference sites exist for Greene’s tutoria, Delta button celery, showy madia, slough thistle or Hospital Canyon larkspur in San Joaquin County as of the Effective Date of the SJMSCP. In the absence of reference sites, the JPA may rely upon species information provided orally either: 1) by species experts consulted from the TAC or, in the absence of such experts, species experts contacted outside of the TAC; or 2) By reports received from area biologists regarding the activities (i.e., blooming periods) of the nearest known locations of Greene’s tutoria, Delta button celery, showy madia, slough thistle or Hospital Canyon larkspur located outside of San Joaquin County.

ii. Except as otherwise provided in this paragraph, surveys shall be conducted during the optimum blooming period for the species as indicated in Table 5.2-1. Up to three site visits will be undertaken to confirm that preconstruction surveys have been undertaken during the blooming period for this species. However, if preconstruction surveys are conducted at the same time as reference populations of this species are known to be blooming in the vicinity for populations inhabiting similar habitats with similar microclimates and the species is not found to be present on the proposed project site, then additional preconstruction survey visits are unnecessary. If approved by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC, the timing of preconstruction surveys may be modified (i.e., the length of survey windows may be reduced) on a case-by-case basis upon the TAC's assessment of the season's weather patterns (which may have affected blooming cycles) and the likelihood of species occurrences on a particular site given the specifics of the site's topography, existing land uses, aspect, slope, presence of competing vegetation, soils or other related factors which may have modified the blooming cycle for the species.

iii. If found, the surveyors shall prepare a detailed map indicating the location of the species; describe and photograph (color prints with negatives or color slides) the surrounding habitat including photo reference points, if available; describe adjacent hydrological conditions which may be affecting the population, if applicable; describe the species phenology and microhabitat; record an estimate of the number of individuals of the species per unit area; identify areas of high, medium and low density of the species; provide an estimate the acres of occupied habitat; describe potential threats to the population; and prepare and submit a California Native Species Field Survey Form and submit the form(s) to the Natural Diversity Database.
C. For all SJMSCP Covered Plants, if approved by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC, the timing of preconstruction surveys for SJMSCP Covered Plants may be modified (i.e., the length of survey windows may be reduced) on a case-by-case basis based upon the TAC's assessment of the season's weather patterns (which may have affected blooming cycles) and the likelihood of species occurrences on a particular site given the specifics of the site's topography, existing land uses, aspect, slope, presence of competing vegetation, soils or other related factors which may have modified the blooming cycle for the species.

D. As required in Section 5.2.4.25, preconstruction surveys for the San Joaquin kit fox shall be conducted two calendar weeks to thirty calendar days prior to commencement of ground disturbance for projects located within the Southwest Zone or Southwest/Central Transition Zone. Surveys shall be conducted by qualified biologists. When surveys identify potential dens (potential dens are defined as burrows at least four inches in diameter which open up within two feet), potential den entrances shall be dusted for three calendar days to register track of any San Joaquin kit fox present.

E. Preconstruction surveys for the longhorn fairy shrimp and Conservancy fairy shrimp (potentially occurring within the Southwest Zone) shall be conducted in compliance with USFWS published survey protocols in effect at the time of the surveys.

F. Preconstruction surveys for the riparian brush rabbit shall be conducted in compliance with Survey Methods for Riparian Brush Rabbits (D.F. Williams, P.A. Kelly-San Joaquin Endangered Species Recovery Program) until and unless the USFWS publishes revised survey protocols. These preconstruction surveys require a special 10(a)(1)(A) permit for the individuals undertaking the surveys.

G. For all SJMSCP Covered Species, preconstruction surveys may be waived based upon a review by the TAC and concurrence by the Permitting Agencies if all potential suitable habitat for SJMSCP Covered Species will be fully avoided pursuant to Section 5.5.9.

H. For projects that impact vernal pool grasslands, preconstruction surveys shall collect information, as described in Section 5.9.4.12 that will be used to evaluate future adjustments of the vernal pool caps (e.g., total acreage of permitted Conversion permitted by the Take permits, annual limits on Conversion of vernal pool grasslands). Specifically, these surveys shall incorporate items from Section 5.9.4.12 (A)(1-6) in preconstruction survey protocols.

5.2.3 INCIDENTAL TAKE MINIMIZATION - OVERVIEW OF PROCESS

Section 10(a)(1)(B) of the Federal Endangered Species Act and Section 2081(b) of the California Endangered Species Act allows the Incidental Take of Covered Species only if Incidental Take Minimization Measures are adopted to minimize the impacts to Covered Species and impacts to Covered Species are mitigated. The following addresses Incidental Take Minimization Measures for all SJMSCP Covered Species. SJMSCP Section 5.5 describes additional measures which may be undertaken in lieu of SJMSCP compensation requirements and in addition to these Incidental Take Minimization Measures. These additional measures have an objective of entirely eliminating impacts of Take to SJMSCP Covered Species (i.e., “full avoidance”).

5.2.3.1 Incidental Take Minimization Strategy and Expectations for All SJMSCP Covered Species

The success of the SJMSCP in minimizing impacts to SJMSCP Covered Species, through the implementation
of Incidental Take Minimization Measures, is based on the following expectations, presented in the order of their importance:

A. Project Proponents will provide sufficient time when planning for project review and construction schedules as necessary for the implementation of Incidental Take Minimization Measures adequate to avoid the actual Take of SJMSCP Covered Species for most projects undertaken pursuant to the SJMSCP except as otherwise provided in Section 5.2.3.2;

B. Incidental Take Minimization Measures will be identified at the earliest possible opportunity in the project review process by the JPA according to the schedule established in Section 5.2.1.

C. In addition to establishing applicable Incidental Take Minimization Measures, the JPA shall provide an option to a Project Proponent for entirely avoiding impacts to SJMSCP Covered Species and their habitat on the project site through project redesign pursuant to SJMSCP Section 5.5.9. Wherever complete avoidance of all impacts is successfully achieved on a project site pursuant to the requirements of SJMSCP Section 5.5.9, the SJMSCP Permittees are not responsible for providing compensation pursuant to the requirements of the SJMSCP.

D. Alternatively, the JPA shall pursue acquisition of Preserve lands which are consistent with the Preserve design criteria of the SJMSCP (Section 5.4.4) on project sites where high quality occupied habitat and/or where SJMSCP Covered Species of very limited distribution are present and landowners are willing sellers.

E. The JPA and Permittees will work with Project Proponents to ensure, and to document in accordance with Section 5.9.3.2, that identified Incidental Take Minimization Measures are properly implemented (or other alternatives are pursued as described in C and D above), as prescribed by the SJMSCP, to avoid the actual Take of SJMSCP Covered Species for most projects undertaken pursuant to the SJMSCP;

F. If the Project Proponent has implemented Incidental Take Minimization Measures in accordance with the SJMSCP, and SJMSCP Covered Species remain, reappear, or appear for the first time on the project site despite the proper implementation of Incidental Take Minimization Measures, then the following shall occur:

1. Relocation will be pursued at the discretion of the Permitting Agencies and only under rare circumstances according to the procedures and subject to the criteria established in Section 5.2.5.

2. When relocation is not undertaken (as is expected in the majority of cases), then killing of individuals and Conversion of occupied habitat of the SJMSCP Covered Species may occur unless otherwise prohibited by the SJMSCP.

G. Pursuant to the Migratory Bird Treaty Act (16 USC 703-711), it is unlawful at any time, by any means or in any manner to pursue, hunt, take, capture, kill, attempt to take, capture, or kill any migratory bird, any part, nest, or eggs of any such bird is defined as Take. All SJMSCP Covered Bird Species are subject to the Migratory Bird Treaty Act. Because the SJMSCP is based on the more stringent, federal standard for "Take" pursuant to the ESA which includes modification of habitat, Incidental Take Permits for SJMSCP Covered Bird
Species are included in the SJMSCP, to allow for the Conversion of habitat for SJMSCP Covered Bird Species with appropriate creation of compensatory habitat for these species. To fulfill the requirements of the Migratory Bird Treaty Act, however, the Incidental Take Minimization Measures of the SJMSCP for all SJMSCP Covered Bird Species must result in no Take, as Take is defined by the MBTA, of SJMSCP Covered Bird Species. The Incidental Take Minimization Measures in Section 5.2.4 have been designed to avoid Take, as Take is defined by the MBTA, of SJMSCP Covered Bird Species.

H. The golden eagle is the only SJMSCP Covered Species subject to the provisions of the Bald and Golden Eagle Protection Act (U.S.C. Sections 668-668d). Take of individual golden eagles is prohibited by the Bald and Golden Eagle Protection Act. However, because the SJMSCP is based on the more stringent, federal standard for "Take" pursuant to the ESA which includes modification of habitat, Incidental Take Permits for the golden eagle are included in the SJMSCP, to allow for the Conversion of habitat for the golden eagle with appropriate creation of compensatory habitat for this species. To fulfill the requirements of the Bald and Golden Eagle Protection Act, however, the Incidental Take Minimization Measures of the SJMSCP for the golden eagle have been designed to avoid Take, as Take is defined by the BGEPA, of golden eagles as described in Section 5.2.4.21.

5.2.3.2 Exceptions to Section 5.2.3.1

It is the intent of the JPA and the Permitting Agencies to encourage Project Proponents to retain biological features (e.g., nest trees, roosting sites, wetlands) in project design where the retention of such features may provide chances for the long-term survival of SJMSCP Covered Species at the short-term expense of the SJMSCP Covered Species. Therefore, where Project Proponents have agreed to a request by the JPA to retain biological features for the long-term, in the manner prescribed by the JPA, then the JPA and Permitting Agencies agree that the Project Proponent may proceed with the project’s construction schedule even though that construction schedule may result in short-term disturbances (including Take) to SJMSCP Covered Species as a result of retaining biological features.

In addition, it is recognized that unanticipated conditions may arise which make it infeasible to comply with the Incidental Take Minimization strategy established in Section 5.2.3.1.

When a Project Proponent determines that it is infeasible to implement the Incidental Take Minimization Measures as established by the SJMSCP, then the Project Proponent may petition the JPA to consider granting an exception to the Incidental Take Minimization Measures. The Project Proponent shall include in his or her request a detailed description of the compelling reason or reasons for granting such a petition including all necessary documentation to support the request and describing what factors caused the Project Proponent inability to comply with the Incidental Take Minimization Measure or measures.

The JPA may amend or suspend some or all Incidental Take Minimization Measures, with the concurrence of the Permitting Agencies' representatives on the TAC, for a particular project based upon the following findings:

1. It is not possible to implement the Incidental Take Minimization Measures (e.g., the landowner does not own land on one side of a stream and therefore cannot provide 200' buffers on both sides of a stream); and

2. The proposed alternative Incidental Take Minimization Measure(s) reduces the effects of
Take at least as much as or more than the SJMSCP's established Incidental Take Minimization Measure(s); or

3. The proposed alternative(s) provide greater chances for the long-term survival of an SJMSCP Covered Species at the expense of limited, short-term biological losses (e.g., retaining a nest tree on a construction site rather than removing the nest tree resulting in reduced fledgling success during the project construction phase, but producing multiple generations of successful fledglings in the nest tree over the long-term); or

4. The provisions of Section 5.2.2.5(B)(ii) or 5.2.2.5(C) apply.

Failure to plan ahead on the part of the Project Proponent, when such planning was within the control of the Project Proponent, shall not be grounds for granting an exception under these provisions.

All exceptions granted for Incidental Take Minimization Measures pursuant to this Section also shall be reported in the SJMSCP Annual Report to the Permitting Agencies as described in Section 5.9.1.

5.2.4  INCIDENTAL TAKE MINIMIZATION MEASURES FOR SJMSCP COVERED SPECIES RECEIVING INCIDENTAL TAKE COVERAGE PURSUANT TO ESA AND CESA AND MITIGATION MEASURES FOR SJMSCP COVERED SPECIES RECEIVING CEQA COVERAGE

5.2.4.1 Valley Elderberry Longhorn Beetle (VELB)

In areas with elderberry bushes, as indicated by the SJMSCP Vegetation Maps or per a preconstruction survey identification or other sources indicated in Section 5.2.2.3, the following shall occur:

A. If elderberry shrubs are present on the project site, a setback of 20 feet from the dripline of each elderberry bush shall be established.

B. Brightly colored flags or fencing shall be placed surrounding elderberry shrubs throughout the construction process.

C. For all shrubs without evidence of VELB exit holes which cannot be retained on the project site as described in A and B, above, the JPA shall, during preconstruction surveys, count all stems of 1” or greater in diameter at ground level. Compensation for removal of these stems shall be provided by the JPA within SJMSCP Preserves as provided in SJMSCP Section 5.5.4(B).

D. For all shrubs with evidence of VELB exit holes, the JPA shall undertake transplanting of elderberry shrubs displaying evidence of VELB occupation to VELB mitigation sites during the dormant period for elderberry shrubs (November 1 - February 15). For elderberry shrubs displaying evidence of VELB occupation which cannot be transplanted, compensation for removal of shrubs shall be as provided in SJMSCP Section 5.5.4 (C).

5.2.4.2 Moestan and Molestan Blister Beetle
The biology of these species is poorly known, but the species are presumed to be extant and may be discovered in annual grasslands, foothill woodlands or saltbush (Atriplex) scrub which remain in patches within the historical occupation site of these species. Therefore, if discovered on a project site and prior to ground disturbance, Incidental Take Minimization Measures shall be formulated by the TAC and approved by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC in accordance with the SJMSCP’s Adaptive Management Plan (Section 5.9.4).

5.2.4.3 Ciervo Aegialian Scarab Beetle

This species is presumed to be extirpated, because its habitat, sand dunes, have been destroyed in the County. However, if rediscovered on a project site and prior to ground disturbance, Incidental Take Minimization Measures shall be formulated by the TAC and approved by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC in accordance with the SJMSCP’s Adaptive Management Plan (Section 5.9.4).

5.2.4.4 Vernal Pool Plants and Vernal Pool Invertebrates

Full avoidance of succulent owl’s clover, legenere, Greene’s tuctoria, longhorn fairy shrimp and Conservancy fairy shrimp is required by the SJMSCP in accordance with the full avoidance measures in Section 5.5.9. For all other vernal pool plants and vernal pool invertebrates:

A. Filling vernal pools shall be delayed until pools are dry and samples from the top layer of vernal pools soils are collected. Soil collections shall be sufficient to include a representative sample of plant and animal life present in the pools by incorporating seeds, cysts, eggs, spores and similar inoculum.

B. Collected soils shall be dried and stored in pillow cases labeled with the date and location of soils collected. Soils will be deposited with the JPA. The JPA shall retain the soils in a cool, dry area and shall be responsible for providing soils to vernal pool construction managers for inoculating newly created vernal pools on Preserve lands.

C. Preconstruction surveys, conducted in compliance with U.S. Fish and Wildlife Service protocols [as required in Section 5.2.2.5(E)] approved and in place at the time the surveys are conducted, shall be conducted to determine the presence or absence of Conservancy and/or longhorn fairy shrimp within vernal pools or other wetlands located southwest of I-580 in the Southwest Zone unless avoidance of vernal pools and/or wetlands is achieved in compliance with SJMSCP Section 5.5.9.

5.2.4.5 California Tiger Salamander and Western Spadefoot Toad in Association with Projects that Require a Permit Pursuant to Section 404 of the Federal Clean Water Act

Incidental Take Minimization Measures apply to known California tiger salamander occurrences. All required minimization measures will be prescribed through technical assistance provided to the U.S. Army Corps of Engineers by the U.S. Fish and Wildlife Service of Nationwide and standard permitting within the SJMSCP Permit Area, concurrent with formal consultations conducted for listed vernal pool species, or through the JPA with the concurrence of the Permitting Agencies’ representatives on the TAC. The approach to impact minimization measures outlined in this section of the SJMSCP for California tiger salamander will provide the framework for Corps 404 permit streamlining described further in SJMSCP Section 5.6.1. Specific measures for impact minimization will be based on the framework provided in the SJMSCP.
JPA intends that the SJMSCP will provide an option for project applicants to meet some or all of the compensation requirements assessed as part of the 404 regulatory process for California tiger salamander, should this species become federally listed.

The measures will be based on the need to avoid and minimize impacts to breeding, feeding, and sheltering behaviors of California tiger salamander (See SJMSCP Chapter 2), and will include, but not be limited to, consideration of the following: a) effects to aquatic habitat, including retaining pools and maintaining appropriate pool hydrology to enable successful metamorphosis of larvae to occur, but which does not foster non-native aquatic predators; b) retention of small mammal burrows and other suitable estivation habitat (e.g., underground holes, cracks, or niches) in adjacent uplands; c) maintenance of open habitat between breeding ponds and estivation sites (e.g., roads and other linear barriers) can increase mortality or even prevent migrations and dispersal significantly increasing harm to and mortality of salamanders; d) siting replacement wetland habitat, whenever possible, within approximately 1.5 miles of other known breeding sites.

In potential California tiger salamander habitat, projects shall survey according to the current protocol approved by the TAC and the Permitting Agencies. If salamanders are detected, Incidental Take Minimization Measures shall be applied.

5.2.4.6 California Tiger Salamander, Western Spadefoot Toad - in Association with Projects that Do Not Require a Federal Clean Water Act Section 404 Permit

To minimize impacts and Take of California tiger salamander, the following measures should be implemented for SJMSCP Covered Activities not requiring a Federal Clean Water Act Section 404 Permit:

A. Retain known breeding sites.

B. In potential California tiger salamander habitat, projects shall survey according to the current protocol approved by the TAC and the Permitting Agencies’ representatives on the TAC. If salamanders are detected, Incidental Take Minimization Measures shall be applied.

C. If a proposed project intends to eliminate aquatic habitat (including wetlands, ponds, springs and other standing water sources), and create a new, on-site habitat, then the newly created habitat shall be created and filled with water prior to dewatering and destroying the pre-existing habitat. Dewatering and relocation of aquatic habitats on-site should occur when the water source is dry under natural conditions, or otherwise outside of the full breeding season for tiger salamanders (December to June) to allow larvae to metamorphose and migrate to upland habitat.

D. If a proposed project intends to eliminate aquatic habitat including wetlands, ponds, springs and other standing water sources, and will not create a new, on-site habitat, then dewatering should occur prior to commencement of construction and other Site Disturbing Activities. Dewatering and relocation of aquatic habitats should occur outside of the time period when adult salamanders are breeding (approximately December to February).

E. Apply those other measures that are utilized to minimize impacts and Take of the California tiger salamander that are developed as described in 5.2.4.5 above. Those other measures will address: a) effects to aquatic habitat, including retaining pools and maintaining appropriate pool hydrology to enable successful metamorphosis of larvae to occur, but which does not foster non-native aquatic predators; b) retention of small mammal burrows and other suitable

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estivation habitat (e.g., underground holes, cracks, or niches) in adjacent uplands; c) maintenance of open habitat between breeding ponds and estivation sites (e.g., roads and other linear barriers can increase mortality or even prevent migrations and dispersal significantly increasing harm to and mortality of salamanders); d) siting replacement wetland habitat, whenever possible, within approximately 1.5 miles of other known breeding sites.

5.2.4.7 Red-Legged Frogs and Foothill Yellow-Legged Frogs

Red-legged frogs and foothill yellow-legged frogs occur in the creeks and wetlands in foothill areas. Red-legged frogs and foothill yellow-legged frogs do not occur on the valley floor. Therefore, the following Incidental Take Minimization Measures apply to the eastern foothills (primarily in the Vernal Pool Zone) and the Southwest Zone only where new development is proposed on parcels with creeks, rivers or wetlands, especially ponds:

A. A 300 foot setback, incorporating both riparian vegetation and uplands, shall be provided on both sides of creeks and on all sides of wetlands (for a total of 600 feet in setbacks) occupied by red-legged frogs or yellow-legged frogs identified through pre-construction surveys conducted by the JPA or documented in the SJMSCP GIS Database. These 300' setbacks shall be measured horizontally from the top of the bank and shall extend the entire length of the stream (or other linear wetlands) within the boundaries of the project site. These setbacks may be reduced by the TAC with the concurrence of the Permitting Agencies' representative on the TAC if the reduction: 1) does not affect habitat (e.g., the stream becomes piped and travels underground) or 2) the reduction will not result in an adverse impact to the species or reduction in the biological values of the habitat. Setbacks shall maintain existing vegetation free of disturbance and be free of new construction, new wells, storage or parking of equipment or materials, and other activities which compact or disturb soils or vegetation or which could introduce contaminants into the aquatic habitat. Setbacks shall be delineated by flagging or brightly colored temporary fencing during the construction process. Setbacks shall be indicated on final maps and include a map note referencing prohibitions within the setbacks. For entitlements which do not include a map, the condition shall be enforced through the recordation of an easement referencing prohibitions within the setback. The JPA may approve alternative methods of enforcing the provisions of the setback with the concurrence of the Permitting Agency representatives on the TAC.

B. Water quality within creeks and wetlands inhabited by red-legged frogs or foothill yellow-legged frogs shall be maintained through implementation of appropriate erosion control measures to reduce siltation and contaminated runoff from project sites (e.g., by maintaining vegetation within buffers and/or through the use of hay bales, filter fences, vegetative buffer strips, or other accepted equivalents).

C. Construction and other ground disturbances shall be prohibited within established setbacks. The use of insecticides, herbicides, rodenticides and pesticides within established setbacks shall occur in accordance with U.S. Environmental Protection Agency guidelines (Appendix A) addressing the use of these materials in occupied California red-legged frog habitat and, if applicable, any additional requirements as established by the San Joaquin County Agricultural Commissioner.

D. All on-site construction personnel shall be given instruction regarding the presence of listed species and the importance of avoiding impacts to these species and their habitats.
E. Setbacks shall be marked by brightly colored fencing or flagging throughout the construction process.

F. Setbacks shall be permanently preserved as recorded easements. Easements shall be indicated on recorded maps, whenever projects involve parcel or subdivision maps.

Proposals by Project Proponents to implement either of the following Incidental Take Minimization Measures requires the review and approval of the JPA with the concurrence of the Permitting Agencies' representatives on the TAC:

G. If a proposed project intends to eliminate aquatic habitat including wetlands, ponds, springs and other standing water sources, and create a new, on-site habitat, then the newly created habitat shall be created and filled with water prior to dewatering and destroying the pre-existing habitat. Dewatering and relocation of aquatic habitats should occur outside of the breeding season for red-legged frogs (approximately January through May) and foothill yellow-legged frogs (approximately March through May) when this schedule can be accommodated without resulting in project delays.

H. If a proposed project intends to eliminate aquatic habitat including wetlands, ponds, springs and other standing water sources, and will not create a new, on-site habitat, then dewatering should occur prior to commencement of construction and other Site Disturbing Activities. Dewatering and relocation of aquatic habitats should occur outside of the breeding season for red-legged frogs (approximately January through May) and foothill yellow-legged frogs (approximately March through May) when this schedule can be accommodated without resulting in project delays.

Pursuant to Section 5.5.5, SJMSCP Preserve lands acquired to offset impacts to the red-legged frog or yellow-legged frog must have occupied habitat for the red-legged frog or yellow-legged frog of at least equal habitat value as determined by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC.

5.2.4.8 Giant Garter Snake

A. Full avoidance of giant garter snake known occupied habitat is required in compliance with Section 5.5.9 (C) for the following SJMSCP Covered Activities with the potential to adversely affect the GGS and which have not been mapped: golf courses; religious assembly; communications services; funeral; internment services; public services - police, fire and similar; projects impacting channel or tule island habitat; major impact projects including landfills, hazardous waste facilities, correctional institutions and similar major impact projects; recreational trails and campgrounds, recreational outdoors sports clubs; utility services, museums and similar facilities. Known occupied habitat for the giant garter snake is that area west of I-5 on Terminous Tract, Shin Kee Tract, White Slough Wildlife Area, and Rio Blanco Tract. New sites identified during the life of the SJMSCP as confirmed habitat sites for the giant garter snake shall be considered known occupied sites for the purposes of this section.

B. For areas with potential giant garter snake habitat, the following is required. Potential GGS habitat elements are described in SJMSCP Section 2.2.2.2 and exist in the Primary Zone of the Delta and the Central Zone contiguous with known occupied habitat in the White Slough area north to the San Joaquin/Sacramento County line and south to Paradise Cut; in the Central Zone east of Stockton in
Duck Creek, Mormon Slough, Stockton Diverting Canal, Little John’s Creek, Lone Tree Creek, and French Camp Slough (wherever habitat elements are present); and the Southern Centerl Zone and Southwest/ Central Transition Zone including the area east of J4 from the Alameda-San Joaquin County Line to Tracy and area south of Tracy and east of Interstate 580 to the east edge of Agricultural Habitat Lands east of the San Joaquin River.

1. Construction shall occur during the active period for the snake, between May 1 and October 1. Between October 2nd and April 30th, the JPA, with the concurrence of the Permitting Agencies' representatives on the TAC, shall determine if additional measures are necessary to minimize and avoid take.

2. Limit vegetation clearing within 200 feet of the banks of potential giant garter snake aquatic habitat to the minimal area necessary.

3. Confine the movement of heavy equipment within 200 feet of the banks of potential giant garter snake aquatic habitat to existing roadways to minimize habitat disturbance.

4. Prior to ground disturbance, all on-site construction personnel shall be given instruction regarding the presence of SJMSCP Covered Species and the importance of avoiding impacts to these species and their habitats.

5. In areas where wetlands, irrigation ditches, marsh areas or other potential giant garter snake habitats are being retained on the site:
   a. Install temporary fencing at the edge of the construction area and the adjacent wetland, marsh, or ditch;
   b. Restrict working areas, spoils and equipment storage and other project activities to areas outside of marshes, wetlands and ditches; and
   c. Maintain water quality and limit construction runoff into wetland areas through the use of hay bales, filter fences, vegetative buffer strips, or other accepted equivalents.

6. If on-site wetlands, irrigation ditches, marshes, etc. are being relocated in the vicinity: the newly created aquatic habitat shall be created and filled with water prior to dewatering and destroying the pre-existing aquatic habitat. In addition, non-predatory fish species that exist in the aquatic habitat and which are to be relocated shall be seined and transported to the new aquatic habitat as the old site is dewatered.

7. If wetlands, irrigation ditches, marshes, etc. will not be relocated in the vicinity, then the aquatic habitat shall be dewatered at least two weeks prior to commencing construction.

8. Pre-construction surveys for the giant garter snake (conducted after completion of environmental reviews and prior to ground disturbance) shall occur within 24 hours of ground disturbance.

9. Other provisions of the USFWS Standard Avoidance and Minimization Measures during Construction Activities in Giant Garter Snake Habitat shall be implemented (excluding
programmatic mitigation ratios which are superceded by the SJMSCP’s mitigation ratios).

5.2.4.9 San Joaquin Whipsnake, California Horned Lizard

These species are of very limited distribution within the County, primarily isolated locations outside of anticipated development areas within the Southwest Zone. Therefore, if discovered on a project site and prior to ground disturbance, Incidental Take Minimization Measures shall be formulated by the TAC and approved by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC in accordance with the SJMSCP’s Adaptive Management Plan (Section 5.9.4).

5.2.4.10 Pond Turtles

When nesting areas for pond turtles are identified on a project site, a buffer area of 300 feet shall be established between the nesting site (which may be immediately adjacent to wetlands or extend up to 400 feet away from wetland areas in uplands) and the wetland located near the nesting site. These buffers shall be indicated by temporary fencing if construction has or will begin before nesting periods are ended (the period from egg laying to emergence of hatchlings is normally April to November).

5.2.4.11 Swainson's Hawk

The Project Proponent has the option of retaining known or potential Swainson's hawk nest trees (i.e., trees that hawks are known to have nested in within the past three years or trees, such as large oaks, which the hawks prefer for nesting) or removing the nest trees.

If the Project Proponent elects to retain a nest tree, and in order to encourage tree retention, the following Incidental Take Minimization Measure shall be implemented during construction activities:

If a nest tree becomes occupied during construction activities, then all construction activities shall remain a distance of two times the dripline of the tree, measured from the nest.

If the Project Proponent elects to remove a nest tree, then nest trees may be removed between September 1 and February 15, when the nests are unoccupied.

These Incidental Take Minimization Measures are consistent with the provisions of the Migratory Bird Treaty Act as described in Section 5.2.3.1(G).

5.2.4.12 California Black Rail

A. Prohibit construction or similar activities on channel or tule islands (1,12), fresh emergent wetlands (W7), and arroyo willow thickets (R4), within the Primary Zone of the Delta until a preconstruction survey determines that the island is unoccupied by the California black rail.

B. In cases where project approvals may result in an increase in boating or jet skiing near known breeding sites for this species during the breeding season (e.g., proposals including new marinas), a condition of project approval shall be attached to require the location of the new marinas no closer than 200 feet from known breeding site when such sites are or have been occupied by breeding California black rails within the past three years. In addition, approaches into and out of new marinas shall be posted by the Project Proponent (as a condition of project approval) or, if otherwise designated by law, by a local, state or federal agency (e.g., the Division of Boating and Waterways).
"no wake speed" within 300 feet of occupied breeding sites for the California black rail during breeding season. Information related to the breeding season for California black rails is sparse, but the breeding season for the California black rail is believed to extend from February 1st through August 30th. Therefore, requirement for "no wake speed" into and out of new marinas due to the presence of breeding California black rails is not required from September 1 through January 30th.

These Incidental Take Minimization Measures are consistent with the provisions of the Migratory Bird Treaty Act as described in Section 5.2.3.1(G).

5.2.4.13 Bank Swallow and Yellow-Billed Cuckoo

If the JPA discovers nesting bank swallows or nesting yellow-billed cuckoos during preconstruction surveys or from other sources, construction avoidance areas shall be enforced for a distance of 300 feet from the nest sites until young bank swallows or yellow-billed cuckoos have fledged and left the nesting site.

These Incidental Take Minimization Measures are consistent with the provisions of the Migratory Bird Treaty Act as described in Section 5.2.3.1(G).

5.2.4.14 Aleutian Canada Goose and Greater Sandhill Crane

Under normal conditions, the Aleutian Canada goose and greater sandhill crane are found foraging in fields that are flooded, newly disced, cut, or irrigated during the fall migration of waterfowl along the Pacific Flyway. These two species are highly mobile while they forage and can easily relocate to nearby foraging sites in the event of a disturbance to the foraging field. The risk of actually killing or harming (Taking) one of these species during SJMSCP Permitted Activities is therefore nearly non-existent. The threat to these species is more closely associated with removing habitat in sufficient quantities to create adverse impacts to populations of these species--an impact addressed by the SJMSCP through acquisition and enhancements of habitat (see Sections 5.4.4 and 5.4.6). Therefore, Incidental Take Minimization Measures for the Aleutian Canada goose and the greater sandhill crane are not included in the SJMSCP and this is considered to be consistent with the provisions of the Migratory Bird Treaty Act.

5.2.4.15 Burrowing Owls

The presence of ground squirrels and squirrel burrows are attractive to burrowing owls. Burrowing owls may therefore be discouraged from entering or occupying construction areas by discouraging the presence of ground squirrels. To accomplish this, the Project Proponent should prevent ground squirrels from occupying the project site early in the planning process by employing one of the following practices:

A. The Project Proponent may plant new vegetation or retain existing vegetation entirely covering the site at a height of approximately 36" above the ground. Vegetation should be retained until construction begins. Vegetation will discourage both ground squirrel and owl use of the site.

B. Alternatively, if burrowing owls are not known or suspected on a project site and the area is an unlikely occupation site for red-legged frogs, San Joaquin kit fox, or tiger salamanders:

The Project Proponent may disc or plow the entire project site to destroy any ground squirrel burrows. At the same time burrows are destroyed, ground squirrels should be removed through one of the following approved methods to prevent reoccupation of the...
project site. Detailed descriptions of these methods are included in Appendix A, Protecting Endangered Species, Interim Measures for Use of Pesticides in San Joaquin County, dated March, 2000:

1. **Anticoagulants.** Establish bait stations using the approved rodenticide anticoagulants Chlorophacinone or Diphacinone. Rodenticides shall be used in compliance with U.S. Environmental Protection Agency label standards and as directed by the San Joaquin County Agricultural Commissioner.

2. **Zinc Phosphide.** Establish bait stations with non-treated grain 5-7 calendar days in advance of rodenticide application, then apply Zinc Phosphide to bait stations. Rodenticides shall be used in compliance with U.S. Environmental Protection Agency label standards and as directed by the San Joaquin County Agricultural Commissioner.

3. **Fumigants.** Use below-ground gas cartridges or pellets and seal burrows. Approved fumigants include Aluminum Phosphide (Fumitoxin, Phostoxin) and gas cartridges sold by the local Agricultural Commissioner's office. NOTE: Crumpled newspaper covered with soil is often an effective seal for burrows when fumigants are used. Fumigants shall be used in compliance with U.S. Environmental Protection Agency label standards and as directed by the San Joaquin County Agricultural Commissioner.

4. **Traps.** For areas with minimal rodent populations, traps may be effective for eliminating rodents. If trapping activities are required, the use of shall be consistent with all applicable laws and regulations.

If the measures described above were not attempted or were attempted but failed, and burrowing owls are known to occupy the project site, then the following measures shall be implemented:

C. During the non-breeding season (September 1 through January 31) burrowing owls occupying the project site should be evicted from the project site by passive relocation as described in the California Department of Fish and Game’s Staff Report on Burrowing Owls (Oct., 1995)

D. During the breeding season (February 1 through August 31) occupied burrows shall not be disturbed and shall be provided with a 75 meter protective buffer until and unless the TAC, with the concurrence of the Permitting Agencies’ representatives on the TAC; or unless a qualified biologist approved by the Permitting Agencies verifies through non-invasive means that either: 1) the birds have not begun egg laying, or 2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. Once the fledglings are capable of independent survival, the burrow can be destroyed.

These Incidental Take Minimization Measures are consistent with the provisions of the Migratory Bird Treaty Act as described in Section 5.2.3.1(G).

5.2.4.16 Colonial Nesting Birds (Tricolored Blackbird, Black-Crowned Night Heron, Great Blue Heron)
Acquisition of colonial nesting sites for these species is a high priority of the SJMSCP. Project Proponents shall be informed of avoidance measures which eliminate compensation requirements for disturbance of colonial nesting areas in project design, as described in Section 5.5.9. If the Project Proponent rejects acquisition and avoidance, pursuant to Section 5.5.9, then the following Incidental Take Minimization Measure shall apply:

A setback of 500 feet from colonial nesting areas shall be established and maintained during the nesting season for the period encompassing nest building and continuing until fledglings leave nests. This setback applies whenever construction or other ground-disturbing activities must begin during the nesting season in the presence of nests which are known to be occupied. Setbacks shall be marked by brightly colored temporary fencing.

These Incidental Take Minimization Measures are consistent with the provisions of the Migratory Bird Treaty Act as described in Section 5.2.3.1(G).

5.2.4.17 Ground Nesting or Streamside/Lakeside Nesting Birds (Northern Harrier, Horned Lark, Western Grebe, Short-Eared Owl)

A setback of 500 feet from nesting areas shall be established and maintained during the nesting season for the period encompassing nest building and continuing until fledglings leave nests. This setback applies whenever construction or other ground-disturbing activities must begin during the nesting season in the presence of nests which are known to be occupied. Setbacks shall be marked by brightly colored temporary fencing.

These Incidental Take Minimization Measures are consistent with the provisions of the Migratory Bird Treaty Act as described in Section 5.2.3.1(G).

5.2.4.18 Birds Nesting in Isolated Trees or Shrubs Outside of Riparian Areas (Sharp-Shinned Hawk, Yellow Warbler, Loggerhead Shrike)

A setback of 100 feet from nesting areas shall be established and maintained during the nesting season for the period encompassing nest building and continuing until fledglings leave nests. This setback applies whenever construction or other ground-disturbing activities must begin during the nesting season in the presence of nests which are known to be occupied. Setbacks shall be marked by brightly colored temporary fencing.

These Incidental Take Minimization Measures are consistent with the provisions of the Migratory Bird Treaty Act as described in Section 5.2.3.1(G).

5.2.4.19 Birds Nesting Along Riparian Corridors (Cooper’s Hawk, Yellow-Breasted Chat, Osprey, White-Tailed Kite)

A. For white-tailed kites, preconstruction surveys shall investigate all potential nesting trees on the project site (e.g., especially tree tops 15-59 feet above the ground in oak, willow, eucalyptus, cottonwood, or other deciduous trees), during the nesting season (February 15 to September 15) whenever white-tailed kites are noted on site or within the vicinity of the project site during the nesting season.

B. For the Cooper's hawk, yellow-breasted chat, osprey and white-tailed kite, a setback of 100
feet from nesting areas shall be established and maintained during the nesting season for the period encompassing nest building and continuing until fledglings leave nests. This setback applies whenever construction or other ground-disturbing activities must begin during the nesting season in the presence of nests which are known to be occupied. Setbacks shall be marked by brightly colored temporary fencing.

These Incidental Take Minimization Measures are consistent with the provisions of the Migratory Bird Treaty Act as described in Section 5.2.3.1(G).

5.2.4.20 Bell’s Sage Sparrow, Snowy Egret, Prairie Falcon, American White Pelican, Double-Crested Cormorant, White-Faced Ibis, Long-billed Curlew

These species either establish nests outside of anticipated development areas or are currently unknown to nest within the County. However, if a nest for one of these species is discovered on a project site, Incidental Take Minimization Measures shall be formulated prior to ground disturbance by the TAC and approved by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC in accordance with the SJMSCP’s Adaptive Management Plan (Section 5.9.4).

These Incidental Take Minimization Measures are consistent with the provisions of the Migratory Bird Treaty Act as described in Section 5.2.3.1(G).

5.2.4.21 Golden Eagle

When a site inspection indicates the presence of a nesting golden eagle, a setback of 500 feet from the nesting area shall be established and maintained during the nesting season (normally approximately February 1 - June 30) for the period encompassing nest building and continuing until fledglings leave nests. This setback applies whenever construction or other ground-disturbing activities must begin during the nesting season in the presence of nests which are known to be occupied. Setbacks shall be marked by brightly colored temporary fencing.

These Incidental Take Minimization Measures are consistent with the provisions of the Migratory Bird Treaty Act as described in Section 5.2.3.1(G) and are consistent with the provisions of the Bald and Golden Eagle protection act as described in Section 5.2.3.1(H).

5.2.4.22 Ferruginous Hawk, Mountain Plover, Merlin, Long-Billed Curlew

These species currently do not nest in the County and are not expected to nest in the County over the life of the Plan. Therefore, in the highly unlikely event that one of these species is found nesting on a project site, Incidental Take Minimization Measures shall be formulated prior to ground disturbance by the TAC and approved by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC in accordance with the SJMSCP’s Adaptive Management Plan (Section 5.9.4).

Incidental Take Minimization Measures adopted pursuant to Section 5.9.4 shall be consistent with the provisions of the Migratory Bird Treaty Act as described in Section 5.2.3.1(G).

5.2.4.23 Riparian Brush Rabbit

November 14, 2000
A. **Occupied Habitat.** Kill of individual riparian brush rabbits and Conversion of occupied habitat for the riparian brush rabbit is prohibited by the SJMSCP unless the provisions of SJMSCP Section 5.5.2.7 have been met. Full avoidance of the riparian brush rabbit is required in areas of known occupied riparian brush habitat in accordance with Section 5.5.9(I). Known occupied habitat for the riparian brush rabbit is: the vegetation types R, R2, R3, R4, R5, S, SG, D, W, W2, W3, W4, W5 and W9 (unlined) located within Caswell State Park and along the adjoining Stanislaus River; and surrounding Stewart Tract including Paradise Cut and the adjacent Union Pacific Railroad Company right-of-way on Stewart Tract, Old River adjacent to Stewart Tract, and the San Joaquin River as it bounds Stewart Tract. Additional populations of the riparian brush rabbit identified after the Effective Date of the SJMSCP Permits by the JPA or the Permitting Agencies shall become known occupied riparian brush rabbit habitat.

B. **Potential Habitat.** Conversion of Potential habitat for the riparian brush rabbit is prohibited by the SJMSCP unless: 1) the provisions of Paragraph C (below) apply; 2) the provisions of SJMSCP Section 5.5.2.7 have been met; or 3) a survey, conducted pursuant to the protocol established in Survey Methods for Riparian Brush Rabbits (by D.F. Williams and P.A. Kelly - San Joaquin Valley Endangered Species Recovery Planning Program) is undertaken and proves absence for this species. If absence is established by the survey, then the incidental take minimization measures for riparian habitat, established in SJMSCP Section 5.2.4.31 shall apply.

Potential riparian brush rabbit habitat is: the vegetation types R, R2, R3, R4, R5, S, SG, D, W, W2, W3, W4, W5 and W9 (unlined) located along the Stanislaus River downstream of Highway 99 to the junction with the San Joaquin River and riparian habitat along the San Joaquin River downstream of the mouth of the Stanislaus River north to and including Tom Paine Slough and Paradise Cut to the Southern Pacific railroad right-of-way.

C. **Limited Take.** Incidental Take of up to three acres of potential riparian brush rabbit habitat may occur pursuant to the SJMSCP for projects which meet all of the following criteria:

A. SJMSCP Covered Activities excluding residential, commercial or industrial development and aggregate mining.
B. Impact less than .25 acres of habitat on a per-project basis; and
C. Result in no harm, injury, or harassment of individual brush rabbits

5.2.4.24 **Riparian Woodrat**

A. **Occupied Habitat.** Kill of individual riparian woodrats and Conversion of occupied habitat for the riparian woodrat is prohibited by the SJMSCP unless the provisions of SJMSCP Section 5.5.2.7 have been met. Full avoidance of the riparian woodrat is required in areas of known occupied riparian brush rabbit habitat in accordance with Section 5.5.9(I). Occupied habitat for the riparian woodrat includes the vegetation types R, R2, R3, R4, R5, S, SG, D, W, W2, W3, W4, W5 and W9 (unlined) surrounding Caswell Park along the Stanislaus River and extending along the Stanislaus River west from Caswell Park to the confluence of the Stanislaus River with the San Joaquin River in San Joaquin County. Additional populations of the riparian woodrat identified after the Effective Date of the SJMSCP Permits by the JPA or the Permitting Agencies shall become known occupied riparian woodrat habitat.

B. **Potential Habitat.** Conversion of Potential habitat for the riparian woodrat is prohibited by the SJMSCP unless: 1) the provisions of Paragraph C (below) apply; 2) the provisions of SJMSCP...
Section 5.5.2.7 have been met; or 3) a survey, conducted pursuant to the protocol established in Survey Methods for Riparian Brush Rabbits (by D.F. Williams and P.A. Kelly - San Joaquin Valley Endangered Species Recovery Planning Program) is undertaken and proves absence for this species. If absence is established by the survey, then the incidental take minimization measures for riparian habitat, established in SJMSCP Section 5.2.4.31 shall apply.

Potential habitat for the riparian woodrat is the same as that for the riparian brush rabbit.

C. Limited Take. Incidental Take of up to three acres of potential riparian woodrat habitat may occur pursuant to the SJMSCP for projects which meet all of the following criteria:

A. SJMSCP Covered Activities excluding residential, commercial or industrial development and aggregate mining.
B. Impact less than .25 acres of habitat on a per-project basis; and
C. Result in no harm, injury or harassment of individual riparian woodrats

5.2.4.25 San Joaquin Kit Fox

Preconstruction surveys shall be conducted two calendar weeks to thirty calendar days prior to commencement of ground disturbance for projects located within the Southwest Zone or Southwest/Central Transition Zone. Surveys shall be conducted by qualified biologists. When surveys identify potential dens (potential dens are defined as burrows at least four inches in diameter which open up within two feet), potential den entrances shall be dusted for three calendar days to register track of any San Joaquin kit fox present. If no San Joaquin kit fox activity is identified, potential dens may be destroyed. If San Joaquin kit fox activity is identified, dens shall be monitored to determine if occupation is by an adult fox only or is a natal den (natal dens usually have multiple openings). If the den is occupied by an adult only, the den may be destroyed when the adult fox has moved or is temporarily absent. If the den is a natal den, a buffer zone of 250 feet shall be maintained around the den until the biologist determines that the den has been vacated. Where San Joaquin kit fox are identified, the provisions of the U.S. Fish and Wildlife Service’s published Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance shall apply (except that preconstruction survey protocols shall remain as established in this paragraph). These standards include provisions for educating construction workers regarding the kit fox, keeping heavy equipment operating at safe speeds, checking construction pipes for kit fox occupation during construction and similar low or no-cost activities.

It is possible that the Permitting Agencies could discover the San Joaquin kit fox within the eastern foothills of San Joaquin County, (this potential range in the eastern foothills would most likely coincide approximately with the boundaries of the Vernal Pool Zone, excluding that area of the Vernal Pool Zone located in the northern portion of San Joaquin County). San Joaquin kit fox also may move within the Primary Zone of the Delta west of Old River. The TAC shall work with the USFWS to prepare an abbreviated survey protocol for these areas in the Vernal Pool Zone and Primary Zone of the Delta within one year of issuance of SJMSCP Permits pursuant to SJMSCP Sections 5.2.2.1 through 5.2.2.4.

Protocols for conducting pre-construction surveys for the San Joaquin kit fox shall be updated in accordance
with the SJMSCP Adaptive Management Plan to reflect changes to the Standardized Recommendations for Protection of the San Joaquin kit fox Prior to or During Ground Disturbance.

5.2.4.26 American Badger, Ringtail Cat

If occupied dens are located on a project site for either of these species, then dens shall be monitored to determine if occupation is by an adult badger or ringtail only or is a natal den. If the den is occupied by an adult only the den may be destroyed when the adult has moved or is temporarily absent. If the den is a natal den, a buffer zone of 200 feet shall be maintained around the den until the JPA biologist determines that den has been vacated.

5.2.4.27 Berkeley Kangaroo Rat, San Joaquin pocket mouse

These species are located primarily in the Southwest Zone outside of anticipated development areas. However, if these species are discovered on a project site, Incidental Take Minimization Measures shall be formulated by prior to ground disturbance the TAC and approved by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC in accordance with the SJMSCP’s Adaptive Management Plan (Section 5.9.4).

5.2.4.28 Bats (All)

A. Prior to the nursery season indicated in the following table for these species, nursery sites shall be sealed.

<table>
<thead>
<tr>
<th>Bat Species</th>
<th>Preferred Occupation Site</th>
<th>Nursery Season</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater western mastiff bat</td>
<td>Cliff or rock crevice (usual), tree or snag (occasionally)</td>
<td>April - September</td>
</tr>
<tr>
<td>Small-footed myotis</td>
<td>Cave, adit, cliff, rock crevice, building</td>
<td>May - August</td>
</tr>
<tr>
<td>Long-eared myotis</td>
<td>Cave, adit, tree, snag</td>
<td>May - August</td>
</tr>
<tr>
<td>Fringed myotis</td>
<td>Cave, adit, cliff, rock crevice, building</td>
<td>May - August</td>
</tr>
<tr>
<td>Long-legged myotis</td>
<td>Cave, adit, cliff, rock crevice, tree, snag, building</td>
<td>May - August</td>
</tr>
<tr>
<td>Red bat</td>
<td>tree, snag, cave (occasionally)</td>
<td>May - August</td>
</tr>
</tbody>
</table>
Yuma myotis  Cave, adit, cliff, rock crevice, structure, cistern, bridge, tree, snag  May - August

Pale big-eared bat  Cave, adit, cliff, rock crevice, structure, cistern, bridge  May - August

Pacific western big-eared bat (aka Townsend’s western big-eared bat)  Cave, adit, cliff, rock crevice, structure, cistern, bridge  April - August

B. Seal hibernation sites, prior to the hibernation season (November through March) when hibernation sites are identified on the project site. Alternatively, grating may be installed as described in 5.5.9(E)(1).

C. When colonial roosting sites which are located in trees or structures must be removed, removal shall occur outside of the nursery and/or hibernation seasons and shall occur during dusk and/or evening hours after bats have left the roosting site unless otherwise approved pursuant to Section 5.2.3.2.

5.2.4.29 Plants

I. Complete avoidance of plant populations on site is required for the following plant species in accordance with the identified measures in Section 5.5.9(F):

Large-flowered fiddleneck, succulent owl's clover, legenere, Greene's tuctoria, diamond-petaled poppy, Sanford's arrowhead, Hospital Canyon larkspur, showy madia, Delta button celery, Slough thistle.

II If one of the following SJMSCP Covered Plant Species is identified by the JPA on a project site, the following mitigation measures are required:

A. For widely distributed plant species: Mason's lilaeopsis, California hibiscus, Suisun marsh aster, Delta tule pea, Delta mudwort:

Attempt acquisition. If the plant population is considered healthy by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC, then the parcel owner shall be approached to consider selling a conservation easement including a buffer area as prescribed in Section 5.4.4 and sufficient to maintain the hydrological needs of the plants. Alternatively, the landowner may be approached to consider land dedication in-lieu of paying SJMSCP development fees. If the Project Proponent is not agreeable to acquisition, then compensation shall be as prescribed in SJMSCP Section 5.3.1.

B. For plants of moderate distribution: Bogg's lake hedge hyssop:

1. Attempt acquisition. If the plant population is considered healthy by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC, then the parcel owner shall be approached to consider selling a conservation easement including a buffer area as
prescribed in Section 5.4.4 and sufficient to maintain the hydrological needs of the plants. Alternatively, the landowner may be approached to consider land dedication in-lieu of paying SJMSCP development fees. If the Project Proponent is not agreeable to acquisition, compensation shall be as prescribed in SJMSCP Section 5.3.1.

2. **Seed Collection.** If the landowner rejects acquisition, then the JPA, with the concurrence of the Permitting Agencies' representatives on the TAC, shall undertake seed collections from the populations prior to destruction if seed collection is determined to be feasible, beneficial and/or appropriate by the TAC.

C. **For narrowly distributed plant species:** Hoover's calycadenia, Red Bluff dwarf rush, bristly sedge, alkali milk vetch, heartsacle, brittlescale, Mt. Hamilton coreopsis, mad-dog skullcap, Wright's trichocoronis, caper-fruited tropidocarpum, and recurved larkspur:

1. **Attempt acquisition.** If the plant population is considered healthy by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC, then the parcel owner shall be approached to consider selling a conservation easement including a buffer area as prescribed in Section 5.4.4 and sufficient to maintain the hydrological and ecological (e.g., account for weed control, buffers, inclusion of pollinators) needs of the plants. Alternatively, the landowner may be approached to consider land dedication in-lieu of paying SJMSCP development fees.

2. **Consultation.** If the landowner rejects acquisition of the population, then the JPA shall, with the concurrence of the Permitting Agencies' representatives on the TAC, determine the appropriate mitigation measures (e.g., seed collection) for each plant population based upon the species type, relative health and abundance.

5.2.4.30 **SJMSCP Covered Fish**

Impacts to fish are addressed under the SJMSCP primarily through Incidental Take Minimization Measures; SJMSCP Permitted Activities are not expected to significantly alter habitats of SJMSCP Covered Fish Species

Incidental Take Minimization Measures for SJMSCP Covered Fish are the same as those included for protection of riparian habitats in SJMSCP Section 5.2.4.31, except that, pursuant to Section 5.7(5) for Aggregate Mining Activities, Project Proponents are required to consult with Permitting Agencies on a case-by-case basis during the SMARA permitting process to design minimization measures to reduce the effects of stranding of the SJMSCP Covered Fish Species during mining activities.

5.2.4.31 **Riparian Habitats and Other Non-Vernal Pool Wetlands**

For the purposes of implementing Incidental Take Minimization Measures, riparian habitats and "other non-vernal pool wetlands" shall be considered to be those habitats mapped on the **SJMSCP Vegetation Maps** as D (drainage ditch), R (Great Valley riparian forest), R2 (Great Valley Valley oak riparian forest), R3 (Great Valley cottonwood riparian forest), R4 (Arroyo willow thicket), S (Great Valley riparian scrub), S2 (Elderberry savannah), W (River or deep water channel - greater than 200 feet wide), W2 (Tributary stream - 100 to 200 feet wide), W3 (Creek - 20 to 100 feet wide), W4 (dead-end slough), W9 (Canal - if not cement lined), I (channel island), I2 (tule island and mud flat), W5 (freshwater lake or pond), W7 (freshwater
emergent wetland).

The compensation requirements of the SJMSCP shall be triggered when the project design disturbs portions of the project site located within 100 feet of the outer edge of the driplines of riparian vegetation. For the purposes of accounting pursuant to the Annual Report (Section 5.9.1), Open Space Conversion acreage subject to the SJMSCP shall be calculated from the point at which a development extends into the 100 foot buffer to the centerline of the subject drainage (other than a river). For rivers, lakes, or ponds, Incidental Take shall be calculated from the edge of the 100 foot buffer zone to the edge of the riparian vegetation as it extends into the river, lake, or pond.

For projects affecting riparian habitats:

A. Require appropriate erosion control measures (e.g., hay bales, filter fences, vegetative buffer strips or other accepted equivalents) to reduce siltation and contaminated runoff from project sites.

B. Retain emergent (rising out of water) and submergent (covered by water) vegetation.

C. Retain vegetation as practical within the constraints of the proposed development as determined by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC. Rapidly sprouting plants, such as willows, should be cut off at the ground line and root systems left intact, when removal is necessary.

D. Locate roadways and other facilities perpendicular, rather than adjacent, to waterways to reduce the total riparian area disturbed wherever practical within the constraints of the proposed development as determined by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC.

E. Locate bridge and road footings outside of high water zones and riparian habitats wherever practical within the constraints of the proposed development as determined by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC.

F. Provide construction buffers of at least 100 feet throughout the construction process. Construction buffers of 300 feet (on both sides of riparian corridors, for a total of 600 feet) are required when the red-legged frog or foothill yellow-legged frog occupy the project site. These 300' setbacks shall be measured horizontally from the top of the bank and shall extend the entire length of the stream (or other linear wetlands) within the boundaries of the project site. These setbacks may be reduced by the TAC with the concurrence of the Permitting Agencies' representative on the TAC if the reduction: 1) does not affect habitat (e.g., the stream becomes piped and travels underground) or 2) the reduction will not result in an adverse impact to the species or reduction in the biological values of the habitat. This buffer area should be marked with stakes, fencing or other materials which will be visible to construction workers, including heavy equipment operators.

These buffers may be reduced on a case-by-case basis by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC.
5.2.5 SPECIES RELOCATION

Relocation efforts often provide uncertain results, are frequently costly, and may result in project delays. Therefore, as described in Section 5.2.3.1(F), relocation will be used only in very rare circumstances and under the conditions and procedures described in the following sections.

5.2.5.1 Relocation Before Construction/Ground Disturbance Begins

If an SJMSCP Covered Species is identified by the JPA during a preconstruction survey before construction activities begin, the JPA shall, with the concurrence of the Permitting Agencies' representatives on the TAC, determine whether the individual plants or animals shall be relocated to Preserves or other areas to minimize Incidental Take. The responsibility for relocating SJMSCP Covered Species from a project site shall be that of qualified biologists approved by the Permitting Agencies' representatives on the TAC or biologists already holding appropriate permits and working on behalf of the JPA.

The CDFG, or qualified biologists approved by the CDFG or biologists already holding appropriate permits, may relocate a non-federally-listed SJMSCP Covered Species at any time prior to ground disturbing activities. For federally-listed SJMSCP Covered Species, the CDFG, USFWS, or qualified biologists approved by the Permitting Agencies' representatives on the TAC, may relocate a federally-listed SJMSCP Covered Species prior to ground disturbing activities pursuant to authority to perform relocation of federally-listed SJMSCP Covered Species granted pursuant to the federal SJMSCP Permits. Property owners shall be notified of relocation efforts.

Relocation efforts involving SJMSCP Covered Bird Species shall be consistent with the Migratory Bird Treaty Act.

5.2.5.2 Relocation After Construction/Ground Disturbance Begins or is Completed

If an SJMSCP Covered Species is discovered after construction activities begin, or after construction is completed, the Project Proponent, project manager, or other interested persons immediately shall notify the JPA who, in turn shall notify CDFG's and USFWS's representatives on the TAC. These Permitting Agency TAC representatives, in consultation with the JPA, shall determine if relocation is necessary or beneficial pursuant to Sections 5.2.5.4 and 5.2.5.5 and, if required, identify a qualified biologist to undertake the relocation. Authority to perform relocations of federally-listed SJMSCP Covered Species is granted pursuant to the federal SJMSCP Permits. Property owners shall be notified of relocation efforts.

Relocation efforts involving SJMSCP Covered Bird Species shall be consistent with the Migratory Bird Treaty Act.

5.2.5.3 Non-Delay of Projects for Relocation

Neither the CDFG, USFWS, nor qualified biologists approved by these agencies (including biologists approved from the JPA) shall delay the start of or any subsequent project activity for more than 48 hours (two working days), from the time the Permitting Agencies' representatives on the TAC receive notification from the JPA to relocate an SJMSCP Covered Species unless additional time is granted by the Project Proponent. The CDFG and USFWS representatives on the TAC may, at any time, waive the option to relocate SJMSCP Covered Species from a project site.
5.2.5.4 Decision to Relocate a Species or Not to Relocate a Species

The ultimate decision to relocate or not to relocate a species shall be made by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC. The decision shall be based upon the best scientific knowledge available including the following considerations:

A. The biological status of the species and the biological benefits or value to the species that would occur as a result of relocation, including whether or not relocated individuals would be likely to return to the site, or

B. The numbers of the species are extremely limited, or

C. The likelihood that a relocated species will survive in a new location, or

D. The availability of alternative, suitable, habitat for the species, or

E. The relative time and cost associated with the species relocation in comparison to the biological benefits realized, or

F. The existence of well-established techniques which predict success.

5.2.5.5 Examples of Possible Circumstances Under Which Relocation or Salvaging Efforts May be Undertaken

As described in Section 5.2.3.1(F), relocation will be considered only after properly implemented Incidental Take Minimization Measures have failed to remove SJMSCP Covered Species from a project site and Take is the only viable remaining option. The following is an example of when relocation efforts may be an appropriate option to Take:

**Plants.** If the parcel owner rejects offers to purchase a conservation easement or dedicate land in-lieu of fee payments, and the subject plant is not a full avoidance plant, then the following may be considered:

*Seed collection from a representative sampling of the plant specimens.* The JPA with the concurrence of the Permitting Agencies' representatives on the TAC shall either identify appropriate locations within SJMSCP Preserves to attempt to raise plants from seeds or appropriate agencies will be contacted and the seeds shall be given to those agencies for archival, educational, or experimental (i.e., attempting to grow the species) purposes. In all cases, prior to planting seeds from and SJMSCP Covered Plant Species which have been properly collected and stored under the auspices of the JPA, the JPA shall consult with the TAC and the Permitting Agencies on a case-by-case basis to review the current information available regarding the subject species and follow the appropriate protocols for planting the seeds in appropriate areas.
5.3 MEASURES TO MITIGATE IMPACTS

As noted above, mitigation for the loss of habitat of the SJMSCP Covered Species as a result of SJMSCP Permitted Activities takes a habitat-based approach which emphasizes the establishment, enhancement and management-in-perpetuity of Preserves composed of a single vegetation type or association of vegetation types (a habitat) upon which discrete groups of SJMSCP Covered Species rely. Preserves will normally be located outside of designated existing and planned urban boundaries predominantly on productive agricultural lands located throughout the County. The purchase of easements from landowners willing to sell urban development rights will be the primary method of acquiring Preserves. Once acquired, Preserve lands shall be enhanced by the JPA to increase the quality of habitats on Preserves and, subsequently, to encourage occupation of a Preserve site by SJMSCP Covered Species or increase the populations of existing SJMSCP Covered Species on Preserves. Enhancements on the majority of the SJMSCP Preserves shall be tailored to encourage the continued productive agricultural use of Preserve lands by landowners provided that such agricultural use is compatible with achieving continued successful reproduction, feeding, and sheltering, or are expected to be able to achieve these activities, of SJMSCP Covered Species as stated in Section 5.4.8.1(F).

To ensure that SJMSCP Permitted Activities will not result in jeopardy to SJMSCP Covered Species, the SJMSCP also establishes, as part of the mitigation component of its conservation strategy: (1) limits to the number of acres of Natural Lands which may be Converted from Open Space use (Section 5.5.1); (2) limits to the number of acres of occupied and/or potential habitat that may be converted for selected SJMSCP Covered Species including narrowly distributed plants (Section 5.5.2); (3) special conservation and mitigation requirements for the San Joaquin kit fox, Valley elderberry longhorn beetle, California red-legged frog, valley oak woodlands, and vernal pools (Sections 5.5.3 through 5.5.7); and (4) mitigation emphasizing changes in project design for linear projects which may create barriers to dispersal for SJMSCP Covered Species or other plants, fish, or wildlife (Section 5.5.8).

In addition, the SJMSCP provides an alternative mitigation approach which allows complete avoidance of SJMSCP Covered Species and habitats through the implementation of measures established in Section 5.5.9 in which compensation is not required where the provisions of Section 5.5.9 are implemented.

The following describes the methods and approaches adopted for the SJMSCP for acquiring and establishing Preserves, enhancing Preserves, and monitoring and managing Preserves in perpetuity; the limits established by the SJMSCP for specific species, Conversions of Agricultural Habitat Lands and Natural Lands; and alternative methods of mitigating impacts under the SJMSCP.

5.3.1 SJMSCP COMPENSATION REQUIREMENTS

Section 4.1 of the SJMSCP provides the compensation requirements for Open Space Conversions summarized as follows:
### TABLE 5.3-1: SJMSCP COMPENSATION RATIOS

<table>
<thead>
<tr>
<th>HABITAT TYPE CONVERTED FROM OPEN SPACE USE</th>
<th>REQUIRED COMPENSATION RATIO</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Habitat Lands</td>
<td>1:1</td>
<td>One acre of Preserve acquired, enhanced and managed in perpetuity for each acre of habitat Converted from Open Space use.</td>
</tr>
<tr>
<td>Natural Lands - Non-Wetlands (e.g., oak woodlands)</td>
<td>3:1</td>
<td>Three acres of Preserve acquired, enhanced and managed in perpetuity for each acre of habitat Converted from Open Space use.</td>
</tr>
<tr>
<td>Natural Lands - Vernal Pools within <em>Vernal Pool Zone</em></td>
<td>2:1 Preservation plus 1:1 Creation (3:1 total)</td>
<td>Create one acre of habitat and preserve two acres of existing habitat for each acre Converted from Open Space use—resulting in three total acres of Preserve. Preserves include both wetted surface area and upland grasslands surrounding vernal pools and protecting their watersheds. Creation component shall emphasize restoration of pre-existing vernal pools, wherever feasible.</td>
</tr>
<tr>
<td>Natural Lands - Wetlands Other than Vernal Pools</td>
<td>At least 1:1 Creation Plus 2:1 Preservation (3:1 total)</td>
<td>SJMSCP may: (1) create one acre habitat, preserve two existing acres of habitat; (2) create two acres habitat, preserve one acre existing habitat; or (3) create three acres of habitat, preserve zero acres of existing habitat. All options result in three acres of Preserve.</td>
</tr>
</tbody>
</table>

5.3.2 METHODS BY WHICH INDIVIDUALS PROVIDE MITIGATION PURSUANT TO THE SJMSCP

Individuals seeking coverage under the SJMSCP may undertake one or a combination of two or more of the following three options to provide compensation pursuant to the SJMSCP:

A. Pay the appropriate fee as indicated in Section 7.4.1; or
B. Dedicate, as conservation easements or fee title, or in-lieu dedications (as specified in Sections 5.3.2.2 and 5.3.2.3, herein); or
C. Purchase approved mitigation bank credits as specified in Section 5.3.2.4.
D. Propose an alternative mitigation plan, consistent with the goals of the SJMSCP and equivalent in biological value to options A, B or C, above, subject to approval by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC.

5.3.2.1 Fees

As described in Section 7.4.1, individuals opting for coverage under the SJMSCP may pay a fee. The fee structure under the SJMSCP is:
A. $750 per acre for Conversion of Multi-Purpose Open Space Lands,

B. $1,500 per acre for Conversion of Agricultural Habitat Lands and Natural Lands (except for vernal pools); and,

C. $30,000 per acre for the wetted surface area of vernal pools and $5,000 per acre for the upland grasslands surrounding vernal pools. The SJMSCP assumes a 12% wetted surface area for vernal pool grasslands. This translates into an overall average cost per acre for vernal pool grasslands of $8,000 per acre.

5.3.2.2 In-Lieu Land Dedications

Private individuals receiving Incidental Take coverage pursuant to the SJMSCP may, in-lieu of fee payments, offer suitable land for dedication. Dedications shall be approved by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC. In-lieu lands shall meet minimum parcel sizes designated in the SJMSCP Preserve design descriptions or, if smaller, should be adjacent to an existing Preserve which, in combination with in-lieu lands, meets Preserve size minimums. In-lieu lands shall include an endowment payment (equal to the management endowment and administration costs of land acquisitions as prescribed in Sections 7.2.3 and 7.2.4) to ensure the management of the dedicated land in perpetuity. Dedicated land may be lands on-site or off-site from the project location owned by the Project Proponent. Conservation easements (or fee title) for owner-dedicated lands, referencing the JPA or another suitable agency or organization as easement or fee title holder, shall be recorded with the office of the County Recorder. Easements shall be consistent with the requirements of California Civil Code Section 815.3 which specifies those who are qualified to hold conservation easements.

5.3.2.3 Timing of Fee Payments, In-Lieu Dedications or Mitigation Banking

Under the normal permitting process implemented by local government jurisdictions in San Joaquin County, ground disturbance (including grading) may occur prior to the local government jurisdiction's issuance of a Building Permit. For example, once a tentative subdivision map to create new residential lots is approved by a local government agency (e.g., the City of Tracy's City Council or the San Joaquin County Board of Supervisors) with conditions, the Project Proponent must fulfill many of the project conditions (e.g., constructing new roads or installing water or sewer lines) before gaining approval of a final subdivision map. Once the final subdivision map is completed, new residential lots may be sold to the general public. Once a newly created subdivision lot is purchased, the new owner of the lot normally applies for a Building Permit to construct a new home on the newly created subdivision lot.

However, different development projects may undergo variations in this permitting process (e.g., Project Proponents may receive only Building Permits for small projects which address both building and grading activities, but Project Proponents are not required to secure Grading Permits due to the relatively small amounts of dirt being moved by the project). The majority of development projects in San Joaquin County require Building Permits during at least one phase of the development process. Many of San Joaquin County's largest projects also require Grading Permits. Therefore, given this variation in the types of permits which may be issued at varying times during the development process, the following provisions shall be implemented 1) to address the variations in the types of permits required, and timing of the acquisition of those permits, for the various development projects in San Joaquin County, 2) to provide a uniform approach amongst the local government agencies for timing the collection of fees or requiring purchases of mitigation banking credits, 3) to provide maximum flexibility for developers to finance their projects without creating adverse impacts to SJMSCP Covered Species, and 4) to ensure that compensation will occur pursuant to the
SJMSCP by using familiar permitting procedures already used by local government agencies:

For so long as the 350-acre jump-start (Section 8.6) remains in place, the timing of compensation pursuant to the SJMSCP shall be as follows:

A. Collection of Fees/Purchase of Mitigation Banking Credits for Projects Less Than or Equal to 350 Acres in Size (projects equivalent in size or smaller than the jump-start); collection of fees or purchase of banking credits will occur prior to or at the time of issuance of Building Permits so long as Site Disturbance without compensation (i.e., grading or vegetation removal has occurred with or without permits, but Building Permits have not yet been issued) does not exceed 500 acres total at any time during the term of the SJMSCP for SJMSCP Permitted Activities undertaken by project proponents opting for coverage pursuant to the SJMSCP. When Site Disturbances without compensation pursuant to this provision reaches 500 acres total, then the JPA and Permittees shall require the fee collections or purchase of banking credits for projects less than or equal to 350 acres in size to occur pursuant to the same schedule as required for projects exceeding 350 acres as described in paragraph B.

B. Collection of Fees/Purchase of Mitigation Banking Credits for Projects Exceeding 350 Acres: collection of fees for land acquisition or purchase of banking credits will occur either:

1. Prior to issuance of a Grading Permit (or prior to Ground Disturbance if no Grading Permit is required) ; or,

2. The Project Proponent may bond for payment of the applicable SJMSCP fees prior to the issuance of a Grading Permit (or prior to the commencement of Ground Disturbance if no Grading Permit is required). Bonds posted pursuant to this provision shall be released, to the extent possible, after full project buildout and after all appropriate fees have been paid with respect to each building permit associated with the project. Provisions for releasing portions of the bond as buildout progresses may be established on a case-by-case basis upon request of the Project Proponent. Only bonds issued by a bond surety admitted in California by the California Department of Insurance will be accepted unless otherwise approved by the JPA with the concurrence of the Permitting Agencies.

C. Collection of Fees/Purchase of Mitigation Banking Credits for Conversion of Vernal Pool Grasslands to Orchards and Vineyards shall occur prior to ground disturbance.

D. Land Dedications in Lieu of Fee Payments or in Lieu of Mitigation Banking Regardless of Project Size: Shall occur prior to ground disturbing activities (i.e., prior to the issuance of a Grading or Building Permit, whichever occurs first) unless an extension is requested, in writing to the JPA, by the Project Proponent and granted to a date certain by the TAC, with the concurrence of the Permitting Agencies' TAC representative, based upon the following findings:

1) The time extension will not jeopardize the proper functioning of SJMSCP, and

2) The time extension will not adversely affect any SJMSCP Covered Species.
The TAC, with the concurrence of the Permitting Agencies' TAC representative, may impose conditions on the time extension as necessary to provide assurances to the JPA that the Project Proponent shall provide compensation pursuant to the SJMSCP consistent with the requirements of the SJMSCP.

If the 350-acre jump-start ceases to exist, then the provisions of paragraph B shall apply for all SJMSCP Permitted Activities, regardless of size and regardless of the compensation method selected (i.e., fees, land dedications in-lieu of fee payments, or purchase of mitigation banking credits).

5.3.2.4 Mitigation Banking

The SJMSCP anticipates using two categories of mitigation banks:

A. **SJMSCP Mitigation Banks.** The SJMSCP anticipates enhancing and/or restoring vernal pool lands in excess of those required for compensation under the SJMSCP. This excess may be sold as mitigation or compensation "credits" to individuals not covered by the SJMSCP and in need of vernal pool mitigation lands. The SJMSCP may consider establishing other types of mitigation banks during the life of the Plan, as deemed necessary.

B. **Private Mitigation Banks.** A private property owner may establish a mitigation bank on all or a portion of his or her property for one or more SJMSCP Covered Species. A Project Proponent needing that particular habitat type for mitigation for a project elsewhere may then pay the property owner or "bank operator" to permanently manage the enhanced property for SJMSCP Covered Species. Private mitigation banks shall be consistent with the SJMSCP Preserve selection criteria (Section 5.4.4) and shall be approved by appropriate state and federal agencies pursuant to applicable state and federal guidelines for mitigation banks and other applicable policies, laws and regulations. Credits purchased from private mitigation banks must be for habitats which already are existing as protected lands within the mitigation bank Preserves prior to the purchase of credits (i.e shall not be purchased from mitigation banks which intend to create protected lands in the future).

Land banks used to offset impacts to wetlands must comply with Federal Register Notice: November 28, 1995, Vol. 60, No. 228, Federal Guidance for the Establishment, Use and Operation of Mitigation Banks, and other applicable polices, laws, and regulations. All mitigation banks, whether SJMSCP banks or private mitigation banks, shall be reviewed and approved by the Permitting Agencies prior to use. Aerial photographs indicating the condition of habitat lands, prior to undertaking habitat enhancements for banking, shall be used when establishing baseline conditions for mitigation banks unless otherwise approved by the Permitting Agencies.

5.3.3 METHODS BY WHICH THE JPA PROVIDES MITIGATION PURSUANT TO THE SJMSCP

The JPA shall use monies collected for the SJMSCP, as described in Section 7.4, for acquisition of Preserve lands, enhancement of Preserve lands, monitoring and management of Preserve lands in perpetuity, and administration of the SJMSCP. The following describes the criteria, methods and process for selecting, designing, managing and monitoring Preserve lands.

The SJMSCP's JPA shall normally acquire Preserve lands in one of four ways:
A. Acquisition of conservation easements from willing sellers;
B. Outright purchase of land (fee title purchase) from willing sellers;
C. Acceptance of a land dedication in-lieu of fee payments as described in Section 5.3.2.2; or,
D. Acceptance of land dedicated as a gift or charitable donation.

The proportion of lands acquired as conservation easements versus those acquired in fee title is flexible pursuant to the SJMSCP. However, since a primary goal of the SJMSCP is to preserve productive agricultural use that is compatible with the SJMSCP’s biological goals as stated in SJMSCP Section 5.4.8.1(F), most of the SJMSCP Preserve lands will be acquired through the purchase of easements in which landowners retain ownership of the land and continue to farm the land. It is envisioned that the approximate ratio of conservation easements to fee title lands under the SJMSCP, at the end of 50 years, will be 90% conservation easements to 10% fee title ownership of Preserve lands.

5.3.3.1 Conservation Easements

Most SJMSCP Preserve lands shall be protected and managed through the purchase of conservation easements. Conservation easements shall be negotiated with and tailored to each individual property owner and to each parcel under consideration to meet both the needs of the landowner and the biological goals of the SJMSCP Covered Species as stated in SJMSCP Section 5.4.8.1(F). Conservation easements shall be purchased from willing sellers only. Easement language shall be reviewed and approved by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC prior to finalizing easement acquisition transactions. Once standardized easement language has been approved by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC, review and approval by the TAC, including the Permitting Agencies and the Permitting Agencies' representatives on the TAC, is no longer required except when deviations from pre-approved easement provisions are proposed. Permitting Agencies' representatives on the TAC shall have 60 calendar days to approve or deny deviations from pre-approved easement provisions commencing from the date of receipt of a written request for approval from the Joint Powers Authority.

Appendix H contains one pre-approved (i.e., template) easement and four sample easements. Landowners and the JPA may use the template easement without further review from the Permitting Agencies. Sample easements contained in Appendix H provide flexibility for landowners and the JPA and reflect concepts that may be considered in preparing individual easements pursuant to the SJMSCP which differ from the SJMSCP's pre-approved easement. When deviating from the template easement format, landowners and the JPA, and TAC will work together to formulate easement language suitable to the needs of the SJMSCP program and the landowner. Additional template easement formats may be added to the SJMSCP subject to the approval of the JPA, with the concurrence of the Permitting Agencies' representatives on the TAC, based upon alternative easements developed with landowners throughout the life of the Plan. Approval of new easement language require written approval from the Permitting Agencies' representatives on the TAC (approval of meeting minutes by a Permitting Agency TAC representative for a meeting attended by that representative shall be deemed to be written approval).

Easements shall be recorded with the San Joaquin County Recorder's Office and should, at a minimum, address:

  A. Preservation and enhancement of wildlife values within the easement area.
B. Maintenance of the agricultural or other beneficial Open Space use of the easement area and identification of uses compatible with the SJMSCP, which acknowledges the need to allow flexible and profitable agricultural enterprise.

C. The procedures and circumstances for terminating and replacing easements consistent with the provisions of Section 5.3.3.6.

D. Provide neighboring land protections for land/landowners in the vicinity of SJMSCP Preserves consistent with the neighboring land protection provisions summarized in Section 5.3.3.4.

E. Address the maintenance of water rights by landowners on rangelands or other agricultural lands acquired for Preserves while providing easement holders with the ability to use water on Preserves. The quality and quantity of water granted to easement holders should be sufficient to: (a) maintain the hydrology of existing wetlands and riparian areas targeted for preservation, and, (b) should be sufficient to maintain newly created and/or enhanced wetlands and riparian areas on the Preserves.

F. Establish which enhancement and/or management activities shall be undertaken and/or maintained by the landowner and which shall be provided and/or maintained by the Joint Powers Authority, or other grantee holding the easement.

G. Remedies for noncompliance with easement provisions.

H. Specify the entity that will hold the conservation easement. Landowners shall indicate their preferences for easement dedications. The SJMSCP anticipates that, in addition to the JPA, local, state and federal public and private entities and non-profits shall be available to accept easement dedications. Easements shall be consistent with the requirements of California Civil Code Section 815.3 which specifies those who are qualified to hold conservation easements.

I. Specify the agency responsible for enforcing the conditions of the conservation easement (e.g., the JPA and/or Permitting Agencies)

J. Address remedies for illegal trash dumping by third parties (i.e., which is not the fault of either the landowner or easement holder) and remedies against other violators of the terms of the easement.

K. Require the Preserve landowner to adhere to the terms of the Preserve Management Plan, reference the existence of the Preserve Management Plan and describe where to obtain copies of the Preserve Management Plan.

L. Identify encumbrances, liens, or other items of title that might interfere with the integrity of the easement.

M. Maintenance of permanent water within ditches (e.g., rice farming) where such preservation provides biological values necessary for the Preserve, as described in Section 5.4.8.5(B).

N. When applicable, as described in Section 5.4.8.5(C)(3), limitations on the construction of
trails and road crossings through Oak Woodland Preserves smaller than 250 acres in size.

O. Accessibility to the parcel by emergency personnel as established in Section 5.9.4.9.

5.3.3.2 Fee Title

The JPA shall acquire some Preserve lands in fee title (i.e., through outright purchase). Lands shall be acquired through the purchase of fee title from willing sellers only. Lands purchased in fee title shall normally be those which require a greater level of enhancement than those acquired through conservation easements (e.g., the acquisition of vernal pool grasslands for the creation of vernal pools which may significantly alter land and, therefore, require a change in regular agricultural production methods). Lands held in fee title as SJMSCP Preserves shall be protected as Preserve lands through the use of appropriate covenants. Lands acquired in fee title may be leased-back to farmers to maintain productive agricultural use, where agricultural use is compatible with the Preserve design goals as determined by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC. Alternatively, the JPA may purchase lands in fee title, place easements on those lands and re-sell these lands, with easements. Easements placed on lands using this method allows the JPA to regain a portion of monies spent on acquisition to make additional land acquisitions—a component of the SJMSCP funding plan used by major lands trusts and described in more detail in Section 7.4.2.5.

5.3.3.3 In-lieu Land Dedications and Acceptance of Gifts or Donations

The JPA may accept lands dedicated by individuals in lieu of fee payments as described above in Section 5.3.2.2. The JPA also may accept gifts or donations of land for Preserves. When the JPA receives lands as gifts or donations, the JPA will normally earmark monies set aside for land acquisition which would otherwise have been spent on the acquisition of the gifted lands for enhancement activities and for investment in long-term management of the gifted lands. Alternatively, if not otherwise prohibited by the terms of the gift, the JPA may sell gifted lands to generate monies for the acquisition of higher priority Preserve lands.

5.3.3.4 Neighboring Land Protections

The following provisions apply only within the context of the overall conservation strategy of the SJMSCP and should not be viewed independently of the overall SJMSCP.

When SJMSCP Preserves are established and managed for the SJMSCP Covered Species pursuant to the SJMSCP, either through purchase of conservation easements, fee title acquisition, or other means, landowners near or adjacent to Preserves may be concerned about the potential impacts to their own land use activities. For example, a landowner may be concerned that federally or state listed SJMSCP Covered Species (or that unlisted SJMSCP Covered Species which may become listed during the 50-year term of the Plan) inhabiting the SJMSCP Preserve lands may colonize or use their lands and that the landowner's routine and ongoing agricultural activities or mining activities meeting the requirements of Section (A)(2)(F) below could be restricted as a result. To address these concerns, the SJMSCP offers neighboring land protections for all SJMSCP Covered Species (both listed and unlisted), as discussed below.

Except as provided for in (A)(2) below, routine and ongoing agricultural activities on Agricultural Lands and lands identified for aggregate mining use by local general plans and meeting the requirements established in Section (A)(2)(F) below, within one-half mile of the boundary of any lands established by the JPA as Preserves under the SJMSCP will be covered for Incidental Take of SJMSCP Covered Species (listed and unlisted) that come to inhabit such lands after the Preserves are established. Moreover, Agricultural Lands
and lands identified for aggregate mining use by local general plans and meeting the requirements established in Section (A)(2)(F) within ten miles of the boundary of any lands established by the JPA as Preserves under the SJMSCP will be covered for Incidental Take of foraging Swainson's hawks. Details addressing the extension of neighboring land protections are described below.

A. Elements

1. Lands Covered by Neighboring Land Protections. At the election of the neighboring landowner, Agricultural Lands and lands identified for aggregate mining use by local general plans and meeting the requirements established in Section (A)(2)(F) within one-half mile of the boundary of any lands established as SJMSCP Preserves under the SJMSCP, either through purchase of a conservation easement, purchase of fee title, or other means, will be covered for Incidental Take of SJMSCP Covered Species under the SJMSCP’s associated Section 10(a)(1)(B) and Section 2081(b) permits, for any such SJMSCP Covered Species after establishment of the SJMSCP Preserves. Additionally, those with Agricultural Lands and lands identified for aggregate mining use by local general plans and meeting the requirements established in Section (A)(2)(F) within 10 miles of the boundary of any lands established as SJMSCP Preserves and that are managed for Swainson's hawks shall be covered for the Incidental Take of foraging Swainson's hawks. Exemptions to this coverage are listed below.

2. Exceptions. Exceptions to coverage for neighboring land protections discussed below may be modified (i.e., removed) by the JPA with the concurrence of the Permitting Agencies’ representatives on the TAC if the neighboring landowner voluntarily undertakes biological surveys approved by the JPA with the concurrence of the Permitting Agencies’ representatives on the TAC and such surveys indicate absence of SJMSCP Covered Species. The JPA will undertake, at its own expense, surveys of neighboring lands to establish the absence of large-flowered fiddleneck, diamond petaled California poppy, showy madia, Hospital Canyon larkspur in the Southwest Zone; Greene's tuctoria, legenere and succulent owl's clover in the Vernal Pool Zone; Delta button celery, Sanford’s arrowhead, slough thistle in the Central and Central/Southwest Transition Zones as necessary to extend neighboring land protections, if requested and approved by the landowner.

Except as otherwise provided for in the preceding paragraph, the following are excluded from neighboring land protections:

A. Individuals or populations of SJMSCP Covered Species present on neighboring lands prior to the establishment of SJMSCP Preserves and the natural habitat features (e.g., nest trees) which support known individuals or populations of SJMSCP Covered Species.

B. SJMSCP Covered Fish Species (See Table 2.2.2). Because fish species occupy specific streams and rivers and do not limit themselves to distinct boundaries within streams and rivers, revegetation of an existing streamside to create an SJMSCP Preserve benefitting SJMSCP Covered Fish will not encourage SJMSCP Covered Fish to newly occupy neighboring lands--instead, revegetation for the benefit of SJMSCP Covered Fish simply enhances their existing occupied habitat. In addition, the SJMSCP will establish only nine acres of Preserves which could support SJMSCP Covered Fish--all of which will be part of or immediately adjacent to existing streams and rivers already inhabited by those SJMSCP Covered Fish--again, with no potential to create new impacts to neighboring lands because SJMSCP Covered Fish Species already exist throughout the waterways which constitute the
neighboring lands.

C. Lands containing G, G2, BL, BCN, or O/G habitats as mapped on the SJMSCP Vegetation Maps and which are located southwest of I-580 within the Southwest Zone shall be considered to be occupied by the San Joaquin kit fox (see areas located southwest of I-580 and labeled "core conservation area" or "buffer area" in Appendix G). This assumption is based upon the biological analysis of species distributions as presented in the Biological Analysis: San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP) prepared for the San Joaquin Council of Governments by Toyon Environmental Consultants, Inc., August 15, 1996. That study considered all known mapped locations of the San Joaquin kit fox available as of the date of publication, the Recovery Plan for Upland Species of the San Joaquin Valley, California15 and consultations with representatives from the California Department of Fish and Game and the U.S. Fish and Wildlife Service.

D. Vernal pools since the presence of vernal pools outside of SJMSCP Preserves cannot be considered to be related to or caused by the presence of vernal pools on SJMSCP Preserves. SJMSCP Covered Vertebrate Species which inhabit non-vernal pool habitats on neighboring lands (e.g., California tiger salamander and western spadefoot toad) are covered by neighboring land protections; SJMSCP Covered Plant Species are covered unless specifically exempted by paragraph E below. SJMSCP Covered Vernal Pool Crustacean Species (e.g., vernal pool fairy shrimp, vernal pool tadpole shrimp, Conservancy fairy shrimp, longhorn fairy shrimp) are assumed to occupy vernal pool habitat on neighboring lands and are exempted from neighboring land protections unless surveys, conducted pursuant to current U.S. Fish and Wildlife Service protocols and paid for by the JPA, are conducted and establish that these species are absent from the vernal pools on neighboring lands.

E. Coverage for large-flowered fiddleneck, diamond-petaled California poppy, showy madias, Hospital Canyon larkspur in the Southwest Zone; Greene's tuctoria, legenere and succulent owl's clover in the Vernal Pool Zone; Delta button celery, Sanford’s arrowhead, slough thistle in the Central and Central/Southwest Transition Zones when these plants are present on an SJMSCP Preserve prior to the extension of neighboring land protections. The JPA will undertake, at its own expense, surveys of neighboring lands to establish the absence of these SJMSCP Covered Plant Species as necessary to extend neighboring land protections, if requested and approved by the landowner.

F. Lands identified for aggregate mining use by local general plans which have not received a final approval (i.e., issuance of a conditional use permit or similar entitlement by a local jurisdiction) to commence aggregate mining as of the SJMSCP's Effective Date are exempt from Section 5.3.3.4 and are subject to the requirements of the SJMSCP, including compensation requirements, as established in Section 5.7 of the SJMSCP. Lands identified for aggregate mining use by local general plans which are in active use as of the SJMSCP's Effective Date qualify to receive neighboring land protections to protect ongoing aggregate mining activities provided baseline biological studies have been completed as provided below in Section(3)(B).

G. Special provisions exist for the extension of neighboring land protections for the following uses: wholesale nurseries, agricultural processing, farm labor camps, small animal raising, animal feeding and sales, or trucking facilities. Lands upon which these uses are existing as of the date of a Preserve acquisition pursuant to the SJMSCP are covered by neighboring land protections. However, Conversion of a land use from an existing routine and ongoing agricultural activity on neighboring land after establishment of an SJMSCP Preserve to one of these uses, suspends neighboring land protections. Similarly, expansion of one of these existing uses onto lands not previously used for one of these purposes after establishment of an SJMSCP Preserve also suspends neighboring land protections on that portion of the land upon which expansion has occurred. Neighboring land protections shall be re-established for these uses after mitigation measures to offset identified impacts (including impacts to biological resources) are completed in conjunction with the acquisition of a discretionary entitlement as currently required by the San Joaquin County Code and pursuant to the notification procedures established below in paragraph 4 and subject to all other exceptions in Section 5.3.3.4(a)(2).

H. Special provisions exist for the extension of neighboring land protections to orchards and vineyards and other crops. Lands upon which orchards and/or vineyards are existing as of the date of a Preserve acquisition pursuant to the SJMSCP are covered by neighboring land protections. However, Conversion of a land use from an existing routine and ongoing agricultural activity on neighboring land after establishment of an SJMSCP Preserve to an orchard or a vineyard or other crop which results in the Conversion of vernal pool grassland or Other Waters of the United States, suspends neighboring land protections. Similarly, expansion of orchards and/or vineyards and other crops onto lands not previously used for orchards and/or vineyards or other crops after establishment of an SJMSCP Preserve which results in the Conversion of vernal pool grasslands or Other Waters of the United States also suspends neighboring land protections on that portion of the land upon which expansion has occurred. Neighboring land protections shall be re-established for orchards and vineyards and other crops which Convert vernal pool grasslands or Other Waters of the United States after mitigation measures to offset identified impacts (including impacts to biological resources) are completed in conjunction with the acquisition of a Section 404 permit and/or streambed alteration permit and pursuant to the notification procedures established below in paragraph 4 and subject to all other exceptions in Section 5.3.3.4(a)(2). Conversion of Agricultural Lands to orchards and/or vineyards or other crops on neighboring lands which do not result in the Conversion of vernal pool grasslands or Other Waters of the United States and either existing during the establishment or occurring after the establishment of SJMSCP Preserves, are covered by neighboring land protections.

I. Known occupied habitat for the giant garter snake, riparian brush rabbit and riparian woodrat as defined in Section 5.2.4.23, 5.2.4.24, and 5.2.4.8.

J. The extension of neighboring land protections does not confer special authorization allowing the Conversion of Natural Lands on neighboring lands. Similarly, the extension of neighboring land protections to neighboring lands does not restrict the Conversion of Natural Lands on neighboring lands which was permitted prior to the extension neighboring land protections and is consistent with local, state and federal regulations.

3. **Establishing Presence of SJMSCP Covered Species on Neighboring Lands Prior to Preserve Establishment.**
A. **Agricultural Lands.** Presence of SJMSCP Covered Species on Neighboring Lands shall be established by the JPA in conjunction with establishing a new SJMSCP Preserve. The JPA, in consultation with the TAC, shall identify those portions of neighboring lands which are excluded from neighboring land protections pursuant to the preceding provisions based on the SJMSCP GIS Database and windshield surveys or other suitable means not requiring access to neighboring lands unless the landowner expressly grants access for survey purposes.

B. **Aggregate Lands.** Pre-existing baseline surveys of the project site are required for aggregate land to establish the presence or absence of SJMSCP Covered Species located on the parcel prior to the existence of SJMSCP Preserves. Pre-existing baseline surveys of the project site prepared by landowners will be reviewed by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC to determine if existing baseline surveys of the site provide sufficient information for extending neighboring land protections to lands identified for aggregate mining use by local general plans and meeting the requirements established in Section (A)(2)(F). If pre-existing baseline surveys of the site are unavailable or were found to be deficient (e.g., due to age, protocols used, timing of study, coverage), then the presence of SJMSCP Covered Species on lands identified for aggregate mining use by local general plans and meeting the requirements established in Section (A)(2)(F) shall be established by the landowner seeking neighboring land protections through the preparation of a baseline biological survey of the site approved by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC. The surveys shall be supplemented by the SJMSCP GIS Database.

4. **Notification and Acceptance of Protections.** To ensure that adequate records of those property owners protected by these neighboring land protections are maintained, that landowners are in agreement with the terms of coverage, and that the owners of such protected properties are notified of the rights and obligations of these provisions, the following shall occur:

Prior to the approval by the JPA of new SJMSCP Preserve acquisitions, the JPA shall send a letter by certified mail, return receipt requested, to each neighboring landowner located within 1/2 mile of the proposed SJMSCP Preserve (or within 10 miles of a proposed SJMSCP Preserve to be managed for Swainson's hawks). The letter will explain the SJMSCP and the coverage under the Incidental Take Permits being offered to the landowner with respect to Agricultural Lands and lands identified for aggregate mining use by local general plans and meeting the requirements established in Section (A)(2)(F) within one-half mile of the boundary of an SJMSCP Preserve (or 10 miles of an SJMSCP Preserve managed for Swainson's hawks, for the Incidental Take of foraging Swainson's hawks). For lands identified for aggregate mining use by local general plans and meeting the requirements established in Section (A)(2)(F), instructions for preparing baseline biological surveys shall be included. For Agricultural Lands, the letter will identify any individuals or populations of SJMSCP Covered Species or areas within the neighboring lands which would not be covered under the Incidental Take permits pursuant to provisions in paragraph 2, above, and attach a detailed map showing all areas included and any areas excluded from coverage. Additionally, the letter will request that the landowner provide a purchaser or lessee of the property notice of the neighboring land protections so that a purchaser or lessee can obtain Incidental Take coverage as described herein. The letter will be accompanied by a "Certificate of Inclusion" to be signed by the landowner and returned to the JPA (in a self-addressed, stamped envelope provided by the JPA to the landowner) if the landowner elects coverage under the JPA's Incidental Take Permits. A sample letter and Certificate of Inclusion are included in Appendix W of this Plan. If the landowner does not return
the Certificate of Inclusion, the JPA will follow-up with the landowner until the JPA determines that
the landowner accepts or declines the neighboring land protections. Certificates of Inclusion for
lands identified for aggregate mining use by local general plans and meeting the requirements
established in Section (A)(2)(F) shall be accepted by the JPA after landowners prepare or submit
acceptible baseline biological surveys in accordance with Provision 3B, above.
Pursuant to exception 2(G) Conversion of land use from an existing agricultural practice to one or
more of the uses listed in Section 2(G), suspends neighboring land protections. The following land
use activities require a discretionary entitlement pursuant to the San Joaquin County Code: wholesale
nurseries, agricultural processing, farm labor camps, small animal raising, animal feeding and sales,
or trucking facilities. When such a Conversion occurs, the local jurisdiction shall notify the JPA
through an Advisory Agency letter during the environmental review process for the discretionary
entitlement. In response, the JPA shall follow the same process described in this Section for
notifying (including the preparation of an exhibit map) and certifying landowner participation in the
neighboring land protections after mitigation for the discretionary entitlement has been completed
for the wholesale nursery, agricultural processing use, farm labor camp, small animal raising use,
animal feeding and sales use, or trucking facility. For those landowners already participating in the
neighboring land protections program who undertake a Conversion of their existing land use to
wholesale nurseries, agricultural processing, farm labor camps, small animal raising, animal feeding
and sales, or trucking facilities, the JPA shall provide the same notification except that, in addition,
the notification will explain any revisions to the existing neighboring land protections, include a
revised the exhibit map for the neighboring land protections (if necessary) and include a revised
Certificate of Inclusion for the neighboring landowner's signature.

Pursuant to exception 2(H) Conversion of Vernal Pool Grasslands or Other Waters of the United
States to orchards and/or vineyards or other crops after the establishment of SJMSCP Preserves
suspends neighboring land protections. When such a Conversion occurs, and a Section 404 Permit
is required, the JPA shall keep in contact with the landowner and the agency issuing the Section 404
Permit to determine when the Section 404 Permit has been issued. In response to verification of
issuance of the Section 404 Permit, the JPA shall follow the same process described in this Section
for notifying (including the preparation of an exhibit map) and certifying landowner participation in
the neighboring land protections after mitigation for the Section 404 Permit is completed. For those
landowners already participating in the neighboring land protections program who undertake a
Conversion of their existing land use to an orchard and/or vineyard or other crop which results in the
Conversion of Vernal Pool Grasslands or Other Waters of the United States, the JPA shall provide
the same notification except that, in addition, the notification will explain any revisions to the
existing neighboring land protections, include a revised the exhibit map for the neighboring land
protections (if necessary) and include a revised Certificate of Inclusion for the neighboring
landowner's signature.

5. Record Keeping. The JPA shall maintain a record of all letters, return receipts and Certificates of
Inclusion sent to neighboring landowners and all signed Certificates of Inclusion and return receipts
returned by the landowners, and shall provide a map in each Annual Report (Section 5.9.1) depicting
which lands are covered by neighboring land protections and which lands declined protection. The
JPA shall retain all baseline biological surveys prepared by landowners seeking neighboring land
protections for lands identified for aggregate mining use by local general plans and meeting the
requirements established in Section (A)(2)(F).

6. Compliance with Local, State and Federal Regulations. Incidental Take authorized by these
neighboring land provisions and the SJMSCPs associated state and federal permits is limited to
Incidental Take that occurs on Agricultural Lands and lands identified for aggregate mining use by local general plans and meeting the requirements established in Section (A)(2)(F). Participating landowners retain their responsibility for compliance with other applicable federal, state, or local regulations.

7. Violations and Enforcement. If the JPA becomes aware of a violation or potential violation of the neighboring land protection provisions, the JPA shall determine whether there is a potential violation and, if appropriate, send a notice of potential non-compliance to the landowner and forward a copy of the notice to the U.S. Fish and Wildlife Service and the California Department of Fish and Game detailing the potential violation and including supporting documentation, if available. The notice shall be in the form of a letter informing the landowner of the potential violation and identifying the steps necessary to remedy the potential violation. The letter shall also state that, if the landowner does not remedy the potential violation, he or she will no longer be protected by the terms of the neighboring land provisions and may be subject to enforcement actions from the U.S. Fish and Wildlife Service pursuant to Section 9 of the Endangered Species Act (ESA) and from the California Department of Fish and Game pursuant to Section 2080 of the California Endangered Species Act (CESA). Nothing in this paragraph restricts or otherwise limits independent investigation by the USFWS of suspected or alleged unauthorized violations of the ESA.

8. Revisions. Neighboring land protection provisions may be revised through the SJMSCP's Minor Revision process (see Section 8.8.3), as necessary, as new options are made available (e.g., alternative options may become available through adoption and/or implementation of new legislation or alternative methods as may be proven effective in other plans).

9. Extending Neighboring Land Protections After Expiration of the SJMSCP Permits. The JPA is responsible for establishing a long-term program to extend neighboring land protections past the 50-year term of the SJMSCP Permits. It is the intent of the JPA that neighboring land protections shall exist for so long as SJMSCP Preserves exist (i.e., in perpetuity).

In establishing this program, the JPA shall consider: 1) extending the SJMSCP Permits as provided in Section 8.3; 2) existing programs including California's SB231 (Fish and Game Code Section 2086, et seq.) addressing the accidental take of species in the course of agricultural activities, 3) pursuing legislation at the state and federal levels to provide neighboring land protections past the expiration of the SJMSCP Permits; and/or 4) other options as may be identified by the JPA, TAC, or other stakeholders. The option(s) selected by the JPA shall provide a permanent solution for addressing the extension of neighboring land protections past the expiration of the SJMSCP Permits.

The JPA shall commence pursuing legislation and all other available options no later than 6 months after the SJMSCP's Effective Date. To ensure the successful completion of this program, the following is required:

I. No fee title acquisitions may be undertaken by the JPA until a mechanism for providing neighboring land protections past the expiration of SJMSCP Permits is in place so long as the JPA remains in compliance with all the elements of the SJMSCP, including funding and maintaining the Plan's overall conservation strategy except for the following circumstances: 1) the acceptance of gifted lands, 2) for reasons of biological necessity (defined as circumstances involving listed species of low distribution which require unique habitats) as determined by the JPA with the concurrence of the Permitting Agency representatives on the TAC (e.g., to acquire the last remaining riparian brush rabbit habitat); and 3) the acquisition

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of Preserve lands which do not border qualifying neighboring lands (e.g., are entirely surrounded by other public lands). Consistent with SJMSCP Section 7.5.2.4, should any funding shortfall occur as a result of this provision, the JPA shall recognize its responsibility for providing sufficient funding as necessary to meet its obligations pursuant to the SJMSCP and will use its authorities to correct funding shortfalls.

II. The Technical Advisory Subcommittee (See Section 5.4.7.2 for composition of this Subcommittee) shall evaluate, annually, whether the JPA has made sufficient progress in extending neighboring land protections past the expiration of the SJMSCP Permits as provided in this Section.

If the TAC Subcommittee determines that sufficient progress has been made by the JPA in extending neighboring land protections past the expiration of the SJMSCP Permits, then no further action is necessary until the next annual TAC Subcommittee meeting held pursuant to this section.

If the TAC Subcommittee determines that the JPA has failed to make sufficient progress in extending neighboring land protections past the expiration of the SJMSCP Permits the TAC Subcommittee shall forward its findings to the JPA.

If the JPA concurs with the findings of the TAC Subcommittee, then the JPA shall suspend acquisition of Preserves for a period determined by the TAC Subcommittee, but not to exceed 24 months, so long as the JPA remains in compliance with its requirements for Preserve acquisitions pursuant to Section 5.4.1.2. The JPA may resume Preserve acquisition activities any time during the suspension period after receiving a recommendation from the TAC Subcommittee and a finding by the JPA that the JPA has made/is making sufficient progress towards establishing neighboring land protections past the expiration of the SJMSCP Permits.

If, at the end of the Preserve acquisition suspension period established by the TAC Subcommittee, the TAC Subcommittee again finds that 1) insufficient progress has been made by the JPA towards extending neighboring land protections past the expiration of the SJMSCP Permits and 2) that there is no likelihood that the JPA will be able to make progress towards extending neighboring land protections past the expiration of the SJMSCP Permits; then the TAC subcommittee shall recommend to the JPA that the JPA complete acquisition of Preserves as necessary to fulfill its current obligations pursuant to the SJMSCP and thereafter suspend the SJMSCP program until and unless neighboring land protections can be secured past the expiration of the SJMSCP Permits.

In response to the recommendations of the above TAC Subcommittee, the JPA shall hold a properly-noticed public hearing to consider the recommendations of the TAC Subcommittee within 45 days of receiving the recommendations of the TAC Subcommittee. Notifications for the public hearing shall be distributed to those entities identified in Section 5.3.3.5(A)(2-4). If the JPA decides that termination of the SJMSCP Program is necessary, procedures for termination shall be carried out in compliance with Section 14.1 of the Implementation Agreement.

III. The TAC Subcommittee shall be responsible for reviewing the sufficiency and permanence of the solution(s) established in the preceding paragraphs. The recommendations of the TAC
Subcommittee shall be forwarded to the JPA for their consideration. Prior to making a determination that a solution has been established for providing neighboring land protections, the JPA shall hold a properly-noticed public hearing. Notifications for the public hearing shall, at a minimum, be distributed to those entities identified in Section 5.3.3.5(A)(2-4).

IV. If:

! The SJMSCP Permits terminate before a solution for providing neighboring land protections past the expiration of the SJMSCP Permits has been found and

! An adverse disruption of routine and ongoing agricultural activities occurs on neighboring land to the detriment of the neighboring landowner as a result of an SJMSCP Preserve and due to the lack of neighboring land protections,

Then the JPA shall be responsible for relocating the SJMSCP Covered Species creating the impact on the neighboring land subject to the approval of the Permitting Agencies. This provision does not apply to neighboring lands which are currently protected by, or have declined participation in, an existing and ongoing neighboring land protection program as established pursuant to the SJMSCP.

10. Monitoring. Monitoring of the impacts associated with Neighboring Land Protections by the JPA, including provisions for adjusting the distribution and composition of mitigation Preserves provided to offset impacts associated with Neighboring Land Protections (see Section B, below) are established in SJMSCP Section 5.9.3.7.

B. Mitigation Provided by JPA for the Extension of Neighboring Land Protections.
The extension of neighboring land protections could result in Incidental Take or accidental loss of individuals of certain SJMSCP Covered Species on neighboring lands due to isolated deficiencies in the SJMSCP GIS Database, inability to enter neighboring lands prior to extending neighboring land protections, and due to the potentially wide range of some species. Based on these considerations, the potential for Incidental Take or accidental loss of individuals of SJMSCP Covered Species resulting from the extension of neighboring land protections would likely be limited to the following SJMSCP Covered Species in the following locations:

! Valley elderberry longhorn beetle in the Primary Zone of the Delta;

! Giant garter snake in the Primary Zone of the Delta; and

! Vernal pool vertebrates located primarily in the Vernal Pool Zone and in the Southwest Zone – in particular, the California tiger salamander;

! California horned lark in the Vernal Pool Index Zone;

! Northern harrier throughout the County;

! Pond turtle throughout the County; and
1. **Mitigation - 600 Acres of Neighboring Land Preserves.** Because some limited Take to or accidental loss of individuals of identifiable SJMSCP Covered Species may occur as a result of extending neighboring land protections, the JPA shall provide the following mitigation intended to offset potential impacts to the Valley elderberry longhorn beetle, giant garter snake, California horned lark, northern harrier, red-legged frogs, pond turtle, vernal pool vertebrates and other SJMSCP Covered Species:

A. In addition to, and as part of, the Vernal Pool Preserves established pursuant to the SJMSCP to offset impacts from SJMSCP Permitted Activities listed in Section 8.2.1, incorporate 250 more acres of Vernal Pool Preserve. This additional Preserve acreage shall be established within the Vernal Pool Zone and shall be composed of existing vernal pools including enhancements which benefit the tiger salamander pursuant to the Preserve criteria established in Sections 5.4.4.3(B), 5.4.6.4(2-9) and 5.4.8.4(A) and targeting occupied habitat for the northern harrier and California horned lark as indicated in the SJMSCP GIS Database;

B. In addition to, and as part of, Preserves established pursuant to the SJMSCP to offset impacts from SJMSCP Permitted Activities listed in Section 8.2.1, incorporate 25 more acres of Valley elderberry longhorn beetle (VELB) habitat in the Southwest Zone, Central Zone or Primary Zone of the Delta pursuant to the criteria established in current USFWS VELB guidelines for planting elderberry and associated understory and the guidelines established in SJMSCP Sections 5.4.4.1(A)(A1)(5-8 and 10), 5.4.4.2(C)(1,5 & 6), 5.4.4.4(A1)(8-10), 5.4.4.4(B)(7-9), 5.4.6.2(A)(4), 5.4.6.3(A)(2-4), 5.4.6.3(C)(2 & 3), 5.4.6.5(A)(2,7,10,11,13,14,18), 5.4.6.5(B)(3 & 6), 5.4.8.2(A), 5.4.8.3(C)(1-3,5,6), 5.4.8.5(A)(2-5, 10), and 5.4.8.5(B)(1,2,4,6);

C. In addition to, and as part of, Preserves established pursuant to Section 5.4.4.4(B) to offset impacts from SJMSCP Permitted Activities listed in Section 8.2.1, incorporate 150 more acres of giant garter snake Preserve. This additional Preserve acreage shall be established within the Primary Zone of the Delta or within the Central Zone near the Primary Zone of the Delta pursuant to the Preserve criteria established in Sections 5.4.4.4(B), 5.4.6.5(B) and 5.4.8.5(B);

D. In addition to, and as part of, Preserves established pursuant to Section 5.4.4.2(C) and 5.4.4.4(C) and to offset impacts from SJMSCP Permitted Activities listed in Section 8.2.1, incorporate 40 more acres of Preserve benefitting the pond turtle and red-legged frog. This additional Preserve acreage shall be established within the Central Zone, Southwest Zone or near the Primary Zone of the Delta pursuant to the Preserve criteria established in Sections 5.4.4.2(C), 5.4.4.4(C), 5.4.6.3(C), 5.4.6.5(C), 5.4.8.3(C), and 5.4.8.5(C); and

E. In addition to the 465 acres of Neighboring Land Preserves to be established above, allocate an additional 135 acres of Preserves. This contingency acreage shall be used for other species which may be identified over the life of the Plan as requiring mitigation to offset impacts associated with the extension of neighboring land protections. Preserve design for this contingency and targeted species shall be
established through the SJMSCP's Adaptive Management Program by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC.

F. Preserves established to offset impacts associated with neighboring land protections shall be acquired, enhanced, managed and administered by the JPA and shall be funded pursuant to the SJMSCP Funding Plan included in Table 7.4.1 and as described in Section 7.4. Costs of acquiring, enhancing, managing and administering SJMSCP Neighboring Land Preserves have been calculated and are included in total cost estimates for the SJMSCP (see Table 7.2.5-2).

2. Schedule for Establishing Neighboring Land Preserves. Compensation acreages described above to offset potential impacts occurring from the provision of Neighboring Land Protections shall be established in conjunction with, and at approximately the same rate as, the establishment of SJMSCP Preserves provided to offset impacts from SJMSCP Permitted Activities listed in Section 8.2.1.

Except as otherwise provided in this paragraph, and so long as the provision of 600 acres of Neighboring Land mitigation lands are deemed sufficient to offset impacts to SJMSCP Covered Species by the Permitting Agencies, one additional acre of SJMSCP Preserve shall be created for every 167 acres of SJMSCP Preserve established. If the SJMSCP Monitoring Plan establishes that impacts to SJMSCP Covered Species on neighboring lands are less than anticipated pursuant to the monitoring process established in Section 5.9.3.7, the JPA, with the concurrence of the Permitting Agencies' representatives on the TAC may refine this compensation ratio. Pursuant to this provision, the JPA may refine the compensation ratio to no less than one acre of compensation for every 200 acres. If the SJMSCP Monitoring Plan establishes that impacts to SJMSCP Covered Species on neighboring lands are more than anticipated pursuant to the monitoring process established in Section 5.9.3.7, then a Major Amendment will be required as described below in paragraph 3.

In addition, the distribution and composition of the Preserves established to offset Neighboring Land Protections may be revised by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC if the monitoring program established in Section 5.9.3.7 finds that impacts projected in Section C, below, are more or less than projected for a particular SJMSCP Covered Species (i.e., If monitoring finds that more Neighboring Lands are occupied or potentially occupied by VELB than are occupied or potentially occupied by Northern harriers, then more of the 600 acres of Neighboring Land Preserves may be established to benefit VELB and less acres would be acquired and enhanced to benefit Northern harriers).

Should the SJMSCP terminate prior to its 50-year term, Neighboring Land Preserves shall be established in proportion to the SJMSCP Preserves required at the date of Plan termination.

3. Major Plan Amendment Contingency. A Major Plan Amendment (Section 8.8.5) shall be required for the SJMSCP to extend Neighboring Land Protections to new parcels not already covered by Neighboring Land Protections should the SJMSCP Biological Monitoring Plan identify the need for more than 600 acres of Neighboring Land Preserves to offset impacts resulting from neighboring land protections pursuant to the process established in Section 5.9.3.7.
C. Background

1. Establishing the Half-Mile Distance for Neighboring Land Protections

Landowner protections for the Incidental Take of SJMSCP Covered Species for a distance of one-half mile (2,640') from SJMSCP Preserves is based on buffers established to protect SJMSCP Covered Species from impacts of nearby land use activities (i.e., on neighboring lands) pursuant to the SJMSCP Biological Analysis and other plant, fish and wildlife management plans. Logically, these buffers, determined to be sufficient to protect SJMSCP Covered Species from impacts on neighboring lands should, conversely, protect neighboring lands from impacts associated with SJMSCP Covered Species.

Designated protection buffers for those SJMSCP Covered Species addressed in functioning plant, fish and/or wildlife management plans are:

SJMSCP Biological Analysis/SJMSCP Section 5.4.4

<table>
<thead>
<tr>
<th>Species</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roosting Mastiff bat</td>
<td>.2 mile (1,000')</td>
</tr>
<tr>
<td>California Red-legged Frog</td>
<td>.1 mile (600')</td>
</tr>
<tr>
<td>Southwest Zone grassland plant species</td>
<td>.1 mile (500')</td>
</tr>
</tbody>
</table>

Tuolumne County Wildlife Handbook - 1987

All distances are maximum distances from active nests during nesting

<table>
<thead>
<tr>
<th>Species</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Golden Eagle</td>
<td>.5 mile</td>
</tr>
<tr>
<td>Prairie falcon</td>
<td>.5 mile</td>
</tr>
<tr>
<td>Osprey</td>
<td>.5 mile</td>
</tr>
<tr>
<td>Rookeries (Great blue heron, Great egret)</td>
<td>.25 mile</td>
</tr>
<tr>
<td>Cooper's hawk</td>
<td>.25 mile</td>
</tr>
<tr>
<td>Sharp-shinned hawk</td>
<td>.25 mile</td>
</tr>
<tr>
<td>Northern harrier</td>
<td>.25 mile</td>
</tr>
<tr>
<td>Black-shouldered kite</td>
<td>.25 mile</td>
</tr>
<tr>
<td>Burrowing owl</td>
<td>.1 mile (600')</td>
</tr>
<tr>
<td>Yellow-breasted chat</td>
<td>.08 mile (200' both sides of riparian areas)</td>
</tr>
<tr>
<td>Double-crested cormorant</td>
<td>.06 mile (300')</td>
</tr>
</tbody>
</table>

The preceding represents a range of designated protection buffers ranging between .06 mile and .5 mile.

The largest protection buffer established in plant, fish, or wildlife management plans, .5 mile, was designated as the protection radius for neighboring land protections for the following reasons:

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16 Tuolumne County Wildlife Project, 1987; Prepared by Holton Associates -- Stephen L. Granholm, Ph.D. for the Tuolumne County Community Development Department; Adopted November 2, 1987 Tuolumne County Board of Supervisors Resolution #303-87.
A. The protection of productive Agricultural Lands--both for the preservation of plants, fish and wildlife and San Joaquin County's economy--is an essential element of the SJMSCP. The adoption of the maximum .5 mile neighboring land protection radius will ensure the protection of agricultural uses within the County and may provide an incentive to landowners to maintain some existing natural lands within isolated portions of these Agricultural Lands in their natural state. In turn, this protection of agricultural uses in the County has, and will continue to, ensure the protection of both Open Spaces in San Joaquin County and the protection of SJMSCP Covered Species which rely on agricultural Open Spaces.

B. Of the established buffers, the largest buffers are assigned to birds, especially raptors. Of the 97 SJMSCP Covered Species 32%, more than any other species class, are birds. The most abundant SJMSCP Covered Species are, in fact, some of the raptor species which are estimated to occupy more than 500,000 acres of land in San Joaquin County--most of it Agricultural Land. With this distribution, it is likely that at least one SJMSCP Covered Bird Species will occur on the majority of SJMSCP Preserves. Therefore, the adoption of the .5 mile radius for neighboring land protections is an accurate reflection both of the types of SJMSCP Covered Species expected to occur on SJMSCP Preserves and, therefore, the distance necessary to protect neighboring lands from potential impacts of SJMSCP Covered Species on SJMSCP Preserves.

2. Establishing the Ten-Mile Distance for Incidental Take of Foraging Swainson's Hawks Neighboring Land Protections

Landowner protections for the Incidental Take of foraging Swainson's hawk, for a distance of 10 miles from the boundaries of SJMSCP Preserves, is based on the following:

Radio telemetry studies undertaken by the California Department of Fish and Game to "investigate the habitats, movements, and habitat-use relationships of the Swainson's hawk in the Central Valley" show that the Swainson's hawk forages up to 18 miles from its nest site (Estep, 1989). With this distribution, it is likely that at least one SJMSCP Covered Species will occur on the majority of SJMSCP Preserves. Therefore, the adoption of the .5 mile radius for neighboring land protections is an accurate reflection both of the types of SJMSCP Covered Species expected to occur on SJMSCP Preserves and, therefore, the distance necessary to protect neighboring lands from potential impacts of SJMSCP Covered Species on SJMSCP Preserves.

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17 SJMSCP Biological Analysis, Table 8-4.


pursuant to the California Environmental Quality Act. As stated on page 1 of these guidelines:

"This report also includes 'model' mitigation measures which have been judged consistent with polices, standards and legal mandates of the Legislature and Fish and Game Commission."

"Implementation of mitigation measures consistent with this report are intended to help achieve the conservation goals for the Swainson's hawk and should complement multi-species habitat conservation planning efforts currently underway."

The California Department of Fish and Game guidelines establish a 10-mile foraging radius management zone extending from Swainson's hawk nests based upon the following, as stated on page 2 of the guidelines:

"The ten mile radius standard is the flight distance between active (and successful) nest sites and suitable foraging habitats as documented in telemetry studies (Estep 1989, Babcock 1993). Based on the ten mile foraging radius, new development projects which adversely modify nesting and/or foraging habitat should mitigate the project's impacts to the species. The ten mile foraging radius recognizes a need to strike a balance between the biological needs of reproducing pairs (including eggs and nestlings) and the economic benefit of development(s) consistent with Fish and Game Code Section 2053."

In response to these guidelines, the California Department of Fish and Game requires mitigation for private development projects for impacts to Swainson's hawk foraging habitats located within 10 miles of active (defined in the study as those nests used during one or more of the last 5 years) Swainson's hawk nests. Based upon the California Department of Fish and Game's studies and practice, the SJMSCP planners conclude that the Swainson's hawk regularly and successfully use foraging habitat located within 10 miles of active Swainson's hawk nests. Therefore, it can be anticipated that Swainson's hawks which are attracted to and establish nests within SJMSCP Preserves, can be expected to forage a distance of up to 10 miles from SJMSCP Preserves which are managed for the Swainson's hawk. Therefore, neighboring land protections for Incidental Take of foraging Swainson's hawks extend 10 miles from the boundaries of SJMSCP Preserves that are managed for the Swainson's hawk.

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20 California Department of Fish and Game, Staff report regarding mitigation for impacts to Swainson's hawks (Buteo swainsoni) in the Central Valley of California, distributed to division chiefs and regional managers of the California Department of Fish and Game by Boyd Gibbons, November 8, 1994. 14 pps.
3. Evaluating Potential Impacts Associated with Neighboring Land Protections and Establishing Mitigation

**TABLE 5.3-2**

**ESTIMATE OF MAXIMUM POTENTIAL ACREAGE PROVIDED NEIGHBORING LAND PROTECTIONS WITH A POTENTIAL FOR TAKE**

<table>
<thead>
<tr>
<th>Acres</th>
<th>Description</th>
</tr>
</thead>
</table>
| 734,500      | Total acres of Agricultural Lands in San Joaquin County = 721,500 acres  
Total acres mineral resource lands = 13,000 acres (10,000 maximum to be used in 50 years)  
Total lands with potential to receive neighboring land protections = 734,500 acres  
Source: *SJMSCP GIS Database* (i.e., mapped from aerial photos) |
| -110,754     | At least two-thirds of the Primary Zone of the Delta located within San Joaquin County will not contain SJMSCP Preserves due to potential for levee breaks and flooding of Preserves (Section 5.4.4.) Therefore, neighboring land protections will not extend to lands in approximately two-thirds of the Delta due to the absence of Preserves. The Primary Zone of the Delta is 487,625 acres with 50,000 acres of waterways.  
38% of the Primary Zone (185,298 acres) is in San Joaquin County.  
185,298 acres, less 38% of the 50,000 acres of waterways (19,000 acres) equals 166,298 acres of lands in the Delta in San Joaquin County.  
At least two-third of the 166,298 acre of Delta in San Joaquin County, or 110,754 acres, excludes Preserves and is not subject to neighboring land protections.  
| -147,107     | Acreage of orchards and vineyards in San Joaquin County. This monoculture and associated clean farming practices will not support SJMSCP Covered Species. Therefore, take of SJMSCP Covered Species is not anticipated in orchards and vineyards. |
| -30,000      | SJMSCP Preserves will not be established adjacent to urban fringes (approx. 1/2 mile radius from the urban boundaries established pursuant to local general plans) due to the high prices of these lands and because species on such Preserves could be adversely impacted by neighboring urban land uses. Therefore, these lands will not be subject to neighboring land use protections. |
| -100,841     | Acreage of SJMSCP Preserves. Not subject to neighboring land protections. |
| 345,798      | Potential maximum acreage of land receiving neighboring land protections with a potential for take of SJMSCP Covered Species. |
A maximum of 345,798 acres of land in San Joaquin County could receive neighboring land protections (regardless of the ultimate configuration of SJMSCP Preserves) also support activities which have a potential for take of SJMSCP Covered Species. These lands subject to neighboring land protections are primarily Agricultural Lands used for row and field crops and grasslands used for dryland grazing. Due to monoculture (the cultivation of semi-permanent crops such as orchards and vineyards) and associated clean farming practices (the use of pesticides and rodenticides, and the removal of habitat features, to exclude insects and plants or wildlife), an additional 147,107 acres of Agricultural Lands used for orchards and vineyards are eligible for neighboring land protections, but are not expected to support SJMSCP Covered Species.

To evaluate the potential level of Incidental Take occurring on up to 345,798 acres of neighboring lands, SJMSCP Planners first evaluated the nature of impacts occurring on these neighboring lands. Planners concluded that the scope and character of take on neighboring lands resulting from agricultural activities (e.g., planting and harvesting of row and field crops and cattle grazing) is distinctly different from Incidental Take occurring on property as a result of SJMSCP Permitted Activities. Specifically, Take occurring as a result of SJMSCP Permitted Activities (i.e., primarily urban development) generally erases most or all habitat values with minimal or no Open Space remaining.

In contrast, agricultural activities on neighboring lands encourages habitation by, and preserves Open Spaces for, many of the SJMSCP Covered Species. The majority of SJMSCP Covered Species in San Joaquin County occupy and depend on Agricultural Lands and the agricultural activities occurring on those lands.

For example, the Swainson's hawk relies heavily on certain row and field crops (e.g., alfalfa, hay, tomatoes, beets) which encourage insects and rodents and provide the primary food source for this SJMSCP Covered Species during nesting. Later, discing these fields scatters insects and injures rodents to provide additional food for the Swainson's hawk which is frequently found following tractors as seasonal crops are plowed back into the soil. Northern harriers and white-tailed kites are also found foraging along with the Swainson's hawk. Later, wheat and similar crops are flooded to avoid burning and to assist in returning organic matter to soils. Migrating waterfowl along the Pacific Flyway and resident waterfowl, including the Aleutian Canada goose, white-faced ibis, greater sandhill crane, and snowy egret, flock to these flooded field by the hundreds and sometimes thousands to rest and refuel. Irrigation of row and field crops, accomplished through a system of permanent man-made ditches, provides habitat for the giant garter snake. Northern harrier, merlin, ferruginous hawks and prairie falcon are often found foraging on open grasslands used for grazing cattle. California horned lark, loggerhead shrike, burrowing owl, golden eagle, San Joaquin kit fox, San Joaquin whipsnake, California horned lizard and approximately seven SJMSCP Covered Plants also occupy these lands side-by-side with grazing cattle. The long-billed curlew has also been seen to frequent these lands as well as row and field crops. The preservation of dryland grazing lands in San Joaquin County also preserves Open Space occupied by vernal pools--especially in eastern San Joaquin County. The maintenance of these vernal pools as Open Space as a result of agricultural use, rather than the Conversion of these Open Spaces to urban uses, preserves habitat for the California tiger salamander, spadefoot toad, succulent owl's clover, Bogg's Lake hedge hyssop, bristly sedge, vernal pool fairy shrimp and multiple other SJMSCP Covered Species.

In short, unlike Permitted Activities, which adversely affect plants, fish, or wildlife, the use and management of Agricultural Lands within San Joaquin County complements the plant, fish and wildlife conservation strategy in the SJMSCP. 345,798 of the 492,905 acres of neighboring lands which could potentially qualify for neighboring land protections would also qualify as SJMSCP Preserve lands with minor changes to existing agricultural practices (e.g., primarily the addition of enhancements such as added fencing around
Because the use and management of Agricultural Lands is largely beneficial to Covered Species, the potential for take on Agricultural Lands neighboring SJMSCP Preserves is evaluated differently than take resulting from Permitted Activities. Take resulting from Permitted Activities and the Conversion of Open Space habitats to non-Open Space use are measured in the SJMSCP in terms of acres of Converted habitat. Conversely, take potentially resulting from agricultural activities occurring on neighboring lands, is measured by identifying and evaluating the specific activities that are likely to be undertaken on neighboring lands and by assessing and quantifying the impacts of those activities on SJMSCP Covered Species. To accomplish this, SJMSCP Planners first evaluated the nature of activities which are undertaken on neighboring lands which might result in take of SJMSCP Covered Species, then identified those SJMSCP Covered Species which might be subject to Incidental Take as a result of these activities. Then, the potential for neighboring land protections to minimize and mitigate Incidental Take of SJMSCP Covered Species on neighboring lands was compared with the potential negative impacts to determine the nature of the overall effect of neighboring land protections on SJMSCP Covered Species. Finally, where appropriate, mitigation to compensate for identified impacts was established.

Despite the overall benefits of most agricultural practices to SJMSCP Covered Species in San Joaquin County, SJMSCP Planners carefully evaluated existing agricultural practices associated with row and field crop agriculture and dryland grazing to determine how or if Incidental Take of SJMSCP Covered Species could occur and, if so, from what specific activities. Planners concluded that the following agricultural practices--all of which currently occur on neighboring lands in San Joaquin County--could result in Incidental Take of SJMSCP Covered Species:

- **Vegetation removal.** This activity may eliminate potential or occupied habitat for SJMSCP Covered Species;
- **Vegetation trampling by cattle.** This activity may degrade potential or occupied habitat for SJMSCP Covered Species;
- **Discing and plowing, operations of vehicles and machinery.** This activity may disturb potential or occupied habitat for SJMSCP Covered Species and may kill or injure individuals;
- **Conversion of vernal pool grasslands.** This activity is normally undertaken during land preparation for orchards and vineyards and may remove potential or occupied habitat for SJMSCP Covered Species; and
- **Conversion to intensive agricultural uses.** This activity normally Converts row and field crop-type uses to intensive uses requiring permanent removal of vegetation (e.g., dairies, nurseries, feed lots, processing plants) which may remove potential or occupied habitat for SJMSCP Covered Species.
- **Maintenance of stock ponds and livestock water pipelines.** This activity may temporarily eliminate potential or occupied habitat and kill or injure individuals.

Next, SJMSCP Planners evaluated the habits and distribution of each of the SJMSCP Covered Species to determine which SJMSCP Covered Species are vulnerable to Incidental Take on neighboring lands due to these identified activities. Planners determined that:

- **Invertebrates.** The SJMSCP Covered fairy and tadpole shrimp are confined to their vernal pools and wetland habitats. Distribution of these species in San Joaquin County is accomplished primarily by waterfowl moving between vernal pools. Therefore, Incidental Take of these species requires the destruction, or fill, of vernal pools on neighboring lands.
However, destruction or fill of vernal pools is excepted from neighboring land protections and, therefore, Incidental Take of these species resulting from the extension of neighboring land protections is not anticipated. Similarly, the curved-foot diving beetle is confined to its wetland habitat and Incidental Take of this species would require the destruction, or fill, of wetlands on neighboring lands. Again, destruction or fill of jurisdictional wetlands are excepted from neighboring land protections and, therefore, Incidental Take of this species resulting from the extension of neighboring land protections is not anticipated.

The Ciervo aegilian scarab beetle occupies sand dune habitat. No such habitat exists on lands which might qualify for neighboring land protections. Therefore Incidental Take of this species is not anticipated as a result of extending neighboring land protections.

There are no known occurrences of either the moestan or molestan blister beetles in San Joaquin County. Therefore, the potential take of these species on neighboring lands is not anticipated.

The distribution of the Valley elderberry longhorn beetle is well-documented along the San Joaquin County's rivers. While pre-existing (i.e., on neighboring lands prior to the establishment of SJMSCP Preserves) individuals and populations of this species along County rivers are excepted from neighboring land protections, data establishing distribution of this species in the Primary Zone of the Delta is sparse. Therefore, the potential exists for some take of this species in the Primary Zone of the Delta on neighboring lands should vegetation removal occur on neighboring lands as part of ongoing agricultural practices.

Fish. Fish are excepted from neighboring land protections, therefore Incidental Take of fish resulting from the extension of neighboring land protections is not anticipated.

Plants. SJMSCP Covered Plant Species occurring in the Vernal Pool Zone (e.g., succulent owl's clover, Boggs Lake hedge-hyssop, legenere, Hoover's calycadenia, bristly sedge and Red Bluff dwarf rush) are closely associated with the boundary between the wetted surface area and the upland grasslands associated with vernal pools. Like the fairy and tadpole shrimp, these species are largely confined to their vernal pools and wetland habitats. Therefore, Incidental Take of these species requires the destruction, or fill, of vernal pools on neighboring lands. As noted, destruction and/or fill of vernal pools is excepted from neighboring land protections and, therefore, Incidental Take of these species resulting from the extension of neighboring land protections is not anticipated. Because of their extreme rarity, however, the SJMSCP neighboring land protections except Greene's tuctoria (currently unknown in the County), legenere, and succulent owl's clover from protections if these species are found on SJMSCP Preserves lands near neighboring lands prior to the extension of neighboring land protections. The JPA will undertake, at its own expense, surveys of neighboring lands to establish the absence of these species as necessary to extend neighboring land protections, if requested and approved by the landowner.

SJMSCP Covered Plant Species occurring in the Central Zone are the slough thistle and the Delta button celery. Cattle-grazing does not occur in this zone which is primarily characterized by the planting and harvesting of row and field crops. These two species are normally found along riparian corridors located outside of boundaries used for the planting and harvesting of row and field crops. While take of these species on neighboring lands is not anticipated, because of their extreme rarity, the SJMSCP neighboring land protections
except these two species from protections if these species are found on SJMSCP Preserves lands near neighboring lands prior to the extension of neighboring land protections. The JPA will undertake, at its own expense, surveys of neighboring lands to establish the absence of these species as necessary to extend neighboring land protections, if requested and approved by the landowner.

SJMSCP Covered Plant species occurring in the Primary Zone of the Delta (e.g., Suisun marsh aster, California hibiscus, Delta tule pea, Mason's lilaeopsis, Delta mudwort and Sanford's arrowhead) are well-documented in the SJMSCP GIS Database with 599 occurrence records gathered through extensive state and federally-funded studies of the Delta in recent years. Pre-existing (i.e., on neighboring lands prior to the establishment of SJMSCP Preserves) individuals and populations of these species are excepted from neighboring land protections. Because of the extensive knowledge of their distribution, Incidental Take of Suisun marsh aster, California hibiscus, Delta tule pea, Mason's lilaeopsis, Delta mudwort and Sanford's arrowhead on neighboring lands is not anticipated. While take of Sanford's arrowhead on neighboring lands is not anticipated, because of its extreme rarity, the SJMSCP neighboring land protections except this species from protections if these species are found on SJMSCP Preserves lands near neighboring lands prior to the extension of neighboring land protections. The JPA will undertake, at its own expense, surveys of neighboring lands to establish the absence of this species as necessary to extend neighboring land protections, if requested and approved by the landowner.

SJMSCP Covered Plant Species occurring in the Southwest Zone (e.g., large-flowered fiddleneck, hospital canyon larkspur, showy madia, recurved larkspur, alkali milk-vetch, brittlescale, Mt. Hamilton coreopsis, diamond-petaled California poppy, mad-dog skullcap, Wright's trichochoronis, heartsacle, brittlescale and caper-ruited tropidocarpum) are primarily associated with grasslands where the primary agricultural activity is cattle-grazing. There are no known occurrences of alkali milk vetch, heartsacle, brittlescale, Mt. Hamilton coreopsis, recurved larkspur, showy madia, mad-dog skull cap and wright's trichochoronis and only one occurrence of hospital canyon larkspur (which would be included within Preserve boundaries) in the County. Therefore, no Incidental Take of these species on neighboring lands is anticipated. All known locations of diamond-petaled poppy occur on federally-owned lands (Lawrence Livermore Lab Site #300) outside of the jurisdiction of the SJMSCP. The remaining plant species have continued to persist in relative harmony with cattle grazing, therefore, take of these species is not anticipated on neighboring lands. Because of their extreme rarity, however, the SJMSCP neighboring land protections except large-flowered fiddleneck, , diamond-petaled poppy, showy madia, Hospital Canyon Larkspur from protections if these species are found on SJMSCP Preserves lands near neighboring lands prior to the establishment of SJMSCP Preserves. The JPA will undertake, at its own expense, surveys of neighboring lands to establish the absence of these species as necessary to extend neighboring land protections, if requested and approved by the landowner.

Mammals The distribution of the San Joaquin kit fox is well-documented in the SJMSCP GIS Database within the Southwest Zone. However, this species can travel quickly over many miles and could wander from SJMSCP Preserves through neighboring lands as it travels the corridor between its northernmost and southernmost population centers located outside of San Joaquin County. Because cattle-grazing is the primary agricultural activity on these neighboring lands and the kit fox currently co-exists successfully with cattle in the
Southwest Zone, Incidental Take of the San Joaquin kit fox due to cattle-grazing activities in this zone is not anticipated. However, given the limited numbers of San Joaquin kit fox, the SJMSCP errs on the side of caution and excepts grasslands in the Southwest Zone located along the San Joaquin kit fox corridor from neighboring land protections.

The red bat, small-footed myotis, long-eared myotis, fringed myotis, long-legged myotis, Yuma myotis, greater western mastiff bat, pale big-eared bat and Pacific western big-eared bat are also highly mobile and can easily fly away to safety when faced with plows, discs, cows or vegetation-disturbing activities undertaken on neighboring lands. Colonial roosting sites and nurseries for these species are located out of harm's way (i.e., are not located on the ground) where they might be susceptible to destruction from plows and discs or cattle during agricultural activities occurring on neighboring lands. Therefore, Incidental Take of the SJMSCP Covered Bat Species on neighboring lands is not anticipated.

Badgers are confined to the Southwest Zone where they currently co-exist with cattle-grazing activities with no known adverse effect. Therefore, Incidental Take of the badger on neighboring lands is not anticipated. Finally, the Berkeley kangaroo rat also occupies the Southwest Zone grasslands side-by-side with cattle. The single known occurrence of take of this species occurred as a result of a road kill. Therefore, Incidental Take of this species on neighboring cattle-grazing lands is not anticipated.

Ringtail cats primarily inhabit riparian areas and brushy or wooded areas. Row and field crops are generally grown outside of these areas. Although some limited cattle grazing might occur in grasslands associated with wooded areas, cattle are not known to pose a threat to this highly mobile species. The agricultural activity most likely to impact this species is the clearing of vegetation for an intensive agricultural use such as establishing a nursery. Such activities (i.e., Conversions of lands to nurseries) are excepted from neighboring land protections pursuant to the definition of routine and ongoing agricultural activities (see Chapter 10). Therefore, Incidental Take of this species is not anticipated.

The known occupied habitat for the riparian brush rabbit is Caswell State Park near Ripon and near Stewart Tract. The riparian woodrat is known from Caswell Park and a second location on the Stanislaus River. Should the JPA acquire Preserve lands for either of these species, it would likely include those lands occupied by the riparian woodrat or riparian brush rabbit. These two species require a relatively narrow list of habitat types that are not well-distributed in the county. It is likely that the two species already would either already occupy neighboring lands or would be unlikely to occupy the neighboring lands due to a lack of preferred habitat on adjacent lands. Therefore, Take of these species is not anticipated.

Birds The majority of SJMSCP Covered Bird Species are highly mobile and can easily escape plows and discs and relocate to Preserves or other nearby lands in the face of discing, plowing, cattle, or vegetation-disturbing activities undertaken on neighboring lands. This mobility protects most of the SJMSCP Covered Bird Species except for those SJMSCP Covered Bird Species which are ground nesters. These species include burrowing owls (which nest in ground cavities), California horned larks and northern harriers (both of which are always or sometimes ground nesters). Burrowing owls currently nest successfully in the presence of cattle as demonstrated in the eastern grasslands of Joaquin County. However, plowing necessary to plant row crops normally eliminates many potential burrowing owls nesting cavities within those portions of neighboring lands which would be subject to
plowing or discing, therefore Incidental Take of this species is not anticipated.

Northern harriers and California horned larks also may establish nests on the ground. Unlike burrowing owls, however, northern harriers and horned larks might establish nests within row and field crops or above-ground within the midst of grazing cattle. Hence, nests for this species could be destroyed by normal discing and plowing practices or by cattle grazing. Therefore, some loss of individuals of these two species is anticipated on neighboring lands as a result of agricultural practices on neighboring lands. This loss of individuals is very limited and currently occurs on agricultural lands as a result of existing agricultural practices. It is important to note that this loss of individuals occurs accidently and will continue to occur accidently on neighboring lands with or without the provision of neighboring land protections. However, with neighboring land protections, compensation to offset this accidental loss of individuals will be provided.

Remaining SJMSCP Covered Bird Species fall into three general categories: 1) Those which do not nest in San Joaquin County (e.g., Aleutian Canada goose, snowy egret); 2) Those located in Delta where neighboring lands are open waterways which are not subject to neighboring land protections (e.g., California black rail); or 3) SJMSCP Covered Bird Species have well-documented nesting locations within the SJMSCP GIS Database (e.g., Swainson's hawk, egret and heron rookeries). Since pre-existing (i.e., on neighboring lands prior to the establishment of SJMSCP Preserves) individuals and populations of this species are excepted from neighboring land protections, Incidental Take of those species with well-documented nest locations is not anticipated.

Reptiles. As with the Berkeley Kangaroo rat, the San Joaquin whipsnake and California horned lizard also occupy the Southwest Zone grasslands side-by-side with cattle without identified impacts. Therefore, Incidental Take of these species on neighboring cattle-grazing lands is not anticipated.

Giant garter snakes primarily inhabit ditches within flooded fields. The snake may leave ditches and enter row and field crops and may be killed or injured during discing and plowing operations. However, the known occupation site for these species are quite small and the extension of neighboring land protections within the known occupation site is prohibited. Therefore, Incidental Take of this species is possible on neighboring lands, however, that Take is anticipated to be confined to potential habitat for the species.

Pond turtles may leave riparian habitats and venture into upland grasslands, especially for egg-laying. Therefore, some take of this species due to trampling by cattle is possible on neighboring lands.

Amphibians. The California tiger salamander may range into uplands up to 3,000 feet from wetland habitats and may exist throughout the County. Given the limited mobility of this species to escape moving vehicles or equipment, or cattle, and the vulnerability of eggs and larvae to dewatering of aquatic habitat, there is a potential for take of this species on neighboring lands.

The spadefoot toad also may be susceptible to trampling cattle as it ventures outside of vernal pool habitats into upland grasslands. However, because there are only two known occupation sites for this species, both of which are anticipated to become part of large
SJMSCP Preserves (300 acres) with significant buffers, it is unlikely that neighboring lands will ever host this species. Therefore, Incidental Take of this species not anticipated on neighboring lands.

Like the spadefoot, take of yellow-legged frogs due to trampling by cattle is possible, but the yellow-legged frog exists in only three known locations in the County. Again, it is anticipated that these locations will become part of 320-acre Preserves established for the San Joaquin kit fox within the Southwest Zone. Therefore, the likelihood of these species venturing onto neighboring lands is so minimal as to be nearly non-existent and take of this species on neighboring lands is not anticipated.

Finally, red-legged frogs are also of limited distribution in the County and potentially subject to trampling by cattle on neighboring lands. However, unlike the yellow-legged frog and spadefoot, these species may occur on linear Preserves that, while provided with minimum 600-foot buffers, lack the extensive hundred-acre buffers that protect yellow-legs and spadefoots. Therefore, some Incidental Take of this species, known to travel up to 1,000 feet from wetlands, is possible on neighboring lands.

In summary, planners found the potential for limited Incidental Take or accidental loss of individuals of the following SJMSCP Covered Species on neighboring lands primarily due to trampling by cattle with some accidental loss of individuals resulting from operation of vehicles and machinery: California tiger salamander, red-legged frog, valley elderberry longhorn beetle, giant garter snake (potential habitat), pond turtle, northern harrier, and the California horned lark. An evaluation of the potential levels of Incidental Take or accidental loss of individuals which might occur to these species finds (all estimates are for the life of the SJMSCP unless otherwise specified):

Valley elderberry longhorn beetle (VELB). Take of this species on neighboring lands is anticipated only in the Primary Zone of the Delta. However, SJMSCP Preserves will not be established on at least two-thirds of lands in the Primary Zone of the Delta. In addition, activities which could potentially impact this species (e.g., removal of riparian vegetation for planting row and field crops) are unnecessary for many agricultural practices undertaken on lands in the Delta since such activities may undermine levees and create the threat of flooding. Some limited removal of elderberry shrubs could occur along ditches, canals, and levees for flood control, however, these are normally removed long before the elderberry shrubs achieve the 1" at ground level preferred by the Valley elderberry longhorn beetle—therefore, only limited Take is anticipated due to such activities. Given the limitations of Preserve activities in the Delta and that few elderberries would require removal to allow for planting and harvesting of row and field crops, it is estimated that perhaps 75 elderberry shrubs could be removed on neighboring lands and, given the rarity of the valley elderberry longhorn beetle and its preference for mature elderberries, it is estimated that one-third of these shrubs (25 shrubs) removed in the Primary Zone of the Delta may host the VELB.

Tiger salamander. It is believed that the California tiger salamander may be one of the most widely distributed of the SJMSCP Covered Species in San Joaquin County. Its reliance on rodent burrows, however, make it less likely to occur on at least some farms which adopt clean farming practices which eliminates many rodents and, therefore, available burrows for this species within row and field crops, thereby reducing its potential for take within row and field crops. However, while Conversion of the wetland habitats of this species are excepted
from neighboring land protections, within dryland grazing areas, this species still may be trampled by cattle grazing in and around vernal pools, be struck on roads by vehicles, killed or injured by operation of equipment during plowing or discing, or be killed by dewatering of stock ponds when eggs or larvae are present. This take may be reduced somewhat because the tiger salamander is likely to move outside of its wetland areas and into unprotected uplands mostly during the cooler night hours when both farmers and cattle may be less active. Given these considerations, it is estimated that 30-50 individuals of this species may be subject to Incidental Take on neighboring lands.

Northern harrier. Based on reports of nest destruction received from time to time by the local Audubon Society, it is anticipated that between one and two nests are destroyed each year within the County accidentally due to existing agricultural practices. This same level of loss of nests is, therefore, anticipated to occur on neighboring lands.

California horned lark. The horned lark favors nesting areas which have minimal or no grass. This is not the preferred location for cattle which favor "greener" pastures. This potentially contributes to protecting horned lark nests from trampling by cattle. Similarly, the horned lark is unlikely to favor planted crop lands with extensive vegetation. Instead, the species is more likely to find a barren area to scrape out a nesting site somewhat removed from the field's planting area. Given these limiting factors and the relatively limited distribution of this species in comparison to the northern harrier, it is estimated that no more than one dozen nests could be partially or wholly disturbed accidentally by cattle as a result of activities on neighboring lands.

Red-legged frog. Analysis of the impacts to this species are based on on-going studies of the red-legged frog. These studies indicate that the species will venture into upland grasslands adjacent to wetland habitats up to 1,000 feet. The SJMSCP requires buffers of 600 feet consistent with the distances that the majority of red-legged frogs travel from wetlands areas (longer distances increase jeopardy of desiccation and other risks). Therefore, red-legged frogs face the potential to be trampled by grazing cattle for a distance of 400 feet around the perimeter of SJMSCP Preserves (the difference between the minimum buffer requirement for SJMSCP Preserves and the maximum known distance that these species can travel from occupation sites). Given the limited distribution of this species (eight occupied sites in the County) and that cattle are not widely prevalent in San Joaquin County, it is estimated that up to one dozen individuals of the species may both 1) travel more than 600 feet from their wetland habitats and outside of SJMSCP Preserves and 2) face trampling within the relatively narrow 400-foot boundary between Preserves and neighboring lands occupied by scattered cattle dispersed over hundreds of acres on neighboring lands.

Pond turtle. The same evaluation pertaining to red-legged frogs also pertains to the pond turtle. However, this species is much more widely distributed than the red legged frog with nearly 37 occupation sites and 171 individual occurrences found in the SJMSCP GIS Database. In addition, trampling of these species by cattle, while it might be considered "harassment" of the individual, does not presume that this species will be killed or even injured. Due to its protective shell, many pond turtles which may be subject to trampling from cattle are likely to survive by drawing themselves into their shell. The trampling of the turtle's eggs by cattle, however, is more likely to result in take of this species. While an unlikely occurrence given the relatively few cattle in San Joaquin County, it is estimated that up to six turtle nests may be damaged by trampling.
Given the limited distribution of this species in the County (only eight occupied sites) and prohibition of Take on known occupied habitat for the species when the species is present on neighboring lands prior to establishment of an SJMSCP Preserve, the requirements of the SJMSCP Preserve strategy to acquire occupied giant garter snake sites and the snake's relatively good mobility, injury to this species would have to occur as a result of a coincidence between the snake leaving an occupied ditch at the same time as the farmer is plowing a nearby field, or due to ground disturbance while snakes are hibernating during their inactive period. Given the rarity of this species, it is anticipated that Take of this species on neighboring lands will be limited to Take of potential habitat for the species with some limited kill of individuals.

Finally, SJMSCP Planners evaluated the potential benefits to SJMSCP Covered Species of extending neighboring land protections. In contrast to the preceding impacts, neighboring land protections are anticipated to result in improved habitat for all SJMSCP Covered Species due to the following:

**Neighboring land protections will encourage neighboring land enhancements for SJMSCP Covered Species.** Many local landowners do not plant trees within riparian corridors or plant hedgerows, and are reluctant to forego the use of rodenticides and pesticides and to adopt similar plant, fish and wildlife-friendly practices that would provide habitat and food for SJMSCP Covered Species because they fear that attracting these species to their land will invite prosecution under the state and federal endangered species acts. These fears of prosecution and the economic hardship that would result if agricultural practices were prohibited reduce the use of plant, fish and wildlife-friendly practices by landowners who would otherwise like to attract and sustain plants, fish and wildlife on their land. With assurances against prosecution, it is anticipated that an increased number of local landowners will pursue these activities and enhance properties for SJMSCP Covered Species. SJMSCP Planners already have been approached by a local farmer to provide neighboring land protections for the primary purpose of allowing the farmer to enhance riparian vegetation on neighboring lands.

**Neighboring land protections remove perceived disincentives for maintaining existing habitats and foregoing destructive agricultural practices on neighboring lands.** In addition to encouraging the creation or enhancement of plant, fish and wildlife habitat by landowners who wish to manage their land actively for plants, fish and wildlife, the landowner protection provisions will also assure other landowners that there is no need to remove or exclude plant, fish and wildlife habitat. Many landowners in San Joaquin County perceive the need to remove existing habitat (e.g., oak trees within fields, riparian vegetation, vernal pools) for SJMSCP Covered Species out of fear that the habitat will attract these species and create legal obstacles to the continuing operations of their farms pursuant to the state and federal endangered species acts. While these landowners may not wish to manage their lands actively to attract and sustain plants, fish and wildlife, they are likely to allow habitat within their land to remain and thrive if the perceived disincentive for doing so is removed.

In short, it is anticipated that neighboring land protections will remove the fear of prosecution for landowners, will encourage both active and passive management of neighboring lands for SJMSCP Covered Species and will result in a potential increase in habitat values on neighboring lands throughout the County.

Although the effects of agricultural practices on neighboring lands are balanced strongly in favor of
protecting and encouraging the survival of SJMSCP Covered Species as a group, certain practices occurring on neighboring lands could result in Incidental Take or accidental loss of limited numbers of California tiger salamander, red-legged frog, valley elderberry longhorn beetle, giant garter snake (potential habitat), pond turtle, northern harrier, and the California horned lark. To offset the potential impacts to these species on neighboring lands, the SJMSCP requires the establishment of 600 acres of Preserves. This 600 acre total is adopted based on the minimum Preserve sizes established by the SJMSCPs Biological Analysis of species needs as necessary to support a population of those SJMSCP Covered Species which may be impacted by activities occurring on neighboring lands as follows:

! **Valley elderberry longhorn beetle - 25 Acres.** The SJMSCP requires the establishment of 25 Preserve acres to offset potential impacts to this species on neighboring lands. Section 5.4.4.1(A) establishes the Preserve size for riparian habitats in the Delta as 20 acres. With take estimated to be approximately 25 occupied elderberry shrubs, this total is increased slightly to 25 acres to provide compensation at the ratio of one acre of Preserve for every VELB-occupied elderberry shrub removed on neighboring lands.

! **California tiger salamander, California horned lark, northern harrier - 250 Acres.** Consistent with the habitat approach of the SJMSCP, the SJMSCP requires the establishment of 250 Preserve acres to offset potential impacts to these species on neighboring lands. Section 5.4.4.3(B) establishes the minimum Preserve acreage necessary to support a population mix including these species to be 250 acres.

! **Giant garter snake and pond turtle - 150 Acres.** Consistent with the habitat approach of the SJMSCP, the SJMSCP requires the establishment of 150 Preserve acres to offset potential impacts to these species on neighboring lands. Section 5.4.4.4(B) establishes the minimum Preserve acreage necessary to support a population of this species mix to be 145 acres (2-3 miles with 400 foot buffer). The Preserve size of three miles was used in establishing this mitigation and the 145-acres is rounded up to require 150 acres of Preserve to offset potential impacts to these species occurring on neighboring lands.

! **Red-legged frog and pond turtle - 40 Acres.** The SJMSCP requires the establishment of 40 Preserve acres to offset potential impacts to this species on neighboring lands. Section 5.4.4.2(C) establishes the minimum Preserve acreage necessary to support a population this species to be 18 acres (.25 mile with a 600 foot buffer) and, pursuant to Section 5.4.4.4(C), up to 40 acres. Given the rarity of this species, the larger Preserve size of 40 acres is used to offset potential impacts to this species occurring on neighboring lands.

The required Preserve acreages for the preceding totals 465 acres. An additional 135 acres is included in the Plan to allow for increasing these compensation requirements if the monitoring plan established pursuant to Section 5.9.3.7 determines that impacts on neighboring lands are exceeding estimates or are having unanticipated effects on SJMSCP Covered Species.

**D. Revisions to Neighboring Land Protection Provisions**

The following changes to neighboring land protection provisions shall be accomplished through the minor amendment process described in Section 8.8.4 and require a public hearing:

Changes to Neighboring Land Protections with the potential to increase restrictions on routine and
ongoing agricultural activities on neighboring lands or to reduce the level of protections afforded to neighboring lands pursuant to Section 5.3.3.4 as that Section is adopted on the Effective Date and excluding those changes listed in Section 8.8.3 (23-26). Plan amendments undertaken pursuant to this paragraph shall be approved or denied only after the JPA: 1) notifies the Permittee Cities allowing 30 days for the Permittee Cities to provide input; 2) notifies San Joaquin County (whether or not that entity is a Permittee) and allows 30 days for San Joaquin County to provide input; and 3) after the JPA holds a properly notice public hearing prior to taking a final action. Public hearing notices pursuant to this section shall be made at least 30 days in advance of the public hearing.

The following changes to neighboring land protection provisions shall be accomplished through the minor revisions process as established in Section 8.8.3.

- Modifying neighboring land protection exceptions (to extend neighboring land protection coverage to a neighboring land) based on biological survey data pursuant to Section 5.3.3.4,

- Establishing the contents/protocols for biological surveys undertaken to remove exceptions pursuant to neighboring land protections pursuant to Section 5.3.3.4 (to extend neighboring land protection coverage to a neighboring land),

- Establishing the need and Preserve design criteria for the 135 acres allocated for neighboring land protection Preserve lands pursuant to Section 5.3.3.4,

- Adjusting compensation ratios for neighboring land preserves from 1:167 (1 acre for every 167 acres of Preserves established) to not less than 1:200,

Neighboring land protection provisions, except as otherwise provided in paragraph (B)(3) above and within this Section, may be revised through the Adaptive Management Plan, as necessary and to the extent feasible, as new options are made available (e.g., alternative options may become available through adoption and/or implementation of new legislation or alternative methods as may be proven effective in other plans).

5.3.3.5 Notification of Non-Preserve Landowners/Interested Persons of New Preserve Acquisitions

A. In conjunction with JPA hearings to consider approval of new Preserve acquisitions, and in addition to the notification requirements described in Section 5.3.3.4(B) for neighboring land protections, the JPA shall:

1. Provide written notice to all landowners located within one-half (1/2) mile and extending to include an additional distance encompassing the next two parcels located outside of the 1/2 mile radius surrounding the proposed new SJMSCP Preserve site (i.e., all landowners with all or portions of parcels located within 1/2 mile of the proposed Preserve shall receive written notice and all parcels adjacent to the noticed parcels located within 1/2 mile shall receive notice and all parcels adjacent to the parcels adjacent to the 1/2 mile radius also shall receive written notification) of the proposed Preserve to be considered for acquisition at upcoming hearings; and

2. A notice shall be sent to the San Joaquin Farm Bureau, local jurisdictions and interested stakeholders as described in Section 5.4.1.4; and
3. Publish a public notice in a countywide circulation newspaper.

B. Notices shall include:

1. The Assessor's Parcel Numbers to be considered for addition to the SJMSCP Preserve System;

2. A general description of the parcel location sufficient for the general public to recognize the location of the proposed Preserve (normally an address or cross streets to be included);

3. The date, time and location of the hearing;

4. An address and deadline for submitting written comments for those unable to attend the hearing;

5. An address and phone number for obtaining additional information;

6. Bold lettering stating that parcel owners are responsible for providing notice to lessees of lands which may be affected by the JPA's decision.

C. Timing of Notifications shall be consistent with Sections 5.4.1.3 and 5.4.1.4.

5.3.3.6 Termination and Replacement of Easements by Preserve Landowners

The Preserve landowner may request that the JPA consider termination and replacement of a conservation easement on land within the SJMSCP Preserve system except for lands held by the California Department of Fish and Game which may be prevented by California law from undertaking such land exchanges. The JPA may approve a landowner's request for termination and replacement of an easement, subject to concurrence of the Permitting Agencies' representatives on the TAC, if:

1. The landowner provides a replacement easement of equivalent or better habitat value to the easement which is being terminated. The JPA shall determine, subject to the concurrence of the Permitting Agencies' representatives on the TAC, whether or not a replacement easement provides an equivalent or better habitat value to that of the easement being replaced; and

2. The replacement easement is obtained and recorded and a Preserve Management Plan is developed as discussed in SJMSCP Section 5.4.7.1, prior to termination of the existing easement.

The Permitting Agencies' representative on the TAC shall respond to the JPA's request for concurrence within 60 calendar days, to the maximum extent feasible, providing that the JPA submits sufficient documentation upon which the Permitting Agencies' representative on the TAC may base his or her decision.

Upon receiving concurrence from the Permitting Agencies' representatives on the TAC, the JPA may proceed with termination and replacement of an easement.
5.4 PRESERVE SELECTION, ACQUISITION, ENHANCEMENT, AND MANAGEMENT

5.4.1 OVERVIEW OF PRESERVE SELECTION AND ACQUISITION PROCESS

5.4.1.1 Overview of Process

The JPA shall rank, select, design, and establish Preserve lands via easements or by acquisitions of fee title, in consultation with its TAC and using the following methods and criteria. Monitoring to ensure compliance with the SJMSCP's Preserve design and development strategy shall occur as described in Section 5.9.2.11.

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<td>Identify potential Preserve lands consistent with the Preserve selection criteria in Section 5.4.4</td>
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<td>Survey and rank potential Preserve lands with willing sellers based upon the criteria in Sections 5.4.4, 5.4.5, the criteria for conducting pre-acquisition/baseline surveys established in Section 5.9.2.6 and confirmation from the parcel's title insurance policy that encumbrances will not conflict with the land's biological values. Plant, fish or wildlife/habitat value shall be the primary consideration in establishing all priorities for acquisition.</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>STEP 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>The JPA's TAC prepares a land acquisition proposal, including a Preserve Management Plan (see Section 5.4.7.1) for all acquisitions of conservation easement and a draft Preserve Management Plan for acquisitions in fee title and forwards the proposal and Preserve Management Plans to the JPA for review and verification that the proposed land acquisition is consistent with the SJMSCP.</td>
</tr>
</tbody>
</table>
STEP 5

If multiple parcels meet criteria for Preserve lands, are owned by willing sellers, and are of equal habitat value based upon the evaluation conducted in Step 3, then the JPA shall consider the Preserve Priority Criteria established in Section 5.4.5.

STEP 6

The JPA makes a final decision to acquire land and negotiates with the willing seller to complete an easement purchase or sale of the land in fee title. For easement transactions, Preserve Management Plans shall be completed prior to concluding negotiations with the landowners. For fee title acquisitions, Preserve Management Plans may be finalized after the purchase of Preserve lands. Fee and easement purchases shall include the purchase of a title insurance policy.

5.4.1.2 Timing of Preserve Acquisitions

After the first 1,000 acres of development involving SJMSCP Permitted Activities, and so long as the 350 acre jump-start remains in place (Section 8.6) acquisition of Preserve lands must conform to the compensation ratios set forth in Section 4.1 of the SJMSCP; provided, however, that if the JPA possesses funds sufficient to acquire Preserve lands in accordance with the compensation ratio, acquisition may occur up to 24 months from the land Conversion or development requiring compensation. The JPA shall possess sufficient funds for the purposes of this provision if it has allocated sufficient existing funds to purchase Preserve lands at the per acre cost identified in Table 7-1 of the SJMSCP (and adjusted annually for inflation pursuant to SJMSCP Section 7.5.2.2) to compensate for all such land Conversion or development that has occurred pursuant to the SJMSCP. If there is insufficient funding, the funding shortfall provisions of Section 7.5.2.4 shall apply. To defer Preserve land acquisitions, the JPA must possess sufficient funds, whether or not fees have been collected for the Conversion or development requiring compensation. This will allow the accumulation of funds sufficient to acquire larger tracts of significant Preserve lands than could occur if acquisition funds had to be immediately expended. Limits on the amount of Take acres for vernal pool grasslands is limited within this 24-month deferral period pursuant to Sections 5.5.2.5 and 5.5.7. This also allows the JPA some flexibility to make Preserve acquisitions during periods when land prices are deflated and to delay land acquisitions when land prices are inflated. However, the JPA shall strive to complete the process for acquiring Preserve lands within 6 months of land Conversion by an SJMSCP Covered Activity per Preserve acquisition.
5.4.1.3 Jurisdictional Review of Preserve Acquisition Proposals Prior to Establishing Preserves

The JPA shall notify, in writing, all Planning Department and Community Development Departments within San Joaquin County of proposed Preserve acquisitions pursuant to the SJMSCP. This notification shall occur a minimum of 30 days in advance of the Joint Powers Authority Board of Directors taking a final action to approve or deny a Preserve acquisition proposal. The Planning Department or Community Development Department shall provide written comments to the Joint Powers Authority during this 30-day comment period (the same 30-day comment period provided for neighboring landowners). Comments received from the Planning Departments and/or Community Development Departments shall be forwarded to the Joint Powers Authority Board of Directors prior to their making a decision regarding acquisition of a Preserve.

In addition to and prior to the JPA's public hearing to consider a proposed Preserve acquisition, the Technical Advisory Committee will hold a properly noticed public hearing to solicit input from the public, affected landowners, local jurisdictions and other interested stakeholders regarding the proposed acquisition of an SJMSCP Preserve. The recommendations of the Technical Advisory Committee shall be forwarded to the Joint Powers Authority Board of Directors prior to the JPA's decision regarding acquisition of a Preserve.

The member of the Joint Powers Authority Board of Directors representing the affected jurisdiction (i.e., one or both of the San Joaquin County representatives if the proposed SJMSCP Preserve is located within the jurisdiction of San Joaquin County or any city council member if the proposed preserve is located within or near a city's sphere of influence) may request one 28-day deferral of any action to approve or deny a Preserve acquisition by the JPA. This deferral will require the staff of the Joint Powers Authority to submit the subject Preserve acquisition proposal to the jurisdiction's governing board (i.e., the San Joaquin County Board of Supervisors or one of the County's seven city councils) for comments. Comments received from the jurisdiction's governing board shall be forwarded to the JPA Board of Directors for their consideration in making a final decision to approve or deny the acquisition of an SJMSCP Preserve.

5.4.1.4 Public Hearing Requirements for Preserve Acquisitions

The JPA shall hold properly noticed public hearings prior to the making a final decision to approve or deny the acquisition of an SJMSCP Preserve. Notification and public hearing requirements for Preserve acquisitions shall be as established in Section 5.3.3.5. Notifications shall occur and public hearing notices shall be published a minimum of 30 days prior to the JPA's public hearing to consider the SJMSCP Preserve acquisition proposal. Public hearings held by the TAC pursuant to Section 5.4.1.3 shall occur prior to JPA hearings. It is anticipated that notification of TAC public hearings shall be included in notices described in Section 5.3.3.5.

5.4.1.5 Keeping Local Jurisdictions Appraised of the Location of SJMSCP Preserves and Special Conditions Associated with Easements

The JPA shall maintain a database of all Preserves acquired through the SJMSCP. A map identifying the locations of all SJMSCP Preserves shall be provided to the Planning Department or Community Development Department of each local jurisdiction on a map (the SJMSCP Preserve Map). These maps, and/or their accompanying data files shall, at a minimum, identify each Preserve by assessor's parcel number. These accompanying data files shall be made available to local jurisdictions upon request. After the completion of each new SJMSCP Preserve acquisition transaction (i.e., recordation of easements following JPA approvals), a revised SJMSCP Preserve Map (and, if requested, the accompanying data files) shall be generated by the JPA and forwarded to the Planning Department or Community Development Department of the affected local jurisdiction. Copies of recorded conservation easements for SJMSCP Preserves shall be forwarded, along
with the SJMSCP Preserve Map, to the Planning Department or Community Development Department of the affected local jurisdiction.

5.4.2 ESTABLISHING PRESERVES WITHOUT MAPS

As noted in Section 5.4.1, the first step in Preserve acquisition is the identification of appropriate Preserve lands. Specific Preserve lands to be protected for the SJMSCP Covered Species are not specified in the Plan (i.e., no proposed Preserves are identified on maps) to assure parcel owners that the SJMSCP Preserve approach cannot affect the property values of those who do not wish to sell easements or title to their property pursuant to this Plan. In the absence of maps, Preserves will be selected by using descriptions of the biological, topographical, hydrological, geographic, and other features necessary for the conservation SJMSCP Covered Species. Each set of criteria, or Preserve descriptions, represent a Preserve Type.

5.4.3 ESTABLISHING PRESERVE TYPES

As noted in the overview, the Preserve selection criteria for the SJMSCP are based upon the premise that the protection, enhancement and management of a particular Preserve Type protects a suite of SJMSCP Covered Species which rely upon a habitat or habitats which correspond to the designated Preserve Type (see Table 5.4-4).

In support of this premise, the SJMSCP Biological Analysis determined which and how individual vegetation types or combinations of vegetation types occurring within the County are associated with each SJMSCP Covered Species (see Table 5.4-1). Then the analysis determined how the individual vegetation types are associated into habitats (i.e., Preserve Types) which support each of the SJMSCP Covered Species (see Table 5.4-2). Preserve Types were then described to reflect the elements of size, location, and other natural features reflected by the SJMSCP’s analysis of species needs (see Section 2.2.2.2), to assure the establishment of habitats (i.e., Preserves Types) adequate to support the long-term survival of SJMSCP Covered Species. For ease of accounting for levels of Open Space Conversions and for monitoring the adequacy and type compensation provided pursuant to the SJMSCP, Preserve Types are associated with one of each of the six SJMSCP Index Zones described in Section 5.1.2 (see Table 5.4-3).

The results of this approach are summarized in Table 5.4-4 which associates each SJMSCP Covered Species with a Preserve Type (habitat) within each SJMSCP Index Zone.

The preferred vegetation types used by each non-fish SJMSCP Covered Species in San Joaquin County are listed in the following table. The table was created by the SJMSCP’s biological consultants based upon the known occupied habitats of each species within the County, an analysis of species needs for each of the SJMSCP Covered Species, and subsequent refinements made by the Permitting Agencies. The results are contained in Table 8-3 of the SJMSCP Biological Analysis (Appendix K) and are summarized in the following table:
TABLE 5.4-1
NON-FISH SJMSCP COVERED SPECIES
PREFERRED VEGETATION TYPES LOCATED IN
SAN JOAQUIN COUNTY

UN = UTM North Coordinate
UE - UTM East Coordinate

<table>
<thead>
<tr>
<th>SPECIES NAME</th>
<th>SPECIES PREFERRED VEGETATION TYPE/a/</th>
<th>OTHER ATTRIBUTES OF PREFERRED VEGETATION TYPES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Federally-Listed Species</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large-flowered fiddleneck (<em>Amsinckia grandiflora</em>)</td>
<td>G</td>
<td>SW of line formed by: UN = 4675600 - 0.8* UE (approx. 900' contour SW of I-580)</td>
</tr>
<tr>
<td>Succulent owl's clover aka fleshy owl's clover (<em>Castilleja campestris ssp. succulenta fmr Orthocarpus succulentus</em>)</td>
<td>G3</td>
<td></td>
</tr>
<tr>
<td>Greene's tuctoria (<em>Tuctoria greenei</em>)</td>
<td>G3</td>
<td></td>
</tr>
<tr>
<td>Conservancy fairy shrimp (<em>Branchinecta conservatio</em>)</td>
<td>Wetlands, including vernal pools, within G</td>
<td><strong>Southwest Zone</strong></td>
</tr>
<tr>
<td>Longhorn fairy shrimp (<em>Branchinecta longiantenna</em>)</td>
<td>Wetlands, including vernal pools, within G</td>
<td><strong>Southwest Zone</strong></td>
</tr>
<tr>
<td>Vernal pool fairy shrimp (<em>Branchinecta lynchi</em>)</td>
<td>G3</td>
<td></td>
</tr>
<tr>
<td>Valley elderberry longhorn beetle (<em>Desmocerus californicus dimorphus</em>)</td>
<td>S2, W, W2, W3, W4, R, R2, R3, R4, R5</td>
<td></td>
</tr>
<tr>
<td>Vernal pool tadpole shrimp (<em>Lepidurus packardi</em>)</td>
<td>G3, Wetlands within G</td>
<td>Wetlands within G occurring within <strong>Southwest Zone</strong></td>
</tr>
<tr>
<td>California red-legged frog (<em>Rana aurora draytonii</em>)</td>
<td>W3, W5</td>
<td>SW of I-580 or on Goose Creek, Clements or Wallace Quads</td>
</tr>
<tr>
<td>Species Name</td>
<td>Preferred Vegetation Types</td>
<td>Other Attributes of Preferred Vegetation Types</td>
</tr>
<tr>
<td>------------------------------------------------------------------------------</td>
<td>-----------------------------</td>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Giant garter snake (<em>Thamnophis gigas</em>)</td>
<td>W2, W3, W4, D</td>
<td><em>Primary Zone of the Delta; elsewhere NE of I-580</em></td>
</tr>
<tr>
<td>Aleutian Canada goose (<em>Branta canadensis leucopareia</em>)</td>
<td>C3, C4</td>
<td>Ripon, Salida, Thornton Quads</td>
</tr>
<tr>
<td>Mountain plover (<em>Charadrius montanus</em>)</td>
<td>G, G2</td>
<td><em>Southwest Zone</em></td>
</tr>
<tr>
<td>Riparian woodrat (<em>Neotoma fuscipes riparia</em>)</td>
<td>R, R2, R3, R4, R5, S, SG, W, W2, W3, W4, W5, W9</td>
<td>Avena, Escalon, Ripon, Riverbank, Salida Quads - Along Stanislaus River from Caswell to the Stanislaus' confluence with the San Joaquin River and along the San Joaquin River downstream from its confluence with the Stanislaus River to Mossdale, including Tom Paine Slough and Paradise Cut</td>
</tr>
<tr>
<td>Riparian brush rabbit (<em>Sylvilagus bachmani riparius</em>)</td>
<td>R, R2, R3, R4, R5, S, SG, D, W, W2, WE W4, W5, W9</td>
<td>Along Stanislaus River from Caswell to the Stanislaus' confluence with the San Joaquin River and along the San Joaquin River downstream from its confluence with the Stanislaus River to Mossdale, including Tom Paine Slough and Paradise Cut</td>
</tr>
<tr>
<td>San Joaquin kit fox (<em>Vulpes macrotis mutica</em>)</td>
<td>G, G2, BL, BCN, O/G</td>
<td>NE of line: UN 4509000 - 0.55 * UE and SE of line: UN 4567400 - 0.62 * UE</td>
</tr>
</tbody>
</table>

**State-listed Species that are not Federally-Listed**

<table>
<thead>
<tr>
<th>Species Name</th>
<th>Preferred Vegetation Types</th>
<th>Other Attributes of Preferred Vegetation Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delta button-celery/Delta coyote thistle (<em>Eryngium racemosum</em>)</td>
<td>S</td>
<td>NE of I-580</td>
</tr>
<tr>
<td>Boggs Lake hedge-hyssop (<em>Gratiola heterosepala</em>)</td>
<td>G3</td>
<td></td>
</tr>
<tr>
<td>Mason's lilaeopsis (<em>Lilaeopsis masonii</em>)</td>
<td>I, I2, R, R2, R3, R4, R5</td>
<td><em>Primary Zone of the Delta; all R types touch W types</em></td>
</tr>
<tr>
<td>SPECIES NAME</td>
<td>SPECIES PREFERRED VEGETATION TYPE/a/</td>
<td>OTHER ATTRIBUTES OF PREFERRED VEGETATION TYPES</td>
</tr>
<tr>
<td>--------------</td>
<td>-----------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Swainson's hawk (<em>Buteo swainsoni</em>)</td>
<td>V, O/G, BL, BCN, C3, C4, S, I, I2, R, R2, R3, R4, R5</td>
<td>Within five miles of C3 and C4 polygons</td>
</tr>
<tr>
<td>Western yellow-billed cuckoo (<em>Coccyzus americanus occidentalis</em>)</td>
<td>R, R2, R5</td>
<td>Greater than 25 acres in size</td>
</tr>
<tr>
<td>Greater sandhill crane (<em>Grus canadensis tabida</em>)</td>
<td>C3, C4</td>
<td>More than two miles from U, U3 polygons of five acres or greater</td>
</tr>
<tr>
<td>California black rail (<em>Laterallus jamaicensis coturniculus</em>)</td>
<td>W7, R4, I, I2</td>
<td>Primary Zone of the Delta; 1 vegetation types must be greater than or equal to 15 acres</td>
</tr>
<tr>
<td>Bank swallow (<em>Riparia riparia</em>)</td>
<td>W</td>
<td>San Joaquin and Mokelumne Rivers only</td>
</tr>
</tbody>
</table>

**Other SJMSCP Covered Species**

<table>
<thead>
<tr>
<th>SPECIES NAME</th>
<th>SPECIES PREFERRED VEGETATION TYPE/a/</th>
<th>OTHER ATTRIBUTES OF PREFERRED VEGETATION TYPES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suisun marsh aster (<em>Aster lentus</em>)</td>
<td>W4, W5, I, I2, R, R2, R3, R4, R5</td>
<td>Primary Zone of the Delta; All R types touch W types</td>
</tr>
<tr>
<td>Alkali milk-vetch (<em>Astragalus tener var. tener</em>)</td>
<td>/b/</td>
<td>/b/</td>
</tr>
<tr>
<td>Heartscale (<em>Atriplex cordulata</em>)</td>
<td>G, G2</td>
<td>Between I-5 and 2 miles west of I-580</td>
</tr>
<tr>
<td>Brittlescale (<em>Atriplex depressa</em>)</td>
<td>G, G2</td>
<td>Between I-5 and I-580</td>
</tr>
<tr>
<td>Hoover's calycadenia (<em>Calycadenia hooveri</em>)</td>
<td>G, G2, BL, BL2, BL3, BL4</td>
<td>North of UTM 4200000 and east of 677000 or north of 4212000 and east of 665000</td>
</tr>
<tr>
<td>Bristly sedge (<em>Carex comosa</em>)</td>
<td>/b/</td>
<td>/b/</td>
</tr>
<tr>
<td>Slough thistle (<em>Cirsium crassicaule</em>)</td>
<td>W4, R, R2, R3, R4, R5</td>
<td>R touching W</td>
</tr>
<tr>
<td>Mt. Hamilton coreopsis (<em>Coreopsis hamiltonii</em>)</td>
<td>BL, BL2, BL3, BL4, BCN, BCN2, BCN3, BCN4, O/G, O2, O3</td>
<td>SW of line: UN 4640600 - .76*UE (approx. 1,600 foot contour) SW of I-580</td>
</tr>
<tr>
<td>Hospital Canyon larkspur (<em>Delphinium californicum ssp. interius</em>)</td>
<td>BL, G, G2</td>
<td>SW of I-580</td>
</tr>
<tr>
<td>SPECIES NAME</td>
<td>SPECIES PREFERRED VEGETATION TYPE/a/</td>
<td>OTHER ATTRIBUTES OF PREFERRED VEGETATION TYPES</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------------</td>
<td>------------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Recurved larkspur (<em>Delphinium recurvatum</em>)</td>
<td>BL, G, G2</td>
<td>SW of I-580</td>
</tr>
<tr>
<td>Diamond-petaled poppy/diamond-petaled California poppy (<em>Escholzia rhombipetala</em>)</td>
<td>/b/</td>
<td>/b/</td>
</tr>
<tr>
<td>California hibiscus/rose mallow (<em>Hibiscus lasiocarps</em>)</td>
<td>I, I2, R, R2, R3, R4, R5</td>
<td>Primary Zone of the Delta; all R types touch W types</td>
</tr>
<tr>
<td>Red Bluff dwarf rush (<em>Juncus leiospermus var. leiospermus</em>)</td>
<td>G3</td>
<td>East of UTM 650000</td>
</tr>
<tr>
<td>Delta tule pea (<em>Lathyrus jepsonii var. jepsonii</em>)</td>
<td>I, I2, R, R2, R3, R4, R5</td>
<td>Primary Zone of the Delta; all R types touch W types</td>
</tr>
<tr>
<td>Legenere (<em>Legonere limosa</em>)</td>
<td>G3</td>
<td></td>
</tr>
<tr>
<td>Delta madwort (<em>Limosella subulata</em>)</td>
<td>I, I2, R, R2, R3, R4, R5</td>
<td>Primary Zone of the Delta; all R types touch W types</td>
</tr>
<tr>
<td>Showy madia (<em>Madia radiata</em>)</td>
<td>G, BL2, BCN2</td>
<td>SW of I-580</td>
</tr>
<tr>
<td>Sanford's arrowhead/Sanford's sagittaria (<em>Sagittaria sanfordii</em>)</td>
<td>W3, W4 and all I and R types</td>
<td></td>
</tr>
<tr>
<td>Mad-dog skullcap (<em>Scutellaria laterilflora</em>)</td>
<td>/b/</td>
<td>/b/</td>
</tr>
<tr>
<td>Wright's trichocoronis (<em>Trichocoronis wrightii var. wrightii</em>)</td>
<td>/b/</td>
<td>/b/</td>
</tr>
<tr>
<td>Caper-fruited tropidocarpum (<em>Tropidocarpum capparideum</em>)</td>
<td>/b/</td>
<td>/b/</td>
</tr>
<tr>
<td>Ciervo aegilian scarab beetle (<em>Aegialia concinna</em>)</td>
<td>/c/</td>
<td>/c/</td>
</tr>
<tr>
<td>Mid-valley fairy shrimp (<em>Branchinecta sp. nova</em>)/d/</td>
<td>G3</td>
<td></td>
</tr>
<tr>
<td>Curved-foot diving beetle (<em>Hygrotis curvipes</em>)</td>
<td>G3</td>
<td></td>
</tr>
<tr>
<td>Moestan blister beetle (<em>Lytta moesta</em>)</td>
<td>V, O/G, BL, S3, G, G2</td>
<td></td>
</tr>
<tr>
<td>Molestan blister beetle (<em>Lytta molesta</em>)</td>
<td>V, O/G, BL, S3, G, G2</td>
<td></td>
</tr>
<tr>
<td>California tiger salamander (<em>Ambystoma californiense</em>)</td>
<td>G3, G, BL, BL2, BL3, BL4</td>
<td>Vernal Pool Zone and Southwest Zone</td>
</tr>
</tbody>
</table>

November 14, 2000

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<table>
<thead>
<tr>
<th>SPECIES NAME</th>
<th>SPECIES PREFERRED VEGETATION TYPE/a/</th>
<th>OTHER ATTRIBUTES OF PREFERRED VEGETATION TYPES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foothill yellow-legged frog (<em>Rana boylii</em>)</td>
<td>W3</td>
<td>SW of I-580 or on Goose Creek, Clements or Wallace Quads</td>
</tr>
<tr>
<td>Western spadefoot toad (<em>Scaphiopus hammondi</em>)</td>
<td>G3, W3i, W8</td>
<td>SW of I-580 or east of UTM 665000</td>
</tr>
<tr>
<td>Western pond turtle (<em>Clemmys marmorata</em>)</td>
<td>I, W, W2, W4, W5, W6, W9, R, R2, R3, R4, R5</td>
<td>No W9 in Southwest Zone or Central/Southwest Transition (mostly lined canals there)</td>
</tr>
<tr>
<td>San Joaquin whipsnake (<em>Masticophis flagellum ruddocki</em>)</td>
<td>S3, G, G2, BL, BL2, BL3, BL4, BCN, BCN2, BCN3, BCN4, O/G, O, O2, O3, O4, V, V2, V3, V4</td>
<td>SW of I-580 or east of UTM 665000</td>
</tr>
<tr>
<td>California horned lizard (<em>Phrynosoma coronatum frontale</em>)</td>
<td>S3, G, G2, BL, BL2, BL3, BL4, BCN, BCN2, BCN3, BCN4, O/G, O2, O3, O4, V, V2, V3, V4</td>
<td></td>
</tr>
<tr>
<td>Cooper's hawk (<em>Accipter cooperi</em>)</td>
<td>R, R2, R3</td>
<td>Must be located more than two miles away from any U or U3 polygon of greater than 10 acres</td>
</tr>
<tr>
<td>Sharp-shinned hawk (<em>Accipter striatus</em>)</td>
<td>R, R2, R3</td>
<td>Must be located more than two miles away from any U or U3 polygon of greater than 5 acres</td>
</tr>
<tr>
<td>Western grebe (<em>Aechmophorus occidentalis</em>)</td>
<td>W, W5, W7</td>
<td>Vegetation type size (patch) to be more than five acres</td>
</tr>
<tr>
<td>Tricolored blackbird (<em>Agelaius tricolor</em>)</td>
<td>G2, G3, W5</td>
<td>East of UTM 668000 and north of UTM 4228000</td>
</tr>
<tr>
<td>Bell's sage sparrow (<em>Amphispiza belli belli</em>)</td>
<td>S3</td>
<td>SW of I-580</td>
</tr>
<tr>
<td>Golden eagle (<em>Aquila chrysaetos</em>)</td>
<td>G, G2, G3</td>
<td></td>
</tr>
<tr>
<td>SPECIES NAME</td>
<td>SPECIES PREFERRED VEGETATION TYPE/a/</td>
<td>OTHER ATTRIBUTES OF PREFERRED VEGETATION TYPES</td>
</tr>
<tr>
<td>-------------------------------------------------</td>
<td>--------------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Short-eared owl (<em>Asio flammmens</em>)</td>
<td>W4, W5, W6, W6, W6, W7, R4</td>
<td>West of longitude 121 degrees 22 minutes East</td>
</tr>
<tr>
<td>Ferruginous hawk (<em>Buteo regalis</em>)</td>
<td>BL, V, G, G2, G3</td>
<td></td>
</tr>
<tr>
<td>Northern harrier (<em>Circus cyanus</em>)</td>
<td>V, O/G, BL, BCN, C3, C4, G3, S, IJ2, R, R2, R3, R4, R5</td>
<td>Within five miles of C3 and C4 polygons for all except G3 vegetation types</td>
</tr>
<tr>
<td>Yellow warbler (<em>Dendroica petechia brewsteri</em>)</td>
<td>I, I2, R2, R3, R4, R5</td>
<td></td>
</tr>
<tr>
<td>California horned lark (<em>Eremophysa alpestris actia</em>)</td>
<td>V, O/G, BL, G, G2, G3</td>
<td>G types only when less than three miles to V, O, BL types except for G3</td>
</tr>
<tr>
<td>Merlin (<em>Falco columbarius</em>)</td>
<td>V, O/G, BL, C3, C4, G, G2, G3</td>
<td></td>
</tr>
<tr>
<td>Prairie falcon (<em>Falco mexicanus</em>)</td>
<td>V, O/G, BL, C3, G, G2, G3</td>
<td></td>
</tr>
<tr>
<td>Yellow-breasted chat (<em>Ictaria virens</em>)</td>
<td>I, I2, R, R2, R3, R5</td>
<td></td>
</tr>
<tr>
<td>SPECIES NAME</td>
<td>SPECIES PREFERRED VEGETATION TYPE/a/</td>
<td>OTHER ATTRIBUTES OF PREFERRED VEGETATION TYPES</td>
</tr>
<tr>
<td>-------------------------------------------------</td>
<td>-------------------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Loggerhead shrike (<em>Lanius ludovicianus</em>)</td>
<td>V, O/G, O2, B1, G, G2, G3</td>
<td>More than two miles from U, U3 polygons greater than 15 acres in size</td>
</tr>
<tr>
<td>Long-billed curlew (<em>Numenius americanus</em>)</td>
<td>C3, C4, G, G2, G3</td>
<td></td>
</tr>
<tr>
<td>Osprey (<em>Pandion haliaetus</em>)</td>
<td>W, W5, R2, R3</td>
<td>R2 and R3 only when within one-half mile of W vegetation type of greater than one-half acre in size</td>
</tr>
<tr>
<td>American white pelican (<em>Pelecanus erthrorhynchos</em>)</td>
<td>W5, W6, W7, C3f</td>
<td>W vegetation type sizes (patches) must be greater than 5 acres in size; C3f in Delta</td>
</tr>
<tr>
<td>Double-crested cormorant (<em>Phalacrocorax auritus</em>)</td>
<td>W5, W6, W7</td>
<td>greater than five acres for W vegetation types</td>
</tr>
<tr>
<td>White-faced ibis (<em>Plegadis chichi</em>)</td>
<td>C3, C4, I, W7</td>
<td>More than 2 miles from any U, U3 polygons with areas of greater than 15 acres</td>
</tr>
<tr>
<td>Burrowing owl (<em>Speotyto cunicularia</em>)</td>
<td>V, O/G, B1, G, G2, G3</td>
<td></td>
</tr>
<tr>
<td>Ringtail/ringtail cat (<em>Bassaricus astutus</em>)</td>
<td>S3, B1, BL2, BL3, BL4, BCN, BCN2, BCN3, BCN4, O/G, O2, O3, O4, R, R2, R3, R4, R5</td>
<td>Within one mile of W, W2, W3; BL, BCN and O types only SW of line: UN 4567400 - 0.62 * UE</td>
</tr>
<tr>
<td>Berkeley kangaroo rat (<em>Dipodomys heermanni berkeleyensis</em>)</td>
<td>G, G2, BL, BCN, O/G</td>
<td>NE of line: UN 4509000 - 0.55 * UE and SE of line: UN 4567400 - 0.62 * UE</td>
</tr>
<tr>
<td>SPECIES NAME</td>
<td>SPECIES PREFERRED VEGETATION TYPE/a/</td>
<td>OTHER ATTRIBUTES OF PREFERRED VEGETATION TYPES</td>
</tr>
<tr>
<td>------------------------------------------------------------------------------</td>
<td>--------------------------------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Greater western mastiff bat aka California mastiff bat (Eumops perotis californicus)</td>
<td>G, G2, G3 and S, S2, S3</td>
<td></td>
</tr>
<tr>
<td>Red bat (Lasiurus borealis)</td>
<td>C3, C4, R, R2, R3, R4, R5 and V, V2, V3, V4</td>
<td></td>
</tr>
<tr>
<td>Small-footed myotis/bat (Myotis ciliolabrum)</td>
<td>G, G2, G3, BL BCN, O/G and S, S2, S3</td>
<td></td>
</tr>
<tr>
<td>Long-eared myotis/bat (Myotis evotis)</td>
<td>BL, BL2, BL3, BL4, BCN, BCN2, BCN3, BCN4</td>
<td>Midway, Cedar Mountain, Lone Tree Creek, Mt. Boardman Quads</td>
</tr>
<tr>
<td>Fringed myotis/bat (Myotis thysanodes)</td>
<td>BL, BL2, BL3, BL4, BCN, BCN2, BCN3, BCN4</td>
<td>Midway, Cedar Mountain, Lone Tree Creek, Mt. Boardman Quads</td>
</tr>
<tr>
<td>Long-legged myotis/bat (Myotis volans)</td>
<td>BL, BL2, BL3, BL4, BCN, BCN2, BCN3, BCN4</td>
<td>Midway, Cedar Mountain, Lone Tree Creek, Mt. Boardman Quads</td>
</tr>
<tr>
<td>Yuma myotis/bat (Myotis yumanensis)</td>
<td>C3, C4, R, R2, R3, R4, R5 and V, V2, V3, V4</td>
<td></td>
</tr>
<tr>
<td>San Joaquin pocket mouse (Perognathus inornatus inornatus)</td>
<td>G, G2, BL BCN, O/G</td>
<td>NE of line: UN 4509000 - 0.55 * UE and SE of line: UN 4567400 - 0.62 * UE</td>
</tr>
<tr>
<td>Pale big-eared bat (Plecotus townsendii pallescens aka Corynorhinus townsendii pallescens)</td>
<td>G, G2, G3, BL, BL2, BL3, BL4, BCN, BCN2, BCN3, BCN4, O/G, O2, O3, O4</td>
<td></td>
</tr>
<tr>
<td>Pacific western big-eared bat (Plecotus townsendii townsendii aka Corynorhinus townsendii townsendii)</td>
<td>Same as above</td>
<td>Same as above</td>
</tr>
<tr>
<td>American badger (Taxidea taxus)</td>
<td>G, G2, G3</td>
<td></td>
</tr>
</tbody>
</table>

/a/ See Section 2.2.1 for a key to the vegetation type symbols and description of each habitat type (and the SJMSCP Biological Analysis, Section 2.2.2 - Appendix K).
/b/ Species requires a habitat type no longer known in San Joaquin County or there are no recent occurrences of this species known in the County (see Adaptive Management Plan Section 5.9.4.6 for conservation strategy)
/c/ Presume extirpated (see Adaptive Management Plan Section 5.9.4.6 for conservation strategy)
/d/ The Mid-valley fairy shrimp (Branchinecta. sp. nova) is a newly discovered species of fairy shrimp which is not yet fully described, but has the potential for federal listing.
/e/ The Western and Southwestern Pond Turtles (Clemmys marmorata marmorata and Clemmys marmorata pallida, respectively) have been combined into a single category for the SJMSCP due to disagreements among experts as to the correct taxonomic classification.
Each of the vegetation types existing in San Joaquin County are, in turn, associated into habitats (i.e., Preserve Types).

### TABLE 5.4-2
ASSOCIATION OF VEGETATION TYPES INTO PRESERVE (HABITAT) TYPES

<table>
<thead>
<tr>
<th>VEGETATION TYPES/a/, /b/</th>
<th>PRESERVE (HABITAT) TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>C3, C4 (which is or may be flooded)</td>
<td>Flooded Field Preserves</td>
</tr>
<tr>
<td>G (including wetlands within G)</td>
<td>Grassland Preserves</td>
</tr>
<tr>
<td>S3</td>
<td>Diablan Sage Scrub Preserves</td>
</tr>
<tr>
<td>R, R4, W3, SG</td>
<td>Riparian Preserves/f/</td>
</tr>
<tr>
<td>BCN, BCN2, BCN3</td>
<td>Blue Oak Conifer Preserves</td>
</tr>
<tr>
<td>G3</td>
<td>Vernal Pool Grassland Preserves (existing and restored/created)</td>
</tr>
<tr>
<td>C3, C4 within 1.5 miles of W, W2, W3</td>
<td>Row and Field Crop/Riparian Preserves</td>
</tr>
<tr>
<td>D, W4, W5, W7, W8, W9/c/</td>
<td>Wetlands Preserves</td>
</tr>
<tr>
<td>V, V2, V3, BL, BL2, BL3, O, O2, O3</td>
<td>Oak Woodland Preserves</td>
</tr>
<tr>
<td>Preserve (i.e., Habitat) Type to be Created /d/</td>
<td>Submerged Aquatic Vegetation Preserves</td>
</tr>
</tbody>
</table>

/a/ Indicates principal vegetation types. Small patches of other vegetation types may be found within each indicated Preserve Type.
/b/ Some vegetation types occur throughout the County. The indicated vegetation types compose the indicated Preserve Type only where they occur within the SJMSCP Index Zone indicated.
/c/ Unlined canals only.
/d/ Vegetation types are submerged - therefore this vegetation type was not mapped on the SJMSCP Vegetation Maps, but is found underwater along the shorelines or banks of W, W2, W3, W4, W5, W7, W9 (unlined). Under the SJMSCP this habitat type will be created.
/e/ Pursuant to the SJMSCP, this habitat type will be created.
/f/ Includes Preserves with shaded riverine aquatic vegetation types.

Preserve Types (habitats) are, in turn, associated within relatively distinct locations throughout the County. These “locations” are the SJMSCP Index Zones described in Section 5.1.2. The association of Preserve Types (habitats) to each SJMSCP Index Zone are provided in the following table:
### ASSOCIATION OF PRESERVE TYPES (HABITATS) TO SJMSCP INDEX ZONES

**TABLE 5.4-3**

<table>
<thead>
<tr>
<th>PRESERVE (HABITAT) TYPE</th>
<th>ASSOCIATED SJMSCP INDEX ZONE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delta Water’s Edge Preserves - Large and Small</td>
<td>Primary Zone of the Delta</td>
</tr>
<tr>
<td>Flooded Field Preserves</td>
<td>Primary Zone of the Delta</td>
</tr>
<tr>
<td>Grassland Preserves</td>
<td>Southwest Zone</td>
</tr>
<tr>
<td>Diablan Sage Scrub Preserves</td>
<td>Southwest Zone</td>
</tr>
<tr>
<td>Riparian Preserves</td>
<td>Southwest Zone</td>
</tr>
<tr>
<td>Blue Oak Conifer Preserves</td>
<td>Southwest Zone</td>
</tr>
<tr>
<td>Vernal Pool Grassland Preserves (Existing and Created)</td>
<td>Vernal Pool Zone</td>
</tr>
<tr>
<td>Row and Field Crop/Riparian Preserves</td>
<td>Central Zone</td>
</tr>
<tr>
<td>Wetlands Preserves</td>
<td>Central Zone</td>
</tr>
<tr>
<td>Oak Woodland Preserves</td>
<td>Central Zone</td>
</tr>
<tr>
<td>Submerged Aquatic Vegetation Preserves</td>
<td>Primary Zone of the Delta /a/</td>
</tr>
</tbody>
</table>

/a/ May occur within the Central Zone near borders between the Central Zone and Primary Zone of the Delta.

Table 5.4-4 summarizes the SJMSCP’s associations of Covered Species to Preserve Types in each of the SJMSCP Index Zones.
### TABLE 5.4-4
ASSOCIATION OF NON-FISH SJMSCP COVERED SPECIES TO PRESERVE TYPES (HABITATS) AND TO SJMSCP INDEX ZONES

<table>
<thead>
<tr>
<th>SPECIES NAME</th>
<th>SJMSCP INDEX ZONE (PRESERVE TYPE) LOCATION IN COUNTY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Federally-Listed Species</strong></td>
<td></td>
</tr>
<tr>
<td>Large-flowered fiddleneck (<em>Amsinckia grandiflora</em>)</td>
<td>Southwest Zone (Grassland Preserve)</td>
</tr>
<tr>
<td>Succulent owl's clover aka fleshy owl's clover (<em>Castilleja campestris</em> ssp. <em>succulenta</em> fmr <em>Orthocarpus succulents</em>)</td>
<td>Vernal Pool Zone (Vernal Pool Grassland Preserve)</td>
</tr>
<tr>
<td>Greene's tuctoria (<em>Tuctoria greenei</em>)</td>
<td>Vernal Pool Zone (Vernal Pool Grassland Preserve)</td>
</tr>
<tr>
<td>Conservancy fairy shrimp (<em>Branchinecta conservatio</em>)</td>
<td>Southwest Zone (Grassland Preserves with wetlands)</td>
</tr>
<tr>
<td>Longhorn fairy shrimp (<em>Branchinecta longiantenna</em>)</td>
<td>Southwest Zone (Grassland Preserves with wetlands)</td>
</tr>
<tr>
<td>Vernal pool fairy shrimp (<em>Branchinecta lynchi</em>)</td>
<td>Vernal Pool Zone (Vernal Pool Grassland Preserve)</td>
</tr>
</tbody>
</table>
| Valley elderberry longhorn beetle (*Desmocerus Californicus dimorphus*) | Primary Zone of the Delta (Large and Small Water's Edge Preserve)  
Southwest Zone (Riparian Preserve)  
Central Zone (Row and Field Crop/Riparian Preserve)  
Central/Southwest Transition Zone (Use Central Zone Row and Field Crop/Riparian Preserve) |
| Vernal pool tadpole shrimp (*Lepidurus packardi*) | Vernal Pool Zone (Vernal Pool Grassland Preserve); Southwest Zone (Grassland Preserves with wetlands) |
| California red-legged frog (*Rana aurora draytonii*) | Southwest Zone (Riparian Preserve)  
Southwest Zone (Grassland Preserve)  
Central Zone (Oak Woodland Preserve)  
Central Zone (Row and Field Crop/Riparian Preserve)  
Vernal Pool Zone (Vernal Pool Grassland Preserve) |
| Giant garter snake (*Thamnophis gigas*) | Primary Zone of the Delta (Large and Small Water's Edge Preserve)  
Central Zone (Row and Field Crop/Riparian Preserve) |
| Aleutian Canada goose (*Branta canadensis leucopareia*) | Primary Zone of the Delta (Flooded Field Preserve Preserves) |
| Mountain plover (*Charadrius montanus*) | Southwest Zone (Grassland Preserve) |
| Riparian woodrat (*Neotoma fuscipes riparia*) | Central Zone (Row and Field Crop/Riparian Preserve) |
| Riparian brush rabbit (*Sylvilagus bachmani riparius*) | Central Zone (Row and Field Crop/Riparian Preserve) |

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<table>
<thead>
<tr>
<th>SPECIES NAME</th>
<th>SJMSCP INDEX ZONE (PRESERVE TYPE) LOCATION IN COUNTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Joaquin kit fox (<em>Vulpes macrotis mutica</em>)</td>
<td>Southwest Zone (Grassland Preserve) Central/Southwest Transition Zone (Use Southwest Zone Grassland Preserve)</td>
</tr>
<tr>
<td>State-listed Species that are not Federally-Listed</td>
<td></td>
</tr>
<tr>
<td>Delta button-celery/Delta coyote thistle (<em>Eryngium racemosum</em>)</td>
<td>Central Zone /y/</td>
</tr>
<tr>
<td>Boggs Lake hedge-hyssop (<em>Gratiola heterosepala</em>)</td>
<td>Vernal Pool Zone (Vernal Pool Grassland Preserve)</td>
</tr>
<tr>
<td>Mason's lilacopsis (<em>Lilaeopsis masonii</em>)</td>
<td>Primary Zone of the Delta (Large and Small Water's Edge Preserve)</td>
</tr>
<tr>
<td>Swainson's hawk (<em>Buteo swainsoni</em>)</td>
<td>Primary Zone of the Delta (Large and Small Water's Edge Preserve) Primary Zone of the Delta (Flooded Field Preserve) Central Zone (Row and Field Crop/Riparian Preserve) Central Zone (Wetlands Preserve ) Central Zone (Oak Woodland Preserve)/h/ Central/Southwest Transition Zone (Use Central Zone Row and Field Crop/Riparian Preserve)/l/</td>
</tr>
<tr>
<td>Western yellow-billed cuckoo (<em>Coccyzus americanus occidentalis</em>)</td>
<td>Central Zone (Row and Field Crop/Riparian Preserve)/g/</td>
</tr>
<tr>
<td>Greater sandhill crane (<em>Grus canadensis tabida</em>)</td>
<td>Primary Zone of the Delta (Flooded Field Preserve)</td>
</tr>
<tr>
<td>California black rail (<em>Laterallus jamaicensis coturniculus</em>)</td>
<td>Primary Zone of the Delta (Large Water's Edge Preserve)</td>
</tr>
<tr>
<td>Bank swallow (<em>Riparia riparia</em>)</td>
<td>Primary Zone of the Delta /y/ Central Zone /y/, /k/</td>
</tr>
<tr>
<td>Other SJMSCP Covered Species</td>
<td></td>
</tr>
<tr>
<td>Suisun marsh aster (<em>Aster lentus</em>)</td>
<td>Primary Zone of the Delta (Large and Small Water's Edge Preserve)</td>
</tr>
<tr>
<td>Alkali milk-vetch (<em>Astragalus tener var. tener</em>)</td>
<td>Southwest Zone /y/</td>
</tr>
<tr>
<td>Heartscale (<em>Atriplex cordulata</em>)</td>
<td>Southwest Zone /y/</td>
</tr>
<tr>
<td>Brittlescale (<em>Atriplex depressa</em>)</td>
<td>Southwest Zone /y/</td>
</tr>
<tr>
<td>Hoover's calycadenia (<em>Calycadenia hooveri</em>)</td>
<td>Vernal Pool Zone /y/</td>
</tr>
<tr>
<td>Bristly sedge (<em>Carex comosa</em>)</td>
<td>Vernal Pool Zone /y/</td>
</tr>
<tr>
<td>Slough thistle (<em>Cirsium crassicaule</em>)</td>
<td>Central Zone (Row and Field Crop/Riparian Preserve) Central/Southwest Transition Zone (Use Central Zone Row and Field Crop/Riparian Preserve)/l/</td>
</tr>
<tr>
<td>Mt. Hamilton coreopsis (<em>Coreopsis hamiltonii</em>)</td>
<td>Southwest Zone /y/</td>
</tr>
<tr>
<td>SPECIES NAME</td>
<td>SJMSCP INDEX ZONE (PRESERVE TYPE) LOCATION IN COUNTY /a/</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Hospital Canyon larkspur (<em>Delphinium californicum</em> ssp. <em>interius</em>)</td>
<td>Southwest Zone (Oak Woodland Preserve)</td>
</tr>
<tr>
<td>Recurved larkspur (<em>Delphinium recurvatum</em>)</td>
<td>Southwest Zone (Grassland Preserve)</td>
</tr>
<tr>
<td>Diamond-petaled poppy/diamond-petaled California poppy (<em>Escholzia rhombipetala</em>)</td>
<td>Southwest Zone /i/</td>
</tr>
<tr>
<td>California hibiscus/rose mallow (<em>Hibiscus lasiocarpus</em>)</td>
<td>Primary Zone of the Delta (Large and Small Water's Edge Preserve)</td>
</tr>
<tr>
<td>Red Bluff dwarf rush (<em>Juncus leiospermus var. leiospermus</em>)</td>
<td>Vernal Pool Zone /i/</td>
</tr>
<tr>
<td>Delta tule pea (<em>Lathyrus jepsonii var. jepsonii</em>)</td>
<td>Primary Zone of the Delta (Large and Small Water's Edge Preserves)</td>
</tr>
<tr>
<td>Legenere (<em>Legenere limosa</em>)</td>
<td>Vernal Pool Zone (Vernal Pool Grassland Preserve)</td>
</tr>
<tr>
<td>Delta mudwort (<em>Limosella subulata</em>)</td>
<td>Primary Zone of the Delta (Large and Small Water's Edge Preserves)</td>
</tr>
<tr>
<td>Showy madia (<em>Madia radiata</em>)</td>
<td>Southwest Zone (Oak Woodland Preserve)</td>
</tr>
<tr>
<td>Sanford's arrowhead/Sanford's sagittaria (<em>Sagittari sanfordii</em>)</td>
<td>Central Zone (Wetlands Preserve)</td>
</tr>
<tr>
<td>Mad-dog skullcap (<em>Scutellaria lateriflora</em>)</td>
<td>Southwest Zone /i/</td>
</tr>
<tr>
<td>Wright's trichocoronis (<em>Trichocoronis wrightii var. wrightii</em>)</td>
<td>Southwest Zone /i/</td>
</tr>
<tr>
<td>Caper-fruitd tropidocarpum (<em>Tropidocarpum capparideum</em>)</td>
<td>Southwest Zone /i/</td>
</tr>
<tr>
<td>Ciervo aegalian scarab beetle (<em>Aegialia concinna</em>)</td>
<td>Central Zone /i/</td>
</tr>
<tr>
<td>Curved-foot diving beetle (<em>Hygrotis curvipes</em>)</td>
<td>Vernal Pool Zone (Vernal Pool Grassland Preserve)</td>
</tr>
<tr>
<td>Moestan blister beetle (<em>Lyta moesta</em>)</td>
<td>Vernal Pool Zone (Vernal Pool Grassland Preserve)</td>
</tr>
<tr>
<td>Moestan blister beetle (<em>Lyta molesta</em>)</td>
<td>Vernal Pool Zone (Vernal Pool Grassland Preserve)</td>
</tr>
<tr>
<td>California tiger salamander (<em>Ambystoma californiense</em>)</td>
<td>Southwest Zone (Grassland Preserve)</td>
</tr>
<tr>
<td>California tiger salamander (<em>Ambystoma californiense</em>)</td>
<td>Southwest Zone (Riparian Preserve)</td>
</tr>
<tr>
<td>California tiger salamander (<em>Ambystoma californiense</em>)</td>
<td>Vernal Pool Zone (Vernal Pool Grassland Preserve)</td>
</tr>
<tr>
<td>California tiger salamander (<em>Ambystoma californiense</em>)</td>
<td>Central Zone (Oak Woodland Preserve)</td>
</tr>
<tr>
<td>Foothill yellow-legged frog (<em>Rana boylii</em>)</td>
<td>Southwest Zone (Riparian Preserve)</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>SPECIES NAME</th>
<th>SJMSCP INDEX ZONE (PREserve TYPE) LOCATION IN COUNTY (a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Western spadefoot toad (Scaphiopus hammondi)</td>
<td>Southwest Zone (Grassland Preserve) &lt;br&gt;Southwest Zone (Riparian Preserve) &lt;br&gt;Vernal Pool Zone (Vernal Pool Grassland Preserve)</td>
</tr>
<tr>
<td>Western pond turtle (Clemmys marmorata)</td>
<td>Primary Zone of the Delta (Large and Small Water's Edge Preserve) &lt;br&gt;Central Zone (Wetlands Preserve) &lt;br&gt;Central Zone (Oak Woodland Preserve)</td>
</tr>
<tr>
<td>San Joaquin whipsnake (Masticophis flagellum ruddocki)</td>
<td>Southwest Zone (Grassland Preserve) &lt;br&gt;Vernal Pool Zone (Vernal Pool Grassland Preserve)</td>
</tr>
<tr>
<td>California horned lizard (Phrynosoma coronatum frontale)</td>
<td>Southwest Zone (Grassland Preserve) &lt;br&gt;Vernal Pool Zone (Vernal Pool Grassland Preserve)</td>
</tr>
<tr>
<td>Cooper's hawk (Accipter cooperi)</td>
<td>Primary Zone of the Delta (Flooded Field Preserve) &lt;br&gt;Central Zone (Row and Field Crop/Riparian Preserve) &lt;br&gt;Central Zone (Oak Woodland Preserve) &lt;br&gt;Central/Southwest Transition Zone (Use Central Zone Row and Field Crop/Riparian Preserve)</td>
</tr>
<tr>
<td>Sharp-shinned hawk (Accipter striatus)</td>
<td>Central Zone (Row and Field Crop/Riparian Preserve) &lt;br&gt;Central Zone (Oak Woodland Preserve) &lt;br&gt;Southwest Zone (Riparian Preserve) &lt;br&gt;Central/Southwest Transition Zone (Use Central Zone Row and Field Crop/Riparian Preserve)</td>
</tr>
<tr>
<td>Western grebe (Aechmophorus occidentalis)</td>
<td>Primary Zone of the Delta (Large and Small Water's Edge Preserve)</td>
</tr>
<tr>
<td>Tricolored blackbird (Agelaius tricolor)</td>
<td>Primary Zone of the Delta (Large and Small Water's Edge Preserve) &lt;br&gt;Vernal Pool Zone (Vernal Pool Grassland Preserve) &lt;br&gt;Central Zone (Row and Field Crop/Riparian Preserve) &lt;br&gt;Central Zone (Wetlands Preserve) &lt;br&gt;Central/Southwest Transition Zone (Use Central Zone Row and Field Crop/Riparian Preserve)</td>
</tr>
<tr>
<td>Bell's sage sparrow (Amphispiza belli belli)</td>
<td>Southwest Zone (Diablan Sage Scrub Preserve)</td>
</tr>
<tr>
<td>Golden eagle (Aquila chrysaetos)</td>
<td>Southwest Zone (Grassland Preserve)</td>
</tr>
<tr>
<td>Great egret (Ardea albus formerly Casmerodius albus)</td>
<td>Primary Zone of the Delta (Large and Small Water's Edge Preserve) &lt;br&gt;Primary Zone of the Delta (Flooded Field Preserve) &lt;br&gt;Central Zone (Row and Field Crop/Riparian Preserve) &lt;br&gt;Central Zone (Wetlands Preserve) &lt;br&gt;Central/Southwest Transition Zone (Use Central Zone Row and Field Crop/Riparian Preserve)</td>
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<tr>
<td>SPECIES NAME</td>
<td>SJMSCP INDEX ZONE (PRESERVE TYPE) LOCATION IN COUNTY (a/)</td>
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<tr>
<td>Great blue heron (Ardea herodias)</td>
<td>Primary Zone of the Delta (Large and Small Water's Edge Preserve)</td>
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<td>Primary Zone of the Delta (Flooded Field Preserve)</td>
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<td>Central Zone (Row and Field Crop/Riparian Preserve)</td>
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<td>Central Zone (Wetlands Preserve)</td>
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<td></td>
<td>Central/Southwest Transition Zone (Use Central Zone Row and Field Crop/Riparian Preserve)</td>
</tr>
<tr>
<td>Short-eared owl (Asio flammeus)</td>
<td>Primary Zone of the Delta (Large and Small Water's Edge Preserve)</td>
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<td>Primary Zone of the Delta (Flooded Field Preserve)</td>
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<td>Central Zone (Wetlands Preserve)</td>
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<tr>
<td>Ferruginous hawk (Buteo regalis)</td>
<td>Southwest Zone (Grassland Preserve)</td>
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<td></td>
<td>Vernal Pool Zone (Vernal Pool Grassland Preserve)</td>
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<tr>
<td>Northern harrier (Circus cyanus)</td>
<td>Southwest Zone (Grassland Preserve)</td>
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<td></td>
<td>Central Zone (Row and Field Crop/Riparian Preserve)</td>
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<td>Central Zone (Wetlands Preserve)</td>
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<td></td>
<td>Central/Southwest Transition Zone (Use Central Zone Row and Field Crop/Riparian Preserve)</td>
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<tr>
<td>Yellow warbler (Dendroica petechia brewsteri)</td>
<td>Primary Zone of the Delta (Large and Small Water's Edge Preserve)</td>
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<td>Central Zone (Row and Field Crop/Riparian Preserve)</td>
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<td></td>
<td>Central/Southwest Transition Zone (Use Central Zone Row and Field Crop/Riparian Preserve)</td>
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<tr>
<td>Snowy egret (Egretta thula)</td>
<td>Primary Zone of the Delta (Large and Small Water's Edge Preserve)</td>
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<td></td>
<td>Primary Zone of the Delta (Flooded Field Preserve)</td>
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<td></td>
<td>Central Zone (Wetlands Preserve)</td>
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<tr>
<td>White-tailed kite (Elanus leucurus formerly Elanus caeruleus)</td>
<td>Primary Zone of the Delta (Large and Small Water's Edge Preserve)</td>
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<td></td>
<td>Primary Zone of the Delta (Flooded Field Preserve)</td>
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<td>Southwest Zone (Grassland Preserve)</td>
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<td>Central Zone (Row and Field Crop/Riparian Preserve)</td>
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<td>Central Zone (Wetlands Preserve)</td>
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<td></td>
<td>Central Zone (Oak Woodland Preserve)</td>
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<td></td>
<td>Central/Southwest Transition Zone (Use Central Zone Row and Field Crop/Riparian Preserve)</td>
</tr>
<tr>
<td>California horned lark (Eremophila alpestris actia)</td>
<td>Southwest Zone (Grassland Preserve)</td>
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<td></td>
<td>Vernal Pool Zone (Vernal Pool Grassland Preserve)</td>
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<td></td>
<td>Central Zone (Row and Field Crop/Riparian Preserve)</td>
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<td></td>
<td>Central/Southwest Transition Zone (Use Central Zone Row and Field Crop/Riparian Preserve)</td>
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<tr>
<td>SPECIES NAME</td>
<td>SJMSCP INDEX ZONE (PRESERVE TYPE) LOCATION IN COUNTY</td>
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<td>------------------------------------------------------</td>
</tr>
<tr>
<td>Merlin (Falco columbarius)</td>
<td>Primary Zone of the Delta (Flooded Field Preserve)</td>
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<tr>
<td></td>
<td>Central Zone (Row and Field Crop/Riparian Preserve)</td>
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<td></td>
<td>Central Zone (Oak Woodland Preserve)</td>
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<tr>
<td></td>
<td>Central/Southwest Transition Zone</td>
</tr>
<tr>
<td>Prairie falcon (Falco mexicanus)</td>
<td>Southwest Zone (Grassland Preserve)</td>
</tr>
<tr>
<td>Yellow-breasted chat (Icteria virens)</td>
<td>Primary Zone of the Delta (Large and Small Water's Edge Preserve)</td>
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<td></td>
<td>Central Zone (Row and Field Crop/Riparian Preserve)</td>
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<tr>
<td></td>
<td>Central/Southwest Transition Zone</td>
</tr>
<tr>
<td>Loggerhead shrike (Lanius ludovicianus)</td>
<td>Southwest Zone (Grassland Preserve)</td>
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<td></td>
<td>Vernal Pool Zone (Vernal Pool Grassland Preserve)</td>
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<td></td>
<td>Central Zone (Row and Field Crop/Riparian Preserve)</td>
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<td></td>
<td>Central Zone (Wetlands Preserve)</td>
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<tr>
<td></td>
<td>Central/Southwest Transition Zone</td>
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<tr>
<td>Long-billed curlew (Numenius americanus)</td>
<td>Primary Zone of the Delta (Flooded Field Preserve)</td>
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<td></td>
<td>Southwest Zone (Grassland Preserve)</td>
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<td></td>
<td>Central Zone (Row and Field Crop/Riparian Preserve)</td>
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<td></td>
<td>Central Zone (Wetlands Preserve)</td>
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<tr>
<td></td>
<td>Central/Southwest Transition Zone</td>
</tr>
<tr>
<td>Black-crowned night heron (Nycticorax nycticorax)</td>
<td>Primary Zone of the Delta (Large and Small Water's Edge Preserve)</td>
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<td></td>
<td>Central Zone (Row and Field Crop/Riparian Preserve)</td>
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<tr>
<td></td>
<td>Central/Southwest Transition Zone</td>
</tr>
<tr>
<td>Osprey (Pandion haliaetus)</td>
<td>Primary Zone of the Delta (Large and Small Water's Edge Preserve)</td>
</tr>
<tr>
<td></td>
<td>Central Zone (Row and Field Crop/Riparian Preserve)</td>
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<tr>
<td></td>
<td>Central/Southwest Transition Zone</td>
</tr>
<tr>
<td>American white pelican (Pelecanus erthrorhynchos)</td>
<td>Primary Zone of the Delta (Large and Small Water's Edge Preserve)</td>
</tr>
<tr>
<td>Double-crested cormorant (Phalacrocorax auritus)</td>
<td>Primary Zone of the Delta (Large and Small Water's Edge Preserve)</td>
</tr>
<tr>
<td></td>
<td>Central Zone (Wetlands Preserve)</td>
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<tr>
<td>White-faced ibis (Plegadis chichi)</td>
<td>Primary Zone of the Delta (Large and Small Water's Edge Preserve)</td>
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<td></td>
<td>Primary Zone of the Delta (Flooded Field Preserve)</td>
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<td></td>
<td>Central Zone (Wetlands Preserve)</td>
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<tr>
<td>Burrowing owl (Speotyto cunicularia)</td>
<td>Southwest Zone (Grassland Preserve)</td>
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<td></td>
<td>Vernal Pool Zone (Vernal Pool Grassland Preserve)</td>
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<tr>
<td></td>
<td>Central Zone (Row and Field Crop/Riparian Preserve)</td>
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<td></td>
<td>Central/Southwest Transition Zone</td>
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<tr>
<td>SPECIES NAME</td>
<td>SJMSCP INDEX ZONE (PRESERVE TYPE) LOCATION IN COUNTY (a)</td>
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<tr>
<td>------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Ringtail/ringtail cat (<em>Bassaricus astutus</em>)</td>
<td>Central Zone (Row and Field Crop/Riparian Preserve)</td>
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<tr>
<td></td>
<td>Central Zone (Oak Woodland Preserve)</td>
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<tr>
<td></td>
<td>Central/Southwest Transition Zone (Use Central Zone Row and Field Crop/Riparian Preserve) (b)</td>
</tr>
<tr>
<td>Berkeley kangaroo rat (<em>Dipodomys heermanni berkeleyensis</em>)</td>
<td>Southwest Zone (Grassland Preserve)</td>
</tr>
<tr>
<td>Greater western mastiff bat aka California mastiff bat (*Eumops perotis</td>
<td>Southwest Zone (Grassland Preserve)</td>
</tr>
<tr>
<td>californicus*)</td>
<td></td>
</tr>
<tr>
<td>Red bat (<em>Lasiurus borealis</em>)</td>
<td>Primary Zone of the Delta (Flooded Field Preserve)</td>
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<tr>
<td></td>
<td>Central Zone (Row and Field Crop/Riparian Preserve)</td>
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<tr>
<td></td>
<td>Central/Southwest Transition Zone (Use Central Zone Row and Field Crop/Riparian Preserve)</td>
</tr>
<tr>
<td>Small-footed myotis/bat (<em>Myotis ciliolabrum</em>)</td>
<td>Central Zone (Oak Woodland Preserve)</td>
</tr>
<tr>
<td>Long-eared myotis/bat (<em>Myotis evotis</em>)</td>
<td>Central Zone (Oak Woodland Preserve)</td>
</tr>
<tr>
<td>Fringed myotis/bat (<em>Myotis thysanodes</em>)</td>
<td>Central Zone (Oak Woodland Preserve)</td>
</tr>
<tr>
<td>Long-legged myotis/bat (<em>Myotis volans</em>)</td>
<td>Central Zone (Oak Woodland Preserve)</td>
</tr>
<tr>
<td>Yuma myotis/bat (<em>Myotis yumanensis</em>)</td>
<td>Primary Zone of the Delta (Flooded Field Preserve)</td>
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<td></td>
<td>Central Zone (Row and Field Crop/Riparian Preserve)</td>
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<tr>
<td></td>
<td>Central/Southwest Transition Zone (Use Central Zone Row and Field Crop/Riparian Preserve)</td>
</tr>
<tr>
<td>San Joaquin pocket mouse (<em>Perognathus inornatus inornatus</em>)</td>
<td>Southwest Zone (Grassland Preserve)</td>
</tr>
<tr>
<td>Pale big-eared bat (*Plecotus townsendii pallescens aka Corynorhinus</td>
<td>Southwest Zone (Grassland Preserve)</td>
</tr>
<tr>
<td>townsendii pallescens*)</td>
<td>Vernal Pool Zone (Vernal Pool Grassland Preserve)</td>
</tr>
<tr>
<td>Pacific western big-eared bat (*Plecotus townsendii townsendii aka Corynorhinus</td>
<td>Southwest Zone (Grassland Preserve)</td>
</tr>
<tr>
<td>townsendii townsendii*)</td>
<td>Vernal Pool Zone (Vernal Pool Grassland Preserve)</td>
</tr>
<tr>
<td>American badger (<em>Taxidea taxus</em>)</td>
<td>Southwest Zone (Grassland Preserve)</td>
</tr>
</tbody>
</table>

(a) See Section 2.2 for a description of each vegetation type
(b) Species requires a habitat no longer known in San Joaquin County or there are no recent occurrences of this species known in the County.
(c) Presumed extirpated.
(d) Would require reintroduction.
(e) Stanislaus River from Caswell State Park to confluence with the San Joaquin River.
(f) Along Stanislaus River.
(g) Possibility or recolonization along the Stanislaus and San Joaquin Rivers.
(h) Valley oak woodlands.
(i) No current occurrences--low possibility of finding this species in San Joaquin County.
(j) Occurred historically in San Joaquin County, but there are no current records indicating occupied habitat. Potential habitat has been identified in the indicated SJMSCP Index Zone.
The Central/Southwest Transition Zone contains habitat types identical to those in the Central Zone. SJMSCP Covered Species associated with the Central Zone Row and Field Crop/Riparian Preserves, except for those associated only with the Stanislaus, San Joaquin, or Mokelumne Rivers, are also found in the Central/Southwest Transition Zone. However, to reflect data indicating that the San Joaquin kit fox sometimes travels through the Central/Southwest Transition Zone, this area has been identified in a separate SJMSCP Index Zone and the San Joaquin kit fox is identified as an occupant of the Central/Southwest Transition Zone.

Along streams passing through the vernal pool grasslands in the northeastern corner of the Vernal Pool Zone.

Limited only to very restricted areas along common boundary between Primary Zone of the Delta and Central Zone in sloughs and slow-moving waterways.

Based on associations of one or more individual vegetation types with individual SJMSCP Covered Species and the association of one or more individual vegetation types into habitat types (Preserve Types).

** The western and southwestern pond turtles (Clemmys marmorata marmorata and Clemmys marmorata pallida, respectively) have been combined into a single category for the SJMSCP due to disagreements among experts as to the correct taxonomic classification.

*** The Mid-valley fairy shrimp (Branchinecta. sp. nova) is a newly discovered species of fairy shrimp which is not yet fully described, but has the potential for federal listing.
Once SJMSCP Covered Species are linked to their preferred vegetation types and then to habitat types and then to Preserve types within SJMSCP Index Zones, Preserve selection criteria were established. These criteria are refined by reflecting species specific-needs as they apply to each SJMSCP Index Zone. Species specific needs reflected in Preserve selection criteria include, but are not limited to:

A. Establishing minimum patch sizes for Preserves based upon the largest patch size required by all of the species linked to a given SJMSCP Index Zone (i.e., if eight species are linked to an SJMSCP Index Zone and preferred patch sizes for each individual species range from one acre to 250 acres, then Preserve criteria are based upon a 250-acre patch size);

B. Reflecting the distribution of populations of species across an SJMSCP Index Zone if the species has multiple population centers within the County (e.g., the Swainson's hawk has five distinct population centers distributed across the Central Zone: the Dry Creek population, North Stockton population, Southeast Stockton population, South Delta population and the South San Joaquin population);

C. Reflecting the home ranges of species,

D. Addressing specialized foraging, breeding or sheltering requirements;

E. Establishing Preserve buffers which consider the sensitivity of species to human intrusion; and

F. Other special species needs.

In this manner, the acquisition, enhancement, and management of Preserves containing specified habitat types within specified SJMSCP Index Zones provides for the conservation of the SJMSCP Covered Species.

5.4.4 PRESERVE DESIGN CRITERIA

The SJMSCP Preserve design criteria derived from the process described in Section 5.4.3 are as follows for each SJMSCP Index Zone. Letter symbols indicating vegetation types are mapped on the SJMSCP Vegetation Maps and are described in greater detail in Section 2.2.1. Monitoring, to ensure that these Preserve Design Criteria are being met, shall be accomplished through the monitoring procedure established in Section 5.9.2.11. Minimum Preserve sizes specified in Section 5.4.4 may be reduced if determined to be biologically beneficial to SJMSCP Covered Species by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC.

5.4.4.1 Primary Zone of the Delta

Two different habitat types (or Preserve Types), supporting two different suites of species are in the Primary Zone of the Delta:

A. Drainage ditches (D); aquatic vegetation types except sewage treatment ponds (W, W1-W5, W7-W9); channel island and tule island and mud flat (I and I2); and riparian forest (R types)

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21 The South Delta population crosses the common boundary between the Central Zone and the Primary Zone of the Delta in the vicinity of Roberts Island and Fabian Tract.
and scrub (S) vegetation types. Preserves in this category may also include those with shaded riverine aquatic vegetation. The association of these vegetation types within the Primary Zone of the Delta is referred to as "Water's Edge Habitats"; and

B. Row and field crops (C3 and C4) which may be flooded. This association of vegetation types is referred to as "Flooded Field Habitats."

These habitat types will, in turn, be protected under the SJMSCP as Water’s Edge Preserves and Flooded Field Preserves pursuant to the criteria listed below.

5.4.4.1(A) Primary Zone of the Delta - Water's Edge Preserves

Two types of Water’s Edge Preserves, characterized by their different sizes, a "large area" or "small area", are included so that the ecological requirements of different species may be met. Whenever possible, priority should be given to protection of larger tracts of land because of their ability to support larger and more diverse populations of water-dependent species. In any case, sufficient land will be acquired as Water’s Edge Preserves to support an equal or better extent and quality of habitat compared to that which was lost.

The "large area" designation is provided for the California black rail, since it is found only where there are wetlands or marshes that are 20 acres or larger. Such an area will be required for acquisition if impacts of SJMSCP Permitted Activities are known to affect the California black rail (SJMSCP Permitted Activities shall be considered to affect the California black rail if sightings of the rail are made or California black rail calls are heard during preconstruction surveys or if the SJMSCP GIS Database contains reliable records indicating the presence of the California black rail on the project site within the past five years).

A1. Large Area Water's Edge Preserves shall:

1. Be located within the Primary Zone of the Delta;
2. Include a minimum of 20 acres of existing or restorable instream island, riparian or wetland/marsh vegetation types (buffer lands are not included within the 20 acres);
3. Consist of 5 to 10 percent upland habitat that does not flood;
4. Provide, in addition to the 20 acres of habitat, to the maximum extent feasible, and as part of the Preserve, a buffer strip of compatible uses or restorable land at least 100 feet in width on the upland perimeter of the 20-acre parcel;
5. Give the highest priority during the selection process to land located so that permanent flooding, such as that caused by levee failure, will not result in a loss of habitat values (i.e., located near or above 0' mean sea level to avoid destruction of Preserves due to catastrophic flooding);
6. Be located so that it is unnecessary to pump water to maintain habitat values;
7. Support only those SJMSCP Covered Species that tolerate flooding if the area floods regularly;
8. Be protectable from erosion due to wave action or currents (i.e., land which are compatible with recreational boating and fishing, lands which will not be subject to erosion or where erosion may be controlled at a relatively low cost) if the parcel under consideration is a channel island;
9. Give high priority to lands currently supporting populations of SJMSCP Covered Species during the selection process; and
10. Be accessible (i.e., may be accessed with relative ease by boat if Preserve lands are
Large Area Water's Edge Preserves meeting the preceding criteria will protect the following SJMSCP Covered Species, especially (but not necessarily) if the additional Preserve elements indicated below are found or can be incorporated into selected Preserves:

Brackish waters with some tidal influence:

- **Aster lentus**
  - Suisun marsh aster
- **Lathyrus jepsonii var. jepsonii**
  - Delta tule pea

Relatively undisturbed vegetated islands and shorelines of rivers, sloughs and levee banks where tides would not cover this plant:

- **Hibiscus lasiocarpus**
  - California hibiscus

Peaty or clay soils in fresh or brackish waters:

- **Lilaeopsis masonii**
  - Mason's lilaeopsis

Muddy or sandy intertidal flats at low elevations above sea level:

- **Limosella subulata**
  - Delta mudwort

Presence of elderberry bushes with stems of 1" or greater in diameter:

- **Desmocerus californicus dimorphus**
  - Valley elderberry longhorn beetle

Rocky or muddy substrate in water source supporting emergent vegetation:

- **Clemmys marmorata**
  - Western pond turtle

Streams, marshes, or sloughs, with mud bottoms and small fish, but lacking predaceous fish:

- **Thamnophis gigas**
  - Giant garter snake

Marshy areas with the presence of small fish:

- **Aechmophorus occidentalis**
  - Western grebe

Presence of nesting substrate including cattails, tules, blackberries, (for breeding populations). For overwintering populations: presence of harvested grain fields or irrigated pastures for foraging and dense cattail/tule marshes for overwintering night roosts [often communally in association with flocks of Brewer's or red-winged blackbirds and even starlings] (Beedy, pers. com. 2/8/00); in addition, presence of alfalfa fields, pasture, or dry grasslands for foraging habitat in proximity to breeding or overwintering habitat. Vegetation in alfalfa fields, hay fields, or pastures managed to benefit the species shall regularly be moved or grazed to keep vegetation height at 6 inches or less during periods of tricolored use, and shall be flood-irrigated to the extent feasible, as a means to help provide insect foraging opportunities during the tricolored breeding season:
*Agelaius tricolor*  
tricolor blackbird

Buffer lands (uplands) containing high rodent populations:

*Asio flammeus*  
short-eared owl

*Buteo swainsoni*  
Swainson's hawk

*Elanus leucurus (Elanus caeruleus)*  
white-tailed kite

Presence of small reptiles and/or amphibians in shallow waters:

*Ardea alba (Casmerodius albus)*  
great egret

*Ardea herodias*  
great blue heron

Willow thickets at the edge of permanent water:

*Dendroica petechia brewsteri*  
yellow warbler

Presence of invertebrates in shallow waters:

*Egretta thula*  
snowy egret

*Plegadis chichi*  
white-faced ibis

Located within flight distance of riparian woodlands for breeding or roosting:

*Icteria virens*  
yellow-breasted chat

*Nycticorax nycticorax*  
black-crowned night heron

Presence of snags or man-made platforms normally near water:

*Pandion haliaetus*  
osprey

Trees or man-made platforms (such as powerlines) located within flying distance providing potential breeding sites (although may also breed on ground) and perches (low or high) for feeding and/or drying wings located adjacent to water:

*Phalacrocorax auritus*  
double-crested cormorant

Dense, herbaceous, canopy for nesting:

*Laterallus jamaicensis coturniculus*  
California black rail

Shallow waters located in vicinity of deeper feeding waters to allow for groups to herd fish for easier capture:

*Pelecanus erthrorhynchos*  
American white pelican

Channel edges and dead-end sloughs with water depth is less than three meters and submerged vegetation is present as spawning substrate:

*Hypomesus transpacificus*  
delta smelt
A2. **Small Area Water's Edge Preserves shall:**

1. Be located within the *Primary Zone of the Delta*;
2. Be a minimum of 4 acres or 1,000 linear feet, of existing or restorable channel island, riparian, or wetland/marsh vegetation types. The acreage may be assembled from smaller areas separated by water;
3. If parcel under consideration is a channel island, be protectable from erosion due to wave action or currents (i.e., land which are compatible with recreational boating and fishing, lands which will not be subject to erosion or where erosion may be controlled at a relatively low cost);
4. Give high priority during the selection process to lands currently supporting populations of SJMSCP Covered Species, especially plant and animal species which are currently state or federally-listed;
5. Emphasize restorable habitat;
6. Give highest priority during the selection process to land located so that permanent flooding, such as that caused by levee failure, would not result in a loss of habitat values (i.e., located near or above 0' mean sea level to avoid destruction of Preserves due to catastrophic flooding); and
7. Be accessible (i.e., may be accessed with relative ease by boat if Preserve lands are inaccessible by auto).

Small Area Water's Edge Preserves meeting the preceding criteria will protect the same SJMSCP Covered Species as protected by Large Area Water's Edge Preserves, except that Small Area Water's Edge Preserves will not provide sufficient protection for the California black rail.

5.4.4.1(B) **Primary Zone of the Delta - Flooded Field Preserves**

The objective of the *Primary Zone of the Delta* Flooded Field Preserves is protection of fields that can be flooded in winter to provide roosting and foraging habitat for large migratory bird species (e.g. the Aleutian Canada goose, greater sandhill crane, and white-faced ibis), although these Preserves benefit other species as well. The habitat types to be managed as Flooded Field Preserves are row and field crops (C3 and C4), although existing wetlands (e.g., D, W4, W5, W7, W8) also may be included within the overall Flooded Field Preserve system where such wetlands provide benefit to the SJMSCP Covered Species targeted by the Flooded Field Preserves.

**Flooded Field Preserves shall:**

1. Consist of 80-acres minimum of managed or natural wetlands or floodable corn or grain fields located in the *Primary Zone of the Delta* and contiguous with at least 240 acres of grain or row crop Preserves, preferably located adjacent to at least two sides of the 80-acre areas;
2. Give highest priority to lands lying near or above 0 feet Mean Sea Level elevations during the selection process. Lands lying below 0 feet Mean Seal level that may be available should be evaluated for their suitability for long-term viability as Flooded Field Preserve on a case-by-case basis; and
3. Give high priority during the selection process to lands currently used by SJMSCP Covered
Species, especially those plants or animals which are currently state or federally-listed.

If the floodable fields lie near the edge of the *Primary Zone of the Delta*, the agricultural fields used for grain may be located outside the *Primary Zone of the Delta*, so long as they meet the criterion of proximity to the floodable fields.

*Primary Zone of the Delta* Flooded Field Preserves meeting the preceding criteria will protect the following SJMSCP Covered Species, especially (but not necessarily) if the additional Preserve elements indicated below are found or can be incorporated into selected Preserves:

In proximity to riparian corridors with tall nest trees:

<table>
<thead>
<tr>
<th>Species</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Accipiter cooperii</em></td>
<td>Cooper's hawk</td>
</tr>
<tr>
<td><em>Buteo swainsoni</em></td>
<td>Swainson's hawk</td>
</tr>
</tbody>
</table>

Presence of small reptiles and amphibians in the shallows of the flooded fields:

<table>
<thead>
<tr>
<th>Species</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Ardea alba</em> <em>(Casmerodius albus)</em></td>
<td>great egret</td>
</tr>
<tr>
<td><em>Ardea herodias</em></td>
<td>great blue heron</td>
</tr>
</tbody>
</table>

Presence of invertebrates in shallows of flooded fields:

<table>
<thead>
<tr>
<th>Species</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Egretta thula</em></td>
<td>snowy egret</td>
</tr>
<tr>
<td><em>Plegadis chichi</em></td>
<td>white-faced ibis</td>
</tr>
</tbody>
</table>

Within flight distance to open waters:

<table>
<thead>
<tr>
<th>Species</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Branta canadensis leucopareia</em></td>
<td>Aleutian Canada goose</td>
</tr>
</tbody>
</table>

Presence of short grasses:

<table>
<thead>
<tr>
<th>Species</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Numenius americanus</em></td>
<td>long-billed curlew</td>
</tr>
</tbody>
</table>

Presence of rodents:

<table>
<thead>
<tr>
<th>Species</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Asio flammeus</em></td>
<td>short-eared owl</td>
</tr>
<tr>
<td><em>Buteo swainsoni</em></td>
<td>Swainson's hawk</td>
</tr>
<tr>
<td><em>Elanus leucurus</em> <em>(Elanus caeruleus)</em></td>
<td>white-tailed kite</td>
</tr>
</tbody>
</table>

Presence of flying insects, especially moths, beetles, midges:

<table>
<thead>
<tr>
<th>Species</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Myotis yumanensis</em></td>
<td>Yuma myotis (bat)</td>
</tr>
<tr>
<td><em>Lasiurus borealis</em></td>
<td>Red bat</td>
</tr>
</tbody>
</table>

Presence of nearby caves, old buildings or similar roosting sites:

<table>
<thead>
<tr>
<th>Species</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Myotis yumanensis</em></td>
<td>Yuma myotis (bat)</td>
</tr>
<tr>
<td><em>Lasiurus borealis</em></td>
<td>Red bat</td>
</tr>
</tbody>
</table>
Presence of small shorebirds, pigeons or mice:

*Falco columbarius*          merlins

Shallow standing water (normally shallower waters than are present on the remainder of the Flooded Field Preserve) providing resting habitat:

*Grus canadensis tabida*          greater sandhill crane

5.4.4.2 **Southwest Zone**

There are four primary habitat types in the *Southwest Zone*:

1. Valley grasslands (G) with some grasslands containing scattered wetlands including some vernal pools;

2. Patches of diablan sage scrub (S3);

3. Riparian habitat as found in the primary drainage in the *Southwest Zone*—Corral Hollow Creek which includes stretches of great valley riparian forest (R) with long expanses of arroyo willow thicket (R4); and

4. The blue oak conifer vegetation types including: blue oak-conifer savanna with a tree canopy closure of less than 10%, (BCN), blue oak-conifer woodland with a tree canopy closure of 10-33% (BCN2) and the more dense blue-oak conifer forest with a tree canopy closure of 34-75% (BCN3). The oak conifer vegetation types are not anticipated to be Converted by SJMSCP Permitted Activities. However, given the 50-year term of the Plan, it is assumed that some limited Conversion of oak conifer vegetation types might occur, and, therefore, Preserve selection criteria are provided for these vegetation types.

These habitat types shall be protected within four Preserve Types within the *Southwest Zone*: the Grassland Preserves, the Diablan Sage Scrub Preserves, the Riparian Preserves, and the Blue Oak Conifer Preserves.

5.4.4.2(A) **Southwest Zone - Grassland Preserves**

*Southwest Zone Grassland Preserves shall:*

1. Be located southwest of I-580;
2. Be composed of the valley grassland vegetation type (G);
3. Have a minimum size of 320 acres, with a length-width ratio of no more than 4:1 (i.e., no narrower than 0.35 mile by 1.4 miles), when such Preserves are established for the San Joaquin kit fox;
4. Have predominantly gentle slopes (averaging less than 15%) in favorable soil types (e.g., Calla, Carbona, Plieto, Stomar, Wisflat, or Zacharias soils);
5. Be occupied habitat for San Joaquin kit fox with the presence of other SJMSCP Covered Species highly desirable;
6. Be in proximity to other Preserve lands, to the maximum extent feasible;
7. Be configured to maintain a northwest to southeast band of habitat to provide a corridor
connecting the southern population of San Joaquin kit foxes located outside of San Joaquin County with the northern population of San Joaquin kit foxes located in San Joaquin, Alameda and Contra Costa counties, with highest priority given to lands within three miles of the Delta-Mendota canal.

8. Include at least one Preserve each for the large-flowered fiddleneck, hospital canyon larkspur and showy madia; however, the minimum Preserve size for these species shall be 40 acres unless a smaller size is approved by the by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC sufficient to include all known existing occupied habitat for a given population of these SJMSCP Covered Plant Species plus a buffer of at least 500 feet sufficient to protect against hydrologic, erosional, grazing or other potential impacts to these SJMSCP Covered Plant Species. Preserve sizes established for the large-flowered fiddleneck shall be determined in consultation with the Permitting Agencies' representatives on the TAC based upon the guidelines established in the Large-flowered fiddleneck recovery plan.

9. Include, if discovered within the Southwest Zone, grasslands containing wetlands occupied by the longhorn and/or Conservancy fairy shrimp and/or vernal pool tadpole shrimp;

10. If feasible, establish a preserve for the diamond-petaled poppy. Pursuant to the Recovery Plan for Upland Species of the San Joaquin Valley, California, (USFWS, 1998) preserves should be 160 acres in size and target populations with at least 1,000 individuals;

11. If feasible, contain a known, occupied (at least within most recent three years) nest site for the golden eagle, which may be significantly smaller than 320 acres, but will normally be located on cliffs and including a buffer of at least 1,000 feet surrounding nest site; and

12. If feasible, contain a known, occupied (at least within most recent three years) roosting site for the greater western mastiff bat which may be significantly smaller than 320 acres, but will normally be located in rocky and inaccessible places; and including a buffer of at least 1,000 feet surrounding the roosting site.

13. Include known California tiger salamander breeding habitat and/or suitable upland habitat within one mile of known breeding habitat.

Southwest Zone Grassland Preserves meeting the preceding criteria will protect the following SJMSCP Covered Species, especially (but not necessarily) if the additional Preserve elements indicated below are found or can be incorporated into selected Preserves:

North-facing slopes on grasslands at elevations nearing the blue oak belt:

- **Amsinckia grandiflora**
  - large-flowered fiddleneck

Poorly-drained, fine alkaline soils, sometimes near scrub:

- **Delphinium recurvatum**
  - recurved larkspur

Presence of ground-nesting bees:

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**Lyta moesta/L. molesta**
Moestan / Molestan blister beetles

Presence of ant colonies:

**Phrynosoma coronatum frontale**
California horned lizard

Presence of a seasonal or intermittent water source:

**Ambystoma californiense**
California tiger salamander

**Scaphioius hammondi**
western spadefoot toad

Presence of vernal pools or vernal-pool-like wetlands:

**Branchinecta conservatio**
Conservancy fairy shrimp

**Branchinecta lynch**
Vernal pool fairy shrimp

**Branchinecta longiantenna**
Longhorn fairy shrimp

**Lepidurus packardi**
Vernal pool tadpole shrimp

**Ambystoma californiense**
California tiger salamander

Presence of nearly barren areas of clay soils, churning clay soils, or other high clay content surface soils variously in association with the spiny salt bush, Munz’s tidy tips, San Benito thornmint (*Acanthomintha obovata*), gold fields, phacelia and large-leaved filaree (*Erodium macrophyllum*):

**Eschscholzia rhombipetala**
Diamond-petaled California poppy

Presence of loose, sandy, gravelly, or other easily crumbling soils:

**Scaphioius hammondi**
western spadefoot toad

**Phrynosoma coronatum frontale**
California horned lizard

**Dipodomys heermanni berkeleyensis**
Berkeley kangaroo rat

**Perognathus inornatus inornatus**
San Joaquin pocket mouse

**Taxidea taxus**
American badger

**Vulpes macrotis mutica**
San Joaquin kit fox

Presence of ground squirrel holes:

**Ambystoma californiense**
California tiger salamander

**Speotyto cunicularia**
burrowing owl

**Vulpes macrotis mutica**
San Joaquin kit fox

Presence of rodent populations:

**Masticophis flagellum ruddocki**
San Joaquin whipsnake

**Aquila chrysaetos**
golden eagle

**Buteo regalis**
ferruginous hawk

**Circus cyaneus**
Northern harrier

**Elanus leucurus (Elanus caeruleus)**
white-tailed kite

**Taxidea taxus**
American badger

**Vulpes macrotis mutica**
San Joaquin kit fox
Presence of grasshoppers, cicadas, lizards, other snakes:

*Masticophis flagellum ruddocki*  
San Joaquin whipsnake

Tall perching sites (e.g., perches which exceed the height of surrounding vegetation and permit the species to survey its surroundings):

*Lanius ludovicianus*  
loggerhead shrike

Short grasses, sometimes almost barren ground:

*Eremophila alpestris actia*  
California horned lark

*Charadrius montanus*  
mountain plover

*Numenius americanus*  
long-billed curlew

Sites containing potential roosting sites (e.g., mine shafts, trees, rocky outcrops, high cliffs) or nesting sites (crevices or holes in cliffs):

*Agelias chrysaetos*  
golden eagle

*Falco mexicanus*  
prairie falcon

*Eumops perotis californicus*  
greater western mastiff bat

*Plecotus (=Corynorhinus) townsendii pallescens*  
pale big-eared bat

*Plecotus (=Corynorhinus) townsendii townsendii*  
Pacific western big-eared bat

Presence of nesting substrate (e.g., blackberry thickets, cattails, tules) for breeding populations (within the vicinity of the Primary Zone of the Delta). For overwintering populations: presence of harvested grain fields or irrigated pastures for foraging and dense cattail/tule marshes for overwintering night roosts [often communally in association with flocks of Brewer's or red-winged blackbirds and even starlings] (Beedy, pers. com. 2/8/00; or presence of alfalfa fields or pasture for foraging habitat in proximity to breeding or overwintering habitat. Vegetation in alfalfa fields or pastures managed to benefit the species shall regularly be mowed or grazed to keep vegetation height at 6 inches or less during periods of tricolored use, and shall be flood-irrigated to the extent feasible, as a means to help provide insect foraging opportunities during the tricolored breeding season:

*Agelias tricolor*  
tricolored blackbird

### 5.4.4.2(B) Southwest Zone - Diablan Sage Scrub Preserves

**Southwest Zone Diablan Sage Scrub Preserves shall:**

1. Contain the Diablan Sage Scrub (S3) vegetation type southwest of I-580;
2. Be located preferably on the southern slopes of higher hills and ridges;
3. Retain access to open water sources for drinking, particularly in late summer and winter, by incorporating, where feasible, those water sources into Preserve acquisition areas; and
4. If breeding locations are identified, include the breeding areas within the Preserves, if feasible, and include buffers within the Preserves upslope from the breeding areas where
young birds frequently flock after breeding, where feasible.

**Southwest Zone** Diablan Sage Scrub Preserves meeting the preceding criteria will protect the following SJMSCP Covered Species:

*Amphispiza belli belli*  
Bell's sage sparrow

**5.4.4.2(C) Southwest Zone - Riparian Preserves**

**Southwest Zone Riparian Preserves shall:**

1. Be located primarily in Corral Hollow Creek (although Preserves along Hospital Creek, and Lone Tree Creek may be permitted if riparian vegetation extending at least a few hundred linear feet or SJMSCP Covered Species are found in association with those creeks);
2. Include at least 0.25 linear mile of stream course;
3. Include at least 100 feet of upland habitat buffer on both sides of riparian vegetation as part of the Preserve and 300 feet of upland habitat buffer surrounding known occupation sites of red-legged frogs or yellow-legged frogs on each side of the stream or pond (600' total buffer). These 300' buffers shall be measured horizontally from the top of the bank. These setbacks may be reduced by the TAC with the concurrence of the Permitting Agencies' representative on the TAC if the reduction will not reduce the biological values of the habitat;
4. Include occupied habitat for at least one SJMSCP Covered Species, preferably more;
5. Limit livestock access to wetland/riparian habitats within Preserves to avoid impacts to SJMSCP Covered Species; and
6. Maintain water rights for existing rangeland as part of conservation easements if appropriate diversions can be developed without causing degradation of the vegetation in the riparian Preserve.

**Southwest Zone** Riparian Preserves meeting the preceding criteria will protect the following SJMSCP Covered Species, especially (but not necessarily) if the additional Preserve elements indicated below are found or can be incorporated into selected Preserves:

Presence of elderberry bushes with stem 1" or greater in diameter:

*Desmocerus californicus dimorphus*  
Valley elderberry longhorn beetle

Presence of ground squirrel holes or similar burrows within upland buffer component of Preserves:

*Ambystoma californiense*  
California tiger salamander

Relatively dense streamside vegetation and a permanent water source (e.g., spring sites along the creek):

*Rana aurora draytoni*  
California red-legged frog

Gravelly, sandy, streamside location with sunny banks and nearby woodlands:

*Rana boylei*  
foothill yellow-legged frog
Sandy, gravelly, loose soils:

*Scaphiopus hammondi*  
western spadefoot toad

**5.4.4.2(D) Southwest Zone - Blue Oak Conifer Preserves**

*Southwest Zone Blue Oak Conifer Preserves shall:*

1. Be a minimum size of 40 acres with the potential for expansion of Preserves, where feasible, to patch sizes of 250 acres and greater.
2. Target Preserve areas with similar canopy cover and species diversity as habitats that have been Converted. Alternatively, identify areas adjacent to existing oak woodlands where oak regeneration may be attempted.
3. Give a high priority, during the acquisition evaluation process, to acquiring sites with existing populations of Hospital Canyon larkspur and showy madia.

*Southwest Zone* Blue Oak Conifer Preserves meeting the preceding criteria will protect the following SJMSCP Covered Species, especially (but not necessarily) if the additional Preserve elements indicated below are found or can be incorporated into selected Preserves:

*Open woodlands:*

*Delphinium californicum ssp. interius*  
Hospital Canyon larkspur

*Madia radiata*  
showy madia

**5.4.4.3 Vernal Pool Zone**

The *Vernal Pool Zone* contains the vernal pool grassland vegetation type (G3) found primarily on the eastern and northern edges of San Joaquin County. This vegetation type, which composes the Vernal Pool Grassland Habitat, shall be protected within Vernal Pool Grassland Preserves which include a combination of existing vernal pools and restored or created vernal pools at the ratio of two acres of existing vernal pools plus one acre of created or restored vernal pool for every acre of vernal pool Converted from Open Space use.

**5.4.4.3(A) Vernal Pool Zone - Vernal Pool Grassland Preserves Which are Restored or Created**

*Vernal Pool Zone* Vernal Pool Grassland Preserves which are restored or created shall:

1. Be located north of Liberty Road, augmenting the existing Angraves Preserve there; in the vicinity of and east of Clements Road, between highways 12 and 26; between highways 26 and 4, near Escalon-Bellota Road; in smaller tracts of vernal pool/grasslands in the northern part of the County north of Peltier Road (Highway J12); and near Farmington, including Cook Ranch. Within San Joaquin County, this is the southernmost area suitable for enhancement.
2. Be a minimum of 250 acres. Acreage protected as part of this Preserve design can be added
to other contiguous preserved habitat to create a total of 250 acres;

3. Be located only in areas where soil types are suitable and impermeable layers of the soil are still intact. An ideal site would include evidence of former vernal pools. It is preferable to restore vernal pools in former vernal pool areas rather than in areas which never had vernal pools;

4. Normally not strive to develop a greater percentage of the area as vernal pools than existed in the natural condition. In no case should the total area of vernal pools, including restored and existing pools, exceed 12% of the total area of the grassland unit; and

5. Contain uplands associated with the vernal pools to be acquired as Preserves to form a buffer for the wetted surface area of the vernal pool habitat.

6. Incorporate 300 foot buffers within Preserve designs adjacent to creeks passing through the Vernal Pool Zone which are occupied by red-legged frogs in the northeast corner of the Vernal Pool Zone. These 300 foot buffers shall occur on each side of the stream or pond (600' total buffer). These 300' buffers shall be measured horizontally from the top of the bank. These setbacks may be reduced by the TAC with the concurrence of the Permitting Agencies' representative on the TAC if the reduction will not reduce the biological values of the habitat. Buffers shall prevent alteration of vegetation, the disturbance of soils which could degrade water quality, and the installation of new wells which could adversely affect the existing hydrology.

7. Represent in proportion, the amount of vernal pool habitat Converted within each CDFG Vernal Pool region in accordance with SJMSCP Section 5.5.2.5 (C).

5.4.4.3(B) **Vernal Pool Zone - Vernal Pool Grassland Preserves Which are Existing**

*Vernal Pool Zone* Vernal Pool Grassland Preserves which are existing shall:

1. Be a minimum of 250 acres of grasslands and vernal pools where soils and microtopography have not been altered by farming. Acreage protected as part of this Preserve design can be added to other contiguous Preserve habitat to create a total of 250 acres;

2. Contain uplands associated with the vernal pools to be acquired as Preserves, forming a buffer for the vernal pool habitat;

3. Assign habitat occupied by SJMSCP Covered Species a high priority;

4. Give the highest priority during the selection process for acquiring sites near known salamander and/or spadefoot toad breeding sites;

5. Give priority during the selection process for sites with multiple SJMSCP Covered Species.

6. Incorporate 300 foot buffers within Preserve designs adjacent to creeks passing through the *Vernal Pool Zone* which are occupied by red-legged frogs in the northeast corner of the *Vernal Pool Zone*. These 300 foot buffers shall occur on each side of the stream or pond (600' total buffer) occupied by red-legged frogs. These 300' buffers shall be measured horizontally from the top of the bank. These setbacks may be reduced by the TAC with the concurrence of the Permitting Agencies' representative on the TAC if the reduction will not reduce the biological values of the habitat. Buffers shall prevent alteration of vegetation, the disturbance of soils which could degrade water quality, and the installation of new wells which could adversely affect the existing hydrology;

7. Maintain a balance between Conversion and conservation of vernal pool grasslands by Vernal Pool Region (i.e., Compensate for vernal pool Conversion within the Southeast Sacramento Valley Region located north of the Calaveras with Preserves located in the
Sacramento Valley Region. Compensate for vernal pool Conversion within the Southern Sierra Foothills Region located south of the Calaveras with Preserves located in the Southern Foothills Region). See Section 5.5.2.5(B) for additional details.

Vernal Pool Grassland Preserves meeting the preceding criteria will protect the following SJMSCP Covered Species, especially (but not necessarily) if the additional Preserve elements indicated below are found or can be incorporated into selected Preserves:

No additional Preserve elements:

<table>
<thead>
<tr>
<th>Species</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Branchinecta conservatio</td>
<td>Conservancy fairy shrimp</td>
</tr>
<tr>
<td>Branchinecta longiantennai</td>
<td>longhorn fairy shrimp</td>
</tr>
<tr>
<td>Branchinecta lynchii</td>
<td>vernal pool fairy shrimp</td>
</tr>
<tr>
<td>Branchinecta sp. nova</td>
<td>mid-valley fairy shrimp</td>
</tr>
<tr>
<td>Hygrotis curvipes</td>
<td>curved-foot diving beetle</td>
</tr>
<tr>
<td>Lepidurus packardi</td>
<td>vernal pool tadpole shrimp</td>
</tr>
</tbody>
</table>

Presence of relatively deep vernal pools (i.e., those pools which retain water for at least two weeks after the rains cease):

<table>
<thead>
<tr>
<th>Species</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Castilleja campestris ssp. succulenta</td>
<td>succulent owl's-clover</td>
</tr>
<tr>
<td>Gratiola heterosepala</td>
<td>Boggs Lake hedge-hyssop</td>
</tr>
<tr>
<td>Legenere limosa</td>
<td>legenere</td>
</tr>
</tbody>
</table>

Presence of ground-nesting bees:

<table>
<thead>
<tr>
<th>Species</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lytta moesta</td>
<td>Moestan blister beetle</td>
</tr>
</tbody>
</table>

Presence of ground squirrel holes or similar burrow opportunities in upland grasslands (located within 3,000 feet of wetted surface areas for tiger salamander):

<table>
<thead>
<tr>
<th>Species</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambystoma californiense</td>
<td>California tiger salamander</td>
</tr>
<tr>
<td>Speotyto cunicularia</td>
<td>burrowing owl</td>
</tr>
</tbody>
</table>

Presence of ant colonies:

<table>
<thead>
<tr>
<th>Species</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phrynosoma coronatum frontale</td>
<td>California horned lizard</td>
</tr>
</tbody>
</table>

Presence of loose soils:

<table>
<thead>
<tr>
<th>Species</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phrynosoma coronatum frontale</td>
<td>California horned lizard</td>
</tr>
<tr>
<td>Scaphiopus hammondi</td>
<td>western spadefoot toad</td>
</tr>
</tbody>
</table>

Presence of grasshoppers, cicadas, lizards, other snakes:

<table>
<thead>
<tr>
<th>Species</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Masticophis flagellum ruddocki</td>
<td>San Joaquin whipsnake</td>
</tr>
</tbody>
</table>

Presence of nesting substrate including cattails, tules, and blackberries (targeting breeding populations. In addition, presence of pasture, dry grasslands or wet or dry vernal pools for foraging habitat in proximity of
breeding or overwintering habitat. Vegetation in alfalfa fields, hay fields, or pastures managed to benefit the species shall regularly be mowed or grazed to keep vegetation height at 6 inches or less during periods of tricolor use, and shall be flood-irrigated to the extent feasible, as a means to help provide insect foraging opportunities during the tricolored breeding season:

*Agelaius tricolor*  
tricolored blackbird

**Presence of rodent populations:**

*Buteo regalis*  
ferruginous hawk

*Circus cyaneus*  
Northern harrier

**Presence of short grasses, sometimes almost barren ground:**

*Eremophila alpestris actia*  
California horned lark

**Presence of tall perching sites (i.e., perches located on vegetation which is normally higher than the surrounding vegetation which allows the species to survey the surrounding area):**

*Lanius ludovicianus*  
loggerhead shrike

**Presence of potential roosting sites (e.g., nearby mine shafts, trees, rocky outcrops, crevices or holes in cliffs):**

*Plecotus (=Corynorhinus) townsendii pallescens*  
pale big-eared bat

*Plecotus (=Corynorhinus) townsendii townsendii*  
Pacific western big-eared bat

Although not currently known to occur in the County, the following species might be considered for reintroduction into restored vernal pools under the Plan's Adaptive Management Plan (see Section 5.9):

*Tuctoria greenei*  
Greene's tuctoria

**5.4.4.4 Central Zone**

The *Central Zone* contains three primary habitat types:

1. Row and field crops (C3 and C4) located within 1.5 miles of rivers (W), tributary streams (W2), and creeks (W3) where the rivers, streams and creeks normally contain at least some riparian (R types) vegetation. This habitat type will be protected by Row and Field Crop/Riparian Preserves;

2. Ditches (D); dead-end sloughs (W4); freshwater lakes and ponds (W5); freshwater emergent wetlands (W7); vernal or seasonal wetlands (W8), and un-lined canals (W9) especially where these habitat types are located along the common boundary shared by the *Primary Zone of the Delta* and the *Central Zone*. This habitat type will be protected by the Wetlands Preserve Type.

3. Valley Oak Woodlands (V, V2, and V3), Blue Oak Woodlands (BL, BL2, BL3), and Mixed Oak Woodlands (O, O2, O3). This habitat type will be protected by the Oak Woodlands Preserves.
5.4.4.4(A1) Central Zone - Row and Field Crop/Riparian Preserves

At least 33% of Central Zone Row and Field Crop/Riparian Preserves shall:

1. Be located within 0.25 mile of riparian habitat at least 50 feet wide;
2. Contain riparian habitat adjacent to foraging habitat, or, at a minimum, adjacent to land uses compatible with Swainson's hawk nesting;
3. Contain 640 acres of alfalfa or other high-use foraging crop (e.g., other hay crops, beets, tomatoes, irrigated pasture) within a 1.5-mile radius of riparian Preserves, of which at least an undivided 160-acre holding is acquired as a Preserve;
4. Contain occupied habitat, with multiple currently-occupied nests (within last three years) preferred; and
5. Be distributed amongst the five population centers for the Swainson's hawk (i.e., the Dry Creek population, the North Stockton population, the southeast Stockton population, the south Delta population, and the south San Joaquin population);
6. For riparian habitats, acquire at least 10 acres of extant or restorable riparian forest, or at least 1,000 linear feet of existing or restorable vegetation of sufficient width to encompass the flood zone or existing riparian vegetation. The land may be on one or both sides of the river, creek or stream;
7. For riparian habitats, acquire at least 25 acres of extant or restorable riparian forest of sufficient width to encompass the flood zone or existing riparian vegetation (acreages of smaller than 25 acres may be selected when placed adjacent to other SJMSCP Preserve lands) for riparian areas located on the Stanislaus or San Joaquin rivers. The land may be on one or both sides of the river;
8. For riparian habitats, limit public access and/or limit recreational development;
9. For riparian habitats, require occupied or restorable habitat for one or more SJMSCP Covered Species; and
10. Provide buffers around existing or restored riparian habitat of a minimum 100-foot width acquired adjacent to the Preserve (and including agricultural habitat lands composed of row and field crops or, with the concurrence of the Permitting Agencies' representatives on the TAC, buffers may include orchards and vineyards under circumstances where orchards and vineyards are the only vegetation type located adjacent to the riparian areas). The buffer should be wider where restoration may allow development of a wider zone of riparian vegetation. Buffers shall be included within Preserves.
11. Incorporate, into Preserve designs, 300 foot buffers around existing or restored riparian areas where red-legged frogs, foothill yellow-legged frogs, western pond turtles, riparian brush rabbits, or riparian woodrats are known to be present. 300' Buffers shall occur on either side of streams or ponds occupied by red or yellow-legged frogs or in the San Joaquin River Wildlife Corridor. These 300' buffers shall be measured horizontally from the top of the bank. These setbacks may be reduced by the TAC with the concurrence of the Permitting Agencies' representative on the TAC if the reduction will not reduce the biological values of the habitat. Buffers shall be included within Preserve boundaries.

5.4.4.4(A2) Central Zone - Row and Field Crop/Riparian Preserves

At least 66% of Central Zone Row and Field Crop/Riparian Preserves shall:

1. Contain an occupied nest tree (occupied within the past five years, but preferably more
recently) and several additional potential nest trees; and

2. Contain 640 acres of habitat suitable for foraging, such as rotational crops (e.g., other hay, beets, tomatoes, irrigated pasture, dry-land pasture, wheat, oats, unflooded rice), of which at least 10 percent is alfalfa, within 3-mile radius of nest trees.

3. Use the same Preserve criteria for riparian as described in the preceding list of criteria.

The Central Zone Row and Field Crop/Riparian Preserves meeting the preceding criteria will protect the following SJMSCP Covered Species, especially (but not necessarily) if the additional Preserve elements indicated below are found or can be incorporated into selected Preserves:

Presence of elderberry bushes with stems 1" or greater in diameter:

*Desmocerus californicus dimorphus*  
Valley elderberry longhorn beetle

Presence of rodents:

*Buteo swainsoni*  
Swainson's hawk
*Circus cyaneus*  
northern harrier
*Elanus leucurus* (*Elanus caeruleus*)  
white-tailed kite

Presence of nesting substrate (e.g., cattails, tules, blackberry thickets) for breeding populations (within the vicinity of the Primary Zone of the Delta). For overwintering populations: presence of harvested grain fields or irrigated pastures for foraging and dense cattail/tule marshes for overwintering night roosts [often communally in association with flocks of Brewer's or red-winged blackbirds and even starlings] (Beedy, pers. com. 2/8/00; or presence of alfalfa fields or pasture for foraging habitat in proximity to breeding or overwintering habitat. Vegetation in alfalfa fields, hay fields, or pastures managed to benefit the species shall regularly be mowed or grazed to keep vegetation height at 6 inches or less during periods of tricolored use, and shall be flood-irrigated to the extent feasible, as a means to help provide insect foraging opportunities during the tricolored breeding season:

*Agelaius tricolor*  
tricolored blackbird

Presence of pigeons or mice (or shorebirds if row and field crops are adjacent to alternative wetlands):

*Falco columbarius*  
merlin

Presence of short grasses, sometimes almost barren ground:

*Numenius americanus*  
long-billed curlew
*Eremophila alpestris actia*  
horned lark

Presence of ground squirrel holes:

*Speotyto cunicularia*  
burrowing owl

Presence of small reptiles and/or amphibians in shallow waters:

*Ardea alba* (*Casmerodius albus*)  
great egret
*Ardea herodias*  
great blue heron

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Presence of tall perching sites (i.e., vegetative perches higher than surrounding vegetation which permit the species to survey the surrounding area) normally with adjacent agricultural fields or grasslands:

*Lanius ludovicianus*  
loggerhead shrike

Presence of snags or man-made platforms normally near water:

*Pandion haliaetus*  
osprey

Presence of willow thickets at the edge of permanent water:

*Dendroica petechia brewsteri*  
yellow warbler

Location of the Preserve along the Stanislaus River from the vicinity of Caswell State Park to the confluence of the Stanislaus and San Joaquin Rivers, and the San Joaquin River from its confluence with the Stanislaus River to Mossdale, including Tom Paine Slough and Paradise Cut:

*Sylvilagus bachmani riparius*  
riparian brush rabbit

*Neotoma fuscipes riparia*  
riparian woodrat

Presence of nearby caves, old buildings or similar roosting sites:

*Myotis yumanensis*  
Yuma myotis (bat)

Presence of snags or trees with a moderate canopy, preferably near riparian areas:

*Lasiurus borealis*  
red bat

Presence of stands of dense, tall, trees along riparian corridors for roosts or rookeries:

*Ardea alba* *(Casmerodius albus)*  
great egret

*Ardea herodias*  
great blue heron

*Nycticorax nycticorax*  
black-crowned night heron

Presence of slow-moving waters within natural and agricultural waterways:

*Cirsium crassicaule*  
slough thistle

Location of Preserves along the Stanislaus or San Joaquin Rivers with mixtures of trees and brush, and cavities in trees, snags or logs:

*Neotoma fuscipes riparia*  
riparian woodrat

Presence of mice, wood rats, berries and/or potential den sites, especially among large boulders:

*Bassariscus astutus*  
ringtail

Presence of small birds:
Accipiter cooperii  
Cooper's hawk
Accipiter striatus  
sharp-shinned hawk

Presence of insects, berries, wild grapes, and other fruits in, or adjacent to, riparian zones with shrub understory:

Icteria virens  
yellow-breasted chat

In addition, there is a possibility of recolonization by several other bird species that have been reported to breed historically in San Joaquin County but for which there are no recent records. In particular, the most recent documented occurrence of yellow-billed cuckoo (Coccyzus americanus occidentalis) within the County was along the San Joaquin River not far from its confluence with the Stanislaus River. If an area with dense, mature, riparian vegetation of at least 25 acres can be acquired for a Preserve, that species might be considered for reintroduction under the Plan's Adaptive Management Plan (see Section 5.9).

5.4.4.4(B)  
Central Zone - Wetlands Preserves

Central Zone Wetlands Preserves shall:

1. Include at least 2 to 3 miles of shoreline along ditches (D), dead-end sloughs (W4), freshwater lakes and ponds (W5), existing or restorable freshwater emergent wetlands (W7), existing or restorable vernal or seasonal wetlands (W8), or un-lined canals (W9). Waterways, wetlands, and their associated shorelines shall consist of, or be capable of being restored to provide, a combination of relatively shallow water, mostly with cover or emergent vegetation and relatively little open water, cattails or tules, and smaller emergent vegetation, with adjacent open upland sites with moderately to steeply sloping banks suitable for basking and cover;

2. Acquisition of known occupied habitat for the giant garter snake, which is located on publicly (city) owned lands (as indicated in the SJMSCP GIS Database), and which has been projected to contribute to the Incidental Take totals, shall be given the highest priority during Preserve design considerations. Alternatively, project design for construction on these publicly-owned parcels shall avoid known occupied giant garter snake habitats in project design pursuant to Section 5.5.9(C).

3. Not be inundated;

4. Contain minimal habitat for predaceous game fish;

5. Give a high priority to sites with known occurrences of giant garter snake;

6. Be connected by permanent waterways, such as drains and ditches, to other suitable habitat;

7. Prohibit livestock grazing in areas with known occupation sites for the giant garter snake;

8. Limit public access, both by pedestrians and vehicles;

9. Include buffer lands consisting of agricultural uses, preferably irrigated pasture, rice fields, row crops, grains, or alfalfa. Incompatible adjacent uses include urban; recreation, including golf courses, bike trails, and parks; and winter flood zones.

Central Zone Wetlands Preserves meeting the preceding criteria will protect the following SJMSCP Covered Species, especially (but not necessarily) if the additional Preserve elements indicated below are found or can be incorporated into selected Preserves:

Presence of shallow, slow-moving waters along streams or rivers or man-made channels (i.e., ditches):
Sagittari sanfordii  Sanford's arrowhead

Presence of rocky or muddy substrate in water source supporting emergent vegetation:

Clemmys marmorata  western pond turtle

Presence of nesting substrate (e.g., cattails, tules, blackberry thickets) for breeding populations (within the vicinity of the Primary Zone of the Delta). For overwintering populations: presence of harvested grain fields or irrigated pastures for foraging and dense cattail/tule marshes for overwintering night roosts [often communally in association with flocks of Brewer's or red-winged blackbirds and even starlings] (Beedy, pers. com. 2/8/00; or presence of alfalfa fields or pasture for foraging habitat in proximity to breeding or overwintering habitat. Vegetation in alfalfa fields or pastures managed to benefit the species shall regularly be mowed or grazed to keep vegetation height at 6 inches or less during periods of tricolored use, and shall be flood-irrigated to the extent feasible, as a means to help provide insect foraging opportunities during the tricolored breeding season:

Agelaius tricolor  tricolored blackbird

Presence of tall, dense, stands of trees near riparian areas suitable for rookeries or roosting and/or presence of small reptiles and/or amphibians in shallow waters:

Ardea alba (Casmerodius albus)  great egret
Ardea herodias  great blue heron

Presence of rodents on uplands:

Asio flammeus  short-eared owl
Buteo swainsoni  Swainson's hawk
Circus cyaneus  northern harrier
Elanus leucurus (Elanus caeruleus)  white-tailed kite

Presence of invertebrates in shallow waters:

Egretta thula  snowy egret
Plegadis chichi  white-faced ibis

Presence of tall perching sites (i.e., perch sites on vegetation normally located higher than surrounding vegetation which allows the species to survey its surroundings):

Lanius ludovicianus  loggerhead shrike

Presence of short grass:

Numenius americanus  long-billed curlew

Presence of trees or man-made platforms (such as power lines) located within flying distance providing potential breeding sites (although the species may also breed on the ground) and perches (low or high) for feeding and/or drying wings located adjacent to water:
5.4.4.4(C)  Central Zone - Oak Woodland Preserves

Central Zone Oak Woodland Preserves shall:

1. Have minimum sizes of 40 acres preferably located next to other oak woodlands, which provide the potential for expansion of Preserves, where feasible, to a minimum patch size of 250 acres and greater. Given the limited distribution of some oak woodlands (e.g., valley oaks) in the County, minimum Preserve sizes may be reduced from 40 acres by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC.

2. Target Preserve areas, where feasible, with similar canopy cover and species diversity as habitats that have been Converted from Open Space use. Alternatively, identify areas adjacent to existing oak woodlands where oak regeneration may be attempted.

Central Zone Oak Woodlands meeting the preceding criteria will protect the following SJMSCP Covered Species, especially (but not necessarily) if the additional Preserve elements indicated below are found or can be incorporated into selected Preserves:

Ability to incorporate edges of oak woodlands adjacent to open grasslands or open woodlands into Preserves:

- *Accipiter striatus*  
  sharp-shinned hawk

- *Buteo swainsoni*  
  Swainson's hawk (valley oak woodlands)

- *Falco columbarius*  
  merlin

- *Lanius ludovicianus*  
  loggerhead shrike

- *Myotis ciliolabrum*  
  small-footed myotis/bat

- *Myotis evotis*  
  long-eared myotis/bat

- *Myotis thysanodes*  
  fringed myotis/bat

- *Myotis volans*  
  long-legged myotis/bat

Presence of a source or sources of water (marshes, ponds, lakes or creeks):

- *Accipiter cooperii*  
  Cooper's hawk

- *Ambystoma californiense*  
  California tiger salamander

- *Elanus leucurus*  
  white-tailed kite

- *Rana aurora*  
  California red-legged frog

- *Clemmys marmorata*  
  western pond turtle

- *Bassaricus astutus*  
  ringtail/ringtail cat

5.4.4.5  Central/Southwest Transition Zone

Preserves located within the Central/Southwest Transition Zone shall use the Preserve selection criteria established for either the Central Zone or Southwest Zone with the following addition:

Refugia Preserves. High priority shall be given to establishing 2-5 acre “stepping stone” refugia Preserves for the San Joaquin kit fox at approximately .5-mile intervals west of the Delta Mendota Canal. Highest
priority shall be given to establishing these Preserves in the area between the Delta Mendota Canal and the California Aqueduct. Priority also shall be given to providing Preserves in areas where opportunities exist to connect these stepping stone refugia between the canals to the primary corridor located southwest of I-580 in the Southwest Zone—such connections should take advantage of culverts and other features which cross underneath I-580 into the Southwest Zone, rather than directing foxes across this heavily traveled transportation route. The JPA and the Permitting Agencies shall work together to acquire these refugia wherever available, from surplus lands owned by the U.S. Bureau of Reclamation along the canals.

5.4.4.6 Species Not Covered by the Criteria Presented Above

SJMSCP Covered Species not addressed by the Preserve Selection Criteria included for the preceding SJMSCP Index Zones, fall into one or both of the following categories:

A. Suitable habitat exists in the County which is located within the range of this species and it is possible that the species may be discovered during the 50-year term of the SJMSCP; and/or

B. No current records exist for the species, but historical records of occurrence exist for this species in or adjacent to San Joaquin County.

SJMSCP Covered Species meeting one or both of the preceding criteria and which are not included in the preceding Preserve Selection Criteria are:

- **Astragalus tener var. tener** alkaline milk-vetch (Southwest Zone)
- **Atriplex cordulata** heartscale (Southwest Zone)
- **Atriplex depressa** brittlescale (Southwest Zone)
- **Calycadenia hooveri** Hoover's calycadenia (Vernal Pool Zone)
- **Carex comosa** bristly sedge (Vernal Pool Zone)
- **Coreopsis hamiltonii** Mt. Hamilton coreopsis (Southwest Zone)
- **Eryngium racemosum** Delta button-celery (Central Zone)
- **Juncus leiospermus** dwarf rush (Vernal Pool Zone)
- **Scutellaria lateriflora** mad-dog skullcap (Southwest Zone)
- **Trichocoronis wrightii var. wrightii** Wright's trichocoronis (Southwest Zone)
- **Tropidocarpum capparideum** caper-fruited tropidocarpum (Southwest Zone)
- **Aegialia concinna** Ciervo aegialian scarab beetle (Central Zone)
- **Riparia riparia** bank swallow (Primary Zone of the Delta; Central Zone)

The procedures and requirements for establishing Preserves for these SJMSCP Covered Species are found in Section 5.9.4.6.

5.4.5 PRESERVE PRIORITY CRITERIA

The following criteria shall be considered when establishing priorities for the acquisition of Preserve lands after potential Preserve lands have been identified using the criteria in Section 5.4.4. The justification for each of these criteria is found in Chapter 10, Section 10.1 of the SJMSCP Biological Analysis (see Appendix K):
A. Lands occupied by multiple SJMSCP Covered Species shall have a higher priority than those lands occupied by a single SJMSCP Covered Species. The acquisition of single-species Preserves (Specialty Preserves) for the benefit of SJMSCP Covered Plant Species are an exception to this criterion since plant species are frequently confined to relatively small areas of land and are frequently the only species found within the habitat patch.

B. Selection of Preserve lands should mimic the Natural Land and Agricultural Habitat Land habitat types impacted by the Conversion of Open Spaces to non-Open Spaces uses (e.g., Conversion of vernal pool grasslands shall require the acquisition and creation of vernal pool grasslands and Conversions of row and field crop lands shall require the acquisition of row and field crop lands).

C. Lands occupied by SJMSCP Covered Species of limited distribution, having limited available habitat within the County, shall have a higher priority for acquisition than lands occupied by SJMSCP Covered Species of relatively wide distribution, having more widely available habitat. The relative abundance of an SJMSCP Covered Species and the availability of habitat lands for that species in the County, are described in Tables 8-2, 8-3, 8-4 and 9-3 of the SJMSCP Biological Analysis (see Appendix K).

D. Large blocks of habitat, especially those containing large populations of SJMSCP Covered Species, shall have higher priority than small blocks of habitat. An exception to this is the acquisition of Specialty Preserves for SJMSCP Covered Plant Species which may occur in narrowly defined habitats over a relatively small area of habitat.

E. Lands with fewer human intrusions (e.g., paved roads; utility corridors; high volume, unregulated recreational use; large numbers of domesticated animals) and fewer encumbrances to title which could interfere with the land's biological values, shall have a higher priority than lands with extensive human intrusion.

F. Priority shall be given to the acquisition of several Preserves distributed throughout the County for SJMSCP Covered Species with multiple population centers in the County. Conversely, lower priority shall be given to acquiring Preserve lands concentrated within a single location within the County for SJMSCP Covered Species with multiple population centers throughout the County. Preserves should be distributed in a manner representative of the distribution of SJMSCP Covered Species populations to avoid concentrating all SJMSCP Preserves for SJMSCP Covered Species within a single location, thereby lowering the likelihood for recovery of SJMSCP Covered Species in the event of a catastrophic destruction of a single Preserve. For example, the Swainson's hawk has five distinct population centers distributed throughout the Central Zone ranging from the County's northern boundary with Sacramento County to its southern boundary with Stanislaus County. Preserves for this species shall be configured within each of the five population areas. Also, the establishment of Preserve priorities shall avoid acquiring Preserves only in the north portion of the County. If this trend occurs, acquisition of further north County Preserves should be given a lower priority than the acquisition of Preserves elsewhere in the County as necessary and appropriate given the conservation needs of individual species.

G. In general, it is easier to protect and manage lands with minimum boundary, or “edge,” compared to the amount of habitat preserved. For example, compared to a long, narrow parcel, the same acreage of Preserve lands in a round or square-shaped parcel is less...
expensive to fence; less subject to outside influences, such as predation; and likely would be exposed to fewer adjacent incompatible land uses. Even in riparian habitat, where the nature of the habitat is linear and many species forage at the edge, the preference is for as wide a riparian strip as possible. Therefore, priority shall be given to acquiring lands with configurations that do not expose the habitat to incompatible land uses.

H. Higher priority shall be given to the acquisition of Preserve lands with available adjacent habitat that is already protected or may be acquired as a buffer to the Preserve, than will be given to the acquisition of Preserve lands without available buffer lands. This criterion does not apply to Preserve lands that are well-isolated from incompatible uses (as may be the case in some areas of the Primary Zone of the Delta since most urban uses within the Primary Zone of the Delta are prohibited by the Delta Protection Act of 1992; also some Preserve lands may be sufficiently isolated from incompatible uses now and in the future to preclude the need for buffers).

I. Higher priority shall be given to the acquisition of Preserve lands which have been surveyed for biological resources and found to contain populations of SJMSCP Covered Species which, based upon the advice of species experts, the JPA, and the JPA’s TAC (including the Permitting Agencies’ representatives on the TAC), are likely to persist on the site. Lower priority will be given to the acquisition of Preserve lands where such information is unavailable.

J. Higher priority shall be given to the acquisition of Preserves where the Preserve Management Plans (prepared prior to acquisition for conservation easements) or draft Preserve Management Plans (prepared prior to acquisition for fee title purchases) for the Preserves indicate a relatively low level of management activities (and correspondingly low cost) will be necessary to maintain the habitat quality of the Preserve. Lower priority shall be given to the acquisition of Preserves where Preserve Management Plans indicate a high cost and high level of ongoing management efforts will be needed to maintain the Preserve. Exceptions to this criterion include the creation of wetland habitats as is required by the SJMSCP to achieve no-net-loss of wetland values as required by the Permitting Agencies (e.g., creation of vernal pools and submerged aquatic habitats are all requirements of the SJMSCP and are not subject to this criterion).

K. Higher priority shall be given to acquisition of Preserves without extensive cover by non-native invasive plant species (especially star thistle) which would require extensive control measures.

L. Higher priority shall be given to acquisition of Preserves for red-legged frogs in areas where predatory bull frogs or fish are not located within or adjacent to Preserve boundaries due to the cost and difficulty of controlling these species.

M. The use of pesticides is recognized to be a part of normal agricultural practices within San Joaquin County. Conservation easements established pursuant to the SJMSCP shall integrate agricultural practices, including pesticide use, with management and protection of covered species. However, the continuation of such practices must be compatible with achieving continued successful reproduction, feeding, and sheltering or are expected to be able to achieve these activities, of SJMSCP Covered Species as stated in Section 5.4.8.1(F). Priority shall be given to the acquisition of Preserve lands where landowners are willing to eliminate
or limit pesticide use, or to implement an Integrated Pest Management approach. On potential Preserve lands in which the landowner desires to continue the use of pesticides, the TAC, with the concurrence of the Permitting Agencies’ representative on the TAC, shall determine if the pesticides’ proposed use is consistent with the above objective for SJMSCP Covered Species. Use prescriptions for pesticides not prohibited on Preserve land shall be in accordance with Section 5.4.7.1. If certain pesticides are deemed prohibited and the landowner is unwilling to accept the prohibitions or limitations established by the TAC, with the concurrence of the Permitting Agencies’ representatives on the TAC, then those lands may be considered ineligible for a conservation easement (or fee title acquisition) for the purpose of establishing a Preserve.

N. High priority shall be given to the acquisition of lands that are located within San Joaquin County, but are adjacent to Preserves in neighboring counties (e.g., Sacramento County and Alameda/Contra Costa counties, which are undertaking habitat conservation planning efforts, and other neighboring counties which could undertake such efforts over the 50-year life of the SJMSCP).

O. High priority shall be given to the acquisition of Preserve lands where revenue-generating activities (e.g., hunting, farming, or similar activities) can be incorporated into Preserve management designs. Revenues produced on such Preserve lands shall be high enough to offset any increase in on-going management costs associated with the activities. Revenue-generating activities shall be included in Preserve designs only when such activities can occur on Preserve lands without detriment to SJMSCP Covered Species. It is anticipated that revenue-generating activities will normally be restricted to Preserve lands acquired in fee title (rather than Preserve lands acquired through conservation easement, except under circumstances in which landowner and JPA cooperation and support for such efforts can be achieved).

If revenue-generating activities are proposed, the Preserve Management Plan shall include a description of increased management costs associated with such activities, if any, and the Preserve Management Plan shall indicate how increased costs will be offset by revenues produced by the revenue-generating activities. Revenue-generating activities shall be pursued only when it can be demonstrated that such activities may occur on Preserve lands without Take of SJMSCP Covered Species. It is anticipated that revenue-generating activities will normally be restricted to Preserve lands acquired in fee title (rather than on Preserve lands acquired through conservation easement, except under rare circumstances in which landowner and JPA cooperation and support for such efforts is strongly demonstrated). The Permitting Agencies shall provide input as to the appropriateness of revenue-generating activities on SJMSCP Preserves through their representatives on the JPA’s TAC who assist in formulating the Preserve Management Plans.

P. Higher priority shall be given to lands with potential multiple use benefits, rather than a single-purpose use, where the multiple use does not reduce or diminish or hinder opportunities to enhance habitat value. Multiple use benefits include, but are not limited to, providing educational or recreational opportunities, preserving agricultural lands, preserving scenic values, preserving important County aquifer recharge areas as indicated in Appendix S of the SJMSCP, or other compatible public benefit Open Space uses. The provision of buffers between two or more separated incorporated cities or, in the County, two or more separated defined communities, to retain Open Space between areas of urban...
development thereby assisting the retention of individuality of separated urban areas, also
may be considered a multiple-use benefit of habitat lands; however, this consideration,
pursuant to this Plan, shall not be used to prohibit development or otherwise influence land
use decisions on lands between two or more separated incorporated cities, or, in the County,
between two or more separated defined communities.

Q. Priority shall be given to lands where fencing of watering sources as necessary to protect the
red-legged frog from trampling by grazing animals is both feasible for the landowner and can
maintain the biological values necessary for the red-legged frog. If such fencing cannot
occur as necessary to maintain both biological values for the red-legged frog and to maintain
access to water sources for grazing cattle as required by the landowner, easements should not
be purchased.
5.4.6 PRESERVE ENHANCEMENTS

Once potential Preserves are identified through the selection process, priorities are established for acquisition, and acquisition is completed in conjunction with the creation of Preserve Management Plans (see Section 5.4.7.1), SJMSCP Preserves shall be enhanced to improve habitat quality as defined in the Preserve Management Plan. The goals of these enhancement activities are to increase the likelihood that Preserves will be occupied by new SJMSCP Covered Species and, for SJMSCP Covered Species already present, to increase populations of existing SJMSCP Covered Species on SJMSCP Preserves.

Specific Preserve enhancements shall be described in the Preserve Management Plans for a given Preserve (see Section 5.4.7.1). The following list of enhancements will be used in developing Preserve Management Plans, as applicable, and may be modified by the JPA, as needed, in response to the special characteristics of the individual Preserve sites, new information and improved enhancement methods, economic considerations, and/or direction from the Permitting Agencies' representatives on the TAC as described in the SJMSCP Adaptive Management Plan (see Section 5.9.4).

Preserve enhancement options, by SJMSCP Index Zone and their corresponding Preserve Types, are as follows:

5.4.6.1 All Preserves

Development of the terms for conservation easements and/or fee title purchases of Preserve lands shall address the use of existing water available on the site: for irrigating new vegetation as part of revegetation efforts, to maintain existing vegetation necessary for SJMSCP Covered Species, to maintain sufficient water for plant, fish and/or wildlife reproduction and drinking purposes (e.g., springs, ponds, ditches, and similar water resources), and for similar purposes necessary to support SJMSCP Covered Species. For conservation easements, it is intended that landowners will maintain existing interests in water rights while providing easement holders with the ability to use sufficient water to maintain, enhance, and/or create water-dependent habitats within Preserves.

5.4.6.2 Primary Zone of the Delta

5.4.6.2(A) Large Area and Small Area Water's Edge Preserves

1. Install nesting platforms for ospreys.

2. Plant vegetation. Tules, blackberry thickets and cattails, provide nesting and sheltering habitat for the tricolored blackbird, giant garter snake (where open areas for basking are provided), and other species and may be planted in some cases. Himalayan blackberries (Rubus procerus) thickets provide high value nesting substrate for the tricolored blackbird.

3. Plant elderberry shrubs within these Preserves for every elderberry bush, greater than 1" at ground level, recorded as being removed from the Primary Zone of the Delta during the pre-construction survey in accordance with Section 5.5.4).

4. Revegetation and creation of habitats. See Appendix N for recommended plant species to be used to revegetate and/or create habitat types within this Preserve category.
5.4.6.2(B) Flooded Field Preserves

Flooded Field Preserves will be managed according to the time and duration of flooding required by great blue herons, great egrets, snowy egrets, white-faced ibis, Aleutian Canada geese, and greater sandhill cranes as they migrate along the Pacific Flyway. See Section 5.4.7 for these management activities.

5.4.6.3 Southwest Zone

5.4.6.3(A) Valley Grassland Preserves

1. Rodents. Any use of rodenticides shall be in accordance with Sections 5.4.5(M) and 5.4.7.1. Rodenticides not prohibited on a Preserve shall be limited to those listed for the San Joaquin kit fox in the bulletin Protecting Endangered Species, Interim Measures for Use of Pesticides in San Joaquin County dated March, 2000 and established by the U.S. Environmental Protection Agency in coordination with the California Environmental Protection Agency Department of Pesticides Regulation and the County Agricultural Commissioner’s office (Appendix A) or any subsequent bulletin amendments. Use methods for these rodenticides shall be limited to those identified in Appendix A for the San Joaquin kit fox even if Appendix A is not applicable to the rodenticide being used.

2. Preserve creeks and wetlands in the Southwest Zone. Maintain water quality within creeks and wetlands, especially those inhabited by red-legged frogs, through implementation of appropriate erosion control measures to reduce siltation and contamination runoff from surrounding areas (e.g., use of hay bales, installing filter fences, planting vegetative buffer strips and similar activities).

3. Eliminate undesirable species. Attempt to eliminate undesirable species, such as bull frogs and non-native fish, from known or potential red-legged frog and California tiger salamander habitat. The elimination of bull frogs and non-native fish should not be attempted within water bodies occupied by red-legged frogs or California tiger salamander unless a method of doing so without harming red-legged frogs or California tiger salamander is used. Elimination of undesirable species will normally be undertaken within water bodies which are not occupied by red-legged frogs or California tiger salamander, but which are located within Preserves containing red-legged frogs since elimination methods used for undesirable species may also harm the red-legged frog (if elimination methods are used which can cost-effectively and selectively remove the undesirable species without harming the red-legged frog, then elimination of undesirable species within the same water bodies as those occupied by the red-legged frogs may occur). Elimination of bull frogs and non-native fishes shall normally be through the use of one or more of the following: netting and disposal, draining ponds and disposal, and/or removing visible egg masses. Since some eggs may overwinter, these methods may need to be repeated for more than one season.

4. Fencing. When populations of red-legged frogs are present within water sources and grazing animals use the same water sources, then fencing shall be erected sufficient to maintain clumps of existing riparian vegetation surrounding the red-legged frog habitat. Access to watering ponds for grazing animals shall be maintained in all cases if desired by the landowner consistent with Section 5.4.5(Q). No fencing is required for the San Joaquin kit
5. Create burrowing owl burrows. Create artificial mounds composed concrete blocks, flexible pipe, old water meter boxes (plastic), and other suitable materials if burrowing sites do not already exist on the Preserve site.

6. If Conservancy and/or longhorn fairy shrimp or vernal pool tadpole shrimp are discovered within wetlands within grassland preserves, enhancement plans for these species within the Preserves shall be formulated pursuant to the process established in the Adaptive Management Plan, Section 5.9.4.2. Management measures established for existing vernal pools within the Vernal Pool Zone in Section 5.4.6.4 shall be used as guidelines in establishing the management plan for vernal pool invertebrates within the Southwest Zone. Management of Southwest Zone vernal pool invertebrates shall emphasize management of existing habitats rather than the creation of new wetlands.

7. Enhancement activities for Preserves containing the large-flowered fiddleneck shall be established in consultation with the Permitting Agencies' representatives on the TAC using the guidelines established in the Large-flowered fiddleneck recovery plan.

8. Plant vegetation. Tules, blackberry thickets and cattails, provide nesting and sheltering habitat for the tricolored blackbird, giant garter snake (where open areas for basking are provided), and other species and may be planted in some cases. Himalayan blackberries (Rubus procerus) thickets provide high-value nesting substrate for the tricolored blackbird.

5.4.6.3(B) Diablan Sage Scrub Preserves

The Bell's sage sparrow's preferred plant species within foothill chaparral habitat is chamise growing 2' to 5' high in fairly dense patches. In natural, unaltered environments, chamise growth is enhanced by periodic fires. Therefore, control burns may be used, as necessary, to help maintain chamise chaparral habitats within the Preserve system as described in Section 5.4.8.3(B). Within the Southwest Zone in the vicinity of the Sage Scrub Preserves, chamise is known to generate naturally and planting chamise is not expected to be a necessary enhancement for the Sage Scrub Preserves.

5.4.6.3(C) Riparian Preserves

1. Plant Elderberries. Plant elderberry shrubs within these Preserves for every elderberry bush, greater than 1" in diameter at ground level, recorded as being removed from the Southwest Zone during the pre-construction surveys in accordance with Section 5.5.4.

2. Revegetation. Revegetate degraded stream areas and/or expand riparian zones using plant species listed in Appendix N.

3. Fencing. Install fencing surrounding vegetation along streams when such fencing is needed to protect vegetation for SJMSCP Covered Amphibians or to protect species from trampling. Fencing shall be consistent with the provisions of Section 5.4.5(Q).

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5.4.6.3(D) Blue Oak Conifer Preserves

1. **Coordinate with Integrated Hardwood Range Management Program.** When feasible, develop the Preserve Management Plan (see Sections 5.4.7.1) in consultation with the California Department of Forestry's Integrated Hardwood Range Management Program specialists on oak woodland management.

2. **Plant acorns.** Collect blue oak acorns and/or seedlings from development sites, where feasible, for planting at Preserve sites. Alternatively, acquire acorns and/or seedlings for planting within Preserves from Native Plant nurseries. A list of recommended Native Plant Nurseries is included in Appendix P.

3. **Fencing.** Provide fencing, tree shelters or other alternative means to protect newly planted acorns and/or seedlings.

4. **Plant acorns.** Plant new oaks on site with a goal of maintaining a mixture of ages and size classes and a goal of achieving a 40% canopy cover/40 acre patch (+10% canopy cover).

5. **Understory.** Establish (or maintain, if existing) a native shrub understory with a minimum cover of 20% in cases where disturbed habitats originally contained such an understory. For valley oak woodlands, this understory may be non-existent in some cases.

6. **Revegetation of habitats.** See Appendix N for recommended oak and other plant species to be used to revegetate habitat types within this Preserve category.

5.4.6.4 Vernal Pool Zone

The primary emphasis in this SJMSCP Index Zone is maintaining existing and creating new vernal pools.

1. **Creation of New Vernal Pools.** Prior to acquisition of vernal pool mitigation lands, the JPA shall consult with a professional to determine that new vernal pool habitat can be created on the potential Preserve site. After acquisition and prior to creating new vernal pools, the JPA's TAC shall submit a vernal pool creation plan to the JPA for review prior to implementation. Vernal pool creation plans shall be approved by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC and shall address density of vernal pools to be created. Newly created vernal pools shall, to the extent feasible, be inoculated with inoculum collected from vernal pools which were displaced or eliminated by SJMSCP Permitted Activities and shall mimic, to the extent feasible, the density of vernal pools which occurred historically on the Preserve site. Inoculum collected from vernal pools within the Vernal Pool Zone Southeast Sacramento Valley Region (north of the Calaveras River) shall be used in the creation of vernal pools located within the Vernal Pool Zone Southeast Sacramento Valley Region. Inoculum collected from vernal pools within the Vernal Pool Zone Southern Sierra Foothills Region (south of the Calaveras River) shall be used in the creation of vernal pools located within the Vernal Pool Zone Southern Sierra Foothills Region. Should vernal pool creation be undertaken within the Southwest Zone to compensate for vernal pool Conversions occurring within the Southwest Zone, inoculum collected from vernal pools within the Southwest Zone shall be...
restricted for use in creating vernal pools within the Southwest Zone. Within areas occupied by grazing animals, newly created vernal pools shall be fenced for at least the first two years consistent with the provisions of Section 5.4.5(Q). See also Appendix N for recommended plant species to be used in creating vernal pools.

2. **Fumigants.** Any use of fumigants shall be in accordance with Sections 5.4.5(M) and 5.4.7.1. If the landowner cannot agree to the use of fumigants not prohibited on the Preserve, as discussed in a Preserve Management Plan, then the Preserve shall not be acquired for the protection of the tiger salamander or California red-legged frog.

3. **Protect Uplands and Estivation Sites.** Protect uplands and associated estivation sites when the tiger salamander or California red-legged frog is present or anticipated to be present.

4. **Tiger Salamander Burrows.** Create burrows for the tiger salamander when the tiger salamander is present or anticipated to be present if burrows do not already exist on the Preserve site. These burrows should not be constructed if they will be constructed out of pipe, but should be constructed out of materials that allow the tiger salamander to get at worms and bugs.

5. **Create Burrowing Owl Burrows.** Create artificial mounds composed concrete blocks, flexible pipe, old water meter boxes (plastic), and other suitable materials if burrowing sites do not already exist on the Preserve site.

In the northeast corner of the Vernal Pool Zone:

6. **Water Quality.** Maintain water quality within creeks and wetlands, especially those inhabited by red-legged frogs, through implementation of appropriate erosion control measures to reduce siltation and contamination runoff from surrounding areas (e.g., use of hay bales, installing filter fences, planting vegetative buffer strips and other best management practices).

7. **Eliminate Undesirable Species.** Attempt to eliminate undesirable species, such as bull frogs and non-native fish, from known or potential red-legged frog or California tiger salamander habitat. The elimination of bull frogs and non-native fish should not be attempted within water bodies occupied by red-legged frogs or California tiger salamander unless a method of doing so without harming red-legged frogs or California tiger salamander is used. Elimination of undesirable species will normally be undertaken within water bodies which are not occupied by red-legged frogs or California tiger salamander, but which are located within Preserves containing red-legged frogs or California tiger salamander since elimination methods used for undesirable species may also harm the red-legged frog or California tiger salamander (if elimination methods are used which can cost-effectively and selectively remove the undesirable species without harming the red-legged frog or California tiger salamander, then elimination of undesirable species within the same water bodies as those occupied by the red-legged frogs or California tiger salamanders may occur). Elimination of bull frogs and non-native fishes shall normally be through the use of one or more of the following: netting and disposal, draining ponds and disposal, and/or removing visible egg masses. Since some eggs may overwinter, these methods may need to be repeated for more than one season.
8. **Fencing.** When populations of red-legged frogs are present within water sources and grazing animals use the same water sources, then fencing shall be erected sufficient to maintain clumps of existing riparian vegetation surrounding the red-legged frog habitat. Access to watering ponds for grazing animals shall be maintained in all cases if desired by the landowner. Fencing shall be consistent with the provisions of Section 5.4.5(Q).

9. **Plant vegetation.** Tules, blackberry thickets and cattails, provide nesting and sheltering habitat for the tricolored blackbird, giant garter snake (where open areas for basking are provided), and other species and may be planted in some cases. Himalayan blackberries (*Rubus procerus*) thickets provide high-value nesting substrate for the tricolored blackbird.

**5.4.6.5 Central Zone**

**5.4.6.5(A) Row and Field Crop/Riparian Preserves**

Under the SJMSCP, habitat enhancements on Agricultural Habitat Lands will occur on a minimum of 10% of the total land area of Agricultural Habitat Lands acquired for protection as easements or fee title purchase. Enhancements will be compatible with on-going agricultural practices and may be concentrated around the perimeters of agricultural fields. Enhancements include:

1. **Crop types.** Target, for acquisition, habitat already in agricultural production. Especially field crops including alfalfa, other hay, pasture, tomatoes, sugar beets, cereal grains, and other row crops that do not mechanically prevent foraging.

2. **Herbicides and Pesticides.** Any use of herbicides or other pesticides shall be in accordance with Sections 5.4.5(M) and 5.4.7.1.

3. **Enhance Riparian Habitat (wet soils).** Restore and or expand riparian areas to enhance nesting opportunities in areas where soils are wet regularly by planting appropriate riparian vegetation. Target areas with wide levee banks rather than deeply incised areas with minimal levee banks for revegetation. Target areas that regularly flood. Consider Converting existing vegetation in flood areas from existing non-riparian habitat to riparian habitat, if feasible.

Recommended species:

Fremont cottonwood and western sycamore (thinned to 50 foot centers)

Gooding's black willow, red willow, oregon ash (thinned to 30 foot centers)

Sandbar willow, narrow-leaf willow, alder, box alder, buckeye (planted on ten foot centers)

Wildrye, California buckwheat, melic, lotus, California rose, Reed canary grass (*Phalaris arundinacea*), swamp timothy (scattered seeds and plantings)

See Appendix N for additional suggestions for appropriate plant species.
4. **Enhance Upland or Alluvial Soils, Woodland Habitat.** Restore or expand vegetation in areas of well-drained soils by planting appropriate vegetation. The following plants will normally require initial irrigation. Some of the following and preceding species may tolerate wetter soils and can bridge between wet and dry soils to provide continuous habitat (e.g., the elderberry, cottonwood, sandbar willow). May be planted in small clumps or islands in the middle of agricultural fields, especially valley oak and black walnut. When solitary trees are planted, native grasses, forbs and shrubs should be planted to at least the drip line to avoid root damage or over watering. Target areas with wide levee banks rather than deeply incised areas with minimal levee banks for revegetation. Target areas that regularly flood. Consider converting existing vegetation in flood areas from existing non-riparian habitat to riparian habitat, if feasible.

Recommended species:

- Valley oak, interior live oak (thinned to 100 foot centers)
- N. California black walnut - *Juglans californica* var. *hindsi* (thinned to 50 foot centers)
- Blue elderberry, buckeye (thinned to 30 foot centers)
- Vetch species, clovers, buckwheat, atriplex, fescues, stipas, oats, native bromes (scattered)

See Appendix N for additional suggestions for appropriate plant species.

5. **Plant Elderberries.** Plant elderberry shrubs within these Preserves for every elderberry bush, greater than 1" in diameter at ground level, recorded as being removed from the Central Zone during the pre-construction surveys in accordance with Section 5.5.4..

6. **Enhance Foraging Habitat.** Foraging habitat can be developed using the suggested native grass and forb species listed above under upland/alluvial soils and in Appendix N. Existing agricultural land or practices may be modified to enhancing foraging habitat, for example, by modifying practices to increase the forage base. Examples of such modified activities include delayed first mowing of alfalfa or other hay types, leaving portions of a crop standing to provide prey food and cover, or the inclusion of hedge row acres on field borders.

7. **Control Undesirable Plants.** Control undesirable plants (e.g., star thistle and other noxious weeds). This activity should be done on an annual basis with the guidance of the Agricultural Commissioner. Undesirable plants include invasive weeds that could interfere with the success of plantings done for enhancements or those which may interfere with the growth of preferred foraging cover for SJMSCP Covered Species. Grazing sheep for one year and flooding are effective mechanisms for controlling star thistle. Preference shall be given during the Preserve selection process to avoiding acquisition of parcels with undesirable plants where control may prove costly.

8. **Install Roost and Nest Sites.** Roost and nest sites may include "future" nest sites consisting of natural vegetation created through new tree plantings as described above. Alternatively, the installation of immediately available, man-made structures including telephone poles,
may be used. Perch and nesting platforms may include welded steel baskets woven with willow branches for man-made nest sites. SJMSCP Covered Species which may benefit by the installation of roosting or nesting platforms include the Swainson's hawks (the success of nesting platforms is still experimental), loggerhead shrikes, and ospreys (for locations near water).

9. Rodents. Any use of rodenticides shall be in accordance with Sections 5.4.5(M) and 5.4.7.1. Plant cover for rodents to encourage a food source for SJMSCP Covered Species. Cover may include the installation of hedge rows or fallow strips.

10. Spraying Pesticides. If spraying of pesticides along riparian habitat is not prohibited, then follow use prescriptions contained in the Preserve Management Plan for the use of those pesticides not prohibited on the Preserve.

11. Fencing. Where necessary, require fencing of riparian areas. This will be necessary if grazing is permitted along riparian areas and may adversely impact the riparian habitats. Costs of installing and maintaining fencing will be paid by JPA. Fencing shall be consistent with the provisions of Section 5.4.5(Q).

12. Bat Boxes. Install bat houses in or near riparian areas. Bat houses should be located so that they are sheltered from human disturbance, particularly when young are present (approximately May - July).

13. Water Quality. Maintain water quality within creeks and wetlands, especially those inhabited by red-legged frogs, through implementation of appropriate erosion control measures to reduce siltation and contamination runoff from surrounding areas (e.g. use of hay bales, installing filter fences, planting vegetative buffer strips and similar activities).

14. Eliminate Undesirable Species. Attempt to eliminate undesirable species, such as bull frogs and non-native fish, from known or potential red-legged frog or California tiger salamander habitat. The elimination of bull frogs and non-native fish should not be attempted within water bodies occupied by red-legged frogs or California tiger salamanders unless a method of doing so without harming red-legged frogs is used. Elimination of undesirable species will normally be undertaken within water bodies which are not occupied by red-legged frogs or California tiger salamanders, but which are located within Preserves containing red-legged frogs since elimination methods used for undesirable species may also harm the red-legged frog or California tiger salamander (if elimination methods are used which can cost-effectively and selectively remove the undesirable species without harming the red-legged frog or California tiger salamander, then elimination of undesirable species within the same water bodies as those occupied by the red-legged frogs or California tiger salamander may occur). Elimination of bull frogs and non-native fishes shall normally be through the use of one or more of the following: netting and disposal, draining ponds and disposal, and/or removing visible egg masses. Since some eggs may overwinter, these methods may need to be repeated for more than one season.

15. Create Burrowing Owl Burrows. Create artificial mounds composed concrete blocks, flexible pipe, old water meter boxes (plastic), and other suitable materials if burrowing sites do not already exist on the Preserve site.

17. Plant vegetation. Tules, blackberry thickets and cattails, provide nesting and sheltering habitat for the tricolored blackbird, giant garter snake (where open areas for basking are provided), and other species and may be planted in some cases. Himalayan blackberries (*Rubus procerus*) thickets provide high-value nesting substrate for the tricolored blackbird.

18. Revegetate Riparian Areas. Recommended plantings and installation methods are provided in the species table and explanations on the following page and additional guidelines and planting materials included in Appendix N:
### TABLE 5.4-5
**RECOMMENDED RIPARIAN VEGETATION PLANTS**

<table>
<thead>
<tr>
<th>COMMON NAME</th>
<th>SCIENTIFIC NAME</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>American dogwood</td>
<td><em>Cornus sericea</em></td>
<td>Shrub</td>
</tr>
<tr>
<td>Arroyo willow</td>
<td><em>Salix lasiolepis</em></td>
<td>Shrub/small tree</td>
</tr>
<tr>
<td>Shining willow, Yellow willow</td>
<td><em>Salix lucida</em></td>
<td>Large shrub/tree</td>
</tr>
<tr>
<td>White alder</td>
<td><em>Alnus rhombifolia</em></td>
<td>Tree</td>
</tr>
<tr>
<td>California button bush</td>
<td><em>Cephalanthus occidentalis</em></td>
<td>Shrub/small tree</td>
</tr>
<tr>
<td>Red willow</td>
<td><em>Salix laevigata</em></td>
<td>Tree</td>
</tr>
<tr>
<td>Goodding's black willow</td>
<td><em>Salix gooddingii</em></td>
<td>Tree</td>
</tr>
<tr>
<td>Box elder</td>
<td><em>Acer negundo</em></td>
<td>Tree</td>
</tr>
<tr>
<td>Oregon ash</td>
<td><em>Fraxinus latifolia</em></td>
<td>Tree</td>
</tr>
<tr>
<td>Sandbar willow</td>
<td><em>Salix exigua</em></td>
<td>Shrub/small tree</td>
</tr>
<tr>
<td>California rose</td>
<td><em>Rosa californica</em></td>
<td>Shrub</td>
</tr>
<tr>
<td>Fremont cottonwood</td>
<td><em>Populus fremontii</em></td>
<td>Tree</td>
</tr>
<tr>
<td>California wild grape</td>
<td><em>Vitus californica</em></td>
<td>Vine/shrub</td>
</tr>
<tr>
<td>Blue elderberry</td>
<td><em>Sambucus mexicana</em></td>
<td>Shrub</td>
</tr>
<tr>
<td>California black walnut</td>
<td><em>Juglans californica</em></td>
<td>Tree</td>
</tr>
<tr>
<td>Western sycamore</td>
<td><em>Platanus racemosa</em></td>
<td>Tree</td>
</tr>
<tr>
<td>Oaks</td>
<td><em>Quercus</em> spp.</td>
<td>Tree</td>
</tr>
</tbody>
</table>

Most tree and shrub species survive best when planted in the late fall/winter. Irrigation is required for at least two summers unless roots have reached the water table. Tree mats, or weed cloths, are recommended for use around plantings to control weeds and slow moisture loss. Plastic tubes or wire mesh can be placed around plantings to protect them from rodent damage.
Willow cuttings do best when planted directly into moist ground from late fall through April. They may be planted later, as well, under the following conditions in mind:

A. The cuttings should be at least three feet in length and placed at least two feet into the ground. Deeper is preferable, depending on water table depths. Removing leaves from cuttings prior to planting will help prevent their drying out.

B. Irrigation may be required for plantings. This may be avoided if the plants are placed such that the roots extend into the soil below the water table. Berms or fills along levees are excellent areas.

C. If shoots are planted during the warm, growing season, fewer shoots will survive. Therefore, more should be planted during this period to make up for lower survival.

Cottonwoods and button willows can also be started this way; however rooting them in pots prior to planting may yield better results. Small diameter cuttings (less than one inch) work better than larger ones.

Willow wattling is a method which involves the placement of bundles of willow cuttings in trenches. This method is often used on steep wet slopes because the bundles of willows help control erosion, even before the trees sprout and begin to grow.


5.4.6.5(B) Wetland Preserves

1. Create Cover and Basking Areas. Creating cover and basking sites requires placing debris above the high water mark adjacent to water channels. This allows locations for the giant garter snake to bask in the sun above high water lines and to find cover adjacent to waterways, yet above high water marks.

2. Remove of Feral Cats. Remove feral cats, through trapping, from the Preserve areas being managed for giant garter snakes. If trapping activities are required, the use of traps shall be consistent with all applicable laws and regulations.

3. Pesticides. Any use of pesticides shall be in accordance with Sections 5.4.5(M) and 5.4.7.1.

4. Plant vegetation. Tules, blackberry thickets and cattails, provide nesting and sheltering habitat for the tricolored blackbird, giant garter snake (where open areas for basking are provided), and other species and may be planted in some cases. Himalayan blackberries (Rubus procerus) thickets provide high-value nesting substrate for the tricolored blackbird.

5. Elderberry Shrubs. Plant elderberry shrubs within this Preserve Type for each elderberry bush greater than 1” in diameter at ground level which is removed within the Central Zone as recorded during the preconstruction surveys in accordance with Section 5.5.4.

6. Revegetation of Habitats. See Appendix N for recommended plant species to be used to revegetate habitat types within this Preserve category.
5.4.6.5(C) Oak Woodland Preserves

1. Coordinate with Integrated Hardwood Range Management Program. When feasible, develop the Preserve Management Plan (see Section 5.4.7.1) in consultation with the California Department of Forestry's Integrated Hardwood Range Management Program specialists on oak woodland management.

2. Plant Acorns. Collect acorns and/or seedlings from development sites, where feasible and approved by the Permitting Agencies' representatives on the TAC, for planting at Preserve sites. Alternatively, acquire acorns and/or seedlings for planting within Preserves from Native Plant nurseries. A list of recommended Native Plant Nurseries is included in Appendix P. Valley oaks shall be planted in Preserves at a minimum ratio of five trees for each valley oak removed.

3. Fencing. Provide fencing, tree shelters or other alternative means to protect newly planted acorns and/or seedlings.

4. Plant Oaks. Plant new oaks on site with a goal of maintaining a mixture of ages and size classes and with a goal of achieving a 40% canopy cover/40 acre patch (+10% canopy cover).

5. Understory. Establish (or maintain, if existing) a native shrub understory with a minimum cover of 20% in cases where disturbed habitats originally contained such an understory. For valley oak woodlands, this understory may be non-existent in some cases.

6. Revegetation of Oak Woodlands. See Appendix N for recommended plant species to be used to revegetate habitat types within this Preserve category.

5.4.6.6 Submerged Aquatic Habitat - Primary Zone of the Delta and Portions of the Central Zone

This habitat type shall be created to offset impacts occurring as a result of SJMSCP Permitted Activities listed in Section 8.2.1(4) and (5).

1. Prior to implementing a Preserve enhancement strategy to create submerged aquatic habitat, the JPA's TAC shall submit a Preserve Management Plan, or plans, as appropriate, to the JPA for review and approval (see Section 5.4.7.1).

2. See Appendix N for recommended revegetation species.

5.4.6.7 Central/Southwest Transition Zone

Preserve enhancements for Preserves established as a result of Open Space Conversions in the Central/Southwest Transition Zone shall be as described in either the Central or Southwest Zone consistent with the location of the Preserves.

5.4.7 PRESERVE MANAGEMENT
5.4.7.1 Preserve Management Plans

As discussed in Sections 5.3.3.1 through 5.3.3.3, the JPA will acquire Preserves through the purchase of conservation easements, through fee title purchases, or through acceptance of gifts or lands dedicated in-lieu of fee payments. Fee title purchases shall include protective covenants which insure the conservation of the land for wildlife purposes.

The JPA's TAC, which includes representatives from the Permitting Agencies, shall prepare a Preserve Management Plan in conjunction with the preparation of land acquisition proposals for acquisitions by conservation easement and shall prepare draft Preserve Management Plans for acquisitions through fee title purchases. Preserve Management Plans also shall be prepared in consultation with the landowner for Preserve lands to be acquired through conservation easements. The contents of the Preserve Management Plans shall be incorporated into the conservation easements (either by reference, as an attachment, or by other appropriate mechanisms which, at a minimum, acknowledges the existence of the Preserve Management Plan and describes where copies may be obtained). Acquisitions of conservation easements shall not be approved by the JPA until Preserve Management Plans are completed to ensure that landowners and the JPA are in agreement with the conditions of the conservation easements and the manner in which the Preserve land shall be managed except under the limited circumstances described below.

If proposed management actions for Preserves to be acquired through conservation easements are deemed essential by the Permitting Agency representatives on the JPA's TAC in order to approve Preserves as credit against Incidental Take activities pursuant to the SJMSCP, but such actions will conflict with the landowners needs, the decision of the Permitting Agencies representative on the TAC may be appealed to the Permitting Agency by the TAC. The Permitting Agency's determination as to the required management actions shall be final. If the landowner cannot agree to the required management actions, attempts to acquire the Preserve lands by easement shall either cease or the TAC shall investigate the feasibility of a fee title acquisition.

Once landowners and the TAC, including the Permitting Agencies' representatives on the TAC, are in agreement with the terms of the conservation easement and contents of the Preserve Management Plan, a land acquisition proposal shall be forwarded to the JPA from the TAC. For Preserves to be acquired in fee title, the TAC shall forward a land acquisition proposal including a draft Preserve Management Plan and a statement of the landowner’s willingness to sell the land. Upon receipt of a completed land acquisition proposal from the TAC, the JPA shall take final action at a public hearing to approve or deny the land acquisition proposal. Action by the JPA to approve a land acquisition proposal involving a conservation easement shall also include approval of the Preserve Management Plan and approval of the proposed contents of the conservation easement.

Under limited circumstances (e.g., when there is a need to move quickly to acquire properties to avoid losing important Preserve acquisition opportunities, when the anticipated transfer of easements to a professional land management agency will occur and the land management agency desires additional time to evaluate the Preserve, and similar events), the JPA may approve an interim Preserve Management Plan in conjunction with approving Preserve acquisitions by conservation easements, in cases where the JPA's TAC, the landowner, and the JPA agree that the land acquisition opportunity may be lost if delayed and sufficient information is contained in the interim Preserve Management Plan to make the landowner aware of the landowner’s responsibilities with respect to the conservation easement and the anticipated Preserve management activities.

Preserve Management Plans shall contain, at a minimum, the following:

A. The Preserve goals [e.g., to maintain/increase populations of (specify appropriate SJMSCP...
Covered Species), to maintain/increase (enter appropriate habitat type) habitat quality, to
provide a corridor linking (identify Preserves or populations to be connected).

B. A description of proposed Preserve enhancement activities to be conducted in the Preserve
(see Section 5.4.6), including planting plans for revegetation and/or establishing new
vegetation and a determination of whether or not earthwork or on-site grading or other
modifications are needed.

C. A map(s) of the Preserve showing the location of existing habitats and proposed habitat
enhancements.

D. A listing of the number of acres of each habitat type included, or being created, within the
Preserve (e.g., 160 acres of annual grasslands, 40 acres of valley oak woodland, etc.).

E. An operations and maintenance schedule to ensure the success of specified habitat
enhancements [e.g., methods to be used to maintain Preserve enhancements (e.g., drip
irrigation schedule, weeding schedule, and other maintenance plans).

F. A timetable for completing habitat enhancement activities.

G. A description of anticipated management activities to be performed on the Preserve [see
below, Section 5.4.8] and a schedule for conducting other necessary management activities
(e.g., weekly activities, monthly activities, yearly activities).]

H. A description of applicable monitoring actions to be undertaken on the Preserve (e.g.,
SJMSCP Covered Species surveys or habitat quality assessments as described in Section
5.9.2).

I. A description of possible elements of the Adaptive Management Plan which may be used to
respond to information gathered under the monitoring plan, in response to special
opportunities presented by the Preserve, or in response to unusual circumstances (e.g.,
refining enhancements, use of experimental techniques, potential for reintroduction of
SJMSCP Covered Species and planned responses to emergency or Changed Circumstances
(e.g., flood, fire, drought, invasions by exotic species, toxic spills) on the Preserve as
described in Section 5.9.4.9 and Section 9.3) for the long-term management of the Preserve.

J. For lands acquired as conservation easements, the name of the anticipated easement holder.

K. The name of the entity, if other than the JPA, which will manage the Preserve lands and
agreements made between the land manager and the JPA to ensure management of the
Preserves consistent with the Preserve Management Plan and the SJMSCP.

L. A description of the non-wildlife Open Space uses to be allowed on the Preserve [e.g.,
recreational activities (describe the nature of activities as active or passive and describe any
construction activities, such as trail construction, which might be required), educational
activities, flood control, and similar beneficial Open Space uses].

M. A determination of whether or not public access will be permitted on the Preserve.

N. A description of potential revenue-generating activities to be permitted, if applicable (e.g.,
hunting, farming, or managed grazing). If revenue-generating activities are proposed, the
PreserveManagement Plan shall include a description of increased management costs
associated with such activities, if any, and the Preserve Management Plan shall indicate how
increased costs will be offset by revenues produced by the revenue-generating activities.
Revenue-generating activities shall be pursued only when it can be demonstrated that such
activities may occur on Preserve lands without detriment to SJMSCP Covered Species. It is
anticipated that revenue-generating activities will normally be restricted to Preserve lands
acquired in fee title (rather than on Preserve lands acquired through conservation easement,
except under rare circumstances in which landowner and JPA cooperation and support for
such efforts is strongly demonstrated). The Permitting Agencies' representatives on the TAC
shall provide input as to the appropriateness of revenue-generating activities on SJMSCP
Preserves through their representatives on the JPA's TAC who assist in formulating the
O. A description of how unwanted or illegal uses of the property shall be eliminated or reduced (e.g., vandalism, tree cutting, fires, off-road vehicle use, garbage dumping).

P. A description of potential predator trapping and disposal provisions which may be necessary. However, predator control should be limited to the minimum needed because of the costs associated with these activities. Also, when native predatory species are involved, predator control may create a potential to adversely alter the Preserve's ecology. The trapping and killing of native predatory species shall be avoided to the maximum extent feasible. If trapping activities are required, the use of traps shall be consistent with all applicable laws and regulations.

Q. Many of the County's streams and waterways provide flood control. Restoration and/or enhancement of riparian areas requiring the introduction of additional vegetation into waterways may conflict with the necessities of flood control. Therefore, the revegetation/enhancement provisions of Preserve Management Plans shall be designed in cooperation with local, state and/or federal flood control agencies for all portions of Preserves designated as floodways pursuant to local, state and/or federal regulations.

R. A description of neighboring land uses and what challenges or requirements they may pose for the management of the Preserve, or challenges that the Preserve might present to neighboring land uses.

S. Requirements binding Preserve landowners to maintain best management practices as necessary to protect neighboring lands from the spread of noxious weeds, pests, or similar hazards originating on Preserve lands and mechanisms by which the JPA shall enforce these provisions.

T. For conservation easements within Row and Field Crop/Riparian Preserves in the Central Zone, describe what agricultural crop types and rotations are preferred (e.g., for Swainson’s hawk suitable foraging habitat includes alfalfa or typical rotations include hay crops, pasture, tomatoes, sugar beets, cereal grains, and other row crops that do not mechanically prevent foraging) and what types are not (e.g., orchards, vineyards).

U. A description of the mosquito abatement actions, including the mosquito abatement chemical agents to be used, and/or fire suppression activities for the Preserves. The JPA's TAC shall consult with the San Joaquin County Mosquito and Vector Control District and the appropriate fire management agencies to address mosquito abatement and fire suppression activities within potential Preserves. Best management practices appropriate for SJMSCP Preserves, as determined by the TAC, with the concurrence of the Permitting Agencies’ representatives on the TAC, will be incorporated into the Preserve Management Plan in conjunction with consultations with the District occurring pursuant to this provision. The Preserve Management Plan also shall include a description of approved access routes through SJMSCP Preserves via off-road vehicles for the San Joaquin County Mosquito and Vector Control District for vector control purposes.

V. Maintenance of permanent water within ditches (e.g., rice farming) where such preservation provides biological values necessary for the Preserve, as described in Section 5.4.8.5(B).

W. When applicable, as described in Section 5.4.8.5(C)(3), reference limitations on the construction of trails and road crossings through Oak Woodland Preserves smaller than 250 acres in size.

X. Accessibility to the parcel by emergency personnel as established in Section 5.9.4.9.

Y. If pesticides are determined to be not prohibited for use on the Preserve land, establish, with landowners, a program for the implementation of pesticides not prohibited for use. The use prescriptions for pesticides deemed not prohibited on the Preserve lands shall be discussed in the Preserve Management Plan and shall be subject to change through the Adaptive
Management Plan of the SJMSCP. The Plan will discuss how and when pesticides not prohibited for use will be applied on the Preserve. If an Integrated Pest Management approach to pesticide use is applicable for use on the Preserve, then the monitoring methods for determining pesticide use shall be discussed in addition to the pesticide use prescriptions. The purposes of this program may be achieved by using pesticides seasonally or spatially (e.g., use of pesticides on designated portions of the Preserve or use pesticides when SJMSCP Covered Species are not present or are at a lesser risk of exposure to pesticides).

When a pesticide is not prohibited for use on a Preserve, follow the directions for use of this pesticide as contained in Appendix A, for achieving continued successful reproduction, feeding, and sheltering, or are expected to be able to achieve these activities, of SJMSCP Covered Species. If Appendix A is not applicable to the pesticide use not prohibited for use, then use shall be per product label directions as required by the U.S. Environmental Protection Agency and the County Agricultural Commissioner’s office.

5.4.7.2 Protecting Routine and Ongoing Agricultural Practices on Neighboring Lands For Other Than Incidental Take of SJMSCP Covered Species

Neighboring Land Protections protect routine and ongoing agricultural practices on lands neighboring SJMSCP Preserves should a federally or state listed SJMSCP Covered Species move from an SJMSCP Preserve to neighboring lands per the provisions described in SJMSCP Section 5.3.3.4.

In addition to the neighboring land protections described in Section 5.3.3.4, Preserve Management Plans described in Section 5.4.7.1 shall bind Preserve landowners to protect neighboring lands from the spread of noxious weeds, pests, or similar hazards as necessary to protect routine and ongoing agricultural practices on neighboring lands. Should a Preserve landowner violate these Preserve Management Plan requirements, the JPA shall pursue enforcement actions against the Preserve landowner and assist neighboring landowners in removing hazards and recovering costs, as necessary.

When time is of the essence (in order to avoid an irreversible action which may cause damage to either the Preserve or neighboring land), a subcommittee of the JPA's TAC shall act as a mediator to resolve disputes between Preserve and neighboring landowners which may arise subject to the provisions of this Section. The TAC Subcommittee shall be composed, at a minimum, of a representative from the U.C. Cooperative Extension and the San Joaquin County Agricultural Commissioner's office and shall include no more than 5 members. It is anticipated that the remaining members of the TAC Subcommittee shall include a member of the JPA Staff, a Preserve landowner (of a Preserve acquired through conservation easement) and a neighboring landowner. The TAC shall provide a procedure, based on the process currently used by the County Agricultural Commissioner and/or the U.C. Cooperative Extension's, for allowing JPA staff to contact the TAC Subcommittee pursuant to this section outside of regular business hours.

When time is not of the essence, the full TAC may also act as a mediator to resolve disputes arising pursuant to this section subject to the agreement of the Preserve landowner, neighboring landowner and the JPA.

Any actions undertaken pursuant to this section which may affect an SJMSCP Covered Species shall provide the same or higher level of protection to SJMSCP Covered Species and shall be undertaken with the concurrence of the Permitting Agencies' representatives on the TAC.

5.4.8 PRESERVE MANAGEMENT ACTIVITIES BY PRESERVE TYPE
As established in Section 5.3.3, it is anticipated that, at the end of the 50-year term of the SJMSCP Permits, approximately 90% of the SJMSCP Preserves will be held as conservation easements and approximately 10% will be held in fee title.

All Preserves require at least some minimal management, such as fencing, signing, patrolling, maintaining new vegetation (e.g., riparian enhancements and new hedgerows), and the like. If lands are acquired as Preserves through the use of conservation easements, it is anticipated that the landowners may be performing these activities already as part of their routine ranching or farming activities or may incorporate some of these activities into the daily routine. Such management activities, and the landowners role in undertaking those activities, shall be addressed in conservation easements negotiated with the landowners. Therefore, for Preserve lands held as conservation easements, the Joint Powers Authority will monitor conservation easements for compliance with management activities while landowners will actually perform many of the specified management activities. The monitoring of management activities on lands held through conservation easements is addressed in Section 5.9.3.5.

Other lands, primarily those lands held in fee title, may benefit from active ecological management to maintain a mosaic of habitats, to manage the hydrologic regime, or to reduce competition from non-native species, to name a few possibilities. Management techniques may include seasonal grazing, mowing, prescribed burning, trapping of pests, control of noxious species, or planting of vegetation. If trapping activities are required, the use of traps shall be consistent with all applicable laws and regulations. The Joint Powers Authority shall be responsible for undertaking most management activities performed on lands held in fee, however, it is also possible that lessees may be charged with implementing some management actions (e.g., managed grazing, fence maintenance).

The following Preserve management activities are anticipated for each Preserve Type described in Table 5.4-2. Many of the Preserve management activities listed relate to maintenance of Preserve enhancements as described in Section 5.4.6. The following Preserve management activities may be refined over time per the SJMSCP Adaptive Management Plan (see Section 5.9.4):

5.4.8.1 All Preserves

A. **Signs.** All Preserves should be signed to identify each Preserve as a part of San Joaquin County's Open Space system. These identification signs shall clearly state whether public use is allowed or prohibited. On private lands where public use is prohibited and where landowners object to signs identifying their land as Preserves, identification signs need not be posted or may be limited to the posting of no-trespassing signs. On Preserve lands inviting public use, signs shall explain the rules of the Preserves at public entrance points (e.g., keeping on trails, restrictions against motorized vehicles, picnicking only in designated areas, campfire use, and other applicable rules). Educational signs along established nature trails and/or at Preserve entrances are encouraged. Signs along roads near wildlife corridors should be posted to assist in reducing road kills.

B. **Trash.** For Preserves held in fee and for Preserves not held in fee which permit public use, Preserve Management Plans shall establish regular trash pick-up schedules and provide trash receptacles, as necessary, along trails, near parking areas, near picnic areas, and at other locations, as appropriate. For Preserve lands acquired via easements, where not public access is permitted, provisions for addressing illegal trash dumping shall be included in the terms of the conservation easement.
C. **Adopt-a-Preserve.** To assist with management/maintenance activities, the JPA may consider the use of an Adopt-a-Preserve program to invite voluntary assistance from community organizations to patrol Preserves to pick up trash and to assist in the maintenance of trails and similar routine Preserve management activities.

D. **Lighting.** The installation of lighting for Preserves which prohibit public use is unnecessary. The use of lighting for public-use Preserves is discouraged since lighting may disturb many SJMSCP Covered Species. However, when essential for public safety, public-use Preserves may permit some limited lighting around parking areas or access roads where such lighting will not adversely affect SJMSCP Covered Species within the Preserves. When used, lighting should be directed downward and should be directed away from Preserve areas (through the use of shields) occupied by SJMSCP Covered Species. If lighting cannot be installed within public-use Preserves in a manner which avoids disturbance to SJMSCP Covered Species, public-use Preserves should permit public access only after sunrise and before sunset to avoid the need for lighting.

E. **Wildlife Education/Wildlife Rehabilitation Centers.** Where appropriate, and in consultation with the JPA, Preserve lands appropriate for educational studies and/or for facilities for the rehabilitation and/or release of injured wildlife, will be identified. The JPA will work cooperatively with local schools and wildlife rehabilitation facilities to determine the scope of needed educational and rehabilitation facilities and to establish where such facilities might best be located to provide maximum educational and species rehabilitation benefits.

F. **Existing Uses.** The continuance of compatible existing uses, especially compatible agricultural uses, shall be encouraged. Compatible uses are those uses which have previously existed and where, in the presence of those uses, SJMSCP Covered Species have continued to achieve successful reproduction, foraging and sheltering, or are expected to be able to achieve these activities. Other existing uses which may be deemed compatible uses shall be determined on a case-by-case basis in consultation with the landowner, the JPA, and the TAC and shall be determined based upon the needs of individual SJMSCP Covered Species.

G. **Recreational Activities.** When areas are considered as potential Preserves, current and future levels of human activity should be considered. Preserves are not synonymous with recreation lands, and in some cases recreational use could or would be detrimental to the SJMSCP Covered Species targeted for protection. One advantage of allowing recreational use of Preserves is the opportunity to provide educational opportunities for people who visit them. This can increase the public's awareness of the biological resources of San Joaquin County and promote support for Open Space preservation and protection of the plants and animals native to the area. Fisherman and hunters have long been advocates of wetland and water quality protection. Other recreationists who use Preserves could also be expected to join in supporting these and other important plant, fish and wildlife and environmental values.

The suitability of permitting recreational uses on Preserves shall be considered on a case-by-case basis. Recreational use shall be permitted only when it does not conflict with management prescriptions for SJMSCP Covered Species and if the landowner agrees to a recreational use. Recreational uses of Preserves shall be approved by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC in accordance with the following recommendations.
The SJMSCP Covered Species are sensitive to human activity of various kinds and in varying degrees. Recreation consists of many activities, and the effects on SJMSCP Covered Species will depend on the kind of recreation and its intensity and timing. Some kinds of recreation and their resulting ecological effects are described below. However, each proposed Preserve should be addressed based on the species it may protect and what types of human recreation are feasible on the site.

Recreational vehicles, including bicycles, increase the likelihood of road kills (a particular problem with reptiles and amphibians), sedimentation (a problem for fish and amphibians), erosion (affects many plants), and changes in hydrologic conditions (could affect vernal pool-associated species, as well as fish and any wetland or riparian-associated species). Of particular concern would be off-highway recreational vehicular activity, which should be prohibited on any SJMSCP Preserve.

Hiking, nature study, and photography result in fewer impacts than vehicular activity, but also can create conflicts with SJMSCP Covered Species. Unlimited access encourages vandalism; accidental fires; and killing, harming, or harassment of SJMSCP Covered Species. While it would be preferable to do without these uses, limited access taking into account the season and quantity of use might be acceptable.

Boating and fishing are both popular activities in the County. Boat wakes have been suggested as a contributing factor in the erosion of channel islands in the Delta. Noise could be a problem for some nesting birds, if water traffic and recreational activity are exceptionally heavy. Steps should be taken to reduce the potential negative impacts of boating and fishing on SJMSCP Covered Species. Signage, posts, and seasonal closures could be used to reduce the speed of boats through channels near Preserves and to minimize their impacts.

Take of listed species is strictly prohibited under state and federal law. California Department of Fish and Game wardens vigorously pursue enforcement of these laws. To date, Take of listed species by licensed hunters in San Joaquin County has not been significant. It is anticipated that the continued enforcement of existing state and federal laws on Preserves where hunting is permitted will adequately protect SJMSCP Covered Species.

Management activities described for each SJMSCP Preserve Type will recommend whether or not, and which, recreational activities are considered compatible with each Preserve Type. Preserve Management Plans for SJMSCP Preserves shall balance the beneficial effects of recreational uses with the potential adverse effects of allowing recreational use on the SJMSCP Covered Species within each SJMSCP Preserve. Recreational uses which could result in Take of SJMSCP Covered Species shall not be permitted on SJMSCP Preserves.

5.4.8.2 Primary Zone of the Delta

5.4.8.2(A) Large Area and Small Area Water's Edge Preserves

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24 David S. Zezulak, Environmental Specialist IV, Supervisor; California Department of Fish and Game, Rancho Cordova; November 20, 1997, correspondence.
Vegetation Maintenance. Per Section 5.4.6, Preserve enhancements, revegetation of denuded areas and/or establishing new vegetation is anticipated for this Preserve Type. Preserve Management Plans for this Preserve Type shall identify a schedule for watering vegetation (semi-weekly, weekly, semi-monthly, or monthly when natural rains do not provide sufficient water), the method(s) to be used for watering vegetation (e.g., drip irrigation, naturally occurring tidal fluctuations, truck watering, hand watering), a schedule for weeding plants [normally at least twice yearly, however this frequency may be reduced to once yearly if mulching and/or barriers against weeds and foraging animals have been installed (e.g., plant sleeves, wire fencing)], requirements for replacing dead or dying plants, and size or age criteria to be used to determine when new vegetation shall be considered established.

5.4.8.2(B) Flooded Fields

1. Managed Flooding. The length and timing of water retention on fields shall be managed appropriately. Flooding normally occurs between mid-September and flood waters are normally released from grain fields in February or March.

2. Grain farming. Agriculture is highly compatible with the management of flooded fields for migratory birds such as the greater sandhill crane and the Aleutian Canada goose. Most of the currently-used roosting sites for these species are farmed for grain. The farming of grains shall be a specified use in conservation easements executed in the acquisition of Flooded Field Preserves.

3. Grazing. If the area is a managed wetland, livestock grazing is a compatible use during the spring and summer (unless giant garter snakes are known to occupy the site, then livestock grazing is an incompatible use).

5.4.8.3 Southwest Zone

5.4.8.3(A) Valley Grassland Preserves

1. Grazing/Range Management. Livestock grazing is a permitted use on these Preserves and shall use good or "best range management practices". The goal of these practices should be to avoid overgrazing grasslands sufficient to provide cover for rodents which become a food and burrow source for SJMSCP Covered Species within the Southwest Zone.

2. Recreational Use. Recreational use is not a permitted use on these Preserves.

3. Mowing. Mowing shall be prohibited to protect the San Joaquin whipsnake, where present or likely to be present. Prohibition of mowing shall be included in language for conservation easements where the whipsnake occurs or is expected to occur within a Preserve when the landowner is in agreement with such a condition. If the landowner cannot agree to prohibit mowing, lands should not be managed to maintain the whipsnake. Also, mowing is encouraged in lieu of discing when managing Preserves for burrowing owls, so care should be taken in considering the appropriateness of mowing for Preserve management. When burrowing owls are present, margins should be mowed adjacent to roads instead of discing perimeters.
4. **Fencing.** Fencing is used to protect vegetation for SJMSCP Covered Amphibians and to preserve vegetation along certain riparian and other wetland areas (see Section 5.4.6, Preserve enhancements). Preserve Management Plans for this Preserve Type shall include a schedule for maintaining fencing when fencing is required.

5. **Maintaining Artificial Owl Burrows.** Preserve Management Plans for this Preserve Type shall include a schedule for inspecting and, if needed, repairing or replacing, burrows constructed on Preserves for burrowing owls prior to the breeding and nesting season for burrowing owls. Burrowing owls can begin laying eggs as early as March 1 and families can remain together in burrows as late as September, therefore, inspections and repairs should occur between October 1 and February 15th.

6. **Vernal Pools and Similar Wetlands.** If discovered within Preserves, Preserve Management Plans for Preserves containing Conservancy and/or longhorn fairy shrimp or vernal pool tadpole shrimp shall be established pursuant to the Adaptive Management Plan process described in Section 5.9.4.2. Section 5.4.8.4(A), management plans for vernal pools within the *Vernal Pool Zone*, shall be used as a guideline for establishing management plans for Preserves with listed vernal pool invertebrates.

7. Management activities for Preserves containing the large-flowered fiddleneck shall be established in consultation with the Permitting Agencies' representatives on the TAC using the guidelines established in the Large-flowered fiddleneck recovery plan.25

5.4.8.3(B) **Diablan Sage Scrub Preserves**

**Vegetation Maintenance.** Where appropriate, a schedule for periodic control burning within chamise stands shall be established in Preserve Management Plans. Schedules, projected costs, and details of undertaking control burns shall be coordinated with the appropriate fire management agencies.

5.4.8.3(C) **Riparian Preserves**

1. **Recreational Use.** Riparian habitats are some of the most appealing for recreational use because of their proximity to water, their aesthetic beauty, and shade. Limited recreational use may be compatible with the protection of riparian areas, depending on the target resources. In general, camping is probably too intensive a use. Allowed uses should include only a minimum of vehicular use, and very limited trail construction. Bike and equestrian trails are possible in this habitat type, so long as they do not result in significant disturbance or degradation of the habitat values of SJMSCP Covered Species. When used, they should be on the outer margin of riparian zones, outside of riparian vegetation and be designed to avoid impacts to existing riparian vegetation, and be placed a sufficient distance from the water resource to avoid erosion. Riparian access points, such as access to open beaches or small docks, shall be installed (usually by establishing trails) so as to encourage use of these access areas and discourage degradation of riparian vegetation in other areas.

2. **Insect Control.** Although riparian areas may be treated for insect pests such as mosquitoes, when necessary, these are an important food item for insectivorous birds and control of insect pests should be conducted only when necessary to achieve an important public health or similar purpose.

3. **Livestock Grazing.** Generally, livestock are not beneficial to the structure of riparian vegetation, and their hoof action tends to create sedimentation in the streambed. As a result, livestock grazing should be minimized or eliminated in riparian Preserves. Instead, livestock can be watered using a tank system somewhat removed from the riparian area, and water from the stream may be used to establish trees to provide shade at some distance from the stream side.

4. **Fencing.** Fencing is used to protect vegetation for SJMSCP Covered Amphibians and to preserve vegetation along certain riparian and other wetland areas (see Section 5.4.6). Preserve Management Plans for this Preserve Type shall include a schedule for maintaining fencing when fencing is required.

5. **Non-Native Invasive Species.** Non-native invasive species can be a problem in riparian habitats, where conditions are often suitable for them. For example, brown-headed cowbirds parasitize yellow-billed cuckoos, and have limited the areas where this rare species can successfully reproduce. Likewise, tamarisk, a Eurasian shrub, has invaded many small to large streams in the Central Valley, greatly diminishing habitat values for other species. Specific control measures for invasive species may be called for in riparian Preserves. However, control measures can sometimes cause severe impacts to natural systems as well. The need for and the methods recommended for controlling invasive species shall be carefully reviewed prior to implementing a pest control program, and monitoring shall be carried out to assess the effectiveness of any control measures. Normally, control of invasive non-native animal species shall be accomplished through the use of limited trapping and disposal of non-native predators. If trapping activities are required, the use of traps shall be consistent with all applicable laws and regulations. Any use of pesticides to remove non-native plant species shall be in accordance with Sections 5.4.5(M) and 5.4.7.1.

6. **Vegetation Maintenance.** Per Section 5.4.6, Preserve enhancements, revegetation of denuded areas and/or establishing new vegetation is anticipated for this Preserve Type. Preserve Management Plans for this Preserve Type shall identify a schedule for watering vegetation (semi-weekly, weekly, semi-monthly, or monthly when natural rains do not provide sufficient water), the method(s) to be used for watering vegetation (e.g., drip irrigation, truck watering, hand watering), a schedule for weeding plants [normally at least twice yearly, however this frequency may be reduced to once yearly if mulching and/or barriers against weeds and foraging animals have been installed (e.g., plant sleeves, wire fencing)], requirements for replacing dead or dying plants, and size or age criteria to be used to determine when new vegetation shall be considered established.

5.4.8.3(D) **Blue Oak Conifer Preserves**

1. **Oak Regeneration.** A certified range manager shall be consulted to develop best range management practices conducive to permitting oak regeneration. Certified Range Managers may be located through U.C. Berkeley's Certified Range Management Program or through
the Society for Range Managers, Denver, Colorado. Appropriate management practices identified through these consultations shall be included into the Preserve Management Plan.

2. **Retain Snags.** Existing hardwood snags within Preserves shall be retained at a ratio of at least one per every five acres.

3. **Recreational Use.** Trails and road crossings through Preserves shall be minimized, especially for Preserves smaller than 250 acres in size.

4. **Vegetation Maintenance.** Per Section 5.4.6, Preserve enhancements, revegetation of denuded areas and/or establishing new vegetation is anticipated for this Preserve Type. Preserve Management Plans for this Preserve Type shall identify a schedule for watering vegetation (semi-weekly, weekly, semi-monthly, or monthly when natural rains do not provide sufficient water), the method(s) to be used for watering vegetation (e.g., drip irrigation, truck watering, hand watering), a schedule for weeding plants [normally at least twice yearly, however this frequency may be reduced to once yearly if mulching and/or barriers against weeds and foraging animals have been installed (e.g., plant sleeves, wire fencing)], requirements for replacing dead or dying plants, and size or age criteria to be used to determine when new vegetation shall be considered established.

5.4.8.4 **Vernal Pool Zone**

5.4.8.4(A) **Vernal Pool Grassland Preserves (Created and Restored)**

1. **Maintaining/Restoring Hydrology.** Any topographical or hydrological alteration to existing vernal pool grasslands shall be avoided, since alterations may affect the pattern of water accumulation in the vernal pools. The restoration of vernal pool grasslands to repair pre-existing topographical features as a method to restore vernal pools is essential for the restoration of vernal pools within the Vernal Pool Zone.

2. **Agriculture.** Agriculture, including dry farming or irrigated pasture, is an incompatible use for this Preserve Type.

3. **Grazing/Range Management.** Livestock grazing is a permitted use on these Preserves and shall use good or "best range management practices". The goal of these practices should be to avoid overgrazing grasslands sufficient to provide cover for rodents which become a food and burrow source for SJMSCP Covered Species within the Vernal Pool Zone.

4. **Recreation.** Passive recreation (e.g., nature study, bird watching) is an acceptable use of these lands.

5. **Control of Non-native Species/Prescribed Burning.** Non-native species are generally not a problem in vernal pools, since few introduced species are adapted to the regime of inundation and drying found in vernal pools. Prescribed burning of grasslands during the dry season may be neutral for the vernal pools but could be beneficial in restoration of the grasslands themselves to a more native mix of species. Prescribed burning shall be attempted only on a limited scale until the benefits of this experimental management activity can be established. If prescribed burning is found to encourage restoration of native
grasslands, then its use should be expanded as a Preserve management activity within the Vernal Pool Zone.

6. **Vehicle Access.** Vehicular access should be confined to existing roads or when necessary, both to reduce the potential for road kills of amphibians, and to reduce erosion and sedimentation.

7. **Mowing.** When burrowing owls are present, margins adjacent to roads shall be moved instead of discing perimeters.

8. **Fencing.** Fencing is used to protect vegetation for SJMSCP Covered Amphibians and to preserve vegetation along certain riparian and other wetland areas (see Section 5.4.6, Preserve enhancements). Preserve Management Plans for this Preserve Type shall include a schedule for maintaining fencing when fencing is required.

9. **Maintaining Artificial Owl Burrows.** Preserve Management Plans for this Preserve Type shall include a schedule for inspecting and, if needed, repairing or replacing, burrows constructed on Preserves for burrowing owls prior to the breeding and nesting season for burrowing owls. Burrowing owls can begin laying eggs as early as March 1 and families can remain together in burrows as late as September, therefore, inspections and repairs should occur between October 1 and February 15th.

10. **Maintaining Artificial Tiger Salamander Burrows.** Preserve Management Plans for this Preserve Type shall include a schedule for inspecting and, if needed, repairing or replacing, burrows constructed on Preserves for tiger salamanders. Inspections and repairs should occur when vernal pools are dry. These burrows should not be constructed if they will be constructed out of pipe, but should be constructed out of materials that allow the tiger salamander to get at worms and bugs.

11. **Vegetation Maintenance.** Per Section 5.4.6, Preserve enhancements, revegetation of drainages in the northeastern corner of the Vernal Pool Zone is anticipated for this Preserve Type. Preserve Management Plans for riparian drainages within this Preserve Type which have been revegetated shall identify a schedule for watering vegetation (semi-weekly, weekly, semi-monthly, or monthly when natural rains do not provide sufficient water), the method(s) to be used for watering vegetation (e.g., drip irrigation, truck watering, hand watering), a schedule for weeding plants [normally at least twice yearly, however this frequency may be reduced to once yearly if mulching and/or barriers against weeds and foraging animals have been installed (e.g., plant sleeves, wire fencing)], requirements for replacing dead or dying plants, and size or age criteria to be used to determine when new vegetation shall be considered established.

5.4.8.5 Central Zone

5.4.8.5(A) Row and Field Crop/Riparian Preserves

1. **Agricultural Use.** The growing and harvesting of row and field crops, in particular alfalfa, other hay crops, beets, tomatoes, irrigated pasture and similar crops which do not mechanically prevent foraging, is an essential management practice for most agricultural
habitat lands within the Central Zone. Existing agricultural uses consistent with the growing and harvesting of these crops should be maintained to the maximum extent feasible through provisions within conservation easements executed for the acquisition of these Preserve lands.

2. **Recreational Use.** Riparian habitats are some of the most appealing for recreational use because of their proximity to water, their aesthetic beauty, and shade. Limited recreational use may be compatible with the protection of riparian areas, depending on the target resources. In general, camping is probably too intensive a use. Allowed uses should include only a minimum of vehicular use, and very limited trail construction. Bike and equestrian trails are possible in this habitat type, so long as they do not result in significant disturbance or degradation of the habitat values of SJMSCP Covered Species. When used, they should be on the outer margin of riparian zones, outside of riparian vegetation and be designed to avoid impacts to existing riparian vegetation, and be placed a sufficient distance from the water resource to avoid erosion. Riparian access points, such as access to open beaches or small docks, shall be installed (usually by establishing trails) so as to encourage use of these access areas and discourage degradation of riparian vegetation in other areas.

3. **Insect Control.** Although riparian areas may be treated for insect pests such as mosquitoes, when necessary, these are an important food item for insectivorous birds and control of insect pests should be conducted only when necessary to achieve an important public health or similar purpose. The JPA shall coordinate with the San Joaquin County Mosquito and Vector Control District and the San Joaquin County Agricultural Commissioner’s office for assistance in evaluating alternative insect control methods and identifying those alternatives which are least invasive to SJMSCP Covered Species.

4. **Livestock Grazing.** Generally, livestock are not beneficial to the structure of riparian vegetation, and their hoof action tends to create sedimentation in the streambed. As a result, livestock grazing should be minimized or eliminated in riparian Preserves. Instead, livestock can be watered using a tank system somewhat removed from the riparian area, and water from the stream may be used to establish trees to provide shade at some distance from the stream side.

5. **Non-Native Invasive Species.** Non-native invasive species can be a problem in riparian habitats, where conditions are often suitable for them. For example, brown-headed cowbirds parasitize yellow-billed cuckoos, and have limited the areas where this rare species can successfully reproduce. Likewise, tamarisk, a Eurasian shrub, has invaded many small to large streams in the Central Valley, greatly diminishing habitat values for other species. Specific control measures for invasive species may be called for in riparian Preserves. However, control measures can sometimes cause severe impacts to natural systems as well. The need for and the methods recommended for controlling invasive species should be carefully reviewed prior to implementing a pest control program, and monitoring should be carried out to assess the effectiveness of any control measures. Normally, control of invasive non-native animal species shall be accomplished through the use of limited, humane trapping and relocation of nonnative predators. If trapping activities are required, the use of traps shall be consistent with all applicable laws and regulations. The removal of non-native plants and use of herbicides, when necessary, shall be performed in cooperation with the County Agricultural Advisor’s Office and in compliance with U.S. Environmental Protection Agency label standards.
5. Mowing. When burrowing owls are present, margins adjacent to roads shall be mowed instead of discing perimeters.

7. Maintaining Artificial Owl Burrows. Preserve Management Plans for this Preserve Type shall include a schedule for inspecting and, if needed, repairing or replacing, burrows constructed on Preserves for burrowing owls prior to the breeding and nesting season for burrowing owls. Burrowing owls can begin laying eggs as early as March 1 and families can remain together in burrows as late as September, therefore, inspections and repairs should occur between October 1 and February 15th.

8. Maintaining Roosting/Nesting Platforms. Pursuant to Section 5.4.6, Preserve enhancements, nesting or roosting platforms may be installed on Row and Field Crop/Riparian Preserves in the Central Zone. Preserve Management Plans shall include a schedule for inspecting and, if needed, repairing, roosting/nesting platforms. Inspections and repairs shall occur outside of nesting seasons (normally, inspections and repairs should occur between October and late February for this Preserve Type).

9. Maintaining Fencing. Pursuant to Section 5.4.6, Preserve enhancements, fencing will normally be required around riparian vegetation where grazing is permitted. The Preserve Management Plan for Preserves which require such fencing shall include a schedule for inspecting and repairing fencing surrounding riparian areas.

10. Vegetation Maintenance. Per Section 5.4.6, Preserve enhancements, restoration of denuded areas and/or planting new vegetation is anticipated for this Preserve Type. Preserve Management Plans for this Preserve Type shall identify a schedule for watering vegetation (semi-weekly, weekly, semi-monthly, or monthly when natural rains do not provide sufficient water), the method(s) to be used for watering vegetation (e.g., drip irrigation, truck watering, hand watering), a schedule for weeding plants [normally at least twice yearly, however this frequency may be reduced to once yearly if mulching and/or barriers against weeds and foraging animals have been installed (e.g., plant sleeves, wire fencing)], requirements for replacing dead or dying plants, and size or age criteria to be used to determine when new vegetation shall be considered established.

5.4.8.5(B) Wetland Preserves

1. Recreational Use. Recreational use, including fishing and other active and passive recreational uses, is not recommended on these Preserve lands.

2. Vehicular/Human Access. SJMSCP Covered Species within this Preserve Type, for example the giant garter snake, are easily killed by vehicular use and are easily disturbed by humans. Vehicular use and human access should be limited to existing roadways on these Preserves.

3. Agricultural Use/Water Maintenance in Ditches. Agricultural uses requiring the maintenance of permanent water within ditches (e.g., rice farming) which are not deep enough or large enough to support large game fish are highly compatible with Preserves in the Central Zone and shall be preserved, where such preservation provides biological values necessary for the Preserve, through provisions contained in conservation easements for the acquisition of these Preserves.
4. **Livestock Grazing.** The location of these Preserves is normally within row and field crop agricultural habitat lands which are not used for livestock grazing. Livestock grazing should not be permitted within these Preserves unless such Preserves are unoccupied and intended to remain unoccupied by the giant garter snake.

5. **Maintaining Cover and Basking Areas for the Giant Garter Snake.** Section 5.4.6, Preserve enhancements, contains provisions for creating cover and basking areas for the giant garter snake. Preserve Management Plans for Preserves in which cover and basking areas have been created shall include a schedule for inspecting and repairing cover and basking areas, as needed.

6. **Vegetation Maintenance.** Per Section 5.4.6, Preserve enhancements, restoration of denuded areas and/or planting new vegetation is anticipated for this Preserve Type. Preserve Management Plans for this Preserve Type shall identify a schedule for watering vegetation (semi-weekly, weekly, semi-monthly, or monthly when natural rains do not provide sufficient water), the method(s) to be used for watering vegetation (e.g., drip irrigation, truck watering, hand watering), a schedule for weeding plants [normally at least twice yearly, however this frequency may be reduced to once yearly if mulching and/or barriers against weeds and foraging animals have been installed (e.g., plant sleeves, wire fencing)], requirements for replacing dead or dying plants, and size or age criteria to be used to determine when new vegetation shall be considered established.

5.4.8.5(C) **Oak Woodland Preserves**

1. **Oak Regeneration.** A certified range manager shall be consulted to develop best range management practices conducive to permitting oak regeneration. Certified Range Managers may be located through U.C. Berkeley's Certified Range Management Program or through the Society for Range Managers, Denver, Colorado. Appropriate management practices identified through these consultations shall be incorporated into the Preserve Management Plan.

2. **Retain Snags.** Existing hardwood snags within Preserves shall be retained at a ratio of at least one per every five acres.

3. **Recreational Use.** Trails and road crossings through Preserves shall be limited to existing trails and road crossings to the maximum extent feasible, especially Preserves smaller than 250 acres in size.

4. **Vegetation Maintenance.** Per Section 5.4.6, Preserve enhancements, restoration of denuded areas and/or planting new vegetation is anticipated for this Preserve Type. Preserve Management Plans for this Preserve Type shall identify a schedule for watering vegetation (semi-weekly, weekly, semi-monthly, or monthly when natural rains do not provide sufficient water), the method(s) to be used for watering vegetation (e.g., drip irrigation, truck watering, hand watering), a schedule for weeding plants [normally at least twice yearly, however this frequency may be reduced to once yearly if mulching and/or barriers against weeds and foraging animals have been installed (e.g., plant sleeves, wire fencing)], requirements for replacing dead or dying plants, and size or age criteria to be used to determine when new vegetation shall be considered established.
5.4.8.6 Submerged Aquatic

Vegetation Maintenance. Per Section 5.4.6, Preserve enhancements, revegetation of denuded areas and/or establishing new vegetation is anticipated for this Preserve Type. Preserve Management Plans for this Preserve Type shall identify a schedule for watering vegetation (semi-weekly, weekly, semi-monthly, or monthly when natural rains do not provide sufficient water), the method(s) to be used for watering vegetation (e.g., drip irrigation, naturally occurring tidal fluctuations, truck watering, hand watering), a schedule for weeding plants [normally at least twice yearly, however this frequency may be reduced to once yearly if mulching and/or barriers against weeds and foraging animals have been installed (e.g., plant sleeves, wire fencing)], requirements for replacing dead or dying plants, and size or age criteria to be used to determine when new vegetation shall be considered established.

5.4.8.7 Central/Southwest Transition Zone

Preserves located in the Central/Southwest Transition Zone shall be managed the same as those in the Central Zone.
5.5 NON-Preserve Mitigation

In addition to mitigating impacts to SJMSCP Covered Species through the creation, enhancement and management of Preserves, the following mitigation measures also shall be included as conditions of the SJMSCP Permits to further minimize and mitigate the impacts of Take of SJMSCP Covered Species:

5.5.1 LIMITS ON NATURAL LAND CONVERSION

Natural Lands (see Section 2.2.1.1 for a listing of all Natural Lands) are of limited amount and distribution in San Joaquin County. To adequately protect the supply of Natural Lands in the County and the SJMSCP Covered Species which rely on those lands, the SJMSCP requires a limit on the amount of Natural Land which may be developed as a result of SJMSCP Permitted Activities without a requirement for a Major Amendment (Section 8.8.5). That limit is as follows:

Conversion of Natural Lands by SJMSCP Permitted Activities shall total no more than 14,202 acres within 50 years, or no more than 15% of the total acreage of Open Space Conversion for SJMSCP Permitted Activities within any five year period, whichever is less.

Further, pursuant to Section 5.9.1.1(B), the JPA shall monitor the Conversion of Natural Lands for non-SJMSCP Permitted Activities countywide. The estimated Conversion of Natural Lands for non-SJMSCP Permitted Activities shall be reported in the Annual Report (Section 5.9.1.1). It is recognized that estimates of some of these Conversions of Natural Lands resulting from non-SJMSCP Permitted Activities may require estimations because neither entitlements, record-keeping, nor a public review reporting or review process are required for the Conversion of some Natural Lands (e.g., the Conversion of non-vernal pool grasslands to orchards and vineyards--trends related to these Conversion may be estimated through annual agricultural reports issued by the San Joaquin County Agricultural Commissioner, but precise locations of the Conversions may not be reported). The Conversion of Natural Lands for both SJMSCP Permitted Activities and non-SJMSCP Permitted Activities shall not exceed 25,912 acres (10% of the existing Natural Lands mapped in San Joaquin County as detailed in Table 2-1) during the 50-year term of the Plan unless the JPA and the Permitting Agencies establish a higher limit through the Major Amendment Process (Section 8.8.5) and based on one or both of the following findings:

1. The creation of new Natural Lands on SJMSCP Preserves or through other projects is sufficient to offset the impacts to SJMSCP Covered Species occurring from the Conversion of Natural Lands; or

2. The JPA provides biological documentation to support a finding by the Permitting Agencies' representatives on the TAC that Conversion of more than 25,912 acres of Natural Lands countywide will not jeopardize the long-term survival of any of the SJMSCP Covered Species.

5.5.2 INCIDENTAL TAKE LIMITS OR RESTRICTIONS

5.5.2.1 Large-Flowered Fiddleneck, succulent owl’s clover, Greene’s tuctoria, Delta button celery, diamond-petaled California poppy, showy madia, slough thistle, legenere, Hospital Canyon larkspur, Sanford’s arrowhead

A. No loss of individual plants and no Conversion of occupied habitat of the large-flowered fiddleneck,
succulent owl’s clover, Greene’s tuctoria, Delta button celery, diamond-petaled California poppy, showy madia, slough thistle, legenere, Hospital Canyon larkspur, Sanford’s arrowhead will occur pursuant to the SJMSCP until the JPA, in consultation with the TAC and with the concurrence of the Permitting Agencies, accomplishes one of the following to ensure that the long-term survival of these species will not be jeopardized:

1. Provides alternative documentation to the Permitting Agencies' representatives on the TAC that the range of the species has expanded sufficiently within areas where Take is not anticipated to occur; or

2. Provides biological documentation to support a finding by the Permitting Agencies' representatives on the TAC that Incidental Take of the species will not jeopardize the long-term survival of the species; or

B. If restrictions against the loss of individuals or prohibitions against Conversion of occupied habitat are lifted pursuant to paragraph A, above, then Incidental Take of individuals or occupied habitat of the large-flowered fiddleneck, succulent owl’s clover, Greene’s tuctoria, Delta button celery, diamond-petaled California poppy, showy madia, slough thistle, legenere, Hospital Canyon larkspur, or Sanford’s arrowhead requires approval by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC and may be granted upon making one or more of the following findings:

1. The occupied habitat is of such poor quality and/or of such low numbers as to render the long-term survival of the population highly unlikely; or

2. The objectives of an adopted Recovery Plan [e.g., the Large-Flowered Fiddleneck Recovery Plan (USDOI/FWS, 1997)] have been achieved.

3. Incidental Take of the species will not jeopardize the long-term survival of the species; or

4. The species has sufficiently expanded its range so as to allow Take to occur.

5.5.2.2 Giant Garter Snake

Mortality or harm of individuals or Conversion of occupied habitat known to be occupied by the giant garter snake as of the Effective Date of the Plan is prohibited. Known occupied habitat for the giant garter snake as of the Effective Date of the Plan is that area west of I-5 located on Terminous Tract, Shin Kee Tract, White Slough Wildlife Area, and Rio Blanco Tract. Occupied habitat is further defined as W2, W3, W4, D habitat surrounding a documented finding of giant garter snake made by a qualified herpetologist or representative of one of the Permitting Agencies after issuance of the SJMSCP Permits and reported to the JPA.

Mortality or harm of individuals or Conversion of occupied giant garter snake habitat identified after the Effective Date of the plan also is prohibited unless the JPA, in consultation with the TAC and with the concurrence of the Permitting Agencies, accomplishes the following:

A. Provides alternative documentation to the Permitting Agencies' representatives on the TAC that the range of the giant garter snake has expanded sufficiently within areas where Take is not anticipated sufficient to allow additional Take to occur; and
B. Such Take will not jeopardize the species or adversely modify critical habitat; and
C. Such Take is mitigated and minimized to the maximum extent feasible; and
D. A Major Plan Amendment is undertaken in accordance with SJMSCP Section 8.8.5

5.5.2.3 San Joaquin River Wildlife Corridor

Development shall be situated so as to maintain a 1200 foot corridor encompassing 600 feet from the mean high water mark of the San Joaquin River, on both sides of the river, from Stewart Tract to the Stanislaus/San Joaquin County border except as follows:

A. For the area on the west side of the river bordering Stewart Tract, the corridor shall extend west from the river to the top of the levee on the waterside of the levee; and

B. For the area on the east side of the river bordering lands in the Lathrop and Manteca planned land use areas as indicated on the SJMSCP Planned Land Use Map, the final setbacks shall be established after the completion of surveys for the riparian brush rabbit.

Development within this corridor requires consultation with the Permitting agencies and a minor or major amendment to the SJMSCP.

5.5.2.4 Burrowing Owl

Incidental Take of the burrowing owl shall be limited to 19,533 acres (10% of the 195,325 acres of potential and occupied habitat for this species within the project boundaries), until the JPA accomplishes one of the following:

A. Demonstrates to the Permitting Agencies' representatives on the TAC that avoidance of burrowing owl habitats within the designated urban boundaries (see SJMSCP Proposed Land Use Map) has occurred due to project redesigns to an extent sufficient to lower the anticipated Incidental Take acreage of burrowing owl habitat to 10% or less of the total occupied and potential burrowing owl habitat in the Plan area.

B. Provides alternative documentation to the Permitting Agencies' representatives on the TAC that the range of the burrowing owl has expanded within areas where Take is not anticipated sufficient to allow additional Take to occur; or

C. Provides biological documentation to support a finding by the Permitting Agencies' representatives on the TAC that Incidental Take of more than 10% of the total occupied and potential habitat for the burrowing owl will not jeopardize the long-term survival of the species; or

D. Provides documentation to the Permitting Agencies' representatives on the TAC that the projected Incidental Take acreage, as a total percentage of occupied and potential habitat, is inaccurate and Incidental Take will not exceed 10% of total habitat acres for the burrowing owl.

5.5.2.5 Vernal Pools - Limitation To Conversions and Assessment of Fees on Vernal Pool Upland Grasslands
A. Conversion of vernal pool habitats by Plan Participants undertaking SJMSCP Permitted Activities is limited as follows:

1. Conversion of vernal pools shall be limited to up to six acres of wetted-surface area for the first 24 months following issuance of the SJMSCP Permits. This limit shall not apply so long as both preservation and creation compensation requirements of the SJMSCP are being exceeded (i.e., the SJMSCP is mitigating for vernal pool Conversion at a greater rate than vernal pool Conversion is occurring).

2. 24 months or more after the issuance of SJMSCP Permits, Conversion of vernal pools shall be limited to 15 acres of wetted-surface area per year (except as provided in paragraph B, below). This limit shall not apply so long as both preservation and creation compensation requirements of the SJMSCP are being exceeded (i.e., the SJMSCP is mitigating for vernal pool Conversion at a greater rate than vernal pool Conversion is occurring and upon review of vernal pool grassland preconstruction information gathered as discussed in SJMSCP Section 5.2.2.5).

3. In no case shall the total Conversion of vernal pool wetted surface area by SJMSCP Permitted Activities exceed the SJMSCP Permit limit of 707 wetted acres. It is acknowledged that, if maximum Conversion acres for vernal pools are met every year per the limits established above in 1 and 2, the 707 wetted-acre Conversion limit shall be met in year 46 of the 50-year Plan. Once the 707 wetted-acre limit is met, no additional Conversion of vernal pool wetted surface area by SJMSCP Permitted Activities may occur until and unless a Major Plan Amendment is approved by the Permitting Agencies pursuant to Section 8.8.5.

4. Acquisition of vernal pool Preserve sites by the JPA may occur up to 24 months from the date of Conversion of vernal pools so long as Vernal Pool Jump-Start lands are acquired pursuant to Section 5.5.7 and the limits established in paragraphs 1-3 are being implemented properly.

B. Conversions of Vernal Pools pursuant to the SJMSCP are limited as follows:

Due to a discrepancy between the total acreage of vernal pool grasslands mapped by the SJMSCP (73,600+ acres) and by Holland (42,000+ acres) in San Joaquin County, an initial cap of 8%, or 3,363 acres or 404 wetted acres (whichever comes first), of the lower of the two projected acreages will be used to ensure that vernal pool grasslands Converted in San Joaquin County pursuant to the SJMSCP will not jeopardize SJMSCP Covered Species until and unless additional review, through the SJMSCP Adaptive Management Plan establishes that the cap may be raised to the 5,894 acres of Conversion of vernal pool grasslands (G3) without adverse effects as is anticipated by the SJMSCP.

Conversion of vernal pool wetted surface area may continue at a rate of up to 15 wetted surface acres of vernal pool per year up to the initial 3,363 acre vernal pool grassland (404 wetted acres) cap.

Once the initial cap of 3,363 acres is reached, the provisions of the SJMSCP Adaptive Management Plan Section 5.9.4.12 shall be implemented. Implementation of the Adaptive Management Plan will result in one of the following:

1. Raise the cap to 5,894 total acres (or 707 wetted acres) at the existing rate of 15
wetted acres per year with no change in compensation requirements;
2. Raise the cap to 5,894 total acres (or 707 wetted acres) at a rate that equals or exceeds impacts on an annual basis with the annual cap remaining at 15 wetted acres per year;
3. Raise the cap to 5,894 total acres (or 707 wetted acres) at a rate of three wetted surface acres per year; or
4. Restrict additional Conversions due to the significance of impacts or due to a lack of available mitigation sites.

C. The JPA’s management of Vernal Pool Conversions and Compensation shall require the following:

Two Vernal Pool Regions occur in San Joaquin County. The Southeast Sacramento Valley Region (occurring north of the Calaveras River within the Vernal Pool Index Zone) and the Southern Sierra Foothills Region (located within the Vernal Pool Index Zone south of the Calaveras River). The flora, fauna and soil characteristics of these two regions increasingly differ moving away from the Calaveras River and are increasingly similar nearing the Calaveras River.

To maintain the genetic and biological diversity of these two Vernal Pool Regions, the JPA shall maintain the proportion of Vernal Pool Preserves by Vernal Pool Regions. Specifically, compensation for vernal pool Conversions occurring north of the Calaveras River shall occur north of the Calaveras River. Vernal pool Conversions occurring south of the Calaveras River shall occur south of the Calaveras River. A precise balancing of Vernal Pool Preserves by region need not occur on a yearly basis, but should be achieved at a pace that ensures that the overall balance of Vernal Pools within the SJMSCP’s two Vernal Pool Regions approximately balances with the Conversion of vernal pools within the two regions once the 50-year term of the SJMSCP ends. Monitoring of Vernal Pool Preserves by vernal pool region shall occur through reporting requirements established in Section 5.9.1.1(14).

D. The determination of appropriate fees for vernal pool grasslands (i.e., $5,000 per acre) shall be assessed based upon a designation pursuant to the SJMSCP Vegetation Maps of G3 (vernal pool grasslands) and not upon the presence or absence of vernal pools within the grasslands. This is necessary to ensure sufficient funding for the creation and preservation of vernal pools and vernal pool grasslands and to avoid confusion between grasslands which are non-vernal pool Natural Lands (with fees of $1,500/acre) and vernal pool grasslands (with fees of $5,000 per acre).

Example: Consider a 100-acre parcel designated as G3 on the SJMSCP Vegetation Maps with vernal pools concentrated over ten acres of the parcel and vernal pool grasslands covering 90 acres of a parcel. The Project Proponent submits an application to develop 90 acres of the parcel--that portion of the parcel with no vernal pools and does not propose development on the 10 acres covered with vernal pools. Will the fees for the development be $1,500 per acre for the development of Natural Lands (grasslands)? Or, will the fees for the project be $5,000 per acre based on the development of upland vernal pool grasslands? Or, will the fees for the project be $8,000 per acre (the averaged cost when assuming a 12% coverage of vernal pools within a vernal pool grassland).

Answer: The fees shall be $8,000 per acre if the Project Proponent opts not to prepare a wetlands delineation--the averaged cost of developing vernal pool upland grasslands (G3), based upon the designation of the parcel as G3 on the SJMSCP Vegetation Maps and the SJMSCP's assumption of a 12% wetted-surface-area-to-upland-grassland distribution of vernal pools in the absence of a wetlands delineation. Should the Project Proponent elect to undertake a wetlands delineation, the

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cost of the project would be $5,000 per acre for all upland grasslands outside of the wetlands boundaries and $30,000 per acre for all wetted surface area falling within the delineated boundaries of the wetlands. The total cost in fees for both alternatives is anticipated to be nearly equal, except that the Project Proponent forgoes the added costs of a wetlands delineation if he elects to use the $8,000 per acre fee.

E. Avoidance of vernal pools sufficient to eliminate the vernal pool compensation requirements of the SJMSCP are established in Section 5.5.9(B).

5.5.2.6 Ring-tailed Cat

Pursuant to Fish and Game Code Section 4700, the ringtail cat is a fully protected species. Fully protected species may not be taken or possessed at any time. "Take," for the purposes of Fish and Game Code Section 4700, means the take (i.e., kill) of an individual of the species. Take, for the purposes of Fish and Game Code Section 4700 does not include the disturbance of habitat for a species. However, because the SJMSCP is based on the more stringent, federal standard for "Take" which includes disturbance of habitat, Incidental Take Permits for the ringtail cat are included in the SJMSCP, to allow for the Conversion of habitat for the ringtail cat with appropriate creation of compensatory habitat for this species. To fulfill the requirements of Fish and Game Code Section 4700, however, the Incidental Take Minimization Measures of the SJMSCP for this species must result in the take (i.e., kill) of zero individuals of this species. Take (i.e., kill) of this species will normally be expected to occur if the species is trapped within a den as a result of construction activities. Incidental Take Minimization Measures have been designed to avoid any take (i.e., kill) of individuals of this species pursuant to Section 5.2.4.26.

5.5.2.7 Conservancy and Longhorn Fairy Shrimp, Riparian brush rabbit, Riparian woodrat

Take of these species is highly restricted or prohibited by the SJMSCP (See SJMSCP Sections 5.2.4.23, 5.2.4.24, and Table 2-2). The Permitting Agencies may find that the range of one or more of these species has substantially expanded and reached sufficient population levels to allow Incidental Take of the species to occur if:

1. Such Take will not jeopardize the species or adversely modify designated critical habitat;
2. Such Take is mitigated and minimized to the maximum extent practicable; and
3. A major plan amendment is undertaken in accordance with SJMSCP Section 8.8.5.

5.5.3 SAN JOAQUIN KIT FOX MEASURES

Within the Southwest Zone, development and development of Preserves shall be situated so that:

A. A continuous corridor of good-quality habitat [defined as gentle slopes averaging less than 15 percent and suitable for resident San Joaquin kit fox and, as established in Section 5.4.4.2(A), with a length-width ratio of no more than 4:1 and no narrower than .35 mile] connecting the southern range of the San Joaquin kit fox to the northern range of the San Joaquin kit fox, through San Joaquin County (connecting the San Joaquin kit fox range from Stanislaus County to Alameda County through the SJMSCP’s Southwest Zone), is maintained with highest priority given to lands within three miles of the Delta-Mendota Canal; and

B. Development in low-slope, occupied San Joaquin kit fox habitat southwest of I-580 is
configured so that a continuous corridor (as described above) of habitat exists suitable to support resident San Joaquin kit fox.

C. Within the **Southwest/Central Transition Zone**, development shall be situated to allow the development of stepping stone refugia west of the Delta Mendota Canal between the Delta Mendota Canal and the California Aqueduct. Where possible, the JPA shall work with project proponents to incorporate stepping stone refugia within project designs to link the canal refugia to the **Southwest Zone’s** primary San Joaquin kit fox corridor west of the California Aqueduct and into the **Southwest Zone Preserve** area.

D. Maintain east-west dispersal habitat throughout the kit fox corridor such as along transmission lines and railroad tracks west of the Delta-Mendota Canal, where practicable.

### 5.5.4 VALLEY ELDERBERRY LONGHORN BEETLE (VELB)

A. The JPA shall establish 25-acres of VELB mitigation site(s) as a "jump start" to the SJMSCP (this 25-acres is separate from the VELB mitigation referenced for Neighboring Land Protections in Section 5.3.3.4). The first 10 acres of this mitigation site shall be established (i.e., acquired and enhanced) within twelve months of the issuance of SJMSCP Permits. The remaining 15 acres of mitigation site shall be established (i.e., acquired and enhanced) within three years of the issuance of SJMSCP Permits. The JPA shall plant at least 500 new elderberry plants on the mitigation site(s) and plant associated native tree and shrub species as described in the U.S. Fish and Wildlife Service's Mitigation Guidelines for the Valley Elderberry Longhorn Beetle, September 19, 1996, within this mitigation site. The mitigation site shall be located within riparian habitat which need restoration (e.g., former riparian areas which have been degraded or areas other than existing well-vegetated riparian areas), and shall be maintained in perpetuity by the JPA. Establishment of the VELB mitigation site(s) shall permit the SJMSCP to permit removal of elderberry shrubs with stems of 1" or greater in diameter for SJMSCP Permitted Activities without immediately providing mitigation to offset potential impacts to the VELB so long as compensation for the removal of elderberry shrubs with stems of 1" or greater in diameter occurs within twelve months of removal of elderberry shrubs.

B. For all elderberry bushes without exit holes which cannot be avoided on a project sites pursuant to Section 5.2.4.1, the JPA shall:

- Shall provide mitigation within SJMSCP Preserves of three new plants for each stem over 1" in diameter at ground level to be removed on the project site. Mitigation shall be based upon JPA preconstruction surveys requiring counts of all stems of elderberry shrubs with stems 1" or greater in diameter at ground level per Section 5.2.4.1.

C. For shrubs with exit holes, a 3:1 compensation requirement (three new plants for each stem 1" or greater in diameter which is removed from a project site) shall be provided, in addition to compensation required pursuant to B above (an overall compensation ratio of 6:1), for elderberry shrubs which are not transplanted to VELB mitigation sites and which display evidence of VELB occupation based on a preconstruction survey by the JPA.

It is anticipated that this compensation shall be required for elderberry shrubs removed
between February 15 and October 31st of each year when transplanting of non-dormant shrubs have a low likelihood of survival.

D. A special fee category for maintenance activities shall apply when removal of elderberries occurs for maintenance. The fee shall be paid to a VELB mitigation bank approved by the Permitting Agencies. The current fee, as established in the VELB Conservation Fund Account managed by the Center for Natural Lands Management, and approved by the USFWS, is $1,800 per VELB Unit (one unit = one stem over 1" in diameter at ground level which is removed). Fees shall be established by the JPA during preconstruction surveys (i.e., counts of stems to be removed with and without exit holes shall be completed during preconstruction surveys) and shall be paid to the JPA prior to ground disturbance or stem removal, whichever comes first.

5.5.5 CALIFORNIA RED-LEGGED FROG

In addition to Incidental Take Minimization Measures included in Section 5.2.4.7, whenever red-legged frogs are known to exist (based upon the SJMSCP GIS Database or a preconstruction survey as described in Section 5.2.2), SJMSCP Preserve lands acquired to offset impacts to red-legged frogs also shall include occupied red-legged frog habitat. SJMSCP Preserves lands acquired to offset impacts to red-legged frogs shall be acquired at a ratio of 3:1 (three acres of Preserve for each acre Converted from Open Space use).

5.5.6 VALLEY OAK WOODLANDS

The following measures are required to offset the impacts associated with the Conversion of 145 of San Joaquin County's 595 acres of valley oak woodlands (V, V2, V3):

A. Acquisition of 20%, or 120 acres, of existing valley oak woodland habitat within San Joaquin County shall be a top priority of the SJMSCP.

B. Compensation for valley oak woodland habitats shall be the same as for Waters of the United States. This means that for every acre of valley oak woodland Converted, at least one acre of valley oak woodland shall be created and up to two additional acres of existing valley oak woodland shall be preserved. The SJMSCP may elect to create one, two, or all three acres of valley oak woodland habitat to fulfill its compensation requirement for this habitat type. Created valley oak woodland shall be established pursuant to the Preserve design criteria established in Section 5.4.6.5(C).

5.5.7 VERNAL POOLS - JUMP START

The JPA shall acquire up to six wetted acres of vernal pools as a "jump start" to the SJMSCP within twelve months of the issuance of SJMSCP Permits. Establishment of the Vernal Pool Grassland Preserve acreage shall allow Conversion of Vernal Pools pursuant to the limits established in Section 5.5.2.5 of the SJMSCP without immediately providing mitigation to offset potential impacts related to the Conversion of Vernal Pools by SJMSCP Permitted Activities. Pursuant to Sections 8.6 and 5.5.2.5, mitigation for the Conversion of Vernal Pool Grasslands by Plan Participants undertaking SJMSCP Permitted Activities shall occur no later than 24 months from the date of the Conversion of the Vernal Pool Grasslands so long as the six wetted acre vernal pool jump-start acreage remains in place and the Conversion limits established in Section 5.5.2.5 are implemented.
5.5.8 SPECIAL DESIGN FEATURES TO AVOID THE CREATION OF LINEAR BARRIERS TO DISPERsal

It is anticipated that some SJMSCP Permitted Activities could create a linear barrier to the dispersal of some species and/or adversely modify designated critical habitat. These barriers could threaten the ability of both SJMSCP Covered Species and common species to move between available habitat lands thereby potentially reducing the chances for the long-term survival of some species. Therefore, to gain coverage under the SJMSCP, mitigation measures to assist species in crossing through linear barriers shall be required in addition to SJMSCP compensation requirements for the following projects:

1. Installation of a median barrier along Highway 12 within the Plan Area by Caltrans.

2. Construction of new transportation facilities, or widening of existing transportation facilities to be undertaken within the I-205 corridor (See Appendix L) located near the range of the San Joaquin kit fox within the Plan Area.

3. The transportation projects included in Appendix L located within the Plan Area.

Mitigation measures necessary to assist SJMSCP Covered Species in crossing through linear barriers shall be the responsibility of the Project Proponent or appropriate Permittee and shall be in addition to the compensation requirements of the SJMSCP. The total cost to the Project Proponent or appropriate Permittee of installing special design features to assist SJMSCP Covered Species in crossing through linear barriers shall not exceed $25,000 per every ten miles per project (including costs of installation and materials). This cap will be adjusted for inflation on an annual basis pursuant to the California Construction Cost Index or other suitable index, as determined by the JPA in consultation with the TAC, during the 50-year life of the Plan. This cap on mitigation costs for installing special design features for SJMSCP Covered Species reflects similar costs for similar projects undertaken by Caltrans and the San Joaquin Council of Governments between 1995-1998.26

Mitigation measures necessary to assist SJMSCP Covered Species in crossing through linear barriers shall be devised by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC.

Mitigation measures for these projects may include, but are not limited to:

1. Installation of SJMSCP Covered Species undercrossings or overcrossings along the length of the linear project.

2. Incorporating gaps in fencing or walls, installed as part of the linear project, for passage of SJMSCP Covered Species.

3. Limiting the height of fencing or walls, installed as part of linear projects, or leaving gaps at the bottom of fencing along the length of the linear project.

4. Installing fencing or other devices to direct SJMSCP Covered Species to crossing/dispersal areas.

5. Use of existing culverts or increasing sizes or re-opening existing culverts to provide undercrossings along the length of the linear project.

26 For example, the costs of installing fencing and improving culverts as a result of widening I-205 in 1997-1999 to allow the San Joaquin kit fox to cross I-205 were used in establishing the mitigation cost cap.
Installation of undercrossings and similar structures that require ongoing maintenance agreements and ongoing maintenance costs and should be avoided, where feasible.

5.5.9 AVOIDANCE OF IMPACTS IN LIEU OF SJMSCP COMPENSATION REQUIREMENTS

Avoidance of all impacts to SJMSCP Covered Species and jurisdictional wetlands through project re-design are encouraged and may be substituted for SJMSCP compensation. Measures necessary to achieve avoidance adequate to avert both species and habitat impacts and, therefore SJMSCP compensation requirements for selected species, are described in the following paragraphs. The following measures are required in addition to the Incidental Take Minimization Measures included in Section 5.2.4. Incidental Take Minimization Measures are required for all projects activities undertaken pursuant to the SJMSCP. Wherever SJMSCP Covered Species or jurisdictional wetlands are entirely avoided pursuant to the following provisions, no compensation is required pursuant to the SJMSCP provided that the Project Proponent complies with the standards established in this Section.

If multiple species and multiple habitats are represented on a single parcel, avoidance of all impacts to all species and all habitats is required for a waiver of the SJMSCP compensation requirements. When multiple species and multiple habitats are found on a single parcel, implementation of complete avoidance measures for some species and habitats within project boundaries may permit partial waivers of SJMSCP compensation requirements subject to the approval of the JPA with the concurrence of the Permitting Agencies' representatives on the TAC. If the JPA or Permitting Agencies' representatives on the TAC denies reduced compensation, then the compensation/avoidance established for each species and habitat by the SJMSCP shall be implemented.

These measures may be refined throughout the life of the Plan or expanded to include additional SJMSCP Covered Species, pursuant to the SJMSCP's Adaptive Management Plan (see Section 5.9.4), in response to positive or negative results found in the application of these methods as identified in the SJMSCP's Monitoring Plan (see Sections 5.9.2 and 5.9.3) or to reflect improvements and new discoveries in methods of conserving species or other biological factors.

To be deemed adequate to achieve avoidance sufficient to avert both species and habitat impacts and, therefore SJMSCP compensation requirements, the following measures must be included in conditions of project approval.

A. Valley Elderberry Longhorn Beetle (VELB)

When VELB or elderberry bushes are discovered on a project site pursuant to preconstruction surveys conducted by the JPA as described in SJMSCP Section 5.2.2, the following measures, based upon the formal programmatic consultations between the U.S. Army Corps of Engineers, Federal Highway Administration and the U.S. Fish and Wildlife Service, may be undertaken in lieu of SJMSCP Compensation requirements:

1. Establish setbacks from all elderberry plants for a distance of 50 feet from the dripline of the

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27 Formal programmatic consultation permitting projects with relatively small effects on the Valley elderberry longhorn beetle within the jurisdiction of the Sacramento field office, California (Administration File #572.9/9821) - March 11, 1997; Programmatic formal consultation permitting projects with relatively small effects on the Valley elderberry longhorn beetle within the jurisdiction of the Sacramento field office, California (Corps File #199600065) - September 19, 1996.
28 Programmatic formal Endangered Species Act consultation on issuance of 404 Permits for projects with relatively small effects on listed vernal pool crustaceans within the jurisdiction of the Sacramento field office, California - February 26, 1996.

elderberry plant; and

2. Establish setbacks of 50 feet from the outer edge of the vegetation of habitat suitable for growth of elderberry plants. Suitable habitat for elderberry plants are the following habitat types mapped on the SJMSCP Vegetation Maps: R (Great Valley riparian forest), R2 (Great Valley Valley oak riparian forest), R3 (Great Valley cottonwood riparian forest), R4 (Arroyo willow thicket), R5 (Great Valley mixed riparian forest), S2 (elderberry savanna), W (River/deep water channel-greater than 200 feet in width), W2 (Tributary stream - 100-200 feet wide), W3 (Creek - 20-100 feet wide), and W4 (dead-end slough).

3. Construction and other ground disturbances shall be prohibited within established setbacks. Natural vegetation shall be maintained within the setback. The use of insecticides, herbicides and fertilizers is not permitted within established setbacks. Use of insecticides, herbicides and fertilizers outside of the setback shall be in compliance with the U.S. Environmental Protection Agency label standards and as prescribed by the San Joaquin County Agricultural Commissioner.

4. All on-site construction personnel shall be given instruction regarding the presence of listed species and the importance of avoiding impacts to these species and their habitats.

5. Setbacks shall be marked by brightly colored fencing or flagging throughout the construction process. Setbacks shall be indicated on recorded maps, whenever projects involve parcel or subdivision maps.

B. Vernal Pools

For the purposes of the SJMSCP, the following projects are assumed to have direct or indirect impacts to vernal areas and shall be considered ineligible for waiver of SJMSCP compensation requirements pursuant to this section for persons opting for SJMSCP coverage:

1. Proposed developments which may destroy upland areas or damage vernal areas indirectly through human intrusion, introduced species, or pollution caused by the project;

2. If any habitat within a vernal pool complex will be destroyed by a project, or already has been destroyed by previous projects (either onsite or offsite) then all remaining habitat within the complex shall be considered to be directly or indirectly affected

3. If any part of a vernal pool will be destroyed by a project, then the entire pool shall be considered to be impacted.

For projects which do not meet the preceding criteria, when vernal pools are discovered on a project site pursuant to preconstruction surveys conducted by the JPA as described in SJMSCP Section 5.2.2, the following measures, based in part upon the formal programmatic consultation between the U.S. Army Corps of Engineers and the U.S. Fish and Wildlife Service,28 may be undertaken in lieu of SJMSCP Compensation.

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28 Programmatic formal Endangered Species Act consultation on issuance of 404 Permits for projects with relatively small effects on listed vernal pool crustaceans within the jurisdiction of the Sacramento field office, California - February 26, 1996.
requirements subject to review and approval by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC:

1. Establish setbacks from the outer edge of all hydric vegetation associated with vernal pools and vernal swales for a distance of 250 feet. Alternatively, at the request of the Project Proponent, representatives from the USFWS may conduct site visits to inspect the unique characteristics of specific project sites and may approve reductions of the 250' setback for all or portions of the site wherever reduced setbacks will maintain the hydrology of the vernal pool and achieve the same or greater habitat values as would be achieved by the 250' setback. Wetlands delineations are not required to receive setback reductions pursuant to this section, however documentation (e.g., aerial photos which may be obtained from the JPA), is required; and

2. Preserve vernal pool/vernal swale hydrology entirely intact. Establish setbacks as needed to ensure that hydrology will be preserved.

3. The Project Proponent shall ensure that activities inconsistent with the maintenance of vernal areas within the setbacks, including all portions of the on-site watershed, are prohibited. Inconsistent activities include, but are not limited to: (i) alteration of existing topography or any other alteration or uses for any purposes, including the exploration for or development of mineral extraction; (ii) placement of any new structures with the setbacks; (iii) dumping, burning and/or burying of rubbish, garbage, or any other wastes or fill materials; (iv) building of any new roads or trails; (v) killing, removal, alteration, or replacement of any existing native vegetation; (vi) placement of storm water drains; (vii) fire protection activities not required to protect existing structures on the project site; and (viii) use of pesticides or other toxic chemicals.

4. Setbacks shall be marked by brightly colored fencing or flagging throughout the construction process.

5. All on-site construction personnel shall be given instruction regarding the presence of listed species and the importance of avoiding impacts to these species and their habitats.

6. Setbacks shall be indicated on recorded maps, whenever projects involve parcel or subdivision maps.

C. Giant Garter Snake

For the purposes of the SJMSCP, the following projects are assumed to have direct or indirect impacts on giant garter snakes and shall be considered ineligible for waiver of SJMSCP compensation requirements pursuant to this section for persons opting for SJMSCP coverage:

1. Projects with the potential to introduce domestic pets to the project site.

2. Proposed developments which may eliminate, reduce or degrade the water supply to giant garter snake aquatic sites.

The following measures, may be undertaken in lieu of SJMSCP Compensation requirements:
1. Establish buffers adjacent to known occupied GGS Habitat or potential giant garter snake habitat. Giant garter snake habitat includes aquatic habitat and 200 feet of adjacent uplands, measured from the outer edge of the each bank. The buffer shall be a distance of 75 feet from the outer edge of banks of giant garter snake terrestrial habitat. In addition to the 75 foot buffer, establish a setback of between 0 and 325 feet. The size of the buffer shall be determined on a case-by-case basis in consultation with the TAC and with the concurrence of the Permitting Agencies.

Known occupied habitat for the giant garter snake is that area west of I-5 on Terminous Tract, Shin Kee Tract, White Slough Wildlife Area, and Rio Blanco Tract. New sites identified during the life of the SJMSCP as confirmed habitat sites for the giant garter snake shall be considered known occupied sites for the purposes of this section.

Potential giant garter snake habitats are the following habitat types mapped on the SJMSCP Vegetation Maps: D (drainage or irrigation ditch), W2 (Tributary stream - 100-200 feet wide), W3 (Creek - 20-100 feet wide), and W4 (dead-end slough).

2. Construction and other ground disturbances shall be prohibited within established setbacks. Natural vegetation shall be maintained within the setback. The use of insecticides, herbicides and fertilizers is not permitted within established setbacks.

3. All on-site construction personnel shall be given instruction regarding the presence of listed species and the importance of avoiding impacts to these species and their habitats.

4. Setbacks shall be marked by brightly colored fencing or flagging throughout the construction process. Setbacks shall be indicated on recorded maps, whenever projects involve parcel or subdivision maps.

D. Burrowing Owls

For the purposes of the SJMSCP, projects located within an urban setting (e.g., surrounded by existing or planned urban development on at least three sides) are expected to fragment and isolate burrowing owl population even where individuals are preserves. Therefore, these projects shall be considered ineligible for waiver of SJMSCP compensation requirements pursuant to this section for persons opting for SJMSCP coverage.

For projects not meeting the preceding requirements, where burrowing owls are known to occupy a project site as indicated in the SJMSCP GIS Database or where burrowing owls are discovered during preconstruction surveys as described in Section 5.2.2, the following measures may achieve complete avoidance of impacts to the species and its habitat:

1. Establish a setback of at least 250 feet from each owl burrow occupied within the past five years; and

2. Preserve 6.5 acres of foraging habitat per burrowing owl pair, contiguous to the owl population. Configurations of foraging habitat in relation to owl burrows requires review and approval by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC.
3. Construction and other ground disturbances shall be prohibited within established setbacks and foraging habitat. Natural vegetation shall be maintained within the setback. The use of insecticides, herbicides and fertilizers is not permitted within established setbacks.

4. All on-site construction personnel shall be given instruction regarding the presence of listed species and the importance of avoiding impacts to these species and their habitats.

5. Setbacks shall be marked by brightly colored fencing or flagging throughout the construction process. Setbacks shall be indicated on recorded maps, whenever projects involve parcel or subdivision maps.

6. All setbacks and foraging habitat shall be preserved in perpetuity via recordation of a conservation easement.

E. Bats

In addition to the Incidental Take Minimization Measures contained in Section 5.2.4, the following additional measures shall be implemented:

1. Where riparian corridors do not exist near roosting sites, retain the roosting site including a 200' buffer away from colonial roosting sites within the project design. When colonial roosting sites are located on a project site and openings must be closed for reasons of health and safety, grates may be used to close mines, caves and similar openings rather than by collapsing or filling these features to allow for the continued use of these areas. Grates should use the following standards, however, some bat species will not accept full grates (grates that completely fill the entrance) at their maternity caves, so the JPA may be required to provide information on individual species requirements:

i. Minimum distance between vertical parts should be 24 inches and less than four feet.

ii. Horizontal grate parts should be spaced 5.75 to 6 inches apart (although the TAC, with the concurrence of the Permitting Agencies' representatives on the TAC, may reduce this distance upon consultation because several species of relatively small bats are SJMSCP Covered Species).

iii. Grates should be constructed of either three-quarter to one-inch round bar or angle iron measuring 4 inches by 4 inches by 5/16 inch. Steel cable safety netting may be used if dimensions are adjusted for bat passage.

iv. Grates should not alter air flow through the passage since only slight changes in air flow can change temperature and humidity which could render the area unusable for bats.

NOTES: The Colorado Division of Wildlife is experimenting with grate modifications, including a modification for using mesh too small for bat passage with a “window” placed in the grate of sufficient dimension to allow bat passage. Results of these experiments should be monitored to determine the success of these alternative grates.
2. When riparian corridors are located on the project site, retain the roosting site including a 200' buffer away from colonial roosting sites within the project design and retain riparian corridors located within the borders of the project site by retaining riparian vegetation plus a 100 foot buffer from the edge of the riparian vegetation along the riparian corridor.

F. Plants

Preservation of plant populations on site may be substituted for SJMSCP Compensation requirements for the following plant species in accordance with the identified measures:

A. Widely distributed plant species: Mason's lilaeopsis, California hibiscus, Suisun marsh aster, Delta tule pea, Delta mudwort.

Avoidance of these SJMSCP Covered Plants will be considered to be achieved when the boundaries of the viable SJMSCP Covered Plant population plus a 200' buffer and including protection of those areas which may be necessary to support the hydrological regime of the SJMSCP Covered Plants is incorporated into the project design and includes provisions for protection and management of the avoided area in perpetuity. Proposals for substituting complete avoidance of impacts to these species requires the review and approval of the JPA to verify that a viable population of the species exists and is worthy or preservation. Concurrence by the Permitting Agencies for these substitutions is not required.

B. Plants of moderate distribution: Bogg's lake hedge hyssop.

Complete avoidance of all impacts to these SJMSCP Covered Plants requires case-by-case review and approval by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC.


Complete avoidance of all impacts to these SJMSCP Covered Plants require case-by-case review and approval by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC.

Complete avoidance of plant populations on site is required for the following plant species in accordance with the identified measures:

D. Full Avoidance Plant Species: Large-flowered fiddleneck, succulent owl's clover, legenere, Greene's tuctoria, diamond-petaled poppy, Sanford's arrowhead, Hospital Canyon larkspur, showy madia, Delta button celery, Slough thistle.

Complete avoidance of all impacts to these SJMSCP Covered Plants require case-by-case review and approval by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC.

G. Riparian Vegetation Located Along Rivers, Creeks, Streams, Sloughs, Ponds, Lakes and/or Their Tributaries.
For the purposes of this section riparian habitats shall be considered to be those habitats mapped on the SJMSCP Vegetation Maps as D (drainage ditch), R (Great Valley riparian forest), R2 (Great Valley Valley oak riparian forest), R3 (Great Valley cottonwood riparian forest), R4 (Arroyo willow thicket), R5 (Great Valley Mixed Riparian Forest), S (Great Valley riparian scrub), S2 (Elderberry savannah), W (River or deep water channel - greater than 200 feet wide), W2 (Tributary stream - 100 to 200 feet wide), W3 (Creek - 20 to 100 feet wide), W4 (dead-end slough), W5 (freshwater lake or pond), or W9 (Canal - if not cement lined).

For the purposes of the SJMSCP, the following projects are assumed to have direct or indirect impacts on riparian habitats and shall be considered ineligible for waiver of SJMSCP compensation requirements pursuant to this section for persons opting for SJMSCP coverage:

1. Projects with the potential to introduce domestic pets to the project site.
2. Proposed developments which may eliminate water supplies or reduce or degrade water quality.
3. Projects containing riparian habitat with a canopy cover of less than 15% which is unlikely to regenerate without substantial enhancement.

For projects with riparian vegetation which do not meet the preceding criteria which are located along rivers, creeks, streams, sloughs, ponds, lakes, and/or their tributaries, Project Proponents may achieve complete avoidance of impacts through the following measures:

1. Preservation of a 100 foot buffer, measured from the outer (project-side) edge of the dripline of the riparian vegetation. This buffer shall be incorporated into the project design and streamside vegetation shall remain undisturbed within the buffer area.
2. All on-site construction personnel shall be given instruction regarding the presence of the sensitive habitat and the importance of avoiding impacts to the habitat.
3. The buffer shall be marked by brightly colored fencing or flagging throughout the construction process. Buffers shall be indicated as easements on recorded maps, whenever projects involve parcel or subdivision maps.
4. Buffers shall be preserved in perpetuity via recordation of a conservation easement.

H. Colonial Nesting Birds (Black-Crowned Night Heron, Great Blue Heron)

Complete avoidance of impacts to colonially nesting black-crowned night herons or the great blue heron shall be deemed sufficient to waive the compensation requirements of the SJMSCP if the project design permanently preserves, and leaves undisturbed, the area surrounding the colonial nesting areas for a distance of 1/4 mile from the nesting site.

I. Riparian brush rabbit

Known Occupied Habitat. In known occupied habitat for the riparian brush rabbit, establish a permanent setback of 300 feet from the outer edge (project side) of the dripline of riparian vegetation. Known occupied habitat for the riparian brush rabbit includes the vegetation types R, R2, R3, R4, R5, S, SG, D, W, W2, W3, W4, W5 and W9 (unlined) located within Caswell State Park and along
the adjoining Stanislaus River; and surrounding Stewart Tract including Paradise Cut and the adjacent Union Pacific Railroad Company right-of-way on Stewart Tract, Old River adjacent to Stewart Tract, and the San Joaquin River as it bounds Stewart Tract.

Potential habitat. The same mitigation as described above may be substituted for compensation and Incidental Take Minimization Measures included in Section 5.2.4.23 for potential riparian brush rabbit habitat. Potential riparian brush rabbit habitat is described as the vegetation types R, R2, R3, R4, R5, S, SG, D, W, W2, W3, W4, W5 and W9 (unlined) located along the Stanislaus River downstream of Highway 99 to the junction with the San Joaquin River and riparian habitat along the San Joaquin River downstream of the mouth of the Stanislaus River north to and including Tom Paine Slough and Paradise Cut to the Southern Pacific railroad right-of-way.

J. Riparian woodrat

The full avoidance measures for the riparian woodrat are the same as for the riparian brush rabbit except that occupied habitat for the riparian brush rabbit includes the vegetation types R, R2, R3, R4, R5, S, SG, D, W, W2, W3, W4, W5 and W9 (unlined) surrounding Caswell Park along the Stanislaus River and extending along the Stanislaus River west from Caswell Park to the confluence of the Stanislaus River with the San Joaquin River in San Joaquin County and surrounding Stewart Tract including Paradise Cut and the adjacent Union Pacific Railroad Company right-of-way on Stewart Tract, Old River adjacent to Stewart Tract, and the San Joaquin River as it bounds Stewart Tract. Potential habitat for the riparian woodrat is the same as for the riparian brush rabbit.

K. Golden eagle

Complete avoidance of impacts to the golden eagle may be achieved with a ½ mile setback from an identified nesting area during the nesting season (normally approximately February 1 - June 30) for the period encompassing nest building and continuing until fledglings leave nests.

L. All Other Species

Complete avoidance of impacts to SJMSCP Covered Species or habitats not listed in the preceding paragraphs, sufficient to permit a waiver of SJMSCP compensation, requires case-by-case review and approval by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC.

5.5.10 PRESERVATION OF AGRICULTURAL PRODUCTIVITY

There are numerous habitat planning efforts which may be undertaken in the future in addition to the SJMSCP. Without coordination, these independent efforts could cumulatively alter the agricultural productivity of San Joaquin County. Specifically, the conservation efforts proposed in the Recovery Plan for Upland Species of the San Joaquin Valley, California (USFWS, 1998) coupled with CalFed's Bay-Delta habitat conservation planning effort and the SJMSCP could target hundreds of thousands of acres of entirely separate agricultural lands to be used for conservation purposes. While the bulk of species covered by the Recovery Plan for Upland Species of the San Joaquin Valley, California (USFWS, 1998), are located outside of San Joaquin County, this program and other conservation projects could cumulatively change agricultural productivity in San Joaquin County. Therefore, to avoid adversely impacting agricultural productivity in San Joaquin County, the following is required:

The SJMSCP's Joint Powers Authority shall work with other habitat planning efforts including, but
not limited to, the CalFed Bay-Delta and San Joaquin Valley Upland Species Recovery efforts, to ensure a coordinated approach to these efforts and to help preserve San Joaquin County's agricultural productivity. Specifically, lands acquired for plant, fish and wildlife preservation by the JPA which involve agriculturally productive land, as well as other types of land, shall be acquired in coordination with the CalFed Bay-Delta Program and other conservation planning efforts.
5.6 JURISDICTIONAL WETLANDS AND OTHER WATERS OF THE UNITED STATES - SECTION 404 OF THE FEDERAL CLEAN WATER ACT

This section is held in reserve pending issuance of a Section 404 regional general permit, or equivalent by the U.S. Army Corps of Engineers in association with the SJMSCP.

A delay by the U.S. Army Corps of Engineers in issuing a Section 404 general permit or equivalent authorization shall not prevent the Permittees from commencing Incidental Take of those SJMSCP Covered Species occurring outside of jurisdictional wetlands or Other Waters of the United States, but will require landowners who wish to fill Jurisdictional Wetlands or Other Waters of the United States to obtain their own Section 404 permit until and unless a Section 404 Permit or alternative authorization is issued for the SJMSCP.

5.6.1 Programmatic Consultation for the SJMSCP's Section 404 General Permit

An Endangered Species Act Section 7 consultation between the U.S. Army Corps of Engineers and the U.S. Fish and Wildlife Service would be required for a future 404 general permit for SJMSCP Covered Activities. Such a consultation would occur at the time the JPA completes the application process for the regional general permit, and the Corps has issued a Public Notice.

In the interim between the Effective Date of the SJMSCP Incidental Take Permit in accordance with Section 8.7.1(I), and such time as the Corps may issue a general permit for the SJMSCP Covered Activities, it remains the desire of the JPA to streamline the 404 permit process as much as possible. To achieve this, the JPA has requested a programmatic analysis from the U.S. Fish and Wildlife Service for SJMSCP Covered Activities that are proposed for coverage under a 404 regional general permit, and the SJMSCP conservation strategy for vernal pool grasslands and other wetland types subject to regulation under Section 404 that would be impacted by SJMSCP Covered Activities. The programmatic analysis conducted by the U.S. Fish and Wildlife Service would be very similar to one that would be conducted in consultation with the Corps for actions in the SJMSCP area that require 404 permits but are not yet included in or covered by a regional general permit. The U.S. Fish and Wildlife Service could complete this programmatic consultation with the Corps within a short time of the Effective Date of the SJMSCP Incidental Take Permit. Thus, the ability of the SJMSCP to streamline the endangered species aspects of obtaining a 404 permit can be achieved and implemented independently of the process of applying for and obtaining a 404 regional general permit.

5.7 MINING ACTIVITIES - SPECIAL PROVISIONS AND COMPLIANCE WITH THE SURFACE MINING AND RECLAMATION ACT (SMARA)

Pursuant to the Surface Mining and Reclamation Act (SMARA), aggregate mining projects are responsible for reclaiming land as mining activities progress throughout a project area--this requirement is not waived by participation in the SJMSCP. Because of this, many of the habitat changes resulting from aggregate mining activities are mitigated through reclamation as required by state law and, therefore, some of the
SJMSCP compensation requirements (e.g., acquisition of habitat lands) would be duplicated if Project Proponents both comply with SMARA and opt for participation in the SJMSCP. In addition, changes to lands resulting from mining activities may occur over several years and special provisions are necessary to address issues of project timing.

To allow aggregate mining Project Proponents to benefit from the SJMSCP without a duplication of compensation requirements already necessary pursuant to state law and to address the issue of timing for mining projects, the following requirements were adopted during the SJMSCP planning process:

Aggregate mining Project Proponents shall be subject to the following when opting for coverage pursuant to the SJMSCP:

1. Some portions of reclaimed lands, which shall be retained in perpetuity, may be counted towards compensation requirements pursuant to the SJMSCP subject to the review and approval of the JPA with the concurrence of the Permitting Agencies' representatives on the TAC on a case-by-case basis in compliance with the provisions indicated below in #4.

2. It is recognized that compensation for habitat Conversion through fee payments, purchase of mitigation bank credits or in-lieu land dedications under the SJMSCP may be phased over time for mining projects. Phased compensation requirements for mining activities under the SJMSCP shall be detailed in conditions of project approval (as issued by the local government agency--for mining activities, this will normally be San Joaquin County) at the time of issuance of permits. For example, a 100 acre project site may be mined over a period of ten years (ten acres per year). If it is determined, pursuant to #1 above, that compensation under the SJMSCP shall be five acres for every ten acres mined, then project conditions shall specify that the Project Proponent is covered by the SJMSCP. The condition shall also specify that, prior to commencing mining activities on each new, ten-acre patch, the Project Proponent shall pay a fee for five acres of habitat Conversion, purchase mitigation bank credits or dedicate SJMSCP approved land in-lieu of fees. The condition also shall indicate a time line for SJMSCP payments (e.g. Payment of SJMSCP fees for five acres of habitat Conversion will be paid once each year for a period of ten years).

3. The JPA shall coordinate with the San Joaquin County Planning Department to verify, through annual reviews conducted by the County, compliance with aggregate mining permit conditions -- especially for projects which anticipate phased compensation through the SJMSCP.

4. It is recognized that conservation easements on reclaimed lands currently are established for a period lasting only as long as the reclaimed land is intended to be maintained substantially as it was in its pre-mined state. However, conservation easements on reclaimed lands terminate if reclaimed lands are Converted to an alternative use (e.g. industrial, residential or commercial) in accordance with local plans. The SJMSCP does not intend to alter this practice. However, all lands acquired per the SJMSCP for preserves are intended to remain in perpetuity, except as specified within the SJMSCP. Therefore, any reduction in SJMSCP mitigation ratios for mining activities due to reclamation activities, as provided in #1, above, are intended to occur only if the reclaimed lands are intended to remain as reclaimed lands in a pre-mined state in perpetuity.

5. The JPA, pursuant to Section 5.2.4.30, shall require Project Proponents to consult with
Permitting Agencies to design minimization measures to minimize stranding of SJMSCP Covered Fish Species during the SMARA Permitting process.

As described in Section 8.4(B), SJMSCP Permitted Activities may be undertaken pursuant to the SJMSCP only by Project Proponents operating within the jurisdictional boundaries of a Permittee (i.e., if San Joaquin County opted not to adopt the SJMSCP and the City of Tracy adopted the SJMSCP, Project Proponents may undertake mining activities pursuant to the SJMSCP within the jurisdictional boundaries of the City of Tracy, but not within the jurisdictional boundaries of San Joaquin County).

5.8 MANAGEMENT TAKE/TAKE FOR SCIENTIFIC PURPOSES

Certain operations associated with Preserve establishment and management (e.g., earth-moving to create new wetlands including vernal pools) could result in Incidental Take of SJMSCP Covered Species. Other activities undertaken during Preserve monitoring (e.g., trapping, handling, marking) could result in Intentional (as opposed to "Incidental") Take. The Take would be for scientific purposes of for the propagation and enhancement of survival and is authorized by the SJMSCP's Section 10(a)(1)(B) Permit pursuant to the Federal ESA. Both these types of Take are authorized under the SJMSCP subject to the conditions listed below.

For purposes of management activities, the ESA Section 10(a)(1)(B) permit and CESA Section 2081(b) Incidental Take Permit issued pursuant to the SJMSCP shall authorize all Take of SJMSCP Covered Species resulting from mitigation activities and management and operation of the SJMSCP's Preserve system provided that:

A. Such Take results from mitigation measures (e.g., capture, relocation) specifically intended to minimize more serious forms of Take (e.g., killing/injury) or that are part of a monitoring program specifically described in the SJMSCP;
B. Such activities are directly associated in time or place with activities authorized pursuant to the SJMSCP Permits;
C. Such Take occurs during activities conducted by the agents or employees of the USFWS, CDFG, USACE, or JPA or any person acting under the direct guidance or authority of these entities; and/or
D. Such Take occurs during activities specifically described in the Preserve management, Preserve enhancement, or Monitoring Plan approved by the Permitting Agencies' representatives on the TAC.

These provisions are consistent with the USFWS policy as described in the USFWS "Habitat Conservation Planning Handbook" (USFWS, 1996). In addition, the SJMSCP Permits issued in accordance with the SJMSCP shall authorize all management related Take that occurs on duly established SJMSCP Preserve lands.

For the purposes of the Section 2081(b) permit, Take for scientific purposes in connection with a project or activity authorized pursuant to the Section 2081(b) permit shall be deemed incidental to that project or activity and shall be covered by that permit. The SJMSCP's Section 10(a)(1)(B) and Section 2081(b) permit, with respect to activities requiring Take for scientific purposes (e.g., trapping, handling and marking of SJMSCP Covered Species), shall only authorize Take during those activities provided that:

A. The activities are directly associated with monitoring or similar requirements under the
B. The person(s) undertaking the activities or retained to undertake the activities submits a resume to the Permitting Agencies' representatives on the TAC describing their relevant qualifications;

C. The Permitting Agencies' representative on the TAC authorize the person(s) to undertake the activities via a written letter or memorandum; and

D. The person(s) implements such additional terms and conditions as may be prescribed in the Permitting Agency TAC representative's letter(s) of authorization.
5.9 REPORTING, UPDATING, MONITORING AND ADAPTIVE MANAGEMENT

There are four primary processes involved in tracking the implementation and ensuring the success of the SJMSCP:

A. Annual reporting of the acreage, type, and location of habitat Converted from Open Space use to non-Open Space uses and an accounting of the total Preserve acres acquired pursuant to the SJMSCP for each calendar year (see Section 5.9.1); and,

B. Biological monitoring to determine if management and enhancement of the Preserve system and other mitigation are meeting the conservation goals for SJMSCP Covered Species (see Section 5.9.2); and,

C. SJMSCP compliance monitoring to ensure that procedures required by the SJMSCP are being implemented as adopted (see Section 5.9.3); and,

D. An Adaptive Management Plan to establish a mechanism for refining conservation techniques used in the SJMSCP when information gathered in the SJMSCP's monitoring program, or from other sources, indicates that such techniques being used by the SJMSCP are ineffective or could be made more effective. The SJMSCP Adaptive Management Plan is described in Section 5.9.4.

5.9.1 ANNUAL REPORTING

5.9.1.1 Overview

Annual reporting of the acreage, type, and location of Open Spaces uses Converted to non-Open Space use and an accounting of Preserve acres acquired pursuant to the SJMSCP shall be provided in an annual report submitted to the Permitting Agencies. Annual reports to the Permitting Agencies shall be prepared and submitted by the JPA. Information included in these reports, including descriptions of Open Space Conversions within local jurisdictions, shall be supplied to the JPA, in part, by the Plan Participants. These reports shall coincide with the calendar year and shall be due to the Permitting Agencies by March 1st of the year succeeding the calendar year in which the subject activities were conducted. The SJMSCP annual report shall be:

A. Based on information collected by the JPA, in cooperation with the Plan Participants, including:

Type and Total Acres of Land Converted by SJMSCP Permitted Activities. The acres of land Converted from an Open Space to a non-Open Space use in the subject calendar year in the following three categories: 1) Natural Lands (and distinguishing between vernal pool grasslands and all other Natural Lands); 2) Agricultural Habitat Lands (especially row and field crops); and 3) Multi-Purpose Open Space Lands; and,

Timing and Total Acres of Land Converted by SJMSCP Permitted Activities. An accounting of the timing of land Conversions occurring within the past calendar year as necessary to determine compliance with Section 8.6 (i.e., 24-month deadline to acquire Preserve sites
from the time of Site Disturbance). Accounting for timing of land Conversions shall be as follows: For all land Conversions occurring between January 1st and June 30th, a Conversion date of April 1st shall be reported for the total acres Converted between January 1st and June 30th. For all such land Conversions occurring between July 1st and December 31st, a Conversion date of October 1st shall be reported for the total acres Converted between July 1st and December 31st. Monies accumulated for land acquisitions, as necessary to offset land Conversions shall be reported pursuant to paragraph (B)(4), below. The accounting shall include an annual and cumulative accounting of acres impacted by each permitted activity type.; and

B. Information synthesized by the JPA, including:

1. An estimate of the amount of Incidental Take of Covered state and federally-listed species that occurred within the Plan area in the subject calendar year. An estimate of the amount of acres Converted for non-listed SJMSCP Covered Species. These estimates shall be described in terms of habitat acres Converted from Open Space uses and, if known, number of individual animals Taken (for state or federally-listed SJMSCP Covered Species only).

2. The amount (in acres) of Preserve land acquired within the subject calendar year as well as cumulatively over the life of the Plan to date. If the cumulative acres of Preserve lands do not adequately balance the cumulative acres of Natural Lands and Agricultural Habitat Lands Converted as required by the SJMSCP (e.g., three acres of Preserve lands for every one acre of Natural Land Converted and one acre of Preserve land for every one acre of Agricultural Habitat Land Converted), then the annual report also shall provide an accounting of existing SJMSCP funds which are earmarked for acquisition of Preserve lands necessary to balance Open Space lands Converted with Preserve lands acquired, such lands to be secured within the 24 months of the dates that Open Space lands were Converted.

The preceding provisions are modified for reporting habitat Conversions for vernal pool wetted surface area. Annual reports shall include the total cumulative Conversion of vernal pool wetted surface area within the first 24 months of the Plan (which cannot exceed 25 acres of wetted surface area per year) and the total cumulative Conversion of vernal pool wetted surface area from 24 months through year 50 of the Plan [which cannot exceed 15 acres of wetted surface area annually except as provided in Section 5.5.2.5] pursuant to Section 5.5.2.5 and subject to the acquisition of Vernal Pool Jump-Start lands as established in Section 5.5.7. In no case shall the total Conversion of vernal pool wetted surface area exceed 707 acres for the 50-year term of the SJMSCP until and unless a Major Amendment is secured pursuant to Section 8.8.5.

3. A qualitative analysis of the population status of SJMSCP Covered Species in each Preserve area.

4. An evaluation of the adequacy of funding to fulfill the SJMSCP's Preserve management and enhancement goals including: 1) an accounting of funds as necessary to indicate that sufficient funds are accumulating to acquire lands within 24 months of land Conversions as required pursuant to Section 8.6; 2) an accounting
of local, state and/or federal funding (or other non-developer based funding) which
has been secured and estimates of the need for federal funding over the upcoming
three-year period as necessary to comply with Section 7.5.3; and 3) A description
of amendments to the investment strategy including non-substantive amendments
not reported to the Permitting Agencies prior to adoption.

5. A summary of any identified problems and proposed solutions to those problems as
identified through the SJMSCP Compliance Monitoring Program described in
Section 5.9.3.

6. A summary of any SJMSCP Plan revisions and amendments made pursuant to
Section 8.8 including Adaptive Management Plan revisions proposed or adopted by
the JPA during the subject calendar year including an accounting of areas impacted,
if any, outside of the SJMSCP Planned Land Use Map boundaries as described in
Section 3.4.

7. A summary of any clerical changes made by the SJMSCP's implementing entity to
the SJMSCP including an accounting of both clerical changes made to the SJMSCP
Compensation Zone Maps in the previous calendar year and the total acreages of
changes to the SJMSCP Compensation Zone Maps for both Natural Lands and
Agricultural Habitat Lands since the issuance of the SJMSCP Permits.

8. The level of voluntary participation by Project Proponents occurring pursuant to
Section 8.4 shall be reported annually including:

- Acres of Multi-Purpose Open Space Lands Converted on a yearly basis and
total acres of Multi-Purpose Open Space Lands for the full term of the
SJMSCP. Acreages shall be reported in both categories for lands Converted
by individuals opting for coverage pursuant to the SJMSCP and lands
Converted by individuals opting for non-participation in the SJMSCP.

- Acres of Vernal Pool Grasslands (G3) within the Vernal Pool Zone
 Converted on a yearly basis and total acres of Vernal Pool Grasslands (G3)
 within the Vernal Pool Zone for the full term of the SJMSCP. Acreages
 shall be reported in both categories for lands Converted by individuals
 opting for coverage pursuant to the SJMSCP and lands Converted by
 individuals opting for non-participation in the SJMSCP.

- Acres of grasslands Converted within the San Joaquin Kit Fox Corridor as
 illustrated by the "core conservation area" and "buffer area" illustrated in
 Appendix G and located southwest of I-580 by individuals opting for
 coverage pursuant to the SJMSCP and lands Converted by individuals
 opting for non-participation in the SJMSCP and providing the
 compensation consistent with the goals of the SJMSCP and of equivalent
 biological value.

9. A copy of the map required pursuant to Section 5.9.3.6 indicating the locations of
projects which are approved as Permitted Activities within the Anticipated Projects
Category [see Section 8.2.1(10)] and subject to a 5,000 acre cap.

10. The annual and cumulative total Preserve acres established to offset potential impacts associated with the extension of neighboring land protections as described in Section 5.9.3.7.

11. The results of the three-year review of the SJMSCP Funding Plan undertaken pursuant to Section 7.5.2.1.

12. A summary of clerical changes made to the SJMSCP Compensation Zone Maps and SJMSCP Vegetation Maps in the preceding calendar year.

13. The estimated acreage of Natural Lands Converted by non-SJMSCP Permitted Activities countywide for the preceding calendar year, and cumulatively since the Effective Date of the SJMSCP as required pursuant to Section 5.5.1.

14. The acreage and location of Vernal Pool Preserves created versus the acreage and location of vernal pools Converted as necessary to monitor the balancing of preserves versus Conversion by Vernal Pool Region and the information collected for projects that Convert vernal pool grasslands as provided in SJMSCP Section 5.2.2.5.

5.9.1.2 Annual Reporting of Maintenance Activities

Maintenance Activities covered pursuant to SJMSCP Section 8.2.1(3) shall trigger the SJMSCP requirements for inclusion in the annual report required for the SJMSCP Monitoring Plan when one or more of the following occur: [NOTE: Maintenance Activities covered pursuant to the SJMSCP are subject to the Incidental Take Minimization Measures required in Section 5.2. However, it is possible for a Maintenance Activity to be exempt from compensation requirements for the Plan (i.e., payment of fees, dedication of in-lieu lands, purchase of mitigation bank credits), but to still trigger the need for reporting (e.g., projects which are categorically exempt pursuant to CEQA as defined in Chapter 10, but which meet the following criteria). This allows for monitoring of cumulative impacts associated with Maintenance Activities.]

A. The activity disturbs an area exceeding .1 acre (4,356 square feet) either for an individual activity or cumulatively for the same activity occurring throughout the jurisdiction's boundaries within a single calendar year except for Conversions of vernal pool wetted surface area which must be reported regardless of the size of Conversions; or

B. The activity involves the elimination or disturbance of Waters of the United States/jurisdictional areas or results in actual harm (as defined in the ESA) to or death of an SJMSCP Covered Species.

For annual reporting requirements for maintenance activities, reporting of disturbed habitat quantities for a single activity by a single Plan Participant (even if that activity is carried out over several locations) may be estimated as a single quantity and may use either acres or linear miles (for example, mowing approximately two to four miles of grassland along a water line easement in seven different locations in one calendar year would be reported as approximately three miles of annual grasslands mowed).

Maintenance activities which maintain an existing condition with no potential for habitat disturbance (e.g.,
maintaining bare ground under structures or re-grading an existing roadway without extending the boundaries of that roadway) and which do not result in habitat Conversion are not subject to these reporting requirements.

See Section 5.5.4(E) for special provisions related to compensation for maintenance activities affecting the Valley elderberry longhorn beetle.

5.9.1.3 Biological Monitoring Reports

In addition to annual reporting the results of all biological monitoring will be incorporated into a Biological Monitoring Report submitted to the Permitting Agencies once every three years in conjunction with the annual report. The JPA shall, with the concurrence of the Permitting Agencies' representatives on the TAC, develop a standard format for the Biological Monitoring Reports so that the Biological Monitoring Reports, over time, can be compared in a meaningful manner. The Biological Monitoring Reports shall summarize, at a minimum, management activities undertaken within the subject three years on Preserves, management priorities to be undertaken for the next three years, enhancement activities undertaken within the subject three years and the success of those activities, and the findings of biological monitoring activities conducted in the subject three years and as described in Section 5.9.2 of the SJMSCP.

5.9.1.4 Annual Meeting with Permitting Agencies

On or before July 1 of each calendar year, the JPA, USFWS, and CDFG shall meet to discuss the Annual Report submitted by the JPA, and any concerns, comments or recommendations any of the Parties may have regarding implementation of the SJMSCP. Permitting Agency representatives on the TAC may represent the Permitting Agencies pursuant to this Section. Discussions of the Annual Report at regular meetings of the TAC in which Permitting Agency representatives are present shall be deemed to fulfill this annual meeting requirement if the TAC representatives from both Permitting Agencies agree that their concerns, comments and recommendations relative to items in the Annual Report have been adequately discussed and addressed.

5.9.2 BIOLOGICAL MONITORING PLAN

Conscientious habitat and species monitoring is essential to the success of the SJMSCP and is an integral component of the Plan. This section describes the SJMSCP Biological Monitoring Plan in detail, including its objectives, factors to be measured, the types of surveys that will be undertaken, and the standards and procedures that will be applied and utilized. The results of biological monitoring will be used to evaluate conditions both on land being Converted from Open Space uses (i.e., project sites) and on Preserve lands.

On project sites, this Biological Monitoring Plan will track habitat losses in San Joaquin County as a result of SJMSCP Permitted Activities (see Section 8.2.1) and identify Incidental Take Minimization Measures.

On Preserves, this Biological Monitoring Plan will assess the success and effectiveness of the SJMSCP's mitigation, enhancement, and management activities through evaluations of species status and habitat conditions on Preserve lands.

Together, these assessments on both project sites and on Preserves will:

A. Identify revisions and adjustments that may need to be made to the SJMSCP through the SJMSCP's Adaptive Management Plan; and

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B. Assess the success of the SJMSCP in meeting its conservation goals and objectives.

Monitoring is crucial to the SJMSCP's success because conditions on the landscape may change in unexpected ways over time, and the various SJMSCP components (e.g., management and enhancement strategies) may not be as effective as originally envisioned and may need to be revised.

The SJMSCP Biological Monitoring Plan is arranged in the following sections:

A. Section 5.9.2.1 -- Establishes measurable Biological Success Criteria for the SJMSCP;
B. Section 5.9.2.2 -- Establishes objectives of the SJMSCP Biological Monitoring Plan;
C. Section 5.9.2.3 -- Identifies the factors to be measured to determine SJMSCP success and generally describes survey types to be utilized;
D. Section 5.9.2.4 -- Describes general monitoring standards and techniques;
E. Sections 5.9.2.5 to 5.9.2.10 -- Provides specific objectives and other guidance for conducting each type of survey required by the Biological Monitoring Plan;
F. Section 5.9.2.11 -- Provides guidance for monitoring development of the Preserve system based on the Preserve Design Criteria described in Section 5.4.4;
G. Section 5.9.2.12 -- Describes how individual monitoring plans and strategies will be developed; and,
H. Section 5.9.2.13 -- Describes how the results of the Biological Monitoring Plan will be linked to the SJMSCP Adaptive Management Plan (Section 5.9.4).

5.9.2.1 Biological Success Criteria for the SJMSCP

The principal biological goal of the SJMSCP is to maintain habitat of sufficient quantity and quality to conserve populations of all fish, wildlife, and plant species covered by the SJMSCP within San Joaquin County (see Section 2.2.2). To accomplish this goal, the SJMSCP should:

A. Identify and track habitat losses occurring when SJMSCP Permitted Activities result in Conversion of Open Space lands to urban and other uses.

B. Compensate for these losses by maintaining and, where appropriate, achieving demonstrable increases in habitat quality for the Covered Species on SJMSCP Preserve lands via land management and habitat enhancement activities; and,

C. Achieve stable or improved status of Covered Species on SJMSCP Preserve lands.

D. Ensure that the Preserve Design Criteria described in Section 5.4.4 are being reasonably observed and are resulting in a biologically sound Preserve system.

E. Adjust and refine its Preserve selection, management, and enhancement activities based on the results of the above monitoring activities through the SJMSCP's Adaptive Management Plan.
The above criteria establish basic objectives that the SJMSCP should meet in order to be considered successful. In addition, these objectives, as generally stated above, can be converted into measurable or quantifiable goals. Such measurable goals will provide a "yardstick" to determine whether the SJMSCP is meeting its basic objectives, and will alert the Permittees and Permitting Agencies when problems are occurring or developing or where the SJMSCP is failing to meet its goals. This, in turn, will allow the opportunity to undertake corrective action if needed through the Adaptive Management Plan. Measurable Biological Success Criteria for the SJMSCP, which coincide to the above general criteria, are as follows:

A. Habitat acquisition and protection under the SJMSCP, through the establishment of Preserve lands, will precisely balance habitat losses under the Plan as dictated by the compensation ratios described in Section 4.1 and according to the schedule described in Sections 8.6 and 5.3.2.3. Preserve lands will be established according to procedures described in Sections 5.4.1 through 5.4.3 and according to criteria described in Sections 5.4.4 and 5.4.5. Compliance with these provisions will be determined through use of the SJMSCP GIS Database, pre-construction surveys (Section 5.9.2.5), and records kept by the Plan Participants and the JPA.

Incidental Take Minimization Measures will be fully implemented as described in Section 5.2.4. Implementation of these measures will be ensured through use of the SJMSCP GIS Database, pre-construction surveys (Section 5.9.2.5), and inclusion of Incidental Take Minimization Measures in site development approvals by the Plan Participants and JPA (Section 5.2.1 and 5.2.2).

B. The SJMSCP will, at a minimum, result in the maintenance of existing habitat quality on SJMSCP Preserve lands, and, where possible, will achieve demonstrable increases in the habitat quality of Preserve lands. This will be determined through pre-acquisition/baseline surveys (Section 5.9.2.6), periodic habitat assessment/multi-species surveys (Section 5.9.2.7), and focused habitat/species surveys (Sections 5.9.2.8 to 5.9.2.10).

C. The SJMSCP will, at a minimum, result in stable population status for SJMSCP Covered Species on SJMSCP Preserve lands, and, where possible, will achieve improved status for the Covered Species on Preserve lands. This will be determined through the pre-acquisition/baseline surveys (Section 5.9.2.6), periodic habitat assessment/multi-species surveys (Section 5.9.2.7), focused habitat/species surveys (Section 5.9.2.8), focused species surveys for indicator species (Section 5.9.2.9), and focused species surveys for plants (Section 5.9.2.10).

D. The SJMSCP will ensure that the Preserve Design Criteria described in Sections 5.4.4 and 5.4.6 are being reasonably observed and these criteria are resulting in a biologically sound Preserve system. This will be determined, generally, by comparing the Preserve Design Criteria described in Sections 5.4.4 and 5.4.5 with the Preserve system as it develops through time (see Section 5.9.2.11). Evaluation of this Biological Success Criterion will also need to consider other factors, such as habitat status and species status in the Preserve system (i.e., are species populations and habitat quality persisting through time?) and any pertinent new scientific information about the Covered Species, population biology principles, etc.

E. The SJMSCP will adjust and refine its Preserve selection, management, and enhancement activities based on the results of the Biological Monitoring Plan described in this section and the Adaptive Management Plan described in Section 5.9.4. Although not, strictly speaking,
a measurable criterion, this process will be important in meeting the other four criteria, since it is through the Adaptive Management Plan and Biological Monitoring Plan that adjustments or revisions to the SJMSCP based on new biological information or other scientific information will be made. The Adaptive Management Plan is described in detail in Section 5.9.4.

5.9.2.2 Objectives of the SJMSCP Biological Monitoring Plan

The objective of the SJMSCP Biological Monitoring Plan is to establish methods for determining whether the SJMSCP is meeting its Biological Success Criteria as described above. Specific monitoring objectives are to:

A. Monitor losses to Covered Species and their habitats and identify Incidental Take Minimization requirements and opportunities on project sites;

B. Monitor habitat quality changes resulting from management and enhancement activities on Preserve lands through time;

C. Assess the status of the Covered Species on Preserve lands through periodic general multi-species inventories and focused species status monitoring;

D. Periodically assess the status and development of the Preserve system; and,

E. Identify places for improving the Plan which may be addressed through implementation of the Adaptive Management Plan.

5.9.2.3 Factors to be Measured/Survey Types

The factors to be measured during implementation of the SJMSCP Biological Monitoring Plan must be designed to ensure that the objectives described in Section 5.9.2.2 above are met. The same is true of the specific survey types and methodologies used. However, monitoring factors, variables, survey types, and survey methodologies must also meet other criteria—i.e., they must be affordable, practicable, and cost effective. In this section, the general factors to be measured under the Biological Monitoring Plan are described, followed by a brief description of the types of survey activities that will be undertaken and their purpose. The sections following provide further detail about survey standards and techniques.

The general factors to be measured by survey activities under the SJMSCP Biological Monitoring Plan are as follows:

A. Habitat Conditions and Covered Species Presence on Open Space Lands Converted. Habitat conditions and the presence of Covered Species shall be determined on each parcel or project site scheduled for development under the SJMSCP prior to the commencement of any construction or project related activities. The purpose of this is to establish generally what habitats or land uses exist on the site, the condition or quality of those habitats, the context of the site in relation to surrounding lands or land uses, the presence of any Covered Species, and the need for implementation of appropriate Incidental Take Minimization Measures. This will typically involve a site visit but may also be conducted, if possible, based on information contained in the SJMSCP GIS Database. Specific factors determining whether pre-construction surveys must include a site visit are described in Section 5.2.2.3 of the
SJMSCP.

B. Habitat Conditions on SJMSCP Preserves. A standardized qualitative and semi-quantitative assessment of habitats present on Preserves prior to commencement of enhancement activities, during the establishment of enhancements (e.g., while new vegetation matures), and after enhancement activities are established shall be measured and evaluated according to the methodologies established in Sections 5.9.2.4 and 5.9.2.6.

C. Status of SJMSCP Covered Species on Preserve Lands. The populations of selected SJMSCP Covered Species located on Preserves shall be qualitatively assessed before acquisition and throughout the life of the SJMSCP. Population surveys will be of two types: (1) periodic multi-species inventories across the entire system of SJMSCP Preserves (Section 5.9.2.7), and (2) focused status surveys of habitats and selected SJMSCP Covered Species which provide an indicator of the overall health of each Preserve Type.

D. Physical and Biological Characteristics of the Preserve System. Data on the overall geographic, physical, and biological characteristics of the SJMSCP Preserve system will be periodically compiled and reviewed to determine whether the Preserve system is being developed consistently with the conservation biology and other biological principles as described in Sections 5.4.4 and 5.4.5.

The objectives of the SJMSCP Biological Monitoring Plan will be achieved and the information described above collected through a variety of biological survey types and activities. Specific survey types that will be implemented under the Monitoring Plan are:

A. Reconnaissance-level, pre-construction surveys conducted on proposed project sites (Section 5.9.2.6);

B. Pre-acquisition or baseline surveys conducted on sites proposed for acquisition for the Preserve system or on Preserve lands for which a conservation easement or fee title has been recently purchased (Section 5.9.2.7) or on neighboring lands for the purposes of extending neighboring land protections consistent with Section 5.3.3.4;

C. Periodic, qualitative multi-species and habitat assessment surveys conducted across the entire Preserve system and within each Preserve Type (see Section 5.9.2.8);

D. Focused, quantitative habitat and species surveys conducted across selected portions of the Preserve system or as needed (Sections 5.9.2.9 to 5.9.2.11); and,

E. Maintenance and review of information (maps, aerial photos, reports, etc.) pertaining to development of the SJMSCP Preserve System, especially the distribution of its various elements across the SJMSCP Index Zones and Preserve Types, the distribution of those elements in relation to each other and other habitats, and the Preserve system's adherence to the Preserve Design Criteria described in Sections 5.4.4 and 5.4.5 (Section 5.9.2.11).

5.9.2.4 General Monitoring Standards/Techniques

One of the most important responsibilities of the JPA and its TAC will be to adopt appropriate standards, strategies, and methods under which the survey types listed above will be implemented (see Section 5.9.2.12). Because the SJMSCP requires a variety of survey types (e.g., assessments of habitat condition, Covered
Species status, and landscape-level changes), the JPA, accordingly, will need to adopt suitable standards and a range of methods in order to meet the monitoring objectives of the SJMSCP. For each of the survey types listed above, the following questions (developed originally as conservation guidelines for the Natural Communities and Conservation Planning--NCCP--program in southern California) will be considered by the JPA as a framework for ensuring that realistic and reasonable monitoring decisions will be made (CDFG 1993):

A. What kind and quality of information can be gathered with the time and resources available?;
B. What are the possible outcomes and answers such an investigation might reveal?;
C. What decisions will be triggered by different outcomes and answers?;
D. How are these decisions different than those that would be made with existing information?; and
E. What effect will continuing the status quo have on species status and on options for future action?

The JPA and TAC will need to acknowledge that target monitoring variables (e.g., population trends and species richness) can change rapidly and be easy to detect, or can change gradually and be difficult to detect. Therefore, all monitoring plans must explicitly address the levels of variation and uncertainty that are associated with the survey method and how this will influence decision making.

As described elsewhere in this Section, at times a consideration of qualitative survey and inventory results will be sufficient (e.g., the periodic multi-species surveys), providing the JPA and TAC with confidence to either pursue additional information or proceed with specific actions, including adjustments under the SJMSCP’s Adaptive Management Plan, on the basis of information they already have. At other times, a more formal analysis of quantitative survey results may be needed (e.g., the focused surveys). In either case, decisions regarding monitoring methods under the Plan must be made after answering the questions listed above in the context of the particular monitoring or management objective. For example, the monitoring interval for focused, quantitative monitoring efforts may be determined, in part, by the longevity and generation time of the Covered Species or habitat type of interest, or the expected periodicity of specific biological or climatic events or other interactions in which the species may be involved. Monitoring plans might also consider the conditions of the habitat being monitored and the habitat necessary for species dispersal.

The SJMSCP does not specify specific monitoring methods. However, the following suggests several monitoring methodologies that can be used to monitor Covered Species. Additional suggestions for monitoring habitat types are provided in Section 5.9.2.8.

Standard Inventory Methods for Covered Species: A number of standard techniques are available for monitoring the status of SJMSCP Covered Species across the Preserve system through time. While the SJMSCP does not require the adoption of a particular method or suite of methods, it strongly recommends that the JPA employ standard methods such as the ones listed below. Most of these techniques are widely used and have been tested in the field for years. They tend to require a relatively high time investment but, with the exception of radio tracking, can be conducted at a low cost with a minimum commitment of personnel.
A. Visual encounter surveys (to determine species richness, relative abundance). The time required depends on the number of Covered Species inventoried.

B. Calling bird censussing along strip transects (determines relative abundance). Personnel need to be familiar with the vocalizations.

C. Replicated quadrat, transect, or patch sampling (determines density). The commitment of time and personnel with this method is relatively high because sampling is thorough.

D. Drift fences and trapping (determines relative abundance). These methods also have a relatively high cost and commitment of personnel. If trapping activities are required, the use of traps shall be consistent with all applicable laws and regulations.

E. Surveys at breeding or nesting sites (determines nesting status, nesting success, and relative abundance). This is a cost effective inventory method.

F. Strip transect surveys (determines relative species abundance).

G. Point count surveys (determines species richness, relative abundance).

H. Radio tracking (determines habitat use, activity patterns, dispersal). Radio tracking is typically employed to monitor various activity patterns, not species presence or abundance. This method would probably be used only in rare cases--e.g., in conjunction with focused studies to determine giant garter snake dispersal between wetland reserve sites. Radio tracking is time consuming, expensive, and requires highly trained personnel.

Supplemental Inventory Methods for Covered Species: The methods described below are less traditional monitoring methods. The literature on these methods, their strengths and weaknesses, and their underlying assumptions are less well developed than for the methods described above. Therefore, these approaches may yield ambiguous results. However, some or all these methods may provide information augmenting the more standardized techniques discussed above and may be considered in designing SJMSCP monitoring programs. However, the JPA and TAC should seriously consider the relative strengths and weaknesses of these approaches prior to employing them, and the TAC should periodically check the status of these methodologies in the scientific literature.

A. Cover boards, in which boards or other broad, flat surfaces are laid on the ground and later checked for species presence (determines presence and relative abundance). This is a low cost method and requires little training.

B. Night driving/spotlighting (determines relative abundance, species richness). This method is low in cost and requires little training. Animals recently killed on roads can be collected as voucher specimens and for use in life history and population genetics studies.

C. Group activities and field trips (can determine relative abundance, species richness). This method is also low cost but requires a data coordinator. There is an added benefit of public outreach. Natural history classes from local universities, the National Audubon Society, or other local natural history societies could participate (see Section 5.9.2.12).

Monitoring surveys under the SJMSCP should also observe the following general principles:
A. Population survey methods used for the SJMSCP Covered Species should not typically require highly specialized and/or expensive methodologies. Normally, selected SJMSCP Covered Species should lend themselves to population surveys which may be conducted by general practice wildlife biologists often with supplemental assistance from trained volunteers.

B. Population surveys conducted during the appropriate or optimal seasonal periods for the affected Covered Species are more likely to result in the location of multiple individuals each time a survey is conducted.

5.9.2.5 Pre-Construction Surveys

For any project resulting in Conversion of Natural Lands or Agricultural Habitat Lands, an assessment of the project site shall be conducted prior to the initiation of any surface disturbing project activities consistent with the procedures established in Section 5.2.2. The objectives of this assessment are:

A. To determine what habitats are present on the site that will be lost as a result of construction of the project;

B. To track habitat losses within the SJMSCP Plan Area for permit reporting and compliance purposes, and to ensure that habitat replacement efforts are consistent with habitat losses; and

C. To identify any Incidental Take Minimization Measures that may need to be implemented on the project site.

Pre-construction surveys shall be conducted as described in Sections 5.2.2.1 through 5.2.2.5.

In addition, the JPA and its TAC shall, within one year of issuance of the SJMSCP's associated state and federal permits, develop a standardized strategy and form or comparable alternative to be used in conducting pre-construction surveys (see also Section 5.9.2.6 and 5.9.2.12).

5.9.2.6 Pre-acquisition/Baseline Surveys

Pre-acquisition/baseline surveys are designed to assess potential or recently acquired SJMSCP Preserves. They may be conducted concurrently with the JPA’s mitigation site selection process (see Section 5.4), but this is not required. These surveys are needed to obtain information necessary to develop Preserve Management Plans (Section 5.9.4), and as a baseline for tracking occurrences of Covered Species and for tracking the status of habitat conditions on Preserve Lands. However, information from these surveys should be combined with available information/data on the Preserve site to determine the overall value of the site. The objectives of pre-acquisition/baseline surveys are:

A. Determine what habitat types are present on the site;

B. Determine Covered Species through qualitative, reconnaissance-level multi-species surveys;

C. Through A and B above, identify management and habitat enhancement measures that will benefit Covered Species.

The scope of the pre-acquisition/baseline surveys will vary depending on Preserve Type (see Section 5.4.4),
prevalence of natural habitat types, and attributes of the Covered Species present. However, some information needed to fulfill the objectives of this survey type will be common to all pre-acquisition/baseline surveys. The JPA with the concurrence of the Permitting Agencies' representatives on the TAC shall, within one year of issuance of the SJMSCP's associated state and federal permits, develop a standardized form or comparable alternative to be used in conducting pre-construction surveys (also see Section 5.9.2.12). The specific categories of information to be collected is left up to the discretion of the JPA and TAC but should include, at a minimum:

A. The size and location of the site;
B. Habitat Types present on the site (see Section 2.2.1 for a description of Habitat Types) and any important or specific habitat features (e.g., nest trees);
C. A list of any Covered Species encountered; and,
D. A description of other features relevant to the suitability of the site as a SJMSCP Preserve (e.g., presence of non-native or invasive species, incompatible on-site or adjacent land uses, distance to other Preserves, etc.).

5.9.2.7 Periodic Habitat Assessment/Multi-Species Surveys

Periodic habitat assessment and multi-species surveys shall be conducted within the Preserve system over the life of the SJMSCP and its associated permits. The objectives of the periodic habitat assessment/multi-species surveys are to:

A. Assess the presence of Covered Species generally on Preserve lands;
B. Assess the overall habitat quality on Preserve lands;
C. Detect changes in overall habitat quality and conditions on Preserve lands;
D. Generally assess the condition of created, enhanced, or restored habitat;
E. Identify presence of special habitat features such as wetlands, nest trees, nest rookeries or colonies, rare plant communities, burrows, etc.;
F. Assess human disturbance levels in the Preserve system and detect problems associated with urban encroachment on Preserve areas and other problems associated with human activity within or adjacent to Preserves;
G. Assess problems or shortcomings associated with specific management or enhancement strategies;
H. Allow adoption of measures to correct any such problems identified through the SJMSCP Adaptive Management Plan; and
I. Allow comparison of information collected under the periodic habitat assessment/multi-species surveys within the Preserves with information collected by other survey activities elsewhere in San Joaquin County (e.g., CDFG surveys).
J. Propose remediation methods or measures, if needed, for the Preserve system.

Periodic habitat assessment/multi-species surveys shall be conducted across the entire Preserve system and within each Preserve habitat type a minimum of once every five years. Generally, these surveys will be qualitative. The JPA and its TAC shall, within two years of the issuance of the SJMSCP’s state and federal permits, develop a strategy for conducting these surveys which shall include specific survey methodologies and techniques, seasonal timing, etc. (also see Section 5.9.2.12). This strategy will be established by the JPA with the concurrence of the Permitting Agencies’ representatives on the TAC.

5.9.2.8 Focused Habitat/Species Surveys

Focused habitat and species surveys will also be conducted over the life of the SJMSCP. The purpose of these surveys will be to evaluate habitat conditions and trends and the status of Covered Species within the Preserve system over time, and to evaluate progress or conditions in certain specific circumstances, such as measuring the development of a created habitat or the population response of a particular species to a specific management or enhancement activity. The difference between the focused surveys described here and the periodic habitat assessment/multi-species surveys described above is that focused surveys generally will be more intensive, more specifically designed, more limited to specific circumstances or species, and more quantitative and rigorous than the periodic multi-species surveys. The focused habitat/species surveys will also utilize, in part, an indicator species approach in which certain species are assumed to be indicators of the overall health of the Preserve areas they inhabit and are monitored and surveyed accordingly. Sections 5.9.2.9 and 5.9.2.10 explain this approach further.

The objectives of the focused habitat/species surveys are to:

A. Assess and track the health, development, and survival of particular habitats, especially created, enhanced, or restored habitats;
B. Assess the status, condition, and trends of particular species or populations, especially those determined to be indicators of the SJMSCP’s conservation measures and habitat Preserve system;
C. Detect changes in habitat conditions and quality within specific habitats over time;
D. Assess the relative abundance of certain Covered Species, where appropriate;
E. Assess the effects of human disturbance or other biotic or abiotic factors on specific habitats or species;
F. Assess the population response of species to particular habitat management or enhancement activities or projects;
G. Assess specific activities of the Covered Species such as dispersal within or between Preserves, reproductive success, success of plant, fish or wildlife relocation projects, etc.;
H. Allow adoption of measures to correct any problems identified within the Preserve system or within certain species or populations through the SJMSCP Adaptive Management Plan; and
I. Allow comparison of information collected under the focused habitat/species surveys within the Preserves with information collected by other survey activities elsewhere in San Joaquin County (e.g., CDFG surveys);
J. Propose remediation or management changes for the Preserve system, if needed.

Focused habitat surveys shall be conducted pursuant to a strategy and schedule prepared by the JPA with the concurrence of the Permitting Agencies’ representatives on the TAC within one year of the issuance of SJMSCP Permits. The schedule for focused surveys of species established by the JPA and TAC may be
amended by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC through the Adaptive Management process (see Section 5.9.4) as needed to respond to the increasing acreages and variability on Preserves as SJMSCP Preserves become established. Survey methodologies and frequencies will be tailored to the purpose of any particular survey or set of surveys. For example, the level of effort and periodicity of sampling required for establishing the performance of newly created vernal pools on Preserves in the Vernal Pool Zone may be very different from that required to monitor the amount and condition of flooded fields on Preserves in the Central Zone. In addition, natural habitat types such as grasslands in the Southwest Zone will require on-going infrequent monitoring to ensure that their habitat values do not decline as a result of inappropriate land use practices, encroachment, or catastrophic events such as wildfire.

The SJMSCP leaves the selection of specific habitat variables to be monitored to the JPA with the concurrence of the Permitting Agencies' representatives on the TAC. It is recommended however that the JPA and TAC consider the habitat variables listed in Table 5.9-1 prior to developing habitat monitoring plans. These habitat variables were derived from the Preserve enhancements listed in Section 5.4.6. The list is suggested as a starting point and is not an exhaustive list of habitat variables.

5.9.2.9 Focused Species Surveys -- Indicator Species

As explained in Section 5.9.2.8, relatively intensive focused habitat/species surveys will be conducted within the Preserve system to detect trends in the status of the Habitat Types and the Covered Species. Some of these surveys will use an “indicator species” approach, in which a particular species is assumed to be an indicator of the overall health of a particular Habitat Type or Preserve Type. In such surveys, the indicator species will be monitored intensively; the status and trends in the population of that species will, in turn, suggest patterns and trends in the habitat type which the species inhabits, and will also suggest patterns and trends in the status of other species occupying the same habitat type. For purposes of the SJMSCP, a Covered Species or set of Covered Species will be selected as an indicator of habitat quality for each Preserve Type, and focused surveys will be conducted on such species through time to evaluate the health and quality of the Preserve system.
### TABLE 5.9-1: PROPOSED VARIABLES TO BE MEASURED ON SJMSCP PRESERVES

<table>
<thead>
<tr>
<th>Preserve Type</th>
<th>Measured Variable</th>
</tr>
</thead>
</table>
| **Primary Zone of the Delta Water’s Edge Preserve** | - Length and Width of SRA  
- Erosion of channel islands  
- Amount of erodible soil                                                  |
| **Primary Zone of the Delta Flooded Field Preserves** | - Crop type (acres of each)  
- Flooding (acres, depth and duration)  
- Number of nest trees  
- Number of bat roost sites                                      |
| **Southwest Zone Grassland Preserves**              | - RDM (Residual dry matter)  
- Presence/Amount of Rodenticide                                      |
| **Southwest Zone Diablan Sage Scrub**               | To be determined                                                                   |
| **Southwest Zone Riparian**                         | - Percent canopy cover  
- Acres of riparian habitat                                             |
| **Southwest Zone Blue Oak Conifer Preserve**        | - Number of blue oak seedlings  
- Oak, canopy Cover  
- Oak, diameter at Breast Height                                      |
| **Vernal Pool Zone Vernal Pool Grassland Preserve (that are restored or created)** | - RDM  
- Ratio of Exotic to Endemic Plant Species in both pools and uplands  
- Number of wetted acres  
- Period of inundation                                               |
| **Vernal Pool Zone Vernal Pool Grassland Preserve (that are existing)** | - RDM  
- Ratio of Exotic to Endemic Plant Species in both pools and uplands  
- Number of wetted acres  
- Period of inundation                                               |
| **Central Zone Row and Field Crop/Riparian Preserve** | - Crop type (acres of each)  
- Acres of riparian habitat  
- Percent riparian canopy cover  
- Number of Elderberry plants (w/ and w/o one inch stems and total number of 1 inch)  
- Number of elderberry stems with exit holes  
- Number of Raptor Nests  
- Aerial Measure of Field border type                                    |
| **Central Zone Wetland Preserves**                 | - Potential giant garter snake hibernacula  
- Ratio of prey/ predaceous fish as it relates to key species  
- Percent cover of aquatic vegetation  
- Timing, depth and duration of flooding                                |
| **Central Zone Oak Woodland Preserves**             | - Oak, diameter at Breast Height  
- Oak, percent canopy cover  
- Number of oak seedlings  
- Number of raptor nests  
- Number of bat roost sites                                             |

The SJMSCP Covered Species selected to monitor the health of each Preserve Type will be established based
on the following criteria:

A. The selected SJMSCP Covered Species should include at least one SJMSCP Covered Species which feeds primarily on species found at or near the bottom of the food chain (for the SJMSCP, there are few herbivores, therefore insectivorous SJMSCP Covered Species will normally selected for this category).

B. The selected SJMSCP Covered Species should include at least one SJMSCP Covered Species which feeds on species found near the middle of the food chain (for the SJMSCP, this means SJMSCP Covered Species eating large insects, small rodents and other small prey).

C. The selected SJMSCP Covered Species should include at least one SJMSCP Covered Species which feeds on species found near or at the top of the food chain (for the SJMSCP, this means SJMSCP Covered Species feeding primarily on moderate-sized rodents, small-to-moderate sized birds, and/or small-to-moderately sized mammals).

D. The selected species is not already being regularly monitored by a Permitting Agency or another organization with plans to continue such monitoring (e.g., the California Department of Fish and Game undertakes annual surveys for the Swainson's hawk—therefore, annual surveys of the Swainson's hawk could be duplicative).

E. Where possible while still satisfying the above, the selected SJMSCP Covered Species should include at least one SJMSCP Covered Species whose distribution within the County is confined primarily to the habitat type protected within the Preserve category being monitored (e.g., to monitor Southwest Zone Grassland Preserves, an SJMSCP Covered Species which primarily occupies Southwest Zone grasslands should be selected).

Table 5.9-2 provides recommendations for an indicator species for each Preserve Type found within the SJMSCP Preserve system. Theses selected species are intended to gauge the health of the ecosystem by evaluating species at various trophic levels (e.g., carnivores, herbivores, insectivores, omnivores) as indicated within parenthesis next to each proposed indicator species in the following table. This list of indicator species may, however, be amended at the discretion of the JPA with the concurrence of the Permitting Agencies' representatives on the TAC.
## TABLE 5.9-2
RECOMMENDED SJMSCP INDICATOR NON-PLANT COVERED SPECIES FOR EACH PRESERVE TYPE

<table>
<thead>
<tr>
<th>PRESERVE TYPE</th>
<th>SPECIES FOR WHICH QUANTITATIVE POPULATION ANALYSES SHALL BE CONDUCTED</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Primary Zone of the Delta</em> Water's Large and Small Water's Edge Preserves</td>
<td>Valley elderberry longhorn beetle (herbivore); Swainson's hawk (carnivore); SJMSCP Covered Bat Species; tricolored blackbird (insectivores); riparian biodiversity/point surveys</td>
</tr>
<tr>
<td><em>Primary Zone of the Delta</em> Flooded Field Preserves</td>
<td>Sandhill crane (omnivore); northern harrier (carnivore); Swainson's hawk; SJMSCP Covered Bat Species</td>
</tr>
<tr>
<td><em>Southwest Zone</em> Grassland Preserves</td>
<td>San Joaquin kit fox (carnivore--small rodents); loggerhead shrike, tricolored blackbird (insectivore); northern harrier; California horned lark ( omnivore); SJMSCP Covered Bat Species; burrowing owls ( carnivore)</td>
</tr>
<tr>
<td><em>Southwest Zone</em> Riparian Preserves</td>
<td>California red-legged frog (insectivore--adults); Valley elderberry longhorn beetle; SJMSCP Covered Bat Species; riparian biodiversity/point surveys</td>
</tr>
<tr>
<td><em>Southwest Zone</em> Oak Woodland Preserves</td>
<td>California red-legged frog (if water present); loggerhead shrike; SJMSCP Covered Bat Species</td>
</tr>
<tr>
<td><em>Southwest Zone</em> Diablan Sage Scrub Preserves</td>
<td>Bell's sage sparrow (omnivore); SJMSCP Covered Bat Species</td>
</tr>
<tr>
<td><em>Vernal Pool Zone</em> Vernal Pool Grassland Preserves</td>
<td>California tiger salamander (invertebrates); fairy shrimp ( omnivore); horned larks; loggerhead shrike, tricolored blackbird (insectivores); northern harrier; California red-legged frog ( in northeastern corner only); western spadefoot toad; vernal pool plant species; burrowing owls</td>
</tr>
<tr>
<td><em>Central Zone</em> Row and Field Crop/Riparian Preserves (also Central/Southwest Transition Zone Preserves)</td>
<td>Swainson's hawk; northern harrier; loggerhead shrike; California horned lark; tricolored blackbird; Valley elderberry longhorn beetle; SJMSCP Covered Bat Species; burrowing owls; riparian biodiversity/point surveys</td>
</tr>
<tr>
<td><em>Central Zone</em> Wetlands Preserves</td>
<td>giant garter snake (carnivore); Valley elderberry longhorn beetle; loggerhead shrike; northern harrier; SJMSCP Covered Bat Species; tricolored blackbird; riparian biodiversity/point surveys</td>
</tr>
<tr>
<td><em>Central Zone</em> Oak Woodland Preserves</td>
<td>loggerhead shrike; California red-legged frog (if water is present); Swainson's hawk; SJMSCP Covered Bat Species</td>
</tr>
<tr>
<td>Specialty Preserves - Plants</td>
<td>SJMSCP Covered Plant Species targeted within Specialty Preserves within the preceding categories of Preserves shall be the subject of focused surveys (see Section 5.9.2.10)</td>
</tr>
</tbody>
</table>

### 5.9.2.10 Focused Species Surveys -- Covered Plants

SJMSCP Covered Plants will be conserved, in part, through the establishment of Specialty Preserves for these species. Generally, Specialty Preserves will be established to protect discrete, often relatively small plant populations. Such Preserves must be monitored under the SJMSCP. Therefore, once every three years, Specialty Preserves established with known populations of SJMSCP Covered Plants shall be visited during
the blooming period for the plants according to the schedule described in Table 5.9-3 below.

**TABLE 5.9-3**

**SURVEY WINDOWS FOR SJMSCP COVERED PLANT SPECIES**

<table>
<thead>
<tr>
<th>SJMSCP COVERED PLANT SPECIES</th>
<th>BLOOMING PERIOD/SURVEY PERIOD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large flowered fiddle-neck (<em>Amsinckia grandiflora</em>)</td>
<td>April-May</td>
</tr>
<tr>
<td>Suisun Marsh Aster (<em>Aster lentus</em>)</td>
<td>Late May through November</td>
</tr>
<tr>
<td>Alkali milk-vetch (<em>Astragalus tener var. tener</em>)</td>
<td>March - June</td>
</tr>
<tr>
<td>Heartscale (<em>Atriplex cordulata</em>)</td>
<td>May - June</td>
</tr>
<tr>
<td>Brittlebush (<em>Atriplex depreisa</em>)</td>
<td>May - October</td>
</tr>
<tr>
<td>Hoover's calycadenia (<em>Calycadenia hooverii</em>)</td>
<td>July - September</td>
</tr>
<tr>
<td>Bristly sedge (<em>Carex comosa</em>)</td>
<td>May - September</td>
</tr>
<tr>
<td>Succulent owl's clover (<em>Castilleja campestris ssp. succulenta</em> fmr. <em>Orthocarpus succulentus</em>)</td>
<td>April - May</td>
</tr>
<tr>
<td>Slough thistle (<em>Cirisium crassicaule</em>)</td>
<td>May - August</td>
</tr>
<tr>
<td>Mt. Hamilton coreopsis (<em>Coreopsis hamiltonii</em>)</td>
<td>March - May</td>
</tr>
<tr>
<td>Hospital canyon larkspur (<em>Delphinium californicum ssp. interius</em>)</td>
<td>April - June</td>
</tr>
<tr>
<td>Recurved larkspur (<em>Delphinium recurvatum</em>)</td>
<td>March - May</td>
</tr>
<tr>
<td>Delta button celery/Delta coyote thistle (<em>Eryngium racemosum</em>)</td>
<td>June - October</td>
</tr>
<tr>
<td>Diamond-petaled poppy/Diamond-petaled California Poppy (<em>Eschscholzia rhombipetala</em>)</td>
<td>March - June</td>
</tr>
<tr>
<td>Bogg's lake hedge hyssop (<em>Gratiola heterosepala</em>)</td>
<td>April - June</td>
</tr>
<tr>
<td>California hibiscus (<em>Hibiscus lasiocarpus</em>)</td>
<td>August-September</td>
</tr>
<tr>
<td>Red Bluff dwarf rush (<em>Juncus leiospermus var. leiospermus</em>)</td>
<td>March - May</td>
</tr>
<tr>
<td>Delta tule pea (<em>Lathyrus jeponsii var. jeponsii</em>)</td>
<td>May - September</td>
</tr>
<tr>
<td>Legenere (<em>Legenere limosa</em>)</td>
<td>May - June</td>
</tr>
<tr>
<td>Mason's lilaepsis (<em>Lilaepsis masonii</em>)</td>
<td>April - October</td>
</tr>
<tr>
<td>Delta mudwort (<em>Limosella subulata</em>)</td>
<td>May - August</td>
</tr>
<tr>
<td>Showy madia (<em>Madia radiata</em>)</td>
<td>March - May</td>
</tr>
<tr>
<td>Sanford's arrowhead (<em>Sagittaria sanfordii</em>)</td>
<td>May - October</td>
</tr>
<tr>
<td>Mad-dog skullcap (<em>Scutellaria lateriflora</em>)</td>
<td>May - September</td>
</tr>
<tr>
<td>Wright's trichocoronis (<em>Trichocoronis wrightii var. wrightii</em>)</td>
<td>May - September</td>
</tr>
<tr>
<td>Caper-fruited tropidocarpum (<em>Tropidocarpum capparideum</em>)</td>
<td>March - April</td>
</tr>
<tr>
<td>Greene's tuctoria (<em>Tuctoria greenei</em>)</td>
<td>May - July</td>
</tr>
</tbody>
</table>
Methodology: Population surveys for SJMSCP Covered Plant populations should include photographs from established focal points (at least four focal points for each Preserve) using color film and taking at least 12 photos of each Preserve. An estimate of the number of individual plants per unit area should be established during population surveys by taking actual counts of random plant patches. Surveyors can toss a ring or square randomly (with eyes closed) into the patch and count the individual SJMSCP Covered Plants within the patch where the ring or square falls. The average number of plants found within the samples is then the average number of plants per unit of area for the Preserve. The total acreage covered by each plant population should be estimated and recorded (for areas of less than one-half acre, actual measurements in feet shall be made). The overall health of each plant population and identified threats (e.g., erosion, weeds, grazing, vandalism, flooding) should be listed and recommendations shall be included for removing threats in survey reports. Other methodologies as deemed appropriate for specific vegetation types may be included in these methodologies. Formal plant survey protocols shall be established by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC within one year of the issuance of the SJMSCP’s state and federal permits. Established methodologies may be revised through the Adaptive Management Plan (see Section 5.9.4).

5.9.2.11 Monitoring Preserve Development/Characteristics

It is the responsibility of the JPA to track the development of the SJMSCP Preserve system in order to confirm that the Preserve Design Criteria established in Section 5.4.4 are being met. The physical and biological characteristics of the Preserve system which must be monitored through time include but are not limited to:

A. Size and shape of individual Preserve parcels as the Preserve system develops, including any large habitat blocks;
B. The physical relationship between Preserves and nearby developed lands and adjacent land uses;
C. Suitable habitat corridors and connectivity between Preserves and any adverse fragmentation;
D. Distribution of Preserves and preserved habitats across SJMSCP Index Zones;
E. Degree of human disturbance with Preserves;
F. Amount of edge and any adverse edge effects; and
G. The amount and proportion natural, created and restored habitats on Preserves in each SJMSCP Index Zone.

If, based on the results of monitoring the variables listed above, the JPA detects deviations from the SJMSCP’s Preserve Design Criteria, these must be described and a plan for detailing proposed corrective measures shall be submitted with the appropriate Annual Report.

5.9.2.12 Development of Monitoring Plans/Strategies

The responsibility for ensuring that SJMSCP monitoring efforts are adequately implemented lies with the SJMSCP Joint Powers Authority (JPA) and its Technical Advisory Committee (TAC). As described in
Section 5.4.7.1, each Preserve Management Plan developed for a particular Preserve must contain a description of applicable monitoring actions to be undertaken on the Preserve. However, it will not always be possible to describe comprehensively what monitoring actions may take place within a given Preserve at the time the Management Plan is developed, since some actions will be dictated by the monitoring requirements described below and elsewhere in this Section, rather than by the Preserve Management Plan, and may not be precisely known at the time of development of the Management Plan. Generally, Preserve Management Plans should include any specific monitoring need known to exist for that Preserve site [e.g., the need to monitor the progress of a revegetation effort or monitor the application or use of pesticides not prohibited for use on a Preserve and the pesticides’ effects on SJMSCP Covered Species and their habitat to determine if refinement or revision of such management techniques are necessary as described in 5.9.4.2(B)], and any monitoring needs dictated by the monitoring requirements described in this Section to the extent they are known when the Management Plan is developed, and to the extent applicable to a particular Preserve.

As described earlier in this Section 5.9.2, the JPA and its TAC shall prepare the following monitoring strategies and schedules within the time periods indicated:

A. Within one year of the issuance of the SJMSCP’s associated state and federal permits, a standardized strategy and form for conducting pre-construction surveys;

B. Within one year of the issuance of the SJMSCP’s associated state and federal permits, a standardized strategy and form for conducting pre-acquisition/baseline surveys;

C. Within two years of the issuance of the SJMSCP’s associated state and federal permits, specific survey methodologies, techniques, and timing for conducting periodic habitat assessment-multi-species surveys;

D. Within one year of the issuance of the SJMSCP’s associated state and federal permits, a strategy and schedule for conducting focused habitat/species surveys; and,

E. Within one year of the issuance of the SJMSCP’s associated state and federal permits, formal plant survey protocols.

All such schedules, strategies, methodologies, and techniques as are required above may periodically be amended or revised through the SJMSCP’s Adaptive Management Plan with the concurrence of the Permitting Agencies’ representatives on the TAC.

As an alternative to monitoring efforts described in Section 5.9.2, the JPA may, where appropriate, elect to contribute mitigation funds to regional or long-term monitoring efforts that may be conducted by local universities, conservation organizations, or the Permitting Agencies, provided that such efforts coincide with the SJMSCP monitoring objectives and are approved by the Permitting Agencies’ representatives on the TAC. For example, San Joaquin County participates in the annual Audubon Christmas bird counts. The results of these surveys provide a good historical overview of population trends and the results of these surveys could be used for comparison purposes for the SJMSCP Biological Monitoring Plan. Similarly, monitoring efforts are being undertaken for other habitat conservation plans with similar species and, in some cases, similar habitats to those found in San Joaquin County. The JPA should coordinate with these nearby areas (e.g., Yolo, Natomas Basin, South Sacramento) to exchange monitoring results to assist in monitoring efforts. Finally, the California Department of Fish and Game undertakes annual surveys for the Swainson’s hawk in San Joaquin County. The JPA should coordinate with the California Department of Fish and Game to acquire the data from these surveys as part of the SJMSCP Biological Monitoring Plan.
5.9.2.13 Adaptive Management Revisions

The Adaptive Management Plan will be used to adjust SJMSCP Preserve selection, enhancement, and management standards and activities as needed throughout the life of the SJMSCP. It is through the Adaptive Management Plan that new information derived from this Biological Monitoring Plan and other scientific sources will be incorporated into the SJMSCP. Section 5.9.4 describes this process in detail.

5.9.3 SJMSCP COMPLIANCE MONITORING PLAN

The primary methods of measuring compliance with SJMSCP procedures shall be through the Annual Report as described in Section 5.9.1 and the Biological Monitoring Plan as described in Section 5.9.2. In addition, a process for responding to public input related to the implementation of the SJMSCP is included as are specialized monitoring provisions to assist in ensuring compliance with Incidental Take Minimization Measures, to ensure that the JPA keeps apprised of new information and bases its decisions on the most up-to-date information available, to maintain compliance with the SJMSCP's General Section 404 Permit, and to monitor the sufficiency of funding to carry out SJMSCP programs. These monitoring provisions compose the SJMSCP Compliance Monitoring Plan described as follows:

5.9.3.1 Maintaining Compliance with Required Procedures

To assist both the JPA and Permitting Agencies in monitoring compliance with the SJMSCP's required procedures, the JPA shall maintain a compliance file. When Plan Participants or members of the public contact the JPA and notify that agency of a potential inconsistency between JPA actions and the required procedures of the SJMSCP, the JPA shall complete a compliance form. Compliance forms shall contain, at a minimum, the name of the person citing a potential deviation from required practice, the date the concern or request was received, a description of the nature of the deviation from required procedures, and what was done in response to the notification or a description of why no action was determined to be necessary in response to the notification. All compliance notices shall be filed in the JPA's compliance file.

Each Annual Report filed with the Permitting Agencies shall include the JPA's written response to all compliance notices on file and either explain why the information is not valid, explain why an alternative method of implementation was justified, explain how future deviations shall be avoided, or propose an amendment to the SJMSCP to address future deviations from required procedures.

5.9.3.2 Incidental Take Minimization Measures

To ensure that Incidental Take Minimization Measures are implemented properly, the following procedure will be implemented:

When the JPA determines that an SJMSCP Covered Species does or may occur on a particular project site based on the process described in Sections 5.2.1 and 5.2.2, the JPA will conduct a preconstruction survey prior to ground-disturbing activities to verify that SJMSCP Covered Species have been successfully relocated and/or that appropriate Incidental Take Minimization Measures have been implemented to protect individual SJMSCP Covered Species from unnecessary Take. For Incidental Take Minimization Measures which must be monitored throughout the construction project, the JPA shall continue monitoring throughout the construction process.

5.9.3.3 Keeping Apprised of New Information/Updating and Maintaining the SJMSCP GIS Database and SJMSCP Vegetation Maps
Effective implementation of the SJMSCP depends on quality information, especially information pertaining to the distribution of SJMSCP Covered Species throughout the County and the adequacy of funding to achieve the goals of the SJMSCP. To ensure that the JPA bases its decisions on quality information, regular updates of the SJMSCP GIS Database and the SJMSCP Funding Plan are necessary.

The SJMSCP Geographic Information System (GIS) Database includes species locations, vegetation types, land use designations from existing general plans and potential and occupied habitat information for SJMSCP Covered Species. These electronic files were prepared by Toyon Environmental Consultants, Inc. using Pacific Meridian for GIS expertise. This database will be used to assist in estimating Incidental Take levels (typically described in acres of habitat Converted from Open Space uses); to assist in identifying potential lands for Preserves; and will be used by the JPA to assist in determining when and if Incidental Take Minimization Measures and/or pre-construction surveys are required for individual projects. Therefore, the continuing maintenance of the SJMSCP GIS Database is essential to the success of the SJMSCP and is part of the Plan's requirements.

The SJMSCP GIS Database is currently maintained by the Merced Association of Governments on its Valley-Wide GIS system. Copies of the files also shall be retained by the JPA and shall be made available to the Permitting Agencies at their request. The JPA may, during the life of the SJMSCP and in consultation with the TAC, assume maintenance duties for the SJMSCP GIS Database in San Joaquin County. The duties of the Database Manager will include:

A. Entering new species occurrence records provided by the JPA at least twice yearly.
B. Revising SJMSCP Vegetation Maps to reflect new construction and to correct any errors in the classification of vegetation types identified through field surveys.
C. Refining the SJMSCP Planned Land Use Map to reflect general plan amendments, annexations and/or incorporations.
D. Providing a yearly summary within the Annual Report of the status of the SJMSCP GIS Database (including acreage statistics for Natural Lands, Agricultural Habitat Lands, and Multi-Purpose Open Space Lands Converted and estimates of the Incidental Take of individual species that occurred in the previous year) for inclusion in the SJMSCP Annual Report to the Permitting Agencies.

The JPA will be responsible for collecting new species occurrence records from surveys conducted by the JPA, environmental documents, California Natural Diversity Database (CNDDB) entries, and other sources, as may be necessary. All new species occurrence records shall be prepared by the JPA in a form consistent with the SJMSCP GIS Database record sheets. CNDDB data forms also shall be completed for all new species occurrences.

SJMSCP GIS Database species occurrence records shall specify:

A. The name of the person completing the data sheet,
B. A data identifier code,
C. A species code,
D. A descriptor code indicating the type of source providing the information (e.g., species expert, found during HCP surveys, or other sources),

E. Information source (author and date of the information),

F. Quadrangle name,

G. UTM's,

H. Precision of location (exact, within .25 miles, greater than .25 miles),

I. Date of sighting,

J. Nature of species occurrence or presence (e.g., species is using the site for an essential part of its life cycle rather than a chance occurrence, species was actually observed, or presence of the species is suspected),

K. Number of individuals of the species,

L. Legal status of the species (federally-listed, state-listed, species of special concern),

M. Plant condition (e.g., healthy, degrading, unknown)

N. Comments,

O. Station (used for fisheries data and refers to established sampling station designations),

P. Locale (optional field which was used to identify recognized locations e.g., Caswell State Park, Old River, etc.),

Q. Group (plants, invertebrates, herps, birds, fish and mammals),

R. Occupied habitat designation (occupied habitat, potential habitat, neither occupied nor potential habitat),

S. Discrete identification numbers for each vegetation polygon that a sighting is located in,

T. The vegetation type designations, and

U. The acreage size of each vegetation polygon.

The preceding form and content of species occurrence forms may be changed through the SJMSCP Adaptive Management Plan by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC.

The JPA shall be responsible for keeping appraised of proposed general plan amendments and for entering these amendments into the SJMSCP GIS Database. The JPA shall be responsible for monitoring the outcome of the proposed general plan amendments and shall prepare a data record for the Database Manager as general plan amendments are approved.

In addition, the SJMSCP Vegetation Maps will be updated to reflect information gathered in field surveys,
as well as changes due to development or changes in cropping patterns. When the Department of Water Resources land use survey is updated, the cropping patterns/land use information should be used to update the SJMSCP Vegetation Maps.

Finally, to keep appraised of new information, the JPA shall actively solicit sources of additional survey and management information pertaining to SJMSCP Covered Species including academic studies conducted by species experts, researchers and their students; surveys conducted by conservation groups or wildlife organizations, such as the Point Reyes Bird Observatory or the Audubon Society; in addition to data collected by SJMSCP Preserve Managers. The JPA may also cooperate with other conservation groups to solicit funds for and assist in organizing surveys for SJMSCP Covered Species to supplement surveys conducted as part of the SJMSCP Monitoring Program, whenever feasible and where such actions does not affect funding levels for required SJMSCP activities (e.g., Preserve acquisition, enhancement, and management).

5.9.3.5 Monitoring for Compliance with Terms of Conservation Easements and Monitoring Lands Held in Fee

As noted in Section 5.3.3, it is anticipated that a significant portion (approximately 90%) of Preserve lands shall be maintained by conservation easements. As noted in Section 5.4.8, many of the management activities to maintain Preserves will be undertaken by landowners pursuant to the provisions of conservation easements and may include activities owners are performing already as part of their routine ranching or farming activities. To ensure that management activities are being undertaken, as required, the Joint Powers Authority shall visit each Preserve once per year to ensure that provisions of the conservation easement and its associated covenants are being maintained, as prescribed. The date of and results of each inspection shall be recorded with the JPA for each Preserve and a summary of such visits shall be provided in the Annual Report. Noncompliance with conservation easements or their associated covenants shall be addressed through the noncompliance provisions established in each conservation easement.

In addition the JPA shall visit lands held in fee at least once a year to confirm that lessees are conforming with the terms of their leases.

5.9.3.6 Monitoring for Compliance with the 5,000 Acre Anticipated Projects Allocation

The JPA shall maintain a map which records the locations of projects which are approved as Permitted Activities within the Anticipated Projects Category [see Section 8.2.1(10)] and track the use of the 5,000 acre cap assigned to this Permitted Activity category. A copy of this map shall be submitted with the Annual Report to the Permitting Agencies (see Section 5.9.1).

5.9.3.7 Monitoring Neighboring Land Protections

To monitor the success of compensation established to offset potential impacts associated with the extension of neighboring land protections (Section 5.3.3.4), the following strategy shall be implemented:

1. The Annual Report (Section 5.9.1) shall include a summary of the acres of each vegetation type mapped on the SJMSCP Vegetation Maps found within the .5 mile neighboring land protection radius extending from Preserves established:
   
   A. Within the preceding calendar year; and
   
   B. Totalling these acreages for all years of SJMSCP implementation.
Vegetation types safeguarded by neighboring land protections shall be reported in four categories:

A. Natural Lands specifying the type of natural land (e.g., riparian, grassland, channel island, vernal pool);
B. Agricultural Habitat Land specifying whether neighboring lands are row and field crops or orchards and vineyards;
C. Multi-Purpose Open Space lands; and
D. Urban lands

Land uses protected by neighboring land protections shall be reported in two categories:

A. Routine and Ongoing Agricultural Uses; or
B. Aggregate Mining.

2. Per SJMSCP Table 5.4-1, the JPA shall list the SJMSCP Covered Species associated with each vegetation type recorded on neighboring lands.

3. The JPA shall maintain a file of reports citing observations of Incidental Take occurring on neighboring lands for which neighboring land protections have been extended. The contents of this file shall be summarized in the Annual Report.

4. At least once every three years, the TAC shall review the neighboring land protection section of the Annual Reports to determine:

A. Which vegetation types are occurring most frequently on neighboring lands; and
B. Pursuant to SJMSCP Table 5.4-1, which SJMSCP Covered Species are likely to be occurring most frequently on both SJMSCP Preserves and on neighboring lands.

Based upon its evaluation, the TAC, with the concurrence of the Permitting Agencies' representatives on the TAC shall determine:

A. If any SJMSCP Covered Species potentially occurring on neighboring lands which are protected by neighboring land protections are likely to be threatened by Incidental Take due to the activities being undertaken on the neighboring lands; and,
B. If so, does the 465 acres of designated compensation for neighboring land impacts (Section 5.3.3.4) adequately address potential impacts to the SJMSCP Covered Species?

If the TAC, with the concurrence of the Permitting Agencies' representative on the TAC, finds that adequate compensation for neighboring land protections is occurring, no further action is required. If the TAC finds that inadequate compensation is occurring, then the TAC with the concurrence of the Permitting Agencies' representatives on the TAC shall determine whether or not to:

A. Revise the distribution and composition of the Preserves established to offset Neighboring Land Protections if impacts projected are more or less than projected for a particular SJMSCP Covered Species (e.g., If monitoring finds that more Neighboring Lands are occupied or potentially occupied by VELB than are occupied or potentially occupied by Northern harriers, then more of the 600 acres of Neighboring Land Preserves may be established to benefit VELB and less acres would be acquired and enhanced to benefit Northern harriers).
B. Allocate some or all of the remaining 135-acre compensation contingency acreage to compensate for impacts to SJMSCP Covered Species on neighboring lands. If this 135-acre contingency has been exhausted, the TAC shall notify the JPA and the Permitting Agencies that a Major Plan Amendment (Section 8.8.5) is required pursuant to Section 5.3.3.4(B)(3).
Adaptive Management is a process by which conservation programs for the SJMSCP may be adjusted over time to reflect new information on the life history or ecology of SJMSCP Covered Species generated through continuing research, or information on the effectiveness of Incidental Take Minimization Measures and mitigation measures (in particular enhancement and management activities) as identified through data collected pursuant to the SJMSCP Biological Monitoring Plan (see Section 5.9.2).

The implementation of the SJMSCP Adaptive Management Plan is subject to the same limits as all other provisions of the SJMSCP. Specifically, implementation of the Adaptive Management Plan cannot add new mitigation measures which increase Plan costs or compensation requirements pursuant to the Permit Assurances provisions of the SJMSCP (Chapter 9). So, even while enhancement activities or management practices on Preserves may be revised, such revisions shall comply with Section 9.1.5.

The SJMSCP Adaptive Management Plan addresses revising the overall SJMSCP Conservation Plan, revising Incidental Take Minimization Measures, revising Preserve enhancement and management techniques, the use of experimental techniques in Preserve enhancement and management activities, revising the Biological Monitoring Plan, reintroducing SJMSCP Covered Species, revising Preserve design criteria, refining conservation strategies in response to changes in or updates of programmatic opinions, revising compensation requirements for VELB and responding to emergency conditions.

The SJMSCP Adaptive Management Plan is distinct from with the process for amending the SJMSCP as described in Section 8.8 of the SJMSCP, however, the procedures for making Minor Revisions pursuant to Section 8.8.3 involving the SJMSCP Conservation Strategy are the same as the procedures used for making changes pursuant to the Adaptive Management Plan. The amendment and revision process in Section 8.8.5 addresses revisions which require amending the SJMSCP Permits and include, among other things, amending the total amount of Incidental Take acreage permitted and amending the method for calculating compensation for Incidental Take. However, as long as Plan revisions are made consistent with the Adaptive Management Plan and Sections 8.8.3 and 8.8.4, such changes typically will not require amendments to the SJMSCP Permits.

5.9.4.1 Procedures for Revising the SJMSCP Conservation Program

Amendments undertaken pursuant to this Section include, but are not limited to:

A. Changes to the survey or monitoring methodologies and timing, including those resulting from ongoing research on SJMSCP Covered Species;

B. Decisions to develop population viability indices or having to do with specific population monitoring techniques;

C. Any revision of a minor or technical nature to approve Preserve Management Plans;

D. Any other revision of a technical nature that is consistent with the overall biological intent of the SJMSCP and does not introduce significant new biological conditions into the Plan area or the SJMSCP's conservation program or result in significant new or different environmental impacts.

The process for adopting changes to the Adaptive Management Plan is the same as that established in
If a Permit Holder, Project Proponent, individual, or organization objects to a change made pursuant to the Adaptive Management Plan and approved by the JPA, the Permit Holder, Project Proponent, individual, or organization may appeal the JPA’s decision to the JPA within 10 calendar days of the date that the decision is rendered by the JPA. Reconsiderations of prior decisions of the JPA shall occur only once and such reconsiderations shall occur only in response to new information or new facts pertaining to the item to be reconsidered.

5.9.4.2 Types of Revisions to the SJMSCP Conservation Program

5.9.4.2(A) Refining Incidental Take Minimization Measures

If SJMSCP Biological Monitoring Reports indicate consistent population declines in an SJMSCP Covered Species when compared to population numbers provided in previous SJMSCP Biological Monitoring Reports, then the JPA and Permitting Agencies shall meet and confer to determine if inadequate Incidental Take Minimization Measures may be responsible for or contributing to the population declines. TAC meetings attended by the Permitting Agencies' representatives on the TAC are acceptable for fulfilling this meet and confer requirement so long as the Permitting Agencies TAC representatives agree with the findings of the TAC. If inadequate measures are determined to be responsible in whole or in part, for such population declines, or if new techniques are available for more effectively implementing Incidental Take Minimization Measures, then revisions to the Plan's Incidental Take Minimization Measures shall be made as soon as practicable. Changes in Incidental Take Minimization Measures shall be subject to review and approval by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC in accordance with the procedures described in Section 5.9.4.1.

5.9.4.2(B) Refining Enhancement/Management Techniques; Establishing Enhancement/Management Techniques for Specific Species

When SJMSCP Biological Monitoring Reports indicate a consistent population decline for an SJMSCP Covered Species when compared with previous SJMSCP Biological Monitoring Reports then the TAC shall meet and confer to determine the possible reasons for the population declines and whether or not enhancement and/or management techniques (and if so, which enhancement and/or management techniques) require adjustment to reverse the population declines.

If the TAC, with the concurrence of the Permitting Agencies' representatives on the TAC, concludes that enhancement and/or management techniques are potentially either entirely or partially responsible for population declines of SJMSCP Covered Species, then revisions shall be made to the appropriate enhancement and/or management techniques being conducted on SJMSCP Preserves. Some examples of appropriate changes include:

1. Retain and Revise Existing Management/Enhancement Techniques. For example: For a continuing decline indicated by the population surveys of sandhill cranes, the JPA may need to adjust the timing of flooding for fields or reconsider the adequacy of the density of grain crops grown on Preserves. Alternatively, for a continuing decline indicated by the population surveys of active Swainson hawk nests, northern harriers, loggerhead shrikes, or horned larks, appropriate adjustments may include reconsideration of the effectiveness of establishing artificial nests; reconsidering the location, density and/or type of new vegetation
established on Preserves; reconsidering the density of preferred forage crops grown on the Preserves; investigating whether a decrease in rodent populations may be occurring due to misuse of rodenticides and assessing whether different applications of pesticides not prohibited for use are necessary; investigating whether the density of insects has declined due to a misuse of pesticides and assessing whether different applications of pesticides not prohibited for use are necessary.

2. Eliminate Existing Techniques in Favor of New Techniques of Approximately Equivalent Cost. Eliminate one or more management/enhancement techniques which have yielded little or no measurable benefits to the SJMSCP Covered Species and substitute a new method, of roughly equivalent cost.

3. Add New Management/Enhancement Techniques. In some cases, new management/enhancement techniques may be essential to assist in maintaining SJMSCP Covered Species populations and existing activities cannot be reduced or eliminated to a degree that allows the JPA to implement the new techniques without raising the overall cost of managing and enhancing Preserves. In such cases, the new management/enhancement techniques may be implemented, but only if funding sources (e.g., state or federal funds) are obtained such that the overall costs of the JPA of implementing the SJMSCP are not increased as provided for in Chapter 9.

Once formulated, the recommendations of the TAC, with the concurrence of the Permitting Agencies' representatives on the TAC, shall be forwarded to the JPA and considered pursuant to the procedures established in Section 5.9.4.1.

Alternatively, if new techniques have become available which may improve habitat quality or SJMSCP Covered Species survival on Preserves even if no detectable SJMSCP Covered Species population decline has been noted on Biological Monitoring Reports, then the TAC shall meet and confer to determine if implementation of such new techniques on SJMSCP Preserves are likely to improve habitat quality or SJMSCP Covered Species survival and if the application of such new techniques on SJMSCP Preserves are feasible. If determined to be feasible, revisions to the SJMSCP's enhancement or management techniques shall be forwarded by the TAC, with the concurrence of the Permitting Agencies' representatives on the TAC, to the JPA for consideration pursuant to the procedures established in Section 5.9.4.1.

Due to the extensive management and enhancement guidelines provided within the SJMSCP (Sections 5.4.4 through 5.4.8) for management of vernal pool invertebrates within the Vernal Pool Zone, management and enhancement techniques for Southwest Zone Grassland Preserves containing the Conservancy fairy shrimp, longhorn fairy shrimp and/or vernal pool tadpole shrimp may be formulated by the JPA pursuant to Section 5.9.4.1.

5.9.4.3 Experimental Techniques

The SJMSCP does not require the use of experimental techniques. However, from time to time, the JPA may find that a new, but untested, technique has the potential to improve habitat quality or to improve the survival of SJMSCP Covered Species. This section describes the requirements for incorporating such experimental techniques into the SJMSCP.

If a Preserve management technique is somewhat experimental (and many are, since the art and science of Natural Land management and restoration are relatively new), the technique should be treated as an
experiment. The need for the experimental technique should be carefully documented and reviewed by scientific peer review and should, if at all possible, be carried out on a small scale prior to treating large portions of land that might represent a significant percentage of habitat for a target SJMSCP Covered Species. If the technique proves successful, it may be used on a larger scale. At every stage, the actual methods used must be documented, and the results monitored to test whether the anticipated effect on the habitat and the actual effect on the target SJMSCP Covered Species' populations are achieved.

Prior to undertaking an unproven enhancement and/or management technique (i.e., experimental technique) on a Preserve, the JPA shall meet and confer with the TAC to determine appropriate methodologies and protocols, the total acreage which shall be subject to the new techniques, and the success criteria which must be demonstrated by the new technique before the experimental technique may be extended to other Preserve lands. Implementation of such measures or new techniques shall require the concurrence of the Permitting Agencies' representatives on the TAC.

5.9.4.4 Refining the SJMSCP Biological Monitoring Plan

It is anticipated that the JPA may, from time to time, need to revise the methods and techniques for surveying or otherwise monitoring some SJMSCP Covered Species in order to provide meaningful data for the SJMSCP Biological Monitoring Plan and this Adaptive Management Plan, to respond to new scientific information, or to respond to the results and experiences of current monitoring methodologies.

For example, field surveys may fail to encounter the object species or only rarely encounter remnant populations of SJMSCP Covered Species such that the biological data gathered from the surveys fails to provide any reliable evidence of the success of the SJMSCP in meeting the goals of the Biological Monitoring Plan. Alternatively, if CDFG funding necessary to continue countywide Swainson's hawk and/or burrowing owl surveys is reduced or eliminated, the JPA may need to consider expanding survey efforts for these SJMSCP Covered Species, so long as such efforts would be consistent with overall SJMSCP funding levels. Any revisions to the SJMSCP Biological Monitoring Plan will be implemented as described in Section 5.9.4.1.

5.9.4.5 Reintroduction of SJMSCP Covered Species

Although not currently known to occur in the County, the following species might be considered for reintroduction into restored vernal pool habitats in accordance with approved Fish and Wildlife Service recovery plans:

_Tuctoria greenei_  Greene's Tuctoria

Prior to introducing this SJMSCP Covered Species into restored vernal pool habitats, the JPA, with the concurrence of the Permitting Agencies' representatives on the TAC, shall determine the biological appropriateness of such reintroductions, the timing of collection and reintroduction of these SJMSCP Covered Species, appropriate seed sources, the requirements for encouraging survival of these plants in their new environment and other protocols and methodologies as appropriate. Approval of reintroductions of SJMSCP Covered Species as described in Section 5.9.4.1. SJMSCP Permit authority for such reintroductions is addressed in Section 5.8.

5.9.4.6 Establishing New Preserve Design Criteria, Incidental Take Minimization, Compensation for Species with a Low Potential to Exist in San Joaquin County
SJMSCP Covered Species not addressed by the Preserve Selection Criteria included in Section 5.4.4 fall into one or both of the following categories:

A. Suitable habitat exists in the County which is located within the range of this species and it is possible that the species may be discovered during the 50-year term of the SJMSCP; and/or

B. No current records exist for the species, but historical records of occurrence exist for this species in or adjacent to San Joaquin County.

SJMSCP Covered Species meeting one or both of the preceding criteria and which are not included in the Preserve Design Criteria in Section 5.4.4 are:

- *Astragalus tener* var. *tener* alkali milk-vetch (*Southwest Zone*)
- *Atriplex cordulata* heartscale (*Southwest Zone*)
- *Atriplex depressa* brittlescale (*Southwest Zone*)
- *Calycadenia hooveri* Hoover's calycadenia (*Vernal Pool Zone*)
- *Carex comosa* bristly sedge (*Vernal Pool Zone*)
- *Coreopsis hamiltonii* Mt. Hamilton coreopsis (*Southwest Zone*)
- *Eryngium racemosum* Delta button-celery (*Central Zone*)
- *Juncus leiospermus* dwarf rush (*Vernal Pool Zone*)
- *Scutellaria lateriflora* mad-dog skullcap (*Southwest Zone*)
- *Trichocoronis wrightii* var. *wrightii* Wright's trichocoronis (*Southwest Zone*)
- *Tropidocarpum capparideum* caper-fruited tropidocarpum (*Southwest Zone*)
- *Aegialia concinna* Ciervo aegialian scarab beetle (*Central Zone*)
- *Riparia riparia* bank swallow (*Primary Zone of the Delta; Central Zone*)

The likelihood that any of these 13 SJMSCP Covered Species will be discovered within San Joaquin County during the 50-year term of the SJMSCP, is very low. However, if one of these SJMSCP Covered Species is discovered within San Joaquin County, acquisition of occupied habitat shall be considered a high priority for protection and Preserve criteria, Incidental Take Minimization and compensation requirements for the SJMSCP Covered Species shall be established per the following standards and procedures. Based upon available information pertaining to the SJMSCP Covered Species listed above, it is anticipated that the provisions of this Section will be used less than five times during the 50-year term of the SJMSCP.

A. **Discovery of Species Anywhere in San Joaquin County.** If one of these SJMSCP Covered Species is found anywhere within the boundaries of San Joaquin during the 50-year term of the Plan, Preserve Design Criteria shall be established for the SJMSCP Covered Species as follows: After researching recovery plans for any of these SJMSCP Covered Species, if available, and consulting with species experts, as appropriate, the JPA's TAC shall establish minimum Preserve sizes including sufficient buffers, special water and/or soil requirements, minimum patch sizes, and describe other special needs of these SJMSCP Covered Species as required by the SJMSCP's Preserve Design Criteria. These Preserve designs shall be submitted to the JPA for consideration for adoption pursuant to the procedure established in Section 5.9.4.1.

B. **Discovery of Species on a Project Site.** If, in the preconstruction survey process, an SJMSCP Covered Species listed in this Section is discovered on a project site, then the following compensation, Incidental Take Minimization Measures, and notification procedures shall apply:
1. Compensation shall be consistent with the established compensation ratios established in Section 4.1.

2. Incidental Take Minimization Measures emphasizing avoidance and/or acquisition of the habitat area as the first priority and relocation and Incidental Take as last resorts shall be as implemented as prescribed in Section 5.2.3.1.

3. The JPA shall notify the Permitting Agencies immediately in writing of the discovery of the unanticipated SJMSCP Covered Species and the compensation and Incidental Take Minimization Measures which it intends to pursue in response to the discovery. In addition, the JPA shall include, in its Annual Report an accounting of the discovery of all such species and measures which were used to avoid and/or mitigate impacts to these species consistent with the SJMSCP Section 5.9.1.

4. The JPA shall approve the Preserve design criteria and Incidental Take Minimization Measures with the concurrence of the Permitting Agencies' representatives on the TAC.

To ensure that this process does not result in jeopardy to any SJMSCP Covered Species or adverse modification to designated critical habitat as a result of more frequently-than-anticipated occurrences of discoveries of unanticipated SJMSCP Covered Species, the Permitting Agencies shall monitor the reports submitted by the JPA pursuant to this Section. If the Permitting Agency determines that the use of the provisions in this Section are occurring with unanticipated frequency, then the Permitting Agency may suspend the use of these provisions of this Section and require the JPA to formulate more effective Incidental Take Minimization Measures and/or require the JPA to emphasize only avoidance for all or some of the SJMSCP Covered Species which are subject to this Section as necessary to avoid jeopardy.

5.9.4.7 Programmatic Opinions

The SJMSCP conservation strategy relies, in part, upon management approaches contained within Programmatic Opinions issued by the Service as of the SJMSCP's Effective Date including:


D. Programmatic Formal Consultation Permitting Projects with Relatively Small Effects on the Valley Elderberry Longhorn Beetle Within the Jurisdiction of the Sacramento Field Office,
In the event that one of these Programmatic Opinions is revised, the JPA shall confer with the TAC to determine if any inconsistencies have been created by revisions to these Programmatic Opinions with respect to the SJMSCP's conservation strategy. If inconsistencies are identified, the JPA shall determine, with the concurrence of the Permitting Agencies' representatives on the TAC, if amendments are biologically necessary to the SJMSCP conservation strategy to reflect changes in the Programmatic Opinions and, if so, whether or not such changes are consistent with Section 9.1.5. If amendments are found to be both biologically necessary and consistent with Section 9.1.5, then the JPA with the concurrence of the Permitting Agencies' representatives on the TAC, shall amend the SJMSCP conservation strategy following the procedure established in Section 5.9.4.1.

5.9.4.8 Recovery Plans

The SJMSCP has incorporated and is consistent with the provisions of the following recovery plans:


The USFWS is currently developing a recovery plan that will address the recovery needs of vernal pool species—the Vernal Pool Multi-Species Recovery Plan. Other USFWS recovery plans not now in preparation may also be developed over the life of the SJMSCP and are expected to address federally-listed species and SJMSCP Covered Species which may become listed in the future. The CDFG may also prepare recovery plans for state-listed species and species which become listed in the future. Other Recovery Plans may be developed for species other than the SJMSCP Covered Species which may occupy the same ecosystem as SJMSCP Covered Species and which may benefit from recovery actions for these species.

This Adaptive Management Plan allows for revisions to management strategies to incorporate new management strategies, such as those included in recovery plans. However, it is necessary to define the scope of any such revisions with respect to the SJMSCP's original purpose and goals. The specific purpose of the SJMSCP is to establish a conservation program to minimize and mitigate for the effects of projected urban
and other development within the SJMSCP Plan area on the SJMSCP Covered Species, and to meet the statutory requirements for issuance of federal and state Incidental Take Permits under the ESA and CESA, respectively. With respect to the recovery of SJMSCP Covered Species, it is the intent of the SJMSCP to contribute to such recovery to the maximum extent feasible consistent with the Plan's other goals and purposes and within the funding levels described in Chapter 7. It is the intent of the SJMSCP not to preclude or undermine recovery efforts for any of the SJMSCP Covered Species.

Specifically, the SJMSCP will incorporate recommendations contained in future recovery plans when such recommendations:

A. Are expected to increase the effectiveness of the SJMSCP's conservation and mitigation programs by identifying relevant new information, approaches, techniques, or species protection needs;

B. Can be achieved within the SJMSCP Plan area; and

C. Fit within the overall intent, framework, and funding levels of the Plan.

All such recovery plan revisions will be subject to this Adaptive Management Plan revisions process described in Section 5.9.4.1. Changes made pursuant to this Section shall comply with the Permit Assurances provisions in Chapter 9.

5.9.4.9 Emergency Management

In the event that an SJMSCP Preserve is threatened by fire, flood, or similar emergency, emergency response personnel shall be permitted full access to the Preserve site as necessary to protect human life, property and/or plant, fish and wildlife. In the event that disturbance of an SJMSCP Preserve is necessary to protect life or to prevent the catastrophic loss of property, emergency personnel and/or the JPA shall, where time permits, attempt to contact Permitting Agency personnel (preferably the Permitting Agencies' representatives on the TAC) for input on how to best respond to the emergency to maximize preservation of plant, fish and wildlife values while preserving life and preventing the catastrophic loss of property. If time does not permit such consultation, the JPA shall be authorized to permit emergency personnel to disturb the Preserve as necessary to preserve life and prevent the catastrophic loss of property.

After the emergency relief process begins, the JPA shall meet and consult with the Permitting Agencies to determine the need for and a time schedule for rehabilitating the Preserve and for identifying appropriate funding sources for rehabilitating the Preserve pursuant to the Changed Circumstances criteria established in Section 9.1.4. TAC meetings attended by the Permitting Agency representatives on the TAC fulfill this meet and confer requirement so long as the Permitting Agency TAC representatives concur with the findings of the TAC. Should emergency relief funds be made available to offset the impacts of a natural catastrophe, the JPA may collect such emergency relief funds for the rehabilitation of Preserve lands as may be deemed necessary and appropriate. The Permitting Agencies may be asked to support the requests of the JPA for funding to restore Preserves damaged by natural disasters to the maximum extent feasible.

In addition to addressing funding concerns as established in the preceding paragraph, the loss of Preserve acres and habitat values as a result of a natural disaster shall be subject to the Changed Circumstances provisions in Section 9.1.4.

5.9.4.10 Revising Enhancement or Management Practices to Avoid Interference with Routine and
Ongoing Agricultural Activities of Non-Preserve Landowners

San Joaquin County relies heavily on its agricultural productivity for its economic strength. Protection of routine and ongoing agricultural activities is emphasized throughout the SJMSCP [e.g., see Section 5.3.3.1(B, D and E), Section 5.3.3.4 and Section 8.1.4]. However, during the 50-year term of the Plan it is possible that a particular Preserve enhancement or management technique may be found to be inadvertently and adversely affecting a non-Preserve landowner (e.g., control of herbicide or pesticide use on a Preserve resulting in the introduction of undesirable weeds or insects onto a neighboring farm). When a conflict is found between the goals of the SJMSCP and the enhancement and management strategies used on Preserves, then the procedure established in Section 5.4.7.2 shall be implemented to resolve disputes.

5.9.4.11 Amending Incidental Take Measures and Replacement Plantings for the Valley Elderberry Longhorn Beetle

The proposed Incidental Take Minimization Measures and Replacement Planting measures established for the SJMSCP are highly detailed and may consume extensive man-hours in practice on a large-scale. It is anticipated that the proposed Incidental Take Minimization Measures and Replacement Planting Requirements for the Valley elderberry longhorn beetle (see below) may, in large-scale practice, be found to consume excessive man-hours to the point that the measures inadequately address the economic and conservation objectives of the SJMSCP (see Section 1.3). Therefore, three years after the SJMSCP's Effective Date, the JPA's TAC shall evaluate the success of the Incidental Take Minimization Measures and Replacement Planting requirements for the Valley elderberry longhorn beetle to determine if the Incidental Take Minimization Measures and/or replanting requirements for the Valley elderberry longhorn beetle should be modified to ensure the success of the SJMSCP in meeting its overall goals (e.g., economic and biological goals).

If the JPA's TAC finds that, due to the intricacy of VELB Take Minimization and Replanting requirements that the goals of the SJMSCP are being unmet with respect to the Valley elderberry longhorn beetle, then the Incidental Take Minimization Measures and Replacement Planting requirements for the Valley elderberry longhorn beetle may be amended as follows. Approval of this alternative shall require a finding that, given the large-scale of the SJMSCP, the following measures will provide biological values equivalent to those originally proposed in the SJMSCP for the Valley elderberry longhorn beetle:

A. The Incidental Take Minimization Measures established in Section 5.2.4.1 shall be amended to remove the requirement to transplant elderberry shrubs pursuant to Section 5.2.4.1(D); and

B. Compensation for removal of elderberry shrubs with stems greater than 1" in diameter at ground level, as required in 5.5.4(C), shall be amended to reduce the 3:1 and 6:1 compensation ratios (three to six new elderberry shrubs to be planted on Preserves for every stem 1" or greater in diameter at ground level removed) to 1:1 (one new elderberry shrub to be planted for every one plant with stems of 1" or greater in diameter at ground level removed on project sites as a result of SJMSCP Permitted Activities).

Alternatively, these methodologies may be adopted by the JPA with the concurrence of the Permitting Agency representatives on the TAC, if new information on the status and distribution of the VELB in San Joaquin County (e.g., due to regional surveys conducted in San Joaquin County pursuant to protocols approved by the Permitting Agencies) indicates that the preceding measures will maintain biological values
5.9.4.12 Adjusting Vernal Pool Cap

Pursuant to Section 5.5.2.5(B), an initial cap of 3,363 acres of vernal pool grassland (404 wetted surface acres) Conversion has been established. Once that cap is reached, the JPA and TAC shall confer with the Permitting Agencies to assess the following comparisons between Converted vernal pool areas and Vernal Pool Preserves (these assessments will be accomplished through estimates rather than through delineations):

1. Vernal pool size (e.g., range of pool size on site);
2. Vernal pool density;
3. the size and range of vernal pool complexes;
4. the presence of unique features (e.g., soils, vegetation, wildlife);
5. the land uses adjacent to Preserves and/or avoided habitats (e.g., Are there risks to the hydrology of the vernal pool grasslands?);
6. the likelihood of maintaining the site in perpetuity;
7. Distribution of vernal pool impacts and Preserves within each Vernal Pool Region;
8. Success of created or restored vernal pool sites; and
9. the relationship of San Joaquin County to cumulative effects to the species’ baseline.

Based on the preceding assessment, the JPA and TAC, with the concurrence of the Permitting Agencies, shall select one of the following alternatives for managing vernal pool grassland Conversions in excess of 3,363 acres and up to a final cap of 5,894 acres:

1. Raise the cap to 5,894 total acres (or 707 wetted acres) at the existing rate of 15 wetted acres per year with no change in compensation requirements;
2. Raise the cap to 5,894 total acres (or 707 wetted acres) at a rate that equals or exceeds impacts on an annual basis with the annual cap remaining at 15 wetted acres per year;
3. Raise the cap to 5,894 total acres (or 707 wetted acres) at a rate of three wetted surface acres per year; or
4. Restrict additional Conversions due to the significance of impacts or due to a lack of available mitigation sites.

5.10 NEW SPECIES LISTINGS

5.10.1 CONSIDERATION OF THE SJMSCP AND SIMILAR PLANS

To the extent required and permitted by the ESA and the CESA, the Permitting Agencies shall take into account the species and habitat protection measures of the SJMSCP and other conservation efforts and/or plans undertaken under the ESA and CESA, as well as information and data developed in the course of these efforts which is made available to them, in any future determinations, and in any future recommendations.
from the CDFG to the California Fish and Game Commission, concerning the potential listing as rare, threatened or endangered of any SJMSCP Covered Species or any other species which is not so listed as of the Effective Date.

5.10.2 SJMSCP COVERED SPECIES (CURRENTLY LISTED AND UNLISTED)

If an SJMSCP Covered Species is not listed as threatened or endangered under the ESA as of the Effective Date, and becomes so listed during the term of the SJMSCP, then the Section 10(a)(1)(B) Permit shall become effective with respect to such species concurrent with its listing as threatened or endangered. If an SJMSCP Covered Species is not listed as threatened or endangered under the CESA and becomes so listed during the term of the SJMSCP or becomes accepted by the California Fish and Game Commission as a candidate for such listing, then the CESA Section 2081(b) Incidental Take Permit shall become effective with respect to such species concurrent with its listing as rare, threatened or endangered or its acceptance by the California Fish and Game Commission as a candidate for such listing pursuant to the procedures established in Sections 11 and 12.3 of the Implementation Agreement.

5.10.3 LISTING OF NON-COVERED SPECIES

If a species that is not an SJMSCP Covered Species is listed under the Federal ESA during the term of the Section 10 permit or is listed under the CESA during the term of the Section 2081(b) Permit, the procedure and standards established in Sections 11 and 12 of the Implementation Agreement will be implemented.
5.11 SJMSCP RESIDENT'S PARTICIPATION PROGRAM

The JPA intends, in the future, to adopt a program to encourage individuals to undertake activities which are not otherwise subject to local, state or federal plant, fish and wildlife regulations, to provide plant, fish and/or wildlife enhancements on their properties without fear of prosecution or limitations on pre-existing legal activities should those plant, fish and/or wildlife enhancements attract SJMSCP Covered Species to their property.

The JPA intends to pursue adoption of this program after state and federal agencies have approved guidelines and/or promulgated rules in conjunction with:

A. California's newly adopted legislation for addressing Incidental Take associated with routine and ongoing activities (i.e., Section 2086 et seq. of the California Fish and Game Code); and

B. The federal safe harbor program.

The following is a general outline of the anticipated program.

The SJMSCP Resident's Participation Program would be expected to provide coverage for an as yet unspecified acreage to encourage individuals undertaking activities which are not otherwise subject to local, state or federal plant, fish and wildlife and habitat regulations, to provide plant, fish and/or wildlife enhancements on their property. Assurances could be provided to these individuals so that preexisting legal activities on their property can be continued even if an SJMSCP Covered Species occupies the individual's property and the continuance of preexisting legal activities may result in Incidental Take.

The JPA’s concept of the program is that with the approval of the Permitting Agencies (Permitting Agency approval is required initially for the program—thereafter, approvals from the Permitting Agencies' representatives on the TAC are acceptable) and the JPA (or other individuals or agencies as may be identified during program adoption), unique methods for managing habitat land may be permitted under the SJMSCP Permits or alternative permits. The purpose of this program would be to encourage San Joaquin County residents undertaking activities which are not subject to local, state or federal plant, fish and wildlife regulations to voluntarily provide plant, fish and/or wildlife enhancements or undertake special plant, fish and/or wildlife-benefit programs on their properties with an assurance that a return to normal farming, residential, or other beneficial Open Space uses, will not be prevented due to the voluntary enhancements. Such enhancements or programs would be conducted voluntarily by the landowner and would not require purchase of easements or fee title lands as compensation by either the JPA or the landowners.

Private individuals making voluntary enhancements normally would not receive payments from the SJMSCP, but may receive Incidental Take coverage when proposed enhancements can be shown to provide a benefit to SJMSCP Covered Species. Voluntary enhancement lands would not normally, but may under special circumstances, be counted as compensation to offset Incidental Take for the SJMSCP with the approval of the JPA and the Permitting Agencies' representatives on the TAC. Special circumstances under which voluntary enhancements may be applied to offset the compensation requirements of the SJMSCP include, but are not limited to, voluntary enhancements in which the landowner agrees to a long-term (normally in-perpetuity) commitment to/maintenance of the enhancement where the enhancement has clearly demonstrated a benefit to an SJMSCP Covered Species.

To allow the JPA to account for total acreages covered by the landowners participating in the SJMSCP...
Resident's Participation Program, participating residents could register their lands with the JPA (or other entity as may be identified during program adoption). The registration may include, at a minimum, a description of the location of the land and the nature of the plant, fish, or wildlife-benefit program which the resident is undertaking.

Voluntary enhancements and special programs under the SJMSCP Resident's Participation Program could include, but are not limited to:

A. Development of lands for wildlife education or as wildlife rehabilitation centers.

B. Maintenance, enhancement or creation of wetland/riparian habitats, even in very small patches, for breeding, foraging or roosting habitat for SJMSCP Covered Species.

C. Maintaining existing, or planting new, grain fields located within flying distance of roosting habitat for sandhill cranes and Aleutian Canada geese as foraging habitat. Flooding these fields also would be encouraged.

D. Adopting a managed grazing program to avoid deterioration of vernal pool habitats.

E. Preservation of large, isolated trees; or maintenance of alfalfa fields, irrigated pastures, or other beneficial row and field crops for SJMSCP Covered Species.

F. Limiting the use of rodenticides or managing grazing practices on lands southwest of I-580, located below 1,000 feet in elevation and/or containing Calla, Carbona, Plieto, Stomar, Wisflat, or Zacharias soils to encourage occupation by the San Joaquin kit fox.

G. Enhancement, maintenance or creation of habitat for duck hunting which also may benefit SJMSCP Covered Species.

H. Any enhancement method contained in Section 5.4.6 which may benefit an SJMSCP Covered Species.

I. Other programs which demonstrate potential benefits to SJMSCP Covered Species which are reviewed and endorsed by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC.
6. EFFECTS ON THE COVERED SPECIES

6.1 INTRODUCTION

The effects of the SJMSCP on the Covered Species is summarized in the following Sections and is based on the Incidental Take Analysis contained in Chapter 4, Table 4.3-1 of the SJMSCP. SJMSCP Covered Species include species receiving Incidental Take coverage pursuant to Section 10 of the ESA; species receiving Incidental Take Coverage pursuant to the CESA; and species which receive coverage through mitigation pursuant to the California Environmental Quality Act (CEQA) as detailed in Chapter 2, Table 2-2. A more detailed analysis of the effects of the SJMSCP on the Covered Species can be found for each of the 97 SJMSCP Covered Species in the Draft Environmental Impact Statement/Environmental Impact Report for the Approval and Implementation of the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan, available at the San Joaquin County Council of Governments located at 6 S. El Dorado St., Suite 400, Stockton, CA 95202. Additional copies are available at local libraries and elsewhere throughout the County. Please contact the San Joaquin Council of Governments at (209) 468-3913 or visit their website at http://www.co.san-joaquin.ca.us/cog/sjmscp/contents/tocl.htm for additional information.

6.1.1 CHAPTER ORGANIZATION

The following section is an analysis of the effects of the SJMSCP on its Covered Species. In conducting this analysis, the adverse effects of Take of the Covered Species, together with the beneficial effects of the SJMSCP mitigation program, are considered in order to evaluate the overall effects of the Plan on the Covered Species. Incidental Take is described in two ways under the SJMSCP:

A. As Conversion of habitat of the Covered Species to urban and agricultural uses (expressed in acres) under the regulatory definition of "harm" (see Section 1.1.4.1); and

B. As direct killing, injury, or harassment of individual animals.

In addition, limited levels of Take could occur during Preserve management and enhancement activities—e.g., during earthmoving activities for wetland construction and the direct capture of animals for monitoring purposes (see Section 5.8). The SJMSCP's associated state and federal permits authorize all these forms of Take, provided that the terms of the SJMSCP are fully implemented. Take will be minimized under the SJMSCP through implementation of Incidental Take Minimization Measures to reduce the levels of Take, and be mitigated through measures to compensate for the effects of such Take as is unavoidable under the Plan.

The discussion in this section is organized by SJMSCP Index Zone similarly to other chapters (see Section 5.1.2 for a description of each SJMSCP Index Zone). However, analysis of actual effects on the SJMSCP Covered Species is accomplished by treating them individually as species, or collectively as groups or assemblages of species that occupy particular habitat types. For species inhabiting more than one SJMSCP Index Zone, all areas in each Index Zone providing suitable habitat for these species are considered under this analysis; however, each Covered Species or Covered Species assemblage is considered to predominantly occur in one SJMSCP Index Zone, and the focus of the analysis for each such SJMSCP Covered Species or assemblage is concentrated on that SJMSCP Index Zone.

6.1.2 GENERAL EFFECTS
As described above, Take will occur under the SJMSCP's Permitted Activities primarily through "Harm," which is defined by regulation to mean, "an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering"(50 CFR 17.3). Take also will occur through the direct killing, injury, or harassment of individual animals.

Direct killing or injury of individual animals could occur under the SJMSCP in a variety of ways. During construction activities, fossorial animals (e.g., kit foxes and burrowing owls) could be struck or crushed on the ground surface by construction related vehicles or heavy equipment, or entombed inside their burrows during surface disturbing activities such as grading or trenching. These animals could also be killed or injured during the use of rodenticides or insecticides. For birds and bats, nestlings or pups could be killed during destruction of nest or roost sites or, if abandoned as a result of disturbance, could die of exposure or starvation. Aquatic animals (e.g., fish, vernal pool invertebrates, giant garter snakes, and California red-legged frogs, foothill yellow-legged frogs) could die or, at the least, be displaced as a result of draining of their wetland habitats, alteration of hydrological regimes, or as a result of habitat degradation through sedimentation or pollution. For plants, adverse effects could occur as a result of direct crushing by construction related activities (e.g., grading) or other types of vehicle use, being eaten or trampled by livestock, or the use of herbicides.

In addition, SJMSCP Permitted Activities will result in the Conversion or loss of up to 109,302 acres of Open Space lands in San Joaquin County, of which up to 71,837 acres are identified as habitat for the Covered Species (see Section 4.1 for additional details). Death or injury (i.e., "harm") as a result of such habitat loss could also occur in a variety of ways. For example, some animals may survive initial Site Disturbance and habitat loss and be displaced into adjacent areas but may ultimately die as a result of starvation, exposure, or predation if such areas do not provide suitable habitat. Even if these animals reach other habitats, they may still face competition and reproductive exclusion if such habitats are already at carrying capacity. In some cases, individual animals (e.g., Swainson's hawk nestlings), could die of starvation because of the loss of foraging habitat in a given area or near a given nesting territory. In other cases, indirect effects of development on remaining, adjacent habitats (as opposed to effects of habitat loss per se) will occur--e.g., increased water pollution, increased traffic and pet populations (which prey on some of the Covered Species), and inadvertent alteration of hydrological regimes (e.g., Converting an ephemeral stream to a perennial stream). Each of these, in the long-term, can contribute to death or injury to Covered Species or declines in their populations.

However, to minimize and mitigate these effects the SJMSCP establishes a comprehensive conservation program on behalf of the SJMSCP's Covered Species. This program provides for detailed Incidental Take Minimization Measures that require, where appropriate, such measures as pre-construction surveys, buffer zones, avoidance of nest sites, etc. (see Chapter 5, Sections 5.2.2, 5.2.3 and 5.2.4). These measures will reduce the levels of Take occurring under the SJMSCP and its consequent effects. In addition, the SJMSCP sets forth a program to protect, manage, enhance, and, where appropriate, create habitats for the Covered Species to compensate for those habitats lost under the SJMSCP (see Chapter 5, Sections 5.4.4 and 5.4.6 through 5.4.8). These habitats will be selected based on accepted biological principles and protected in a Preserve system established through the purchase of conservation easements or outright fee title for the lands. Funding for these measures will be obtained through development fees and other sources (see Chapter 7). In addition, the SJMSCP sets forth a Biological Monitoring Plan (see Section 5.9.2) and Adaptive Management Plan (see Section 5.9.4) to ensure SJMSCP compliance and success and use of the most up-to-date techniques and information available. Taken as a whole, the SJMSCP's conservation program is expected to minimize and mitigate for the Take and associated adverse effects described above, and to ensure the continued well-being of the SJMSCP's Covered Species in San Joaquin County.
Take levels as described above will vary from species to species and habitat to habitat. For some (e.g., Swainson's hawk foraging habitat and vernal pools), Take levels could be potentially significant. For others (e.g., the bat species and many plants) Take and other adverse effects will be relatively minimal. However, mitigation under the Plan will be commensurate to the impact. That is, for species or habitats more heavily impacted, greater mitigation is required, while for those more lightly impacted, relatively little mitigation is required. The following sections describe the effects of the SJMSCP on the Covered Species and their habitats in detail.

6.2 VERNAL POOL ZONE

The Vernal Pool Zone is comprised of 73,614 acres and includes 28 of the SJMSCP’s Covered Species. The SJMSCP projects the Conversion of 5,894 acres of Natural Land (i.e., vernal pool grassland), 250 acres of Agricultural Habitat Lands, and 371 acres of Multi-Purpose Open Space Lands within this Index Zone. Land use changes within the Vernal Pool Zone are primarily associated with the Conversion of vernal pool grasslands to vineyards and orchards, but specific areas of Conversion within the Vernal Pool Zone have not been identified. According to Table 4.3-1, projected habitat losses for species associated with vernal pool habitats vary widely depending on the species. For those species confined primarily to the Vernal Pool Zone (e.g., the vernal pool invertebrates), which are currently known to occur there, estimates of habitat conversion vary from approximately 3,000 to 16,000 acres, or between 5% and 12% of the currently available habitat. However, the estimates in Table 4.3-1 for each species may include habitat conversion in more than one SJMSCP Index Zone. Also, the estimates in Table 4.3-1 include both occupied habitat and “potential” (or suitable) habitat, which may not always be occupied. Thus, the estimates in Table 4.3-1 may sometimes be on the high end. The specific distribution and abundance of vernal pool species within the Vernal Pool Zone are not well known, and projected losses are derived from estimates of either known occupied or potentially occupied habitat.

While impacts related to urbanization of lands within existing general plans can be predicted with reasonable accuracy, the specific locations of agricultural Conversions in the Vernal Pool Zone, the primary cause of anticipated habitat loss, are unmapped. Approval by the JPA and the Permitting Agencies' representatives on the TAC is required prior to permitting SJMSCP coverage for the conversion of a vernal pool grassland to an orchard or vineyard [Section 8.2.1(7)]. With this review process, the SJMSCP conservation strategy can avoid Conversions of the most valuable vernal pool grassland areas within the County.

To mitigate for the impacts of habitat loss in the Vernal Pool Zone, the SJMSCP proposes three types of Preserves (all of which are referred to as Vernal Pool Grassland Preserves):

A. Those in which artificial wetlands, designed to behave as vernal pools, will be constructed;
B. Those in which former vernal pools are restored; and
C. Preserves intended to protect natural, unaltered vernal pool habitat.

The SJMSCP requires that Preserves of these types must be a minimum of 250 acres in size (see Section 5.4.4.3). In general, higher priority is given to Preserves occupied by higher numbers of individual Covered Species (i.e., areas with higher diversity). However, smaller, Specialty Preserves are also planned in order to preserve habitat currently occupied by habitat specialists or species with a narrow distribution (e.g., many of the vernal pool plants).
The Vernal Pool Zone consists of a single habitat type, vernal pool grassland, which does not occur anywhere else in San Joaquin County. Many of the Covered Species addressed in this section are obligate users of vernal pool grassland habitats (e.g., vernal pool fairy shrimp, western spadefoot toad, Bogg’s Lake hedge hyssop); however, a number of others are only loosely associated with vernal pools and may occupy other habitat types in other SJMSCP Index Zones (e.g., California horned lizard, tricolored blackbird). The mitigation strategy for the Vernal Pool Zone prescribes that for each acre of natural vernal pools Converted to other uses, two acres of natural vernal pool habitat will be preserved, and one acre of land will be preserved either as restored vernal pools or as artificial pools which will be constructed (the emphasis under the SJMSCP is on restoring, rather than creating, vernal pools, wherever feasible). Soils will be salvaged from impacted pools for use as “inoculum” in the restored or created pools.

To a large extent, species-specific conservation in the Vernal Pool Zone will depend on the SJMSCP's pre-construction surveys and inventories of species occupying and colonizing the Preserve lands. These surveys will be used in identifying potential losses of very rare species and habitat specialists, and for identifying conservation opportunities on Preserve lands. The Plan’s mitigation strategy to select Preserve sites occupied by the most Covered Species may select against habitat specialists and benefit more widely distributed species covered under the SJMSCP. However, careful selection of Specialty Preserves, and the SJMSCP's monitoring program will be used to assure protection of habitat specialists.

6.2.1 VERNAL POOL PLANTS

The Covered Species include seven vernal pool plants, four of which have not been recorded in the County to date and one of which is not currently expected in the County because suitable habitat does not apparently exist (all these, however, could occur in the Plan Area over the life of the SJMSCP). Two of the covered plant species are state and federally listed—succulent owl’s clover (federally threatened and state endangered), and Greene’s tuctoria (federally endangered and state rare). Among these only the succulent owl’s clover is currently known from San Joaquin County.

Projected habitat losses under the SJMSCP for these species is as follows (see Table 4.3-1): Greene’s tuctoria (10%), succulent owl’s clover (8%), Bogg’s Lake hedge-hyssop (8%), bristly sedge (0%), legenere (5%), Hoover’s calycadenia (1%), and Red Bluff dwarf rush (7%). The SJMSCP prohibits Conversion of occupied habitat for the succulent owl’s clover, legenere and Greene’s tuctoria due to their rarity. Pursuant to the SJMSCP, Conversion of potential habitat only for these three species is permitted. Therefore, impacts to the three species are not anticipated.

The mitigation ratio for vernal pool habitat is 3:1, meaning that for every acre lost or destroyed two acres will be protected and one acre will be created or restored. This restoration requirement means that each acre of vernal pool habitat lost will be replaced acre-for-acre by restoration or creation, and in addition two acres of existing habitat will be protected. In addition, a jump-start acquisition of vernal pool grasslands is required (Section 5.5.7) and Conversion limits are established for vernal pools to ensure that Conversion does not significantly outpace Preserve acquisition (Section 5.5.2). This is expected to adequately compensate for the loss of between approximately 900 acres and 6,000 acres of potentially occupied vernal pool grassland habitat, depending on the species, over the life of the Plan. Furthermore, the SJMSCP is expected to adequately meet the needs of vernal pool plants because: (1) Take of occupied habitat for narrowly distributed vernal pool plants (succulent owl’s clover, legenere and Greene’s tuctoria) is prohibited; (2) vernal pool Preserves will be selected on the basis of minimum size standards and accepted conservation biology principles; (3) pre-construction surveys (Section 5.2.2) and pre-
acquisition/baseline surveys (Section 5.9.2.6) will ensure that vernal pool species actually affected by the Covered Activities will likewise be benefitted by the Preserve system; and (4) the SJMSCP’s monitoring program and Adaptive Management Plan will ensure ongoing attention to the needs of these species. Furthermore, the actual impacts of vernal pool Conversion on some of the vernal pool plants will likely be minimal because of their limited distribution in San Joaquin County. Thus, based on the information described above, the SJMSCP is expected to contribute to an eventual balance between Vernal Pool Grassland Preserve habitat protected and habitat that has been or will be Converted to other uses. This strategy will readily offset losses to wide-ranging species such as Boggs Lake hedge hyssop. Meanwhile, the Plan will meet the needs of habitat specialists through identification of such species during pre-construction surveys and by the establishment of Specialty Preserves where appropriate.

6.2.2 VERNAL POOL CRUSTACEANS

The Covered Species include four species of vernal pool crustaceans, all of which are federally listed: vernal pool fairy shrimp (threatened), vernal pool tadpole shrimp (endangered), longhorn fairy shrimp (endangered), and Conservancy fairy shrimp (endangered). Only one of these crustaceans, the vernal pool fairy shrimp is currently known to occur in San Joaquin County, but the vernal pool tadpole shrimp probably inhabits the Vernal Pool Zone. The other species (longhorn fairy shrimp and Conservancy fairy shrimp) are not expected to occur in the Vernal Pool Zone but may occur in the Southwest Zone (see Section 6.5.4). Projected losses of vernal pool crustacean habitat for the two species expected to occur in the Vernal Pool Zone is between 7% and 9% of existing known or potential habitat (see Table 4.3-1). However, as explained above, the mitigation ratio for vernal pool habitat is 3:1, meaning that for every acre lost or destroyed three acres will be protected; in addition, for vernal pool habitat at least one acre of every three must be restored or created habitat. This is expected to adequately compensate for the loss of approximately 6,000 acres of vernal pool crustacean habitat over the life of the Plan. Furthermore, as with the vernal pool plants, the SJMSCP Preserve system requirements, together with pre-construction survey and pre-acquisition/baseline survey requirements and required approvals from the JPA and Permitting Agency representatives on the TAC, are expected to contribute to a balance between species affected by habitat Converted and species benefitted by habitat protected. The use of soils obtained from impacted pools as inoculum for newly created or restored pools will also ensure that species affected will likewise be benefitted by vernal pool Preserves. The USFWS has, for several years, required habitat creation, including translocation of soils containing cysts of vernal pool crustaceans, whenever vernal pools are destroyed. In many cases, vernal pool fairy shrimp and vernal pool tadpole shrimp have apparently become naturalized in the new settings, so there is significant reason to believe that these species can survive in the habitats designated for artificial habitat creation or restoration. Furthermore, the SJMSCP TAC will consult with species experts as appropriate in establishing Preserves for these species and the SJMSCP’s Biological Monitoring Plan (Section 5.9.2) and Adaptive Management Plan (Section 5.9.4) will be used to adjust the conservation program for them, as necessary.

6.2.3 VERNAL POOL AMPHIBIANS

The Covered Species include three unlisted vernal pool amphibians, the California tiger salamander, the western spadefoot toad and, potentially, the foothill yellow-legged frog. The California red-legged frog may also occur in the Vernal Pool Zone; however, since this species, like the foothill yellow-legged frog, is not closely associated with vernal pool grasslands, the discussion of effects on these species is reserved for the Southwest Zone. Because the California tiger salamander and western spadefoot toad also inhabit
the *Southwest Zone*, further discussion on these species is included in that section.

According to Table 4.3-1, projected losses of habitat for these two species under the SJMSCP is 12% for the California tiger salamander (or approximately 11,400 acres) and 7% for the western spadefoot toad (or 5,100 acres). However, these figures represent potential habitat, not known occupied habitat, and only about 6,000 acres of this California tiger salamander habitat loss will occur in the *Vernal Pool Zone*. Furthermore, as explained above, the 3:1 mitigation ratio with its one part restoration/creation and two parts protection is expected to help compensate for this loss. However, the California tiger salamander and western spadefoot toad have a patchy distribution in San Joaquin County, and the extent to which these species will ultimately benefit from the SJMSCP Preserve system is dependent upon the extent to which they occur on Preserve lands and the size, configuration, and location of those Preserves. Because the California tiger salamander and western spadefoot toad spend most of their lives in grasslands, and tend to make long-distance overland migrations between breeding pools and terrestrial retreats, it is not expected that the 250-acre Vernal Pool Grassland Preserves alone would fully conserve these species. However, several factors should ensure that Vernal Pool Grassland Preserves will benefit tiger salamanders and spadefoot toads, and that the SJMSCP will balance the need for amphibian habitat in addition to Preserves in the *Vernal Pool Zone*: (1) regarding restored or created Vernal Pool Grassland Preserves, both the California tiger salamander and western spadefoot toad are known to colonize artificial ephemeral wetlands; (2) many acres of vernal pool grasslands in the *Vernal Pool Zone* are expected to remain undisturbed under the SJMSCP and therefore will continue to provide habitat for the vernal pool amphibians; and (3) the *Southwest Zone* Preserve system will also contribute to the conservation of these species. However, the availability of suitable terrestrial refuges will also affect the conservation value of SJMSCP Preserves for amphibians. If some Vernal Pool Grassland Preserves are located adjacent to known salamander and toad breeding sites, there is a high probability that the vernal pool amphibians will colonize them without the need for translocation or experimental burrow construction. Thus, the SJMSCP places a high priority on acquisition of Vernal Pool Grassland Preserves near known California tiger salamander and western spadefoot toad breeding sites--see Section 5.4.4.3(B)(4).

### 6.2.4 OTHER COVERED VERNAL POOL SPECIES

Additional Covered Species which occur within the *Vernal Pool Zone* include two species of reptiles (San Joaquin whipsnake and California horned lizard), eight bird species (tricolored blackbird, Ferruginous hawk, golden eagle, northern harrier, merlin, California horned lark, loggerhead shrike, and burrowing owl), one species of bat (pale big-eared bat aka Pacific western big-eared bat), and two insects (curved-foot diving beetle and meostan blister beetle). None of these are federally-listed and only the curved-footed diving beetle is confined exclusively to the *Vernal Pool Zone*. Losses of potential or occupied habitat anticipated under all *SJMSCP Index Zones* for these species range from 0% for the tricolored blackbird to 15% for the burrowing owl (although the majority of habitat Conversion affecting the burrowing owl is anticipated to occur in the *Southwest Zone*). For these species, the SJMSCP provides for Incidental Take Minimization of nesting sites and nursery, hibernation, and roosting colonies. In addition, these species will benefit from the SJMSCP’s Vernal Pool Grassland Preserve system, since this system will contribute to an eventual balance between habitat protected and habitat Converted. Finally, much of the available habitat for many of these species is not expected to be converted under the SJMSCP and therefore will continue to provide habitat values for the species. Thus, the SJMSCP is expected to adequately minimize and mitigate the effects of urbanization on these species over the life of the Plan.
OVERALL EFFECTS OF HABITAT CONVERSION AND THE CONSERVATION STRATEGY

Of the nearly 74,000 acres of Natural Lands in the Vernal Pool Zone, nearly 6,000 acres are proposed for Conversion to other uses, primarily vineyards and orchards. If the projected amount of habitat Conversion occurs, approximately 12,000 acres of vernal pool grasslands in a configuration of 250-acre minimum-sized parcels will be protected from future development. Additionally, approximately 6,000 acres of land that once contained vernal pools will be enhanced for vernal pool species through artificial pool creation and restoration. Thus, at the end of the 50-year term of the SJMSCP, based on the expected amount of habitat Conversion and habitat protection, about 18,000 acres of vernal pool grasslands will be in protected Preserves. In addition, all vernal pool grassland habitat in the Vernal Pool Zone that is not either Converted or inside protected Preserves is expected to remain in its current pattern of use.

Each of the Covered Species will experience habitat loss, but the amount of loss, the beneficial effects of mitigation, and the overall consequences for the status of each SJMSCP Covered Species will vary as described above. Given the combined strategies of habitat preservation and creation, some abundant, broadly distributed, and easy to translocate species such as the vernal pool fairy shrimp will experience little net habitat loss and few significant adverse effects. Unlisted species that are typically more common than the listed species, are broadly distributed, and occur in more than one SJMSCP Index Zone (such as the bat species, tricolored blackbird, and Ferruginous hawk) will likely suffer few significant adverse effects as a result of habitat conversions in the Vernal Pool Zone and the SJMSCP plan area overall. Some more specialized species, such as the longhorn fairy shrimp and bristly sedge are unlikely to be affected by urbanization in the Vernal Pool Zone, because their distribution in there is probably highly restricted; however, to the extent that they are affected, the SJMSCP will respond to their needs through the SJMSCP’s pre-construction survey, JPA and TAC Permitting Agency representative review and approval requirements prior to Conversion, and Preserve requirements. Finally, the effects of habitat Conversion and the SJMSCP’s conservation strategy on species with specialized habitat needs such as succulent owl’s clover and the California tiger salamander are difficult to fully predict. However, the SJMSCP’s Preserve requirements together with its Biological Monitoring Plan and Adaptive Management Plan will ensure sufficient flexibility to adapt to the conservation needs of these species. Furthermore, the SJMSCP’s Preserve system will be crafted with the distribution and ecological requirements of all the Covered Species in mind.

PRIMARY ZONE OF THE DELTA

The Primary Zone of the Delta includes about 195,000 acres of known or occupied habitat for the Covered Species. Thirty-seven of the SJMSCP’s Covered Species occupy this SJMSCP Index Zone. SJMSCP Permitted Activities are expected to result in Conversion of approximately 1,726 acres of land in the Primary Zone of the Delta, consisting of 371 acres of Natural Lands, 1,041 acres of Agricultural Habitat Lands, and 314 acres of Multi-Purpose Open Space Lands. Most of this Conversion will occur when previously altered habitats such as farm lands (i.e., Agricultural Habitat Lands) and Multi-Purpose Open Spaces are Converted to urban and commercial uses. However, included in the 371 acres of Natural Lands is alteration of approximately 5 acres of tule or channel island vegetation types, and approximately 366 acres of riparian
habitats—collectively referred to as Waters Edge Habitats. Many of the Covered Species occupying the Primary Zone of the Delta are highly mobile, widely-distributed species such as birds and fishes, which are not restricted to the Primary Zone of the Delta. However several species (e.g., the California black rail and many of the Delta's plant species) are habitat specialists and are largely confined to this Index Zone.

Two types of Preserves are planned for the Primary Zone of the Delta—Water’s Edge Preserves, to mitigate for the loss of Waters Edge Habitats, and Flooded Field Preserves. Waters Edge Preserves are further categorized into two types based on size—"large area" Preserves 20 acres or larger, intended primarily to protect the California black rail, and “small area” Preserves between four and 19 acres in size. Mitigation ratios in the Primary Zone of the Delta are as follows: 1:1 for Agricultural Habitat Lands; 3:1 for Natural Lands which do not qualify as jurisdictional wetlands; and 3:1 with at least one acre of creation for Natural Lands which do qualify as jurisdictional wetlands. The following discussion addresses effects of the SJMSCP on both habitat types and particular species or groups of species.

6.3.1 WATERS EDGE HABITATS

The loss of approximately 371 acres of Waters Edge Habitats in the Primary Zone of the Delta will be compensated through establishment of Waters Edge Preserves at a 3:1 ratio. In addition, under the SJMSCP's Clean Water Act Section 404 permit conditions for jurisdictional wetlands (see Section 5.6), the SJMSCP Permitted Activities and their associated mitigation must result in no net loss of wetland habitat values. For riparian habitat and other jurisdictional wetlands this is accomplished under the SJMSCP by the two acres protection/one acre restoration or creation requirement, which results in acre-for-acre replacement for any such habitat destroyed by urban development—i.e., in no net loss of Waters Edge Habitats. Furthermore, species occupying Waters Edge Habitats will also benefit through the maintenance, enhancement, and long-term protection of habitat within the Waters Edge Preserves (long-term habitat protection will include both the one acre of created/restored habitat and the two acres of existing habitat placed into the Preserves). Depending on the location and characteristics of individual Preserves, these species include the Suisun marsh aster, California hibiscus, Mason's lilaeopsis, Delta mudwort, Valley elderberry longhorn beetle, western pond turtle, giant garter snake, western grebe, tricolored blackbird, short-eared owl, Swainson's hawk, white-tailed kite, osprey, great egret, great blue heron, snowy egret, white-faced ibis, black-crowned night heron, double-crested cormorant, American white pelican, yellow warbler, yellow-breasted chat, delta smelt, Sacramento splittail, and—for "large area" Preserves only—the California black rail. Effects of the SJMSCP on some of these species are further described in Sections 6.3.3 through 6.3.10 below.

6.3.2 FLOODED FIELD PRESERVES

Flooded Field Preserves will consist of low-lying agricultural (usually grain) fields and must be a minimum of 80 acres in size. They will be flooded in the winter to create foraging and roosting habitat for the greater sandhill crane, Aleutian Canada Goose, and long-billed curlew, as well as other Pacific Flyway waterfowl (see Chapter 5, Section 5.4.4). The total area of Flooded Field Preserves expected to be established under the Plan is anticipated to be at least 1,234 acres (based on the anticipated Incidental Take of 1,234 acres for the greater sandhill crane projected in Table 4.3-1). A few Flooded Field Preserves specifically managed for these SJMSCP Covered Species currently exist in San Joaquin County, along with other habitats, such as pasture land, which they also utilize. However, none of the existing Flooded Field Habitat in the Plan Area is expected to be Converted to urban or commercial uses under the Plan. As a result, creation of Flooded Field Preserves under the SJMSCP's conservation program will result in a net increase in this habitat type in the Plan Area. This, together with mitigation for any pasture land lost (via the 1:1 mitigation ratio for Agricultural Habitat Lands), should result in an overall net increase in habitat in the SJMSCP Plan Area for the greater sandhill crane, Aleutian Canada goose, and long-billed curlew.

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6.3.3 DELTA PLANTS

The SJMSCP covers five plants which are more or less restricted to the Primary Zone of the Delta. Projected losses of known or potential habitat for these SJMSCP Covered Plant Species are as follows (See Table 4.3-1): Suisun marsh aster (0%), Delta tule pea (2%), California hibiscus (2%), Mason's lilaeopsis (1%), and Delta mudwort (2%). Thus, relatively little of the overall known or potential habitat for these species within the plan area will be lost as a result of the SJMSCP Covered Activities. However, these figures are only percentages expressed as the proportion of the plants’ habitat in the plan area that will be affected by development. They do not describe the effects of any particular development on any particular plant population. Because the locations of development in the Primary Zone of the Delta are not specifically known, information on how such development will affect particular plant populations is not immediately available.

However, as with all SJMSCP Covered Plant Species, these plants in the Primary Zone of the Delta will be protected in several ways. First, if important populations of these plants are threatened by any development activity—as ascertained through existing data or the required pre-construction surveys—the landowner will be approached about voluntarily avoiding the population or protecting the population through sale of a conservation easement or similar mechanism. If the landowner is unwilling, seed collection will be attempted if appropriate (see Chapter 5, Section 5.2.4.29). In addition, the Plan requires that during Preserve site selection, all else being equal, Preserves with federally or state-listed or rare plant populations will be given priority for acquisition. Also, the distribution of these plants in the Primary Zone of the Delta is well documented due to extensive biological surveys conducted by state and federal agencies (see the SJMSCP Biological Analysis, Chapter 5, for a complete listing of these plant populations); this will allow for rapid identification of any threats resulting from proposed development projects and opportunities for protection. Based on these factors—(1) excellent advance notice of threats; and (2) multiple opportunities to protect important populations of these plants—the SJMSCP is not expected to jeopardize the existence of these plant species. If populations of these plants can be expanded on Waters Edge Preserves, the SJMSCP may even result in a net benefit for some species.

6.3.4 VALLEY ELDERBERRY LONGHORN BEETLE

According to Table 4.3-1, projected loss of valley elderberry longhorn beetle (VELB) habitat under the SJMSCP will be 7% of existing known or potential habitat (2,888 acres of conversion out of an estimated 38,820 available habitat acres in the County). However, there are four conservation strategies for this species under the SJMSCP:

A. Avoidance of the host plant (elderberry shrubs) during construction activities;

B. Enhancement of riparian habitat in which elderberry shrubs live;

C. When avoidance is not practicable, elderberry shrubs will be transplanted into suitable Preserves, or new elderberry plants (cuttings or nursery stock) will be planted in Preserves at a ratio of three new shrubs for every stem greater than 1" in diameter at ground level which is removed from a project site; and
D. The establishment of 25 acres of VELB mitigation sites with a minimum of 500 elderberry shrubs including associated trees and shrubs as required pursuant to current Service guidelines. At least 10 of the 25 acres must be established within one year of the Effective Date of the SJMSCP.

Thus, even though some valley elderberry longhorn beetle habitat will be lost on an acre-by-acre basis, this is not expected to significantly reduce available elderberry shrubs in the SJMSCP plan area and, potentially, the Plan may actually result in an increase in shrub habitat. This is because when shrubs are directly affected by development they will either be transplanted or new shrubs will be planted at a 3:1 ratio (establishing three new shrubs for every stem of 1" or greater in diameter at ground level disturbed), meaning that at a minimum shrubs preserved will exceed shrubs lost because replacement shrub (with many stems) are required to replace individual stems (of which there may be many per shrub) of potential VELB habitat disturbed. In addition, enhancement of riparian habitats is likely to generally increase elderberry shrub numbers. Thus, the SJMSCP expects, at a minimum, to maintain current valley elderberry longhorn beetle habitat levels, and, optimally, to increase elderberry habitat levels. However, in either case the distribution of such habitat is likely to be somewhat altered compared to current conditions.

6.3.5 GIANT GARTER SNAKE

The giant garter snake has a patchy and poorly known distribution in San Joaquin County. Where existing locality records or pre-construction surveys indicate the presence of giant garter snakes (i.e., known occupied giant garter snake habitat), the SJMSCP (prohibits conversion of known occupied habitat and kill of individual snakes. Therefore, impacts to occupied habitat for the giant garter snake are not anticipated, while creation of new Preserves will create new potential habitat for the species. See the Central Zone section below for a more detailed analysis of the SJMSCP's effects on this Covered Species (Section 6.4.1).

6.3.6 CALIFORNIA BLACK RAIL

The SJMSCP prohibits construction in tule island/mudflat or channel island vegetation types, within fresh emergent wetlands or within arroyo willow thickets (the preferred habitats of the California black rail), until preconstruction surveys determine that they are unoccupied by breeding rails. If this habitat is unoccupied, and construction is timed not to occur during the breeding season, habitat may be Converted to urban or other uses. Table 4.3-1 projects that up to 3% of California black rail habitat may be lost over the life of the Plan. However, any such habitat converted must be replaced at a 3:1 ratio by "large area" Water’s Edge Preserves which are specifically designed to benefit California black rails. This strategy could result in some localized losses of black rail habitat; however, such losses would be offset through habitats protected and enhanced in the Preserve system. Thus, with wise Preserve site selection and focused management, it is expected that the status of the California Black rail will be maintained, or even enhanced, above current levels within the Primary Zone of the Delta.

6.3.7 BANK SWALLOW

Table 4.3-1 projects the loss of 11% of potential bank swallow habitat in the SJMSCP Plan Area. However, bank swallows are not currently known to nest in San Joaquin County, and the SJMSCP
contains a provision for Incidental Take Minimization Measures should pre-construction surveys show them to be present on a project site in the future. With no recent breeding occurrences in the County, and in light of this provision, bank swallow status in the SJMSCP Plan Area will most likely remain unchanged.

6.3.8 ALEUTIAN CANADA GOOSE AND GREATER SANDHILL CRANE

Both of these species winter in the Central Valley, but nest elsewhere. Table 4.3-1 projects habitat losses for these species at 2% of currently available habitat. The Aleutian Canada goose (federally threatened) is not known to occupy wintering grounds in San Joaquin County and only occasional individuals have been observed. The nearest wintering grounds are just to the south along the San Joaquin River in Stanislaus County. Because of this, Aleutian Canada geese are expected to be minimally affected by SJMSCP Permitted Activities and the status of this Covered Species in the Primary Zone of the Delta and throughout San Joaquin County should, at a minimum, remain at the current level. Nevertheless, development of Flooded Field Preserves within the Primary Zone of the Delta and Row and Field Crop/Riparian Preserves in the Central Zone (see Section 6.4) will provide future habitat for Aleutian Canada geese in San Joaquin County. Given it’s current status in the County (a relatively rare visitor), it is possible that these SJMSCP measures may even result in improvements in the status of this species in the County over the life of the Plan.

As agricultural habitats are Converted to other uses over the term of the SJMSCP, the amount of remaining foraging and roosting habitat available to the greater sandhill crane will likely decrease and become somewhat fragmented. However, these habitat losses are expected to total only 2% of currently available habitat and will be compensated for by development of Flooded Field Preserves in the Primary Zone of the Delta and Row and Field Crop/Riparian Preserves in the Central Zone. Thus, with focused management on these Preserves, the wintering status of the greater sandhill crane within the SJMSCP Plan Area is expected to be maintained at or near current levels.

6.3.9 FISH SPECIES

The SJMSCP Covered Species include four fish—the Delta smelt (state and federally threatened), the Sacramento splittail (listed as federally threatened), longfin smelt and green sturgeon. Impacts to SJMSCP Covered Fish Species are expected to be minimal. Such impacts will include the Conversion of up to three acres of submerged aquatic habitats (e.g., primarily through construction of small private docks, or driving support posts for road crossings and other activities described in Section 8.2.1), and the impacts of increased erosion and siltation into waterways as a result of construction near such waterways (see Section 8.2.1). The Conversion of water features pursuant to the SJMSCP also occurs in this category.

To offset impacts, the SJMSCP includes requirements to create new submerged aquatic habitats at a ratio of 3:1 (i.e., three acres of habitat must be created for every acre Converted) and mitigate for Conversion of other water features also at 3:1. In addition, Projects in this category are limited in their location. Projects which may impact fish must occur in non-jurisdictional riparian areas (e.g., ephemeral drainages) and areas without protected fish species (e.g., the upper Calaveras River where salmon no longer are found). The SJMSCP also includes an extensive list of Incidental Take Minimization Measures, which include requiring erosion control measures to reduce siltation, installing fish screens, retaining existing
vegetation to the maximum extent feasible, locating facilities perpendicular to waterways, locating footings outside of high water zones and outside of riparian vegetation to the maximum extent feasible, and providing construction buffers of up to 200' (see Section 5.2.4.30 and 5.2.4.31).

In light of the limited scope of SJMSCP Permitted Activities that are likely to affect these fish species, the 3:1 habitat replacement ratio, the limitations to locations for these activities, and the extensive and detailed Incidental Take Minimization Measures, the effects of the SJMSCP on the four SJMSCP Covered Fish Species are expected to be minimal and to be fully mitigated.

6.3.10 OTHER SPECIES

The remaining Covered Species occupying the *Primary Zone of the Delta* are not currently state or federally listed (with one exception), nor are they restricted to this Index Zone. These include: Swainson’s hawk (which is state listed), 18 additional species of birds (Cooper’s hawk, western grebe, tricolored blackbird, great egret, great blue heron, snowy egret, short-eared owl, northern harrier, yellow warbler, white-tailed kite, merlin, yellow-breasted chat, long-billed curlew, osprey, black-crowned night heron, American white pelican, double-crested cormorant, and white-faced ibis), the western pond turtle, and two bats (the Yuma myotis and red bat). According to Table 4.3-1, projected habitat losses for these species over all Index Zones range from the tricolored blackbird (0%) and the American white pelican (1%) to the Swainson’s hawk, Cooper’s hawk, red bat, and Yuma myotis (12% for each). However, as explained earlier these figures represent both known occupied and potential habitat; thus, losses of currently occupied habitat for some of these species are likely to be less. Furthermore, if the projected amount of habitat Conversion occurs over the term of the permits for these species, approximately 2,154 acres of Water’s Edge and Flooded Field Preserves will be established. Located and managed wisely, these Preserves are expected to offset the adverse effects of habitat Conversion in the *Primary Zone of the Delta* by contributing to an eventual balance between habitats Converted and habitats preserved and managed over the life of the SJMSCP. The SJMSCP’s Biological Monitoring Plan and Adaptive Management Plan will contribute to this process. Finally, much of the habitat currently available for these species will remain undeveloped under the SJMSCP and will continue to be available. In conclusion, the effects of the SJMSCP on these species is expected to be fully mitigated and their status under the SJMSCP is expected to remain stable and even, in some cases, to improve.

6.3.11 OVERALL EFFECTS OF HABITAT CONVERSION AND THE CONSERVATION STRATEGY

The majority of existing habitat for Covered Species in the *Primary Zone of the Delta* is row and field crops (i.e., Agricultural Habitat Lands) together with associated tule island/mudflat, channel island, and riparian vegetation types. Accordingly, most of the Covered Species occupying the *Primary Zone of the Delta* have ecological needs that are compatible with agricultural practices common in the Delta. Many of these species (e.g., northern harrier, snowy egret, great blue heron, and double-crested cormorant) are widespread, and the complex of SJMSCP Preserves are expected to help ensure their existence within the *Primary Zone of the Delta*, the Plan Area and throughout the species' range.

Species that are more geographically restricted and ecologically specialized (e.g., the Delta tule pea and California black rail) will also benefit as they become protected and managed in the *Primary Zone of the Delta's* Waters Edge Preserves. Furthermore, the extent to which these ecologically specialized Delta
species will be adversely affected by urbanization within San Joaquin County will actually be fairly limited. This is because most of these species have a patchy distribution and are localized habitats not identified for, or unlikely to be subject to, Conversion resulting from SJMSCP Permitted Activities. In addition, to the extent that habitat for these more specialized species is Converted under the SJMSCP, the SJMSCP’s Incidental Take Minimization Measures and habitat compensation measures will apply. These factors--(1) low probability of Conversion as a result of SJMSCP Covered Activities; and (2) requirements for Incidental Take Minimization and compensation for habitats lost--will ensure that the effects of the SJMSCP on these specialized Covered Species will be fully mitigated and that their status will be maintained more or less at current levels over the term of the SJMSCP. However, it should be noted that one of the unique natural habitat types in the Primary Zone of the Delta, the channel islands, are dynamic habitats subject to damage from erosion due to wave action. Thus, some Delta specialists, such as the California black rail, may experience losses within the Primary Zone of the Delta independent of the effects of the SJMSCP Permitted Activities.

For habitat generalists and habitat specialists alike, if the amount of habitat Conversion projected by the SJMSCP occurs, approximately 2,154 acres of Water’s Edge and Flooded Field Preserves will be established within the Primary Zone of the Delta. These Preserves will be in minimum sizes ranging from four to 80 acres. In addition, habitat management, enhancement, monitoring and Adaptive Management for Covered Species will be carried out on the Preserves, maximize their benefits for the target Covered Species. Moreover, at the end of the 50-year SJMSCP term, much of the habitat within the Primary Zone of the Delta will remain in its current pattern of use, primarily row and field crops, thus contributing to continued habitat availability for these Covered Species.

In conclusion, the wider ranging habitat generalists (such as the great blue herons and snowy egrets) will each experience habitat loss under the SJMSCP, but the amount of loss, the beneficial effects of mitigation, and the overall consequences for the status of each species will vary. However, the Waters Edge and Flooded Field Preserves will help contribute to a balance between habitat Converted and habitat protected and will help ensure the continued existence of these abundant, wide-ranging species. As described above, the effects of habitat Conversion and the SJMSCP’s conservation strategy on habitat specialists in the Primary Zone of the Delta, such as the Delta tule pea, is expected to be limited and to be fully minimized and mitigated.

6.4 CENTRAL ZONE

The Central Zone contains about 365,000 acres of habitat for the SJMSCP’s Covered Species, and comprises most of the land surrounding San Joaquin County’s cities and unincorporated communities. The primary habitat type in the Central Zone is row and field crops consisting of approximately 291,000 acres (although this amount varies annually). Open grasslands, riparian woodlands and natural and man-made water features are also important habitat types in the Central Zone. Forty-one of the SJMSCP’s Covered Species occupy, or are thought to occupy, the Central Zone. The SJMSCP projects that SJMSCP Permitted Activities will result in the Conversion of about 56,000 acres of Agricultural Habitat Lands (mostly field and row crops); 36,000 acres of Multi-purpose Open Space Lands (mostly orchards and vineyards); and just over 6,000 acres of Natural Lands (primarily grasslands and riparian habitats). Most of the Covered Species occupying the Central Zone are mobile, widely-distributed bird species that are not restricted solely to the Central Zone.
Three types of Preserves are planned for the Central Zone:

A. Row and Field Crop/Riparian Preserves;

B. Wetland Preserves; and

C. Oak Woodland Preserves.

Row and Field Crop/Riparian Preserves will be designed and managed primarily for Swainson’s hawks and other avian species associated with agricultural landscapes. These Preserves will be a minimum of 640 acres in size and will be located near riparian habitats or known nest trees. Wetland Preserves will include at least 2 miles of shoreline along various water features such as ditches and ponds and will be designed and managed primarily for the benefit of the giant garter snake. Oak Woodland Preserves must be at least 40 acres in size and will benefit raptors such as the Swainson’s hawk, Cooper’s hawk, sharp-shinned hawk and merlin, as well as the bat species. The Central Zone also may be used to mitigate for the impacts of land Conversion within the Central/Southwest Transition Zone.

### 6.4.1 GIANT GARTER SNAKE

Most conversion of giant garter snake habitat will occur in the Primary Zone of the Delta and Central Zone. Within the Central Zone, an undetermined amount of potential giant garter snake habitat may be destroyed by urbanization and infrastructure development in and around canals and sloughs embedded in what are currently agricultural lands. Take of occupied giant garter snake habitat is prohibited. The primary garter snake conservation feature in the SJMSCP— in addition to the Incidental Take Minimization measures and prohibitions against Take of occupied giant garter snake habitat—is the Preserve system and its associated 3:1 mitigation ratio. To summarize, prohibitions against Take of occupied giant garter snake habitat, the Incidental Take Minimization measures, 3:1 compensation and Preserve design are expected to result in full mitigation for the effects of urban development on the giant garter snake.

### 6.4.2 SWAINSON’S HAWK

The Swainson’s hawk is widely distributed and forages and nests within several SJMSCP Index Zones (the species winters in South America, although a small wintering population has been identified in San Joaquin County). County-wide, the SJMSCP projects that over 62,000 acres (12% of the current total) of Swainson's hawk foraging and nesting habitat will be converted to other uses. A large fraction of this Conversion (over 55,000 acres) will occur when row and field crops in the Central Zone are converted to urban and commercial uses. The projected Conversions will include the destruction of some nest trees. However, it is unlikely that eggs, juveniles, or adult Swainson’s hawks will be killed on nests because the SJMSCP prohibits the destruction of occupied nest trees (i.e., nest trees must be destroyed, if necessary, during the non-nesting season). Furthermore, the distribution of the Swainson's hawk in San Joaquin County is relatively well known due to extensive and repeated studies by the California Department of Fish and Game and in conjunction with private development proposals. Therefore, avoidance of nest sites through the implementation of Incidental Take Minimization Measures is expected to achieve a high rate of success under the SJMSCP.

Urbanization and other habitat Conversions under the Plan will result in losses of Swainson's hawk nesting and foraging habitat and could fragment and isolate patches of remaining habitat, subjecting Swainson’s hawks and other Covered Species to adverse edge effects. Swainson’s hawks may also experience lower reproductive success due to the increased foraging distances required in fragmented landscapes. However, these impacts
are likely to be limited to urban-dwelling hawks (i.e., hawks nesting near of adjacent to existing or future urbanized areas), which already are suspected of having reduced reproductive success. Balancing this effect are five primary population centers for the Swainson's hawk in San Joaquin County which are located outside existing urban areas (the Dry Creek population, North Stockton population, southeast Stockton population, Delta population, and south San Joaquin population).

The primary measure designed to mitigate for the effects of SJMSCP Permitted Activities in the Central Zone on the Swainson’s hawk—in addition to Incidental Take Minimization Measures—is the SJMSCP’s habitat compensation requirements. Under the SJMSCP, each acre of Swainson’s hawk habitat (i.e., Agricultural Habitat Lands) Converted to non-open space uses would be mitigated by the establishment of one acre of Row and Field Crop/Riparian Preserve (a 1:1 mitigation ratio). Most of these Preserve acres would be established via conservation easements designed to maintain routine and ongoing agricultural practices on the Preserve lands. Each of the primary population centers mentioned above are targeted for Preserve establishment under the Preserve selection criteria described in Section 5.4.4.4(A1). Row and Field Crop/Riparian Preserves may be established in the Central Zone, Primary Zone of the Delta, and Central/Southwest Transition Zone. Based on the estimated 56,000 acres of Swainson’s hawk foraging habitat expected to be Converted to non-Open Space uses in the County, and the 1:1 mitigation ratio, a total of approximately 56,000 acres of Swainson’s hawk foraging habitat could be placed into Preserves over the life of the SJMSCP. In addition, up to 6,000 acres of Natural Lands (e.g., riparian and water features such as ditches), some of this potential nesting habitat for the Swainson's hawk, also will be Converted to non-Open Space uses. This Conversion of Natural Lands requires a 3:1 compensation ratio (three acres of Natural Lands will be acquired for Preserves for every one acre Converted from Open Space use). Therefore, approximately 62,000 acres of Preserves containing Swainson's hawk foraging and nesting habitat are anticipated over the life of the SJMSCP.

Thus, the SJMSCP is expected to fully mitigate for the effects of SJMSCP Permitted Activities on the Swainson’s hawk for the following reasons: (1) Incidental Take Minimization Measures will prevent the death or disturbance of Swainson’s hawks at their nest sites; (2) the SJMSCP’s compensation program will ensure protection of one acre of Swainson’s hawk foraging habitat for every acre developed and three acres of Swainson's hawk nesting habitat for each acre Converted from Open Space uses; (3) much of the Swainson’s hawk nesting habitat likely to be developed in the County is already close to urban centers and may already have a lower reproductive potential than other, more rural habitats; (4) Swainson’s hawk habitat targeted for protection under the SJMSCP is prime nesting and foraging habitat in the County’s primary Swainson’s hawk population centers (meaning the habitat protected is likely to be more valuable than the habitat lost); and (5) the SJMSCP’s Biological Monitoring Plan and Adaptive Management Plan will allow such adjustments to the Preserve system as are necessary to maintain high quality Swainson’s hawk habitat.

### 6.4.3 RIPARIAN BRUSH RABBIT/RIPARIAN WOODRAT

The riparian brush rabbit is extremely rare and is currently restricted to riparian habitats along the Stanislaus River in Caswell State Park and, based on recent discoveries, to the area around Stewart Tract along the San Joaquin River and its sloughs. The riparian woodrat is also relative rare and is restricted both to Caswell State Park and a second population below Caswell along the Stanislaus River. Because of their rarity, Conversion of occupied habitat and take of individual brush rabbits and woodrats is strictly prohibited until such time as the Permitting Agencies determine that the range of the species has substantially expanded and reached sufficient population levels to allow Incidental Take (see Sections 5.2.4.23, 5.2.4.24). To ensure that occupied habitat is not affected by the Permitted Activities until such time as the terms of the conditional coverage are removed or revised, pre-construction surveys will be conducted to determine whether the species is present on any development site in the vicinity of currently occupied habitat (see Section 5.2.2). If found, disturbance of the habitat would be prohibited. The SJMSCP would also allow establishment of Row and Field
Crop/Riparian Preserves along the Stanislaus River, where appropriate. These provisions ensure that the riparian brush rabbit and woodrat are fully protected under the SJMSCP--i.e., that no take of the species is currently permitted--unless the status of the species eventually improves. Furthermore, the Plan could result in a net benefit to the riparian brush rabbit and woodrat if Preserve lands are established near or adjacent to currently occupied habitat in Caswell State Park and along the Stanislaus and San Joaquin Rivers.

6.4.4 SLOUGH THISTLE AND SANFORD’S ARROWHEAD

Both these unlisted species are known to occur in the Central Zone; however pre-construction surveys may reveal them to be more widely distributed than is currently known. The conservation strategy for the slough thistle and Sanford’s arrowhead include pre-construction surveys to determine if populations of the species exist on project lands and restrictions against Take of occupied habitat for the two species. Thus, any losses to these species are unlikely. Both species may even experience a modest improvement in their local status with careful selection and management of the Central Zone Wetland Preserves and Central Zone Row and Field Crop/Riparian Preserves, especially where habitat enhancements specially crafted to meet their ecological needs are implemented.

6.4.5 BURROWING OWL

Up to 10% of known occupied or potential burrowing owl habitat throughout the SJMSCP Plan Area could be lost as a result of SJMSCP Permitted Activities (see Table 4.3-1). However, most burrowing owl habitat occurs in the Southwest Zone and the effects of the SJMSCP on this species is discussed in Section 6.5.

6.4.6 CENTRAL ZONE AMPHIBIANS

The California tiger salamander and western pond turtle both could occur in the Central Zone and be affected by SJMSCP Permitted Activities there. California tiger salamanders are expected to occasionally occur in stock ponds on agricultural lands and the pond turtle in the riparian corridors present in the Central Zone agricultural landscape. Plan-wide, up to 12% of tiger salamander habitat and 6% of pond turtle habitat could be lost to SJMSCP Permitted Activities over the life of the SJMSCP (see Table 4.3-1). Most tiger salamander habitat loss would occur in the Vernal Pool Zone (see Section 6.2.3) and Southwest Zone (see Section 6.5). To offset habitat losses for these amphibian species in the Central Zone, the SJMSCP calls for habitat compensation at a 1:1 ratio and the development of Row and Field Crop/Riparian and Wetland Preserves. In addition, when these species occupy wetlands, the compensation ratio for their habitats is 3:1 (i.e., three acres of Preserves shall be created for each acre of habitat Converted from Open Space use). Selection criteria for these Preserves (see Section 5.4.4.4) emphasize the protection of agricultural lands that are near or adjacent to riparian corridors and requires 200-foot buffers around areas where western pond turtles are known to be present. The SJMSCP also requires various Incidental Take Minimization Measures for these species (see Sections 5.2.4.6 and 5.2.4.10). For pond turtles, these measures may even result in a net benefit to the species, since more riparian areas in the Central Zone are likely to be protected under the Plan than will be affected by urban development. These measures, together with the measures described for other SJMSCP Index Zones, are expected to fully mitigate for the effects of urban development in the Central Zone on these amphibian species.

6.4.7 OTHER SPECIES

The California red-legged frog, Delta button celery, western yellow-billed cuckoo, and Ciervo aegilian scarab beetle are not currently known to occur in the Central Zone, although there is a possibility that further surveys could reveal currently unknown populations. The SJMSCP’s provisions within the Central Zone are therefore
unlikely to affect these species, and their status will likely remain unchanged throughout the life of the SJMSCP, unless currently unknown populations are discovered. If such populations are discovered, the SJMSCP’s Incidental Take Minimization Measures and Preserve system will help conserve these species. In addition, the SJMSCP prohibits the Take of the Delta button celery to ensure no decrease in existing populations.

The remaining species that occupy or may occupy the Central Zone—the valley elderberry longhorn beetle, ringtail cat, great egret, great blue heron, snowy egret, black-crowned night heron, double-crested cormorant, white-faced ibis, long-billed curlew, short-eared owl, white-tailed kite, merlin, northern harrier, Cooper’s hawk, sharp-shinned hawk, osprey, bank swallow, yellow-breasted chat, yellow warbler, loggerhead shrike, California horned lark, tricolored blackbird, Yuma myotis, long-legged myotis, fringed myotis, small-footed myotis, long-eared myotis, and red bat—generally are wide-ranging species with ecological needs that are at least partially met in agricultural/riparian landscape most common in the Central Zone. All (with the exception of the bank swallow and valley elderberry longhorn beetle) are currently state and federally unlisted, are relatively common, and are not confined exclusively to the Central Zone. Plan-wide, projected habitat losses for these species range from the tricolored blackbird (0%) and long-eared myotis (3%), to the yellow warbler (5%), yellow-breasted chat (8%), and snowy egret (6%), to the loggerhead shrike, white-faced ibis, Cooper’s hawk, red bat, and Yuma myotis (11% or 12% of currently available habitat each). To minimize Take of these species, the SJMSCP requires numerous Incidental Take Minimization Measures (see Sections 5.2.4.16 to 5.2.4.22 and Section 5.2.4.28). In addition, habitat protection and enhancement measures to be established within the Central Zone’s Row and Field Crop/Riparian Preserves, Wetland Preserves, and Oak Woodland Preserves will help offset these projected habitat losses. The SJMSCP also places a high priority on the acquisition of nesting habitat for colonial nesting birds (such as the tricolored blackbird, great blue heron, and black-crowned night heron) and provides for a Biological Monitoring Plan and Adaptive Management Plan to ensure use of the most up-to-date information in managing for these species. Finally, much of the agricultural and riparian habitat currently available for these species in the Central Zone will remain undeveloped under the Plan and will continue to be available. Thus, the effects of the SJMSCP on all these species will be fully mitigated and their status under the SJMSCP is expected to remain stable and even, in some cases, to improve.

6.4.8 OVERALL EFFECTS OF HABITAT CONVERSION AND THE CONSERVATION STRATEGY

The majority of the currently existing habitat for Covered Species in the Central Zone is row and field crops (i.e., Agricultural Habitat Lands). Some of this land is adjacent to riparian and aquatic habitats. Accordingly, most of the Covered Species occupying the Central Zone, even those associated primarily with riparian or aquatic habitats, have ecological needs that are compatible, at least in part, with agricultural practices common to the Central Zone. Many of these species (e.g., Swainson’s hawk, snowy egret, great blue heron) are widespread, and the complex of Row and Field Crop/Riparian Preserves, Wetlands Preserves, and Oak Woodland Preserves to be established in the Central Zone will help ensure their existence in the SJMSCP Plan Area and range-wide long into the future. Those Covered Species that are more geographically restricted or ecologically specialized (e.g., giant garter snake, slough thistle)—both of which have restrictions against Take of occupied habitat pursuant to the SJMSCP, will also benefit through careful management of the Central Zone’s Preserve system.

If the amount of Permitted Activities and habitat Conversion projected by the SJMSCP occurs, over 56,000 acres of Row and Field Crop/Riparian Preserves (at a 1:1 ratio), and about 19,000 acres of Wetlands Habitat and Oak Woodland Preserves (at a 3:1 ratio) will be established in the Central Zone. The SJMSCP Preserve design criteria (see Section 5.4.4) requires Preserve sizes ranging from 40 acres (Oak Woodland Preserves)
to 640 acres (Row and Field Crop/Riparian Preserves). In addition, habitat management and enhancement activities specialized for the needs of the Covered Species will occur on the Preserve lands (see Sections 5.4.6 to 5.4.8). Furthermore, at the end of the 50-year term of the SJMSCP, if the anticipated amount of habitat Conversion and habitat protection occurs, about 303,000 acres of habitat within the Central Zone (365,000 original habitat acres minus 62,000 habitat acres converted = 303,000 acres left) should remain in its current pattern of use (primarily row and field crops), thus contributing to continuing habitat availability for the Covered Species of the Central Zone.

In summary, the Covered Species will, in most cases, experience some habitat loss in the Central Zone but the amount of loss, the beneficial effects of mitigation, and the overall consequences for the status of each species may vary to some extent. However, the SJMSCP’s Incidental Take Minimization Measures, habitat compensation and Preserve system requirements, and Biological Monitoring program and Adaptive Management Plan are expected to fully mitigate for the impacts of urban development in the Central Zone and-together with the continuing availability of Agricultural Habitat Lands in the Central Zone--to ensure the long-term survival of all SJMSCP Covered Species inhabiting this Index Zone.

6.5 SOUTHWEST ZONE

The Southwest Zone encompasses approximately 70,000 acres of which approximately 95% is habitat for the Covered Species. The Southwest Zone is comprised almost exclusively of grazed natural grasslands of several types, depending on the presence of other tree and shrub species--grasslands at the lower elevations, sage scrub at mid-elevations, and oak/conifer woodlands with varying degrees of canopy closure at the higher elevations. Corral Hollow Creek is the main drainage in the Southwest Zone; it supports relatively unaltered stretches of riparian forest characterized by long expanses of willow thicket. Other smaller drainages within the Southwest Zone include Hospital Creek and Lone Tree Creek.

Of approximately 70,000 acres in the Southwest Zone, 1,768 acres will be affected by SJMSCP Permitted Activities affecting approximately 1,542 acres of Natural Lands and 200 acres of Multi-purpose Open Space Land. SJMSCP Permitted Activities in the Southwest Zone consist primarily of aggregate mining, widening of the I-205 freeway corridor, and housing developments. Urban development impacts will be concentrated primarily within current urban growth boundaries and along the I-580 transportation corridor in the City of Tracy. (Note, however, that proponents of the Tracy Hills project, a future residential site are developing a habitat conservation plan independent of the SJMSCP.) Aggregate extraction activities could potentially occur anywhere within the Southwest Zone. However, the majority of the Southwest Zone will remain in natural grassland and will be used for cattle grazing.

Forty-three of the SJMSCP’s Covered Species occur or may occur within the Southwest Zone. According to Table 4.3-1, projected habitat losses Plan-wide for these species range from Bell’s sage sparrow, Alkali milk-vetch, and showy madia (no losses), to the San Joaquin kit fox (1,778 acres, or 4% of known occupied or potential habitat) and California red-legged frog (440 acres, or 6%), to the California tiger salamander (11,419 acres, or 12%). As with other SJMSCP Index Zones, the distribution and abundance of the some of the Covered Species in the Southwest Zone is not well known. Thus, habitat loss projections include estimates of potential as well as known occupied habitat that may be Converted to other uses. Many of the raptors covered in this discussion are wide ranging and also utilize habitats within the Central/Southwest Transition and Central Zones. Thus, this analysis, while focused on the Southwest Zone, takes into consideration habitat use by these species in other SJMSCP Index Zones.
The SJMSCP’s mitigation strategy for the Southwest Zone aims to reduce the effects of habitat loss and fragmentation on Covered Species by protecting large blocks of habitat in four Preserve types—Grassland Preserves, Diablaan Sage Scrub Preserves, Riparian Preserves, and Blue Oak Conifer Preserves. Preserve design criteria for the Southwest Zone prioritizes land acquisitions for habitat specialists and species with a limited distribution, and is expected to establish a system in which “core” Preserves are linked to each other by habitat corridors. The mitigation ratio utilized in the Southwest Zone is 3:1 for Natural Lands For Natural Lands that are also jurisdictional wetlands, the mitigation ratio is 3:1, with the creation or restoration of at least one acre (in addition to protection of two existing acres) for every acre of Natural Lands lost. Most impacts in the Southwest Zone resulting from the Permitted Activities will occur on Natural Lands (1,542 acres), which, when mitigated, will result in the protection of 4,626 acres of corresponding Natural Lands. The Southwest Zone may also be used to mitigate impacts from land Conversion within the Central/Southwest Transition Zone (see SJMSCP Section 5.1.2.6).

The following discussion addresses impacts of the Permitted Activities on each of the habitat types in the Southwest Zone and on several key species or groups of species inhabiting this Index Zone.

6.5.1 COVERED PLANT SPECIES

The Southwest Zone contains the only occupied and potential habitat within the County for the large-flowered fiddleneck, Hospital Canyon larkspur, showy madia, and recurved larkspur. Potential habitat for nine other plant species are present in the Southwest Zone (Ferris’ palmate bird’s beak, alkali milk-vetch, heartsacle, brittlescale, Mt. Hamilton coreopsis, diamond-petaled poppy, mad-dog skullcap, Wright’s trichocoronis, and caper-fruited tropidocarpum), but there are no known occurrences of these species, except for the diamond-petaled poppy which was recently re-discovered on Site 300 (Lawrence Livermore National Laboratory) which is not included within the Plan Area, but which is found within the Southwest Zone. Based on existing general plans, SJMSCP Permitted Activities in the Southwest Zone are unlikely to occur in areas supporting or likely to support these 13 SJMSCP Covered Plant Species. However, this is no guarantee that any particular development could not affect a plant population. Furthermore, these plants could occupy Natural Lands that could be converted to future agricultural uses (e.g., orchards or vineyards, although Incidental Take associated with this type of land use is covered under the Plan only for the Vernal Pool Zone, not the Southwest Zone). In other words, significant impacts to covered Southwest Zone plant populations as a result of the SJMSCP or as a result of uncovered activities, while not expected, cannot be ruled out. Therefore, the SJMSCP prohibits Take of occupied habitat for the more narrowly distributed of these species—the large-flowered fiddleneck, Hospital Canyon larkspur, showy madia, and diamond-petaled California poppy.

For more widely distributed SJMSCP Covered Plant Species, these plants within the Southwest Zone will be protected in several ways. First, if important plant populations are threatened by any specific development activity—as ascertained through existing data or required preconstruction surveys—the landowner will be approached about voluntarily avoiding the population or protecting the population through sale of a conservation easement or similar legal mechanism. If the landowner is unwilling seed collection will be attempted if the JPA and the Permitting Agency representatives on the TAC agree that it is biologically feasible, beneficial and appropriate (see Chapter 5, Section 5.2.4.29). Site selection and management of Specialty Preserves for plants will follow the conservation guidelines described in Section 5.4 of the SJMSCP. In addition, the SJMSCP requires that during Preserve site selection, all else being equal, Preserves with federally or state listed or rare plant populations will be given priority for acquisition, and Section 5.4.4.2(A) specifically requires that the Southwest Zone Grassland Preserve system include at least one Preserve each for the large-flowered fiddleneck, showy madia, and Hospital Canyon larkspur.

The SJMSCP contains additional protections for one Southwest Zone plant—the large-flowered fiddleneck
(state and federally endangered). Three of the primary protection measures provided for the large-flowered fiddleneck in the SJMSCP are: (1) stringent preconstruction survey protocols requiring visits to known reference populations for these plant species during preconstruction surveys (Section 5.2.2.5); (2) required concurrence from the Permitting Agencies' representatives on the TAC prior to Take of occupied habitat of these species to ensure that Take will not result in jeopardy or the Conversion of any designated or proposed critical habitat for either of these species; and (3) compliance with Preserve design, management and enhancement criteria established in the Large-flowered Fiddleneck (Amsinckia grandiflora) Recovery Plan [see Section 5.4.4.2(A)].

In summary, the SJMSCP is not expected to jeopardize the continued existence of any covered plant species in the Southwest Zone because: (1) the Plan prohibits Take of occupied habitat for the most narrowly distributed plants; (2) relatively little occupied or potential habitat for these species is expected to be lost to the Permitted Activities; (3) pre-construction surveys will ensure the discovery of any plant populations not currently known; (4) where necessary, plant populations subject to disturbance will either be avoided or, where appropriate, seed collections will be performed; (4) the SJMSCP’s Preserve system will, where necessary, focus on the specific needs of the covered plants; (5) the SJMSCP incorporates Preserve design, enhancement and management provisions of the adopted recovery plans for the large-flowered fiddleneck.

6.5.2 GRASSLANDS

Approximately 45,336 acres of grasslands occur within the Southwest Zone, and the majority of the projected 1,542 acres of impact in the Southwest Zone will be in grassland habitats. There are 36 Covered Species associated with Southwest Zone's valley grasslands. These include eleven plants (large-flowered fiddleneck and recurved larkspur which are discussed in Section 6.5.1; and alkali milk vetch, heartscale, brittlescale, Mt. Hamilton coreopsis, diamond-petaled poppy, mad-dog skullcap, Wright's trichocoronis and caper-fruitied tropidocarpum which are discussed in Section 6.5.2); three invertebrate (two vernal pool crustaceans—the longhorn fairy shrimp and Conservancy fairy shrimp which are discussed in Section 6.5.4 and the Molestan blister beetle); two reptiles (California horned lizard and San Joaquin whipsnake); two amphibians (California tiger salamander and western spadefoot toad); six mammals (San Joaquin kit fox, Berkeley kangaroo rat, American badger, San Joaquin pocket mouse, greater western mastiff bat, and Pacific western big-eared bat/pale big-eared bat); and 11 species of birds (burrowing owl, golden eagle, ferruginous hawk, northern harrier, sharp-shinned hawk, prairie falcon, white-tailed kite, loggerhead shrike, California horned-lark, mountain plover, and long-billed curlew). Many Covered Species associated with the grasslands in the Southwest Zone prefer habitats that are actively grazed (e.g., western spadefoot toad, San Joaquin kit fox). Others rely on specific habitat components to meet their life history needs, such as mature trees and cliffs for nesting (e.g., northern harrier, greater western mastiff bat and prairie falcon) and ephemeral pools for breeding (e.g., western spadefoot toad and California tiger salamander).

The effects of the Permitted Activities in Southwest Zone grasslands will vary, depending on the degree to which a species’ habitat is affected by the Permitted Activities and the degree to which its habitat requirements will be met or benefitted by the Grassland Preserves. Generally, impacts to the Covered Species in Southwest Zone grasslands will include death, injury, or disturbance as a result of construction related activities or as a result of habitat loss and fragmentation. The primary mitigation strategies within Southwest Zone grasslands, as with other SJMSCP Index Zones, are the Incidental Take Minimization Measures (Section 5.2.4), habitat compensation requirements (Sections 4.1 and 5.3.1), and Preserve requirements (Section 5.4.4). Many of the Covered Species inhabiting Southwest Zone grasslands are relatively common, wide-ranging species. For such species, effects of the Permitted Activities will be minor, because estimated Natural Lands conversions in the Southwest Zone (1,542 acres) is small in comparison to grassland habitats available there, and because key habitat features such as nest and den sites for these species generally will be avoided during development.
activities. Examples of species for which this is true include the American badger, Berkeley kangaroo rat, the bat species, and most of the bird species including the golden eagle, ferruginous hawk, northern harrier, prairie falcon, white-tailed kite, loggerhead shrike, California horned-lark, mountain plover, and long-billed curlew. Furthermore, habitat features important to these species will often be selected for in the development of the Grassland Preserve system.

Most of the more specialized species inhabiting the Southwest Zone (e.g., Bell’s sage sparrow and Hospital Canyon larkspur) are patchy in distribution and occur mainly in habitats not planned for conversion under the SJMSCP (see Section 6.5.7 and Section 6.5.6). In addition, the SJMSCP prohibits Take of occupied Hospital Canyon larkspur habitat. Thus, the status of these species should be maintained at current levels over the term of the Plan. In addition, pre-construction surveys will identify any individuals or populations of these species and any special habitat features that may be present on project sites, thus providing opportunities to avoid the species or otherwise (as for the Bell’s sage sparrow) to provide compensatory habitat.

In summary, impacts of the SJMSCP on the Covered Species inhabiting Southwest Zone grasslands will be fully minimized and mitigated because: (1) Take of occupied habitat for the Hospital Canyon larkspur, longhorn fairy shrimp and Conservancy fairy shrimp is prohibited by the SJMSCP; (2) for many of these species, relatively little of their habitats in the Southwest Zone is expected to be lost to the Permitted Activities; (3) pre-construction surveys will ensure the confirmation or discovery of any populations of these species inhabiting the Southwest Zone; (4) Incidental Take Minimization Measures as described in Section 5.2.4 will be implemented; (5) the Plan’s Preserve system will provide long-term compensatory habitat and, where necessary, will focus on the specific needs of these species; (6) the SJMSCP’s Biological Monitoring Plan and Adaptive Management Plan will ensure adjustments to the SJMSCP where necessary to meet the needs of these species, especially the habitat specialists; and (7) much of the Southwest Zone grasslands are expected to remain undeveloped and in their current use under the SJMSCP, thus providing continuing habitat values for the Covered Species.

6.5.3 SAN JOAQUIN KIT FOX/BURROWING OWL

Two of the most important species inhabiting the Southwest Zone are the San Joaquin kit fox (federally listed as endangered and state listed as threatened) and burrowing owl. Within the SJMSCP Plan Area, these species are found primarily in the Southwest Zone. The Southwest Zone is vital to the San Joaquin kit fox because it contains the type of grassland habitat on which the kit fox depends in the northern part of the species’ range. This area also serves as a movement corridor connecting the northern part of the kit fox range in San Joaquin, Contra Costa, and Alameda Counties with the species’ core habitat areas in the central and southern parts of the San Joaquin Valley. Table 4.3-1 estimates that up to 4% (1,778 acres) of kit fox habitat may be lost as a result of SJMSCP Permitted Activities in San Joaquin County. General measures to minimize and mitigate the effects of this Take on the kit fox are described in Section 6.5.2 above. However, the SJMSCP contains two additional measures to help protect kit foxes in the Plan Area. The first is a requirement to maintain a continuous corridor of good-quality habitat in the Southwest Zone connecting the northern and southern parts of the kit fox range, and a continuous corridor of habitat southwest of I-580 (see Section 5.5.3). For purposes of these provisions, “good-quality habitat” must include gentle slopes averaging less than 15%. The second is a set of provisions preventing the creation of barriers to dispersal for the kit fox and other Covered Species along certain transportation corridors in the plan area through the adoption of special design features (see Section 5.5.8). These measures, together with those described in Section 6.5.2, are expected to fully mitigate for the impacts of the SJMSCP on the kit fox.

Burrowing owls occur in the SJMSCP’s Central Zone, Vernal Pool Zone, Southwest Zone, and Central/Southwest Transition Zone. Mitigation measures described in Section 6.5.2 will help protect the burrowing
owl in all these areas. Incidental Take Minimization Measures for the burrowing owl described in Section 5.2.4.15 involve either discouraging use of a construction site by owls or, where they are already present, the destruction of burrows while the owls are absent. Each of these measures is intended to prevent avoidable take of owls during the Permitted Activities. In addition, the SJMSCP prohibits development or conversion of more than 10% of known occupied and potential burrowing owl habitat (i.e., 19,533 acres of the estimated 195,325 acres of available habitat for the owl in the County) unless certain conditions are satisfied (see Section 5.5.2.4). These conditions involve the development or collection of new data concerning the range or distribution of the burrowing owl in San Joaquin County or the expected effects of proposed development on these species. Thus, there is currently an upper limit on allowable development in burrowing owl habitat, which can be revised based on new information. These measures, together with those described in Section 6.5.2 and including the establishment of Preserves in the four Index Zones inhabited by the owl, are expected to fully mitigate for the effects of Permitted Activities on this species.

6.5.4 VERNAL POOL CRUSTACEANS

As explained in Section 6.2.2, only one vernal pool crustacean, the vernal pool fairy shrimp, is currently known to occur in San Joaquin County, but the vernal pool tadpole shrimp probably inhabits the Vernal Pool Zone. In addition, there is a small chance that the longhorn fairy shrimp and Conservancy fairy shrimp might occur in scattered wetlands within the Southwest Zone—however, Take of occupied habitat for both the longhorn and Conservancy fairy shrimps is prohibited by the SJMSCP. Therefore, impacts to these two species are not anticipated.

6.5.5 RIPARIAN CORRIDORS/CALIFORNIA RED-LEGGED FROG

Covered Species within the SJMSCP that rely on riparian/riverine habitats within the Southwest Zone include the Valley elderberry longhorn beetle and foothill yellow-legged frog. The valley elderberry longhorn beetle is addressed in detail in Section 6.3.4. The California red-legged frog is primarily associated with ponds but may also utilize ephemeral and perennial stream corridors. Most habitat Conversion activities within the Southwest Zone are anticipated to occur outside existing riparian corridors. Nevertheless, Table 4.3-1 estimates that up to 6% of California red-legged frog habitat (440 acres) and 8% of foothill yellow-legged frog habitat (393 acres) could be lost over the life of the SJMSCP. However, these figures include potential habitat not currently known to be occupied and upland habitat outside riparian corridors and thus could be high-end estimates.

The SJMSCP requires the following measures to protect riparian corridors, red-legged frogs, and yellow-legged frogs in the Southwest Zone: (1) the protection of 0.25 linear mile of stream course along Corral Hollow Creek within a Riparian Preserve—see Section 5.4.4.2(C); (2) 300-foot setbacks on each side of any watercourse (a total of 600 feet) with known populations of California red-legged frogs or foothill yellow-legged frogs (see Section 5.2.4.7); (3) requirements concerning destruction of aquatic habitats potentially supporting these frogs (see Section 5.2.4.7); and (4) the inclusion of occupied red-legged frog habitat in any Preserve established where occupied red-legged frog habitat was likewise destroyed or otherwise affected by the SJMSCP Permitted Activities (see Section 5.5.5). The SJMSCP’s Preserve strategy also requires that high priority be given to acquiring Preserves for red-legged frogs in areas without red-legged frog non-native predators and competitors. Thus, the impacts of the Plan's Permitted Activities within the Southwest Zone are expected to be minimal.

6.5.6 DIABLAN SAGE SCRUB/BELL’S SAGE SPARROW
The Bell’s sage sparrow is the Covered Species most strongly associated with sage scrub habitat within the Southwest Zone. Sage scrub is unlikely to be affected by land Conversions planned under the SJMSCP (Table 4.3-1 estimates that 0% of currently available habitat for this species will be lost). Thus significant adverse impacts to the Bell’s sage sparrow as a result of the SJMSCP are not anticipated. However, in the event that sage scrub habitat is affected by SJMSCP Permitted Activities, the mitigation strategy requires compensation for affected habitat at a 3:1 mitigation ratio. Furthermore, the SJMSCP’s Adaptive Management Plan will further address the needs of this species should such Conversions occur. Based on this, the status of this species in the Southwest Zone is generally expected to remain at current levels throughout the life of the Plan.

6.5.7 BLUE OAK CONIFER

Open woodlands within the Southwest Zone support Covered Species including the Hospital Canyon larkspur and showy madia—Take of occupied habitat for both of these species is prohibited pursuant to the SJMSCP. As with the Diablan sage scrub, however, few habitat losses are anticipated within blue oak conifer woodlands. Table 4.3-1 estimates that 6% of available habitat for the Hospital Canyon larkspur and showy madia may be lost during the SJMSCP Covered Activities. However, these figures represent potential as well as occupied habitat for these species, and include habitats in the Southwest Zone more likely than Blue Oak Conifer to be affected by the Plan (e.g., grasslands). Furthermore, the SJMSCP’s mitigation strategy requires pre-construction surveys for these species should any development occur in Blue Oak Conifer habitat, as well as habitat replacement through the establishment of Blue Oak Conifer Preserves. Thus, the Hospital Canyon larkspur and showy madia are not likely to be affected by the SJMSCP Permitted Activities and may even benefit under the Plan if they become protected and managed in Specialty Preserves.

6.5.8 OVERALL PLAN EFFECTS IN THE SOUTHWEST ZONE

The predominant habitat type in the Southwest Zone is grasslands. However, the proportion of intermixed shrub and tree habitat goes up with increasing elevation, resulting in the various habitat types in this SJMSCP Index Zone. Riparian corridors also exist in this Index Zone. Most Covered Species occupying the Southwest Zone—with the exception of the large-flowered fiddleneck, Hospital Canyon larkspur, showy madia, recurved larkspur, and San Joaquin kit fox—are wide-ranging species that occur in multiple SJMSCP Index Zones. Of these, the SJMSCP prohibits Take of occupied habitat for the large-flowered fiddleneck, Hospital Canyon larkspur and showy madia. Many (including the kit fox) also have ecological needs that are, at least in part, compatible with land use practices common to the Southwest Zone (e.g., cattle grazing). Others—like the four plant species mentioned above—have fairly restricted or specialized habitat requirements.

The SJMSCP projects that relatively little of the total habitat available in the Southwest Zone (1,542 acres of Natural Lands out of a total of approximately 67,000 acres of habitat) will be converted to other uses during the Plan’s Permitted Activities. However, if this level of development occurs, almost 5,000 acres of Grassland, Riparian, Diablan Sage Scrub, and possibly Blue Oak Conifer Preserves will be established in the Southwest Zone. SJMSCP Preserve design criteria (see Section 5.4.4) requires Preserve sizes ranging from 40 acres (Blue Oak Conifer Preserves) to 320 acres (Grassland Preserves). In addition, habitat management and enhancement activities specialized for the needs of the Southwest Zone Covered Species will occur on the Preserve lands (see Section 5.4.6 to 5.4.8). Furthermore, the SJMSCP’s Biological Monitoring Plan and Adaptive Management Plan will, where necessary, contribute to adjustments to the Plan’s conservation program (including its Preserve system) for all Southwest Zone species. Finally, at the end of the 50-year term of the SJMSCP, if the anticipated amount of habitat Conversion and habitat protection occurs, the majority of grassland habitat within the Southwest Zone should remain in its current pattern of use (primarily rangeland), thus contributing to continuing habitat availability for Southwest Zone Covered Species.
However, at least one residential development not covered under the SJMSCP is also occurring in the Southwest Zone—Tracy Hills—which will result in the loss of about 1,500 acres of grasslands. Tracy Hills is establishing its own mitigation program, however. In addition, habitat Conversions for agricultural purposes (e.g., conversion of grasslands to orchards or vineyards) could also occur; although this activity is also not covered by the SJMSCP (although it is a Permitted Activity within the Vernal Pool Zone), any such conversions would be subject to ESA/CESA requirements independently of the SJMSCP.

In summary, the Covered Species will, in most cases, experience some habitat loss in the Southwest Zone but the amount of loss, the beneficial effects of mitigation, and the overall consequences for the status of each species may vary to some extent. However, most Southwest Zone species are relatively wide-ranging, and the SJMSCP’s Incidental Take Minimization Measures, habitat compensation and Preserve system requirements, and Biological Monitoring Plan and Adaptive Management Plan are expected to fully mitigate for the impacts of SJMSCP Permitted Activities in the Southwest Zone. For the most narrowly distributed (the three plants), Take of occupied habitat is prohibited to ensure maintenance of existing populations. Together with the continuing availability of grassland habitats in the Southwest Zone, these measures should ensure the long-term survival of all SJMSCP Covered Species inhabiting this Index Zone.

6.6 CENTRAL/SOUTHWEST TRANSITION ZONE

The Central/Southwest Transition Zone is bounded by I-580 and the Southwest Zone to the southwest, the Primary Zone of the Delta to the north, the Central Zone to the east, and the Alameda County line to the west. The Chrisman and Lammersville communities are located entirely within the Central/Southwest Transition Zone, as is most of the city of Tracy. Mountain House Creek is the primary drainage crossing through the Central/Southwest Transition Zone (although a portion of this creek also is located within the northern portion of the Southwest Zone). The Central/Southwest Transition Zone was established by the SJMSCP primarily to allow a special exception to the Plan requirement that impacts to the Covered Species in any given SJMSCP Index Zone be compensated in the same Index Zone (See Section 5.1.2.6). Section 5.1.2.6 describes the basis for this exception. Primarily it involves the fact that the San Joaquin kit fox may sometimes occur outside the Southwest Zone in the area identified as the Central/Southwest Transition Zone. Thus, this provision allows compensation for habitat conversions in the Central/Southwest Transition Zone to occur in either the Central Zone or the Southwest Zone. For example, compensation for conversion of Row and Field Crop Habitat in the Central/Southwest Transition Zone would probably occur in the Central Zone, and compensation for conversion of Grassland Habitat in the Central/Southwest Transition Zone would probably occur in the Southwest Zone. In addition, within this area, Preserve design criteria places a high priority on the establishment of stepping stone refugia for the San Joaquin kit fox which, recent studies indicate, may travel along the canal corridors.

The Central/Southwest Transition Zone contains primarily Row and Field Crop Habitat associated with the Central Zone. Any Row and Field Crop Habitat acreage in the Central/Southwest Transition Zone is included in the acreage figures provided for this habitat type in the Central Zone section. Thus, the effects of the SJMSCP on this habitat type and its associated Covered Species are addressed in Section 6.4. The Central/Southwest Transition Zone also contains some Natural Lands associated with small creeks and the southern boundary of Old River. A limited amount of Grassland Habitat associated with the Southwest Zone and bordering I-580 is also found in the Central/Southwest Transition Zone. Similarly, the effects of the SJMSCP on these grasslands and their associated Covered Species are addressed in Section 6.5. In light of the fact that the effects of habitat Conversion on applicable habitat types or Covered Species in the Central/Southwest Transition Zone are addressed in either the Central Zone discussion or Southwest Zone discussion, depending on the species, no further analysis of effects of the SJMSCP in the Central/Southwest
6.7 **INDIRECT EFFECTS**

The SJMSCP Permitted Activities include one category which has been determined by the Permitting Agencies to result in indirect effects to SJMSCP Covered Species--Transportation Projects. Specifically, the Permitting Agencies have determined that at least some of the SJMSCP Covered transportation projects are potentially growth-inducing. This potential impact has been considered by the SJMSCP and is addressed by the Plan. This is because the Plan assumes that full build-out of the Cities’ and County’s general plans will occur over the next 50 years, and includes all this development in its habitat compensation program. Thus, any indirect growth-inducing effects of any transportation projects constructed under the SJMSCP is addressed by the Plan and is fully mitigated, since all potential urban development in San Joaquin County (with the exception of Tracy Hills, as described in Section 6.5) is included in its mitigation requirements.

Similarly, analyses of SJMSCP impacts, including those related to growth inducement, were based on an assumption that all individuals and all jurisdictions will participate in the SJMSCP. Therefore, although the SJMSCP is a voluntary plan (see Section 8.4) potential impacts occurring for all SJMSCP Permitted Activities within all jurisdictions and undertaken by all individuals for the next 50 years (whether those individuals or jurisdictions participate in the SJMSCP or not) were analyzed as if such activities were undertaken pursuant to the SJMSCP and as if all jurisdictions participate in the SJMSCP. In other words, total land to be converted from open space Countywide (as projected from local land use plans, local and state transportation plans and other sources listed in Chapter 3) was used as the basis for the analysis of impacts associated with the SJMSCP. In this manner, a worst-case assessment of impacts was possible and provided the basis for a full analysis of SJMSCP direct and indirect impacts.
7. ECONOMIC ANALYSIS

7.1 OVERVIEW

One of the primary reasons that communities are increasingly pursuing regional habitat conservation plans is to streamline the development permitting process, thereby saving time and money during the environmental review process. Further, the predictability associated with these plans appeals to many business interests and, when the diverse factors related to selecting a new business location are equal, habitat conservation plans can help tip the scales in favor of communities which have resolved their habitat conservation planning issues.

In order to realize these benefits, the ESA requires that a habitat conservation plan provide assurances that it is adequately funded to provide Preserve lands as needed to offset the impacts of new development. Similarly, CESA requires that Incidental Take Permit applicants ensure adequate funding to implement minimization and mitigation measures, such as the creation of Preserve lands, and to monitor compliance with and effectiveness of those measures.

The following analyzes the costs of the SJMSCP, describes the process used to determine a fair distribution of costs for the SJMSCP, describes the mechanisms by which the SJMSCP shall be funded, describes the overall SJMSCP funding plan, describes SJMSCP funding assurances, and includes an analysis of the costs versus the benefits of implementing the SJMSCP. This information is summarized from the Economic Analysis for the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP Economic Analysis), prepared April 7, 1997, by Hausrath Economics Group, hereby incorporated by reference and contained in Appendix Q.

7.2 PLAN COSTS

The purpose of the SJMSCP cost analysis is to generate estimates of the costs to preserve Open Space lands in San Joaquin County pursuant to the SJMSCP. The total cost of the SJMSCP is the sum of four components:

A. Acquisition of Preserve lands (and associated transaction costs),
B. Monitoring and restoration and/or enhancement of Preserve lands,
C. Endowment for long-term management of Preserve lands, and
D. Initial and on-going administration of the Plan.

Costs of acquisition, monitoring, enhancement and/or restoration, and endowment components vary depending upon the type of Preserve lands.
being acquired and enhanced and, in many cases, the location of the Preserve lands being acquired (see Table 7-1 for variations).

7.2.1 PRESERVE LAND ACQUISITION COSTS

Under the SJMSCP, the JPA would acquire Preserve lands through acquisition of fee title interest (all of the rights of ownership and control) or would acquire conservation easements (a limited set of rights to the property, short of full ownership and control). For any given parcel of land, the cost of a conservation easement is less than the cost of fee title interest, because the seller of the conservation easement retains title to the property and is free to use the land and continue to generate economic return from the land, subject to the provisions of the easement agreement (see Appendix H). Because of this cost differential and because many existing agricultural practices are compatible with the needs of SJMSCP Covered Species, most of the Preserve acquisition is expected to be in the form of conservation easement agreements. While the exact percentage of land to be acquired through the purchase of easements remains flexible in the SJMSCP, it is estimated that up to 90% of Preserve lands will be acquired by means of conservation easements, and up to 10% of the Preserve lands will be acquired via fee title. All transactions require a willing seller.

Another component of the acquisition strategy is that the land acquired for Preserves mirror the habitat types within the Open Spaces Converted. The JPA will categorize land Conversions by the SJMSCP Index Zone in which it occurs, and will use the SJMSCP Index Zones as the primary means of identifying potential lands for acquisition. Therefore, as the SJMSCP is implemented, the distribution of Preserve lands by SJMSCP Index Zone will be roughly the same as the distribution of land Conversion by SJMSCP Index Zone (for limited exceptions to this, see Section 5.1.2.6). Because of differences in land characteristics and cropping patterns captured by the SJMSCP Index Zone distinctions, the SJMSCP Index Zones are important categories for the land cost analysis. As described below, land acquisition costs reflect the land cost differences by SJMSCP Index Zone.

7.2.1.1 Land Value Assumptions

The land cost estimates developed for the SJMSCP cost analysis are based on an analysis of real estate transactions in San Joaquin County during 1994, 1995, and early 1996. A database of transactions from DataQuick was used in this analysis. The primary source of the DataQuick information is the San Joaquin County Assessor's offices. The original database included over 750 transactions of parcels with the following use designations: irrigated vegetable crops, irrigated field crops, orchards, vineyards, irrigated pasture, dry grazing, dairy farms, and chicken ranches.

The goal of the analysis was to develop average estimates of the cost to acquire fee title interest in land that satisfied the SJMSCP Preserve criteria.
(see Section 5.4.4). To develop land value estimates representative of the types of parcels that would be acquired as Preserves under the SJMSCP, required sorting out transactions that did not satisfy those location or land use parameters. The methodology to develop land cost estimates had to narrow the set of transactions to include only those most similar to the types of "willing seller" transactions that would be the target of the JPA's acquisition efforts. A necessary element of this process also was to eliminate transactions representing significant speculative value (i.e., value derived from expectations that land would generate higher economic return in the future as a consequence of Conversions to orchards or vineyards or, more permanently, to a residential subdivision).

Initially, the following transactions were removed from the database: partial interest transactions (i.e., less than fee title interest), transactions outside of the County boundaries (since the County has indicated a preference that lands acquired pursuant to the SJMSCP be located within the County and that policy has been adopted as part of the SJMSCP), and parcels with inappropriate uses such as poultry farming and dairies. Transactions involving orchard and vineyard lands also were eliminated. Because of the higher economic value of the crop, orchard and vineyard lands sell for substantially higher per acre prices than do other types of agricultural lands in San Joaquin County. While orchards and vineyards (Multi-Purpose Open Spaces) have value as Open Space resources, their habitat value for SJMSCP Covered Species is relatively low (for the reasons discussed in Section 4.1). For these reasons, orchard and vineyard lands are not a priority for Preserve acquisition and transactions involving these lands were eliminated from the database.

Finally, so as not to skew the results, transactions that indicated extreme average values, generally greater than $15,000 per acre, were removed from the database. At the same time, multi-parcel transactions were combined so that average values per acre could be estimated based upon the entire land transaction and not the values attached to individual parcels.

From the focused database, two sets of transaction data were created. One set consisted of transactions involving dry grazing and dry farming lands--equivalent to the types of grassland habitats that would be acquired in the Southwest Zone and the Vernal Pool Zone. The other set consisted of transactions involving irrigated field and vegetable crops and irrigated pasture--equivalent to the types agricultural habitat lands and related riparian and Water's Edge Preserve Types.

Two final revisions were then made to the remaining parcels. Parcels of less than 20 acres were removed from the database since these potentially reflect value as home sites and would not be representative of typical Preserve lands. Second, only those transactions involving parcels outside of urban development boundaries indicated on the SJMSCP Planned Land Use Map were retained in the final analysis since these lands both reflect less
speculative land value (and therefore lower costs) and provide larger tracts of interconnected habitat lands which will not be fragmented by development and, therefore, ultimately may provide higher habitat value for SJMSCP Covered Species.

The remaining transactions were sorted by SJMSCP Index Zone and average land values per acre for transactions within each SJMSCP Index Zone were computed. Table 7-1 presents the results of the land value analysis, showing estimated Preserve costs, per acre, for fee title acquisition and for purchase of easements. The following points provide some context for those estimates from the transaction database.

A. Because of cropping patterns and other factors, land values in the Primary Zone of the Delta are substantially lower than they are for row and field crop land in other parts of the County. The cost to acquire fee title interest in an acre of land in the Primary Zone of the Delta that would be suitable habitat is estimated at $1,400. The final set of transactions used to develop that estimate excluded transactions of less than 100 acres and parcels where an existing residence appeared to add significant value. The per-acre values for the resultant transactions ranged from just over $400 per acre to $2,300 per acre. The average parcel size was 380 acres.

B. An average value of $3,700 per acre is used to estimate the cost to acquire fee title interest in agricultural habitat lands elsewhere in the County. That value was derived from transactions of irrigated row and field croplands in the Central Zone. The final set of transactions excluded those involving parcels of less than 100 acres and parcels where an existing residence appeared to add significant value. A large transaction just on the edge of the urban development boundary of Stockton also was excluded to reduce the potential for including a component of speculative value in the results. The average land values for the resultant final set of transactions ranged from just over $1,000 per acre to about $7,900 per acre. Most of the transactions ranged form $3,200 per acre to $4,500 per acre. The average parcel size was about 170 acres.

C. The average value for grasslands in the Southwest Index Zone is estimated to be approximately $700 per acre. In the final set of transactions used to develop this average, the range of values was $350 per acre to $2,050 per acre. The average transaction size was about 1,300 acres.

D. The cost to acquire in fee title vernal pool grasslands, generally along the northern and eastern ends of the County (within the Vernal Pool Zone), is estimated to be about $1,100 per acre. In the
The final set of transactions used to develop that average value, parcels less than 100 acres were excluded. The values ranged from $300 per acre to $3,270 per acre, the high end value reflecting a transaction involving some irrigated field crops in addition to the grasslands. On average, there were approximately 410 acres in each transaction.

E. The cost to acquire *Vernal Pool Zone* Large Area and Small Area Preserves is estimated to be approximately $2,300 per acre. Because this land is the edge of streams, creeks, sloughs, marshes, and ditches that run through row and field crop land and grasslands, it was assumed not to have land value independent of the adjacent croplands and grasslands. Therefore, the estimate of average land value was derived from the transactions for both irrigated row and field crops and grasslands.

F. Similarly, the land value estimates for riparian Preserves within row and field crop lands in both the *Primary Zone of the Delta* and the rest of the County are the same. The riparian habitat is assumed to be primarily the riparian edges of agricultural lands. Moreover, there are not many instances of transactions involving riparian edges only.

7.2.1.2 Easement Value Assumptions

Once fee title costs for potential Preserve lands were determined, these costs had to be converted into easement costs.

Existing agricultural practices for row and field crops and grazing are generally compatible with the SJMSCP enhancement and management goals for some SJMSCP Covered Species (see Sections 5.4.6 and 5.4.7). Several of the SJMSCP Covered Species rely on habitat provided by rangelands, irrigated fields, and low-lying crops (e.g., most species associated with the *Central Zone* row and field crop habitats, the *Southwestern Zone* grasslands, and the *Vernal Pool Zone* vernal pool grasslands -- see Section 5.4.4). Therefore, maintaining agricultural production values on most Preserve lands is a key goal of the SJMSCP. This is most efficiently accomplished by acquisition of easements ensuring continued agricultural use in support of habitat and Open Space needs. The acquisition of such a conservation easement represents the acquisition of any rights to develop or use land in ways that would jeopardize its value as habitat or Open Space. All other rights to productive use of the land would be retained by the owner of fee title interest (should those productive uses include activities which are inconsistent with the conservation strategy of the SJMSCP, lands would not be acquired for Preserves).

Under the SJMSCP, the value (or cost to the JPA) of the conservation easement would typically represent the value of the rights foregone by the
owner of the fee title interest. Those will vary depending on the location and characteristics of the parcel, the expectations of the property owner, the market conditions of various crops, and the existing agricultural practices on the property. Typically, the conservation easement would require the land to remain in agricultural use (or in its otherwise natural state) and would prohibit Conversion to orchard or vineyards (crops not considered high value habitat lands as discussed in Section 4.1).

Most of the Preserve acquisition under the SJMSCP is expected to be acquisition of conservation easements. Therefore, it was important to develop a good understanding of the potential value of such an easement for the purposes of the acquisition cost component of the cost analysis.

Research into the typical values for conservation easement purchases revealed a wide range of values consistent with the individualized and negotiated character of such transactions. The experience of the California Department of Fish and Game's (CDFG) conservation easement program for Central Valley wetlands is that easement values ranged from 25% to 75% of fee title value. Analysis of opportunity costs and agricultural values conducted by the Center for Natural Lands Management (CNLM) in support of the Swainson's Hawk Habitat Conservation Program Mitigation Fee in 1992, prepared for the City of Stockton, indicated that conservation easements under that program would cost, on average, about 40% of the full market price of equivalent land. Other factors considered by the CNLM analysis such as holding costs and the value of land removed from production increased to about 60% the overall cost of the conservation easement purchase relative to fee title acquisition. Interviews conducted for this cost analysis with bankers active in the San Joaquin County agricultural community supported 25% to 40% as a rough rule-of-thumb for estimating the value foregone to agricultural land with a conservation easement such as that proposed under the SJMSCP.29

The assumption used for the purpose of developing the land cost factors is that, on average, conservation easement purchase prices would be 50% of the fee title purchase price. That assumption is shown in Table 7-1.

As the SJMSCP is implemented, all transactions will be negotiated and tailored to the characteristics of each parcel. All easement transactions will be based on a formal appraisal of each property under consideration. The assumption about easement value used in the cost analysis is a conservative factor for the purpose of estimates. It is not a ceiling or floor to the actual costs that might be paid.

7.2.1.3 Transaction Costs

29 Please refer to page V-3 of the SJMSCP Economic Analysis for the list of persons consulted.
Transaction costs are estimated at five percent of the total transaction value. The costs include title search, appraisal, title insurance, other closing costs, and recording any deed restrictions or conservation easements.\textsuperscript{30}

\textsuperscript{30} Based on a review of other habitat conservation plan studies including: CNLM, San Joaquin County Swainson’s Hawk Conservation Program Mitigation Fee Determination, 1992/93; and Economic and Planning Systems, Draft Economic Technical Background Report: Yolo County Habitat Management Plan, June 1994.
### TABLE 7-1
**ESTIMATED SJMSCP PRESERVE ACQUISITION COSTS PER ACRE BY INDEX ZONE (1996 DOLLARS)/c/**

<table>
<thead>
<tr>
<th>Preserve Type</th>
<th>Percent of Total/a/</th>
<th>Fee Title Cost per Acre</th>
<th>Easement Percent of Fee Title</th>
<th>Easement Cost Per Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Agricultural Habitat Lands</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary Zone of the Delta</td>
<td>3%</td>
<td>$1,400</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central Zone</td>
<td>97%</td>
<td>$3,700</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Weighted Average, Agricultural Habitat Lands</strong></td>
<td>100%</td>
<td>$3,600</td>
<td>50%</td>
<td>$1,800</td>
</tr>
<tr>
<td><strong>Natural Lands</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Riparian/b/</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary Zone of the Delta</td>
<td>11%</td>
<td>$1,400</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central Zone Riparian</td>
<td>89%</td>
<td>$3,700</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Weighted Average, Riparian</strong></td>
<td>100%</td>
<td>$3,500</td>
<td>50%</td>
<td>$1,750</td>
</tr>
<tr>
<td>Central Zone edges of agricultural lands and grasslands</td>
<td></td>
<td>$2,300</td>
<td>50%</td>
<td>$1,150</td>
</tr>
<tr>
<td>Southwest Zone Grasslands</td>
<td></td>
<td>$700</td>
<td>50%</td>
<td>$350</td>
</tr>
<tr>
<td>Vernal Pool Zone Upland Grasslands and Wetted Vernal Pool Surface Area</td>
<td></td>
<td>$1,100</td>
<td>50%</td>
<td>$550</td>
</tr>
</tbody>
</table>

**/a/** Percent of Preserve lands by habitat type anticipated for Preserves within each **SJMSCP Index Zone**. For cases in which habitat types span **Index Zones** with different land values, used to derive weighted average land cost factor by habitat type.

**/b/** Riparian habitat in **Primary Zone of the Delta** and **Central Zone**. Assumed to be primarily riparian edges of agricultural lands.

**/c/** Fees based upon these figures will be adjusted to 1998 dollars pursuant to the **California Construction Cost Index (CCCI)** and **Section 7.5.2.2** six months after the **SJMSCP’s Effective Date**. Thereafter, fees will be adjusted annually as provided in **Section 7.5.2.2**.

### 7.2.2
**RESTORATION AND ENHANCEMENT COSTS**
Preserve lands acquired under the SJMSCP will undergo varying levels of enhancement as described in Section 5.4.6.

The elements of the cost assumptions for each Preserve Type are described below:

A. The agricultural land enhancement cost of $100 per acre covers the cost of planting hedgerows, construction and installation of nesting platforms, bat boxes, and burrowing owl sites, and other activities. The average per acre cost covers costs of enhancements to habitats which begin as relatively low-value habitats. See the next paragraph for enhancement costs for riparian edges within agricultural row and field crops.

B. The riparian enhancement cost of $600 includes extensive site preparation, plant propagations, irrigation, weed control, signing and fencing.

C. The enhancement cost shown in Table 7.2.2-1 for the Primary Zone of the Delta submerged aquatic habitat covers the costs of restoring submerged aquatic habitat including costs for: site preparation, planting, ensuring that new plants are established.

D. The enhancement cost for Vernal Pool Zone Large Area and Small Area Preserves is estimated at $350 per acre. This reflects a mid-point of the range of similar wetland restoration costs reported by the CDFG.

E. The grassland enhancement cost of $80 per acre applies to grasslands in both the Southwest Zone and the Vernal Pool Zone. The cost includes fencing, testing the soil, preparing the site, propagating cuttings, and controlling exotics.

F. The enhancement cost for vernal pool surface area is $8,300 per Preserve acre. Estimates of the costs of creating vernal pools (surface or wetted area only) ranged from $5,000 per acre to almost $50,000 per acre. This cost analysis assumes $25,000 per acre cost of the creation of new vernal pool surface area. Under the terms of the SJMSCP, compensation for Conversion of vernal pools would require three acres of Preserve for every one acre of Conversion; only one of those three acres would have to be a newly created vernal pool. Therefore, the enhancement cost per acre for all vernal pool surface area Preserve acres would be $8,300 per acre ($25,000 divided by 3 to equal $8,300).

In addition, all of the enhancement costs above include the other initial costs of a biological assessment of the Preserve and preparation of a Preserve Management Plan (see Section 5.4.7.1).
Table 7.2.2-1
ESTIMATED SJMSCP ENHANCEMENT/RESTORATION COSTS (1996 DOLLARS)/c/

<table>
<thead>
<tr>
<th>Type of Preserve</th>
<th>Enhancement Cost per Preserve Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Habitat Lands</td>
<td>$100</td>
</tr>
<tr>
<td>Natural Lands</td>
<td></td>
</tr>
<tr>
<td>Central/Southwest Zone - Riparian</td>
<td>$600</td>
</tr>
<tr>
<td>Primary Zone of the Delta - Submerged Aquatic</td>
<td>$1,200</td>
</tr>
<tr>
<td>Primary Zone of the Delta - Water's Edge</td>
<td>$350</td>
</tr>
<tr>
<td>Southwest Zone - Grasslands</td>
<td>$80</td>
</tr>
<tr>
<td>Vernal Pool Zone - Wetted Surface Area with Creation of Vernal Pools/a/</td>
<td>$8,300</td>
</tr>
<tr>
<td>Vernal Pool Zone - Wetted Surface Area of Vernal Pools With No Creation/b/</td>
<td>$40</td>
</tr>
<tr>
<td>Vernal Pool Zone - Grasslands</td>
<td>$80</td>
</tr>
</tbody>
</table>

/a/ Based on an estimate of $25,000 per wetted acre to create vernal pools. The creation cost only applies to one of every three acres of Preserves: $25,000 divided by 3 equals $8,300 per Preserve acre.
/b/ This component applies only to Vernal Pool Preserves established to offset impacts of Neighboring Land Protections as described in Section 5.3.3.4.
/c/ Fees based upon these figures will be adjusted to 1998 dollars pursuant to the California Construction Cost Index (CCCI) and Section 7.5.2.2 six months after the SJMSCP’s Effective Date. Thereafter, fees will be adjusted annually as provided in Section 7.5.2.2.

7.2.3 MANAGEMENT ENDOWMENT COSTS

Preserve lands acquired under the SJMSCP will undergo varying levels of management as described in Sections 5.4.7 and 5.4.8.

The acquisition and enhancement costs represent the initial capital costs of securing and establishing the SJMSCP Preserves. The SJMSCP must also ensure that those lands are managed in perpetuity for the benefit of plants, fish and wildlife.

Management costs will be satisfied by a one-time, up-front endowment payment, the interest on which is anticipated to be adequate to support Preserve management needs in perpetuity.
The costs for on-going Preserve management used in this cost analysis are based upon precedent established by the California Department of Fish and Game for mitigation of impacts to Swainson's hawk habitat in the Central Valley, and on analyses conducted by the Center for Natural Lands Management, both specific to San Joaquin County and more broadly applicable to land management situations generally.

The generalized CNLM research investigated on-going annual costs of Preserve management. The implied endowment per acre for the cases analyzed and the proposals estimated ranged from just over $100 per acre to almost $7,000 per acre for Preserve management. The properties and projects analyzed in the CNLM study were all fee title Preserves implying a higher level of management than would be the case with Preserves acquired via conservation easements. A key conclusion of the CNLM study is that the variability in per acre costs, depending on goals, management styles, and property characteristics, makes management costs difficult to predict. Another conclusion is that there appears to be significant economies of scale to these costs.

The tasks of on-going Preserve management include annual biological assessments, periodic Preserve management and enhancement plan updates and associated overhead, Preserve maintenance, fencing, signage, and similar activities. Assuming an annual investment income stream of five percent were funding these costs, the one-time endowment required is estimated to be $400 per Preserve acre for agricultural habitat lands and grasslands. Higher costs (resulting in an endowment of $560 per Preserve acre) are assumed for riparian habitats and Delta aquatic Preserve lands.

The following table summarizes the costs of endowments per Preserve acre for management of Preserves within each SJMSCP Index Zone and within each Preserve Type within each SJMSCP Index Zone.

---

31 Memorandum and Staff Report Regarding Mitigation for Impacts to Swainson's hawks in the Central Valley of California, November, 1994.

32 Center for Natural Lands Management, San Joaquin County Swainson's Hawk Conservation Program Mitigation Fee Determination, 1992 and Habitat Management Cost Analysis, 1994.
Table 7.2.3-1
SJMSCP MANAGEMENT COST FACTORS (1996 DOLLARS)/b/

<table>
<thead>
<tr>
<th>Type of Preserve</th>
<th>Management Cost per Preserve Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Agricultural Habitat Lands</strong></td>
<td>$400</td>
</tr>
<tr>
<td><strong>Natural Lands</strong></td>
<td></td>
</tr>
<tr>
<td>Central/Southwest Zone - Riparian</td>
<td>$560</td>
</tr>
<tr>
<td>Primary Zone of the Delta - Submerged</td>
<td>$560</td>
</tr>
<tr>
<td>Natural Lands - Aquatic</td>
<td></td>
</tr>
<tr>
<td>Primary Zone of the Delta - Water's Edge</td>
<td>$400</td>
</tr>
<tr>
<td>Southwest Zone - Grasslands</td>
<td>$400</td>
</tr>
<tr>
<td>Vernal Pool Zone - Creation of Vernal Pools</td>
<td>$400</td>
</tr>
<tr>
<td>Vernal Pool Zone - Preservation of Existing Vernal Pools Wetted Surface Areas/a/</td>
<td>$400</td>
</tr>
<tr>
<td>Vernal Pool Zone - Grasslands</td>
<td>$400</td>
</tr>
</tbody>
</table>

/a/ This component applies only to Vernal Pool Preserves established to offset impacts of Neighboring Land Protections as described in Section 5.3.3.4.

/b/ Fees based upon these figures will be adjusted to 1998 dollars pursuant to the California Construction Cost Index (CCCI) and Section 7.5.2.2 six months after the SJMSCP's Effective Date. Thereafter, fees will be adjusted annually as provided in Section 7.5.2.2.

7.2.4 ADMINISTRATION COSTS

The costs for SJMSCP administration are also expressed as a one-time endowment payment, the annual interest on which would support on-going costs over the long term. These costs include initial and on-going staffing of the JPA, preconstruction surveys, conservation easement monitoring, accounting, insurance, overhead, and contingency (for legal defense and emergency). The estimated cost of endowment for Plan administration is $100 per Preserve acre for all Preserve Types. These costs are based on a review of the same documents cited in the preceding section related to management costs.

7.2.5 SUMMARY OF SJMSCP COSTS
The following tables summarize the total costs of the SJMSCP including costs for acquiring, enhancing, monitoring, and managing Preserves and for administering the SJMSCP developed from the preceding cost analysis—both with and without the costs of shaded riverine aquatic habitat. The costs are expressed as costs per Preserve acre (these are the costs for acquiring, enhancing, and managing Preserves and for SJMSCP administration and are not equal to the development fees to be paid under the SJMSCP for the reasons described in Section 7.3).

The costs are based on the assumption that Agricultural Habitat Land Preserves and the riparian corridors and water's edge habitats running through those lands would be acquired by means of conservation easements while some vernal pool and other grassland Preserves would be acquired in fee title.
<table>
<thead>
<tr>
<th>Type of Preserve</th>
<th>Land Acquisition /a/</th>
<th>Transaction Cost</th>
<th>Enhancement Cost</th>
<th>Land Management and Endowment</th>
<th>Administration</th>
<th>TOTAL COST</th>
<th>Percent of Total Preserve Lands /c/</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Habitat Lands</td>
<td>$1,800</td>
<td>$90</td>
<td>$100</td>
<td>$400</td>
<td>$100</td>
<td>$2,490</td>
<td>57%</td>
</tr>
<tr>
<td>Natural Lands</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Riparian</td>
<td>$1,750</td>
<td>$88</td>
<td>$600</td>
<td>$560</td>
<td>$100</td>
<td>$3,098</td>
<td>19%</td>
</tr>
<tr>
<td>Other Water's Edge</td>
<td>$1,150</td>
<td>$58</td>
<td>$350</td>
<td>$400</td>
<td>$100</td>
<td>$2,058</td>
<td>2%</td>
</tr>
<tr>
<td>Southwest Grasslands</td>
<td>$700</td>
<td>$35</td>
<td>$80</td>
<td>$400</td>
<td>$100</td>
<td>$1,315</td>
<td>4%</td>
</tr>
<tr>
<td>Delta Submerged Aquatic</td>
<td>$700</td>
<td>$35</td>
<td>$1,200</td>
<td>$560</td>
<td>$100</td>
<td>$2,596</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Vernal Pool Surface (Created)</td>
<td>$1,100</td>
<td>$55</td>
<td>$8,300</td>
<td>$400</td>
<td>$100</td>
<td>$9,955</td>
<td>2%</td>
</tr>
<tr>
<td>Vernal Pool Surface and Grasslands</td>
<td>$550</td>
<td>$30</td>
<td>$120</td>
<td>$400</td>
<td>$100</td>
<td>$1,200</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Grasslands (Not Created)/b/</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vernal Pool Grasslands</td>
<td>$1,100</td>
<td>$55</td>
<td>$80</td>
<td>$400</td>
<td>$100</td>
<td>$1,735</td>
<td>16%</td>
</tr>
<tr>
<td>Subtotal Natural Lands</td>
<td>$1,360</td>
<td>$80</td>
<td>$730</td>
<td>$470</td>
<td>$100</td>
<td>$2,730</td>
<td>43%</td>
</tr>
<tr>
<td>GRAND TOTAL /c/</td>
<td>$1,610</td>
<td>$83</td>
<td>$368</td>
<td>$433</td>
<td>$100</td>
<td>$2,593/c/</td>
<td>100%</td>
</tr>
<tr>
<td>Percent of Total</td>
<td>62%</td>
<td>3%</td>
<td>14%</td>
<td>17%</td>
<td>4%</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

/a/ Assumes conservation easements for agricultural, riparian, and other water's edge lands. Assumes fee title acquisition for grasslands (vernal pool) except for .

/b/ This component applies only to Vernal Pool Preserves established to offset impacts of Neighboring Land Protections as described in Section 5.3.3.4. Because creation is not required for this component, acquisition of easements rather than fee title acquisition is assumed.

/c/ Weighting factor used to derive cost over all Preserve lands.
**TABLE 7.2.5-2**

**SJMSCP COST ESTIMATES PER ACRE**

**100,841 ACRE OF PRESERVES**

<table>
<thead>
<tr>
<th>Component</th>
<th>Total Cost</th>
<th>Cost Per Preserve Acre</th>
<th>Total Cost</th>
<th>Cost Per Preserve Acre</th>
<th>Total Cost</th>
<th>Cost Per Preserve Acre</th>
<th>Total Cost</th>
<th>Cost Per Preserve Acre</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquisition</td>
<td>$1,155</td>
<td>$2,450,910</td>
<td>$1,155</td>
<td>$17,971,800</td>
<td>$735</td>
<td>$149,415,500</td>
<td>$1,810</td>
<td>$145,000</td>
<td>$1,310</td>
</tr>
<tr>
<td>Enhancement</td>
<td>$8,300</td>
<td>$17,612,600</td>
<td>$80</td>
<td>$1,244,800</td>
<td>$220</td>
<td>$18,161,000</td>
<td>$1,200</td>
<td>$100,000</td>
<td>$440</td>
</tr>
<tr>
<td>Land Management</td>
<td>$400</td>
<td>$848,800</td>
<td>$400</td>
<td>$6,224,000</td>
<td>$50</td>
<td>$36,322,000</td>
<td>$0</td>
<td>$0</td>
<td>$400</td>
</tr>
<tr>
<td>Administration</td>
<td>$100</td>
<td>$212,200</td>
<td>$100</td>
<td>$4,556,000</td>
<td>$100</td>
<td>$8,255,000</td>
<td>$100</td>
<td>$25,000</td>
<td>$100</td>
</tr>
<tr>
<td><strong>TOTAL COST</strong></td>
<td>$9,855</td>
<td>$21,124,510</td>
<td>$1,155</td>
<td>$26,996,000</td>
<td>$2,570</td>
<td>$212,153,500</td>
<td>$2,570</td>
<td>$250,000</td>
<td>$2,570</td>
</tr>
</tbody>
</table>

---

/a/ This “created” component refers to the SJMSCP’s compensation ratio of 3:1 for Conversion of vernal pool habitats for activities covered by the SJMSCP whereby two acres of existing vernal pool acres are preserved and one acre is created. This component does not include vernal pool preserves established pursuant to the SJMSCP to address impacts associated with Neighboring Land Protections.

/b/ Including transaction costs.

/c/ Costs of enhancing upland grasslands ($80) plus cost of enhancing wetted surface area ($40) equals $120.
TABLE 7.2.5-3
TOTAL ESTIMATED PLAN COSTS PER ACRE/a/
ALL PRESERVE TYPES
100,841 Acres of Preserves

<table>
<thead>
<tr>
<th>Component</th>
<th>Cost Per Preserve Acre/b/</th>
<th>Total Cost/b/</th>
<th>Percentage of Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquisition/c/</td>
<td>$1,692</td>
<td>$170,623,325</td>
<td>65%</td>
</tr>
<tr>
<td>Enhancement</td>
<td>$368</td>
<td>$37,136,200</td>
<td>14%</td>
</tr>
<tr>
<td>Land Management</td>
<td>$433</td>
<td>$43,653,840</td>
<td>17%</td>
</tr>
<tr>
<td>Administration</td>
<td>$100</td>
<td>$10,084,100</td>
<td>4%</td>
</tr>
<tr>
<td><strong>TOTAL COST</strong></td>
<td><strong>$2,593</strong></td>
<td><strong>$261,497,465</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

/a/ Totals are from Table 7.2.5-2
/b/ Rounded to nearest dollar.
/c/ Including transaction costs.

The total per acre cost ranges from about $1,300 for the southwest grassland Preserves to almost $10,000 for vernal pool surface area (attributable to the high enhancement costs for this Preserve Type). The total cost for Agricultural Habitat Lands and Riparian Preserves (together representing almost 90% of all Preserve lands) would range from $2,500 per acre to $3,100 per acre.

The grand total cost of $2,593 per acre is the average cost over all types of Preserves, weighted by the expected distribution of Preserve land by type.

7.2.6 METHODS TO REDUCE PLAN COSTS

The preceding cost estimates are intended to be conservative, i.e., on the high side, in the interest of planning for adequate funding. There are a number of strategies, described below, in which the actual operation of the SJMSCP would result in lower costs. Such economies would be reflected in the periodic reviews of the SJMSCP Funding Plan every three years (see Section 7.5.3).

A. Implement cost effective acquisition strategies, focusing on large tracts of land and land adjacent to public lands or other Preserves. Acquire lands from adjacent landowners, reducing the need for buffers and the costs required to minimize edge effects between habitat and Open Space lands and nearby activities.

B. Use professional land management expertise to negotiate fair prices from willing sellers.
C. Acquire less expensive lands, e.g., some vernal pool and other grasslands, in fee title. (This has been assumed in the cost analysis).

D. Encourage dedication of habitat and Open Spaces in lieu of fee payments (e.g., Tracy Hills and West Lathrop Specific Plan). This is most likely for owner/developers of large tracts of land; there is likely to be a strong economic rationale for those developers, assuming the land was initially acquired at relatively low prices. Moreover, the dedicated Open Space enhances property values and market values of the rest of the development.\(^{33}\)

E. Manage habitat and Open Space land for hunting, grazing, farming, or other revenue-generating activities, where compatible with conservation goals and assuming revenues would be high enough to offset any increase in on-going management costs. This option will normally apply to lands acquired in fee title and leased [see Section 5.4.5(O)]. Compatibility of these activities with conservation goals shall be determined by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC.

F. Partnerships with non-profit conservation organizations may reduce costs and provide some supplemental funding. This has been successful in other habitat conservation planning efforts in California. Likely partners would be organizations involved in on-going nearby conservation efforts, e.g., in the Delta and southern Sacramento County.

G. Purchase land for investment purposes and re-sell at a profit.

H. Accepting lands offered as gifts to the SJMSCP, often in exchange for receiving state and/or federal tax benefits, which meet the Preserve design criteria established in Section 5.4.4.

7.3 DETERMINATION OF FAIR SHARE APPORTIONMENT OF PLAN COSTS

The SJMSCP is a multi-species habitat conservation and Open Space plan. The purpose of the SJMSCP is to encourage continued development and economic growth consistent with current general plans of San Joaquin County and the seven cities in the County, while at the same time providing a means of protecting permanent habitat and Open Space lands for the benefit of plants, fish, wildlife and human populations.

Implementation of the SJMSCP requires a funding proposal that is equitable and acceptable, while compensating for the loss of Open Space and habitat resources. The approach to the fair share apportionment of Plan costs is guided by the language and intent of general plan documents in San Joaquin County and its seven cities. These general plans contain policies establishing the value and importance of environmentally

sensitive lands and Open Space resources to agricultural productivity, biodiversity, and the welfare of county residents (see Appendix E).

Those plans also document how habitat and Open Space are becoming increasingly scarce resources in San Joaquin County. Past Open Space land conversion has contributed to the current need for preservation, and future development of Open Space and habitat will reduce even further the acreage of those resources. Permanent preservation of Open Space and habitat is needed to offset that impact and to formalize a land conservation component of local land use planning. The Plan has clear benefit not only to new residents and businesses in San Joaquin County, but to existing residents and businesses as well.

Consistent with this policy direction, the proposed funding plan spreads costs of permanently preserving Open Space and habitat land in San Joaquin County among all those who benefit: existing residents and businesses and future development and related activities in the County. Or, restated, the costs of the SJMSCP shall be paid by two categories of beneficiaries as follows:

A. **New Development** (i.e., those undertaking new development projects pursuant to the SJMSCP). This category shall be funded primarily through the payment of development fees by individuals undertaking new development projects pursuant to the SJMSCP. Development fees are derived and described in Section 7.4.1.

B. **Other Sources** (i.e., sources other than those undertaking new development projects pursuant to the SJMSCP). This category shall be funded through state and federal funding sources (which represent the local resident beneficiaries), conservation banking, lease revenues, revolving funds/resales, investments and similar sources (see Section 7.4.2).

To determine what share of the total SJMSCP costs should be allocated to each of these two funding categories, the SJMSCP planners turned to history.

SJMSCP planners concluded that the current threats to the long-term survival of SJMSCP Covered Species and the current need to preserve agricultural lands, scenic and recreational resources, and other beneficial Open Space uses in the County cannot be blamed solely on new development projected to occur between 2001-2051. Past, unmitigated conversions of Open Spaces prior to 2001 (e.g., agriculture, urban and rural development, public utility projects, flood control projects, and similar activities occurring since at least 1849) have contributed to the current declining status of SJMSCP Covered Species, SJMSCP Covered Species habitats, and other beneficial Open Space uses in San Joaquin County.
County and throughout California. Therefore, SJMSCP planners decided that an allocation of costs based upon the relationship of past Open Space Conversions (1849+ - 2001) to future Open Space Conversions (2001 - 2051) would be the most straightforward and defensible means of determining a fair share allocation of the costs of future Open Space Conversions between new development funding sources and other funding sources.

The result, as illustrated in the following table, is the allocation of 62%+ of total Plan costs to new development and 38%+ of total Plan costs to other funding sources.
TABLE 7.3-1
PAST AND FUTURE OPEN SPACE LAND CONVERTED IN SAN JOAQUIN COUNTY
BY SJMSCP PERMITTED ACTIVITIES THROUGH BUILDOUT

<table>
<thead>
<tr>
<th>LAND USE CATEGORY</th>
<th>ACRES</th>
<th>PERCENT OF TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PAST CONVERSION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Existing Urban Development(^{34})</td>
<td>59,299</td>
<td>36%</td>
</tr>
<tr>
<td>Existing Barren(^{35})</td>
<td>3,585</td>
<td>2%</td>
</tr>
<tr>
<td>Subtotal Past Conversion</td>
<td>62,884</td>
<td>38%</td>
</tr>
<tr>
<td><strong>FUTURE CONVERSION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Future Urban Development</td>
<td>75,608</td>
<td>45%</td>
</tr>
<tr>
<td>Aggregate Mining</td>
<td>10,770</td>
<td>6%</td>
</tr>
<tr>
<td>Public Agency Activities</td>
<td>3,655</td>
<td>2%</td>
</tr>
<tr>
<td>Other Permitted Activities</td>
<td>8,387</td>
<td>5%</td>
</tr>
<tr>
<td>Anticipated Projects per Section 8.2.1(^{36})</td>
<td>4,988</td>
<td>3%</td>
</tr>
<tr>
<td>Subtotal Future Conversion</td>
<td>103,408</td>
<td>62%</td>
</tr>
<tr>
<td><strong>TOTAL CONVERSION</strong></td>
<td>166,292</td>
<td>100%</td>
</tr>
</tbody>
</table>

As illustrated in the preceding table, new development will be responsible for converting 62% of the County's total converted Open Spaces to non-Open Space use by the year 2051. Therefore, new development will pay 62% of the total SJMSCP costs. 38% of total Open Space Conversions expected to occur in San Joaquin County by the year 2049 have already occurred. Therefore, other (non-development) funding sources will be used to pay the remaining 38% of total SJMSCP costs.

In summary, the SJMSCP cost allocation approach simply uses the relationship of past to future Open Space Conversions as a basis for allocating all SJMSCP costs amongst new development and other funding sources. Pursuant to this approach, new costs are not added to the SJMSCP, additional fees will not be collected to pay for past impacts to Open Spaces, and, while implementation of the SJMSCP may offset some

\(^{34}\) Does not include 31,570 acres of urban lands (see Section 2.2.1.4).

\(^{35}\) Barren lands include quarries, landfills, feedlots, nurseries and dredge tailings.

\(^{36}\) Does not equal 5,000 acres due to exclusion of vernal pools, except for those included under agricultural activities triggering the requirements of the ESA or CESA and/or Section 404 (see footnote /a2/, Table 7.4-1.)

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past impacts to Open Spaces, it is not the intent of this fair share cost allocation approach to mitigate past impacts to Open Spaces (more aggressive efforts such as these are sometimes undertaken through the implementation of recovery plans). This cost allocation approach is used by the SJMSCP only to equitably distribute the costs of mitigating for Open Space Conversions occurring between in a manner which is both legally defensible and politically acceptable.

The 62%/38% allocation of SJMSCP costs is translated into dollars and cents terms as follows:

First, the 62%/38% fair share allocation is rounded to a 60%/40% cost share, for simplicity. Next, the total SJMSCP costs attributed to vernal pools is removed from the total costs of the SJMSCP. The costs for vernal pool habitat acquisition, enhancement, creation, management, and administration are removed because, per the fair share allocation table, historically, most land Conversion in the past occurred on the valley floor where few vernal pools were present (most vernal pools are located in the eastern foothills of the County; other wetlands, such as marshlands, were located on the valley floor). Therefore, all future vernal pool Conversion costs are attributed entirely to new development.

The fair share distribution of costs is then applied to the actual estimated net costs of the SJMSCP, as indicated in the following table:

<table>
<thead>
<tr>
<th>COST ALLOCATION</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total SJMSCP Cost (see Table 7.2.5-2)</td>
<td>$261,497,465</td>
</tr>
<tr>
<td>Minus Cost for Acquiring, Enhancing, Managing, and Administering 600 Acres</td>
<td>-$1,199,500</td>
</tr>
<tr>
<td>Neighboring Land Protection Preserves</td>
<td></td>
</tr>
</tbody>
</table>
### SJMSCP FUNDING PLAN

The SJMSCP Funding Plan relies on multiple funding sources which are described in detail in the next two sections. The proposed funding sources and the percentage of the total cost contributed by each funding source is summarized in the following table. Each of the funding sources may be used by the JPA to pay for any of the SJMSCP Cost Components including acquisition, enhancement, monitoring, management endowment, or administration. Monies from each of the funding sources listed shall be collected as fees or otherwise obtained commencing with approval of the Plan and continuing through the entire 50-year term of the SJMSCP.

Central to USFWS approval of habitat conservation plans and issuance of an ESA Section 10(a)(1)(B) Incidental Take Permits and CDFG’s issuance of Incidental Take Permits, is the preparation of a funding plan which assures adequate funding. The following is a description of and an examination of the adequacy of each of the funding sources for the SJMSCP, including: development fees, state and federal funding, revolving funds/re-sales, compensation banks, lease-revenues and other funding. In addition, this section describes the procedures adopted by the SJMSCP to address funding shortfalls. This is necessary because some funding sources (e.g., state and federal funds) are not guaranteed at this time and because the SJMSCP is voluntary as described in Section 8.4, resulting in a possible, periodic need to undertake corrective action (see Sections 7.5.2 and 7.5.2.4). The identified funding sources represent estimates only and do not supersede or limit the Permittees’ obligation to create Preserve lands or implement other measures required under the SJMSCP.

---

<table>
<thead>
<tr>
<th>Minus Total Cost for Vernal Pool Habitat and Open Space Acquisition, Enhancement, Creation, Management, and Administration Excluding Neighboring Land Protection Preserves (see Table 7.2.5-2)</th>
<th>-$48,121,110</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net SJMSCP Cost</td>
<td>$212,176,855/(^{a/})</td>
</tr>
<tr>
<td>Costs to be Paid by Other Funding Sources (40% of net cost)</td>
<td>$84,870,742/(^{b/})</td>
</tr>
<tr>
<td>Costs to be Paid by New Development Funding Sources (60% of net cost)</td>
<td>$127,306,113/(^{c/})</td>
</tr>
</tbody>
</table>

\(^{a/}\) Rounded to $212,000,000  
\(^{b/}\) Rounded to $84,900,000  
\(^{c/}\) Rounded to $127,300,000

Section 7.4.2 describes the funding sources which compose the "other funding sources" and Section 7.4.1 describes the "new development funding sources" (i.e., development fees).
### Table 7.4-1
SJMSCP Funding Plan (2001-2051)

<table>
<thead>
<tr>
<th>SJMSCP Funding Source</th>
<th>Acres of Conversion 1999-2049 (Acres)</th>
<th>Impact Fee Per Acre</th>
<th>Total Revenue (US$)</th>
<th>Percent of Total Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Development Fees Including Fees Paid as a Result of Agricultural Activities Triggering CWA Section 404, and Conversion of Submerged Aquatic Habitat (Future Urban and Rural Development Conversion Plus Conversions for Agricultural Activities Triggering CWA 404)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vernal Pool Habitat Mitigation Fund(a, b, c) - Wetted Surface Area</td>
<td>707</td>
<td>$30,000</td>
<td>$21,210,000</td>
<td>8%</td>
</tr>
<tr>
<td></td>
<td>5187</td>
<td>$5,000</td>
<td>$25,935,000</td>
<td>10%</td>
</tr>
<tr>
<td>Agricultural Habitat Lands, Submerged Aquatic Habitat and Non-Vernal Pool Natural Lands Mitigation Fund</td>
<td>65,943</td>
<td>$1,500</td>
<td>$98,914,500</td>
<td>38%</td>
</tr>
<tr>
<td>Multi-Purpose Open Space Mitigation Fund</td>
<td>37,465</td>
<td>$750</td>
<td>$28,098,750</td>
<td>11%</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>109,302</td>
<td></td>
<td>$174,158,250</td>
<td>67%</td>
</tr>
<tr>
<td><strong>Other Funding Sources (Past Conversion and Neighboring Land Protection Preserves)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other State and Federal Sources</td>
<td></td>
<td></td>
<td>$42,267,104</td>
<td>16%</td>
</tr>
<tr>
<td>Revolving Fund/Re-sales(c)</td>
<td></td>
<td></td>
<td>$26,482,266</td>
<td>10%</td>
</tr>
<tr>
<td>Conservation Bank Revenue (d)</td>
<td></td>
<td></td>
<td>$5,261,613</td>
<td>2%</td>
</tr>
<tr>
<td>Lease Revenue &amp; Other(c)</td>
<td></td>
<td></td>
<td>$13,328,232</td>
<td>5%</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td></td>
<td></td>
<td>$87,339,215</td>
<td>33%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td>$261,497,465</td>
<td>100%</td>
</tr>
</tbody>
</table>
A more detailed description of each of these funding sources is found in Sections 7.4.1 and 7.4.2.
7.4.1 DEVELOPMENT FEES

As described in Section 7.3, new development will pay approximately 60% (See footnote /b/, Table 7.4-1) of total SJMSCP costs. While those undertaking new development pursuant to the SJMSCP may opt to dedicate lands consistent with the SJMSCP Preserve designs or to purchase credits from mitigation banks (see Section 5.3.2.4), most of the 60% contribution to the SJMSCP costs from new development will be in the form of development fees.

Development fees for the SJMSCP are divided into three categories:

A. Vernal Pool Habitat Conversion Fee
B. Natural Land and Agricultural Habitat Land Conversion Fee
C. Multi-Purpose Open Space Conversion Fee

Development fees shall be paid on a per-acre basis in accordance with the type of habitat land being Converted from Open Space use to non-Open Space use (Vernal Pool Habitat, Non-Vernal Pool Natural Land, Agricultural Habitat, or Multi-Purpose Open Space Land).

An alternative fee is established for the removal of elderberry shrubs during maintenance activities pursuant to SJMSCP Section 5.5.4(D). That fee is described in Section 7.4.1.4.

The fees for Vernal Pool Habitat Conversion, Non-Vernal Pool Natural Land and Agricultural Habitat Land, and Multi-Purpose Open Space Lands are as follows:

7.4.1.1 Vernal Pool Habitat Conversion Fee

Vernal pool development fees were calculated by taking the total estimated cost of acquiring, enhancing, monitoring, managing, and administering 17,682 acres of vernal pool Preserves over the 50-year life of the Plan (5,894 acres anticipated to be Converted from vernal pool grassland at a replacement ratio of two acres preserved plus one acre created, or 3:1), and dividing these costs by the total estimated number of acres of vernal pool habitat to be Converted under the SJMSCP, or 5,894 acres (see Table 7.4-1). This results in a fee, for wetted surface area, of $30,000 per acre and a fee of $5,000 per acre for upland grasslands surrounding vernal pools. These calculations are based on an assumption that 12% of a given acre of vernal pool grassland is composed of wetted surface area and the remainder is upland grassland. Therefore, the fee for Converting a single acre of vernal pool grassland habitat with a 12% wetted surface area is $8,000.
### Table 7.4-2
**Calculation of Development Fees for Vernal Pool Habitat Lands**

<table>
<thead>
<tr>
<th></th>
<th>Wetted Surface Area</th>
<th>Upland Grassland</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total cost/a/</td>
<td>$21,124,510</td>
<td>$26,996,600</td>
</tr>
<tr>
<td>Acres of Conversion/b/</td>
<td>707</td>
<td>5,187</td>
</tr>
<tr>
<td>Development Fee (calculated)/c/</td>
<td>$29,879</td>
<td>$5,205</td>
</tr>
<tr>
<td>Development Fee (rounded) /d/</td>
<td>$30,000</td>
<td>$5,000</td>
</tr>
</tbody>
</table>

/a/ Costs of acquisition, creation and enhancement, land management, and administration of vernal pool Preserves (see Table 7.2.5-2).
/b/ For the full 50-year term of the Plan. Vernal pool wetted surface area is estimated at 12% of total vernal pool acreage. The balance is upland grasslands.
/c/ Total cost divided by acres of Conversion.
/d/ This results in an overall average impact fee of $8,000 per acre for vernal pool grassland assuming 12% wetted surface area (12% wetted surface area/acre X $30,000/acre = $3,600; 88% upland grasslands/acre X $5,000/acre = $4,400; $3,600/acre + $4,400/acre = $8,000/acre).

7.4.1.2 *Agricultural Habitat Lands, Non-vernal Pool Natural Lands And Multi-purpose Open Space Lands*

In addition to the "fair share" allocation of SJMSCP costs discussed in Section 7.3, the 60% of SJMSCP costs to be paid by new development also shall be shared. Specifically, all those undertaking new development pursuant to the SJMSCP shall pay a development fee, even those individuals Converting Open Space lands which may have a low habitat value. This sharing of costs among all individuals avoids burdening any single sector of the community with the entire cost of the SJMSCP. More importantly, this approach also assists in implementing the general plans provisions of San Joaquin County and the seven incorporated cities within San Joaquin County. Specifically, those plans require, in addition to compensating for the plant, fish and wildlife values of Open Spaces, that compensation also shall be required for the Conversion of Open Spaces from agricultural uses, recreational uses, scenic uses, flood protection and other beneficial Open Space uses.

As noted in Section 4.1, Natural Lands and Agricultural Habitat Lands are used by SJMSCP Covered Species for breeding, feeding and sheltering. Therefore, the Conversion of Open Space lands classified as Natural Lands or Agricultural Habitat Lands may result in Incidental Take. Conversion of lands in these Open Space categories requires compensation pursuant to the SJMSCP (through acquisition, enhancement, management,
and administration) as described in Section 4.1 of the SJMSCP.

In contrast to Natural Lands and Agricultural Habitat Lands, the Conversion of Multi-Purpose Open Space Lands does not result in Incidental Take and does not require compensation in the form of Preserve acquisition. Instead, compensation for Multi-Purpose Open Space Lands is as follows:

**Multi-Purpose Open Space Lands:** According to the SJMSCP Biological Analysis and the Permitting Agencies, the Conversion of Multi-Purpose Open Space Lands is important to common plant, fish and wildlife species and may, indirectly, provide limited benefits to SJMSCP Covered Species (e.g., as movement corridors, supplemental foraging areas, etc.). Because of the relatively limited importance of Multi-Purpose Open Space Lands to SJMSCP Covered Species, the SJMSCP Biological Analysis and the Permitting Agencies determined that activities contributing to the Conversion of SJMSCP Multi-Purpose Open Spaces does not require compensation in the form of acquiring Preserves. However, pursuant to the California Environmental Quality Act, the cumulative impact of eliminating Multi-Purpose Open Spaces is significant and adverse to common plant, fish and wildlife species and, therefore, the Conversion of Multi-Purpose Open Spaces shall share in the costs of enhancing, maintaining and administering Open Space Preserves pursuant to the SJMSCP. In this manner, the Conversion of Multi-Purpose Open Space lands does not trigger a requirement to add Preserve acres to the SJMSCP Preserve system. Instead, the Conversion of Multi-Purpose Open Space lands triggers a requirement to assist in financing the SJMSCP Preserve system by supporting a portion of the enhancement, management and administration costs associated with the Preserve system.

In addition to this biological approach to compensation for Open Spaces, the SJMSCP also takes a non-biological approach to Open Space compensation. As noted in Section 7.3, the SJMSCP is a multi-species habitat conservation and Open Space plan. This means that, in addition to plant, fish and wildlife benefits, the SJMSCP considers the non-wildlife value of Open Spaces including agricultural, educational, recreational, scenic, flood control and other beneficial Open Space uses. These non-wildlife benefits are provided by Agricultural Habitat Lands, Natural Lands and Multi-Purpose Open Space lands.

This non-biological view of Open Spaces is supported by the general plan policies of San Joaquin County's seven cities and the County itself. These general plans contain policies establishing the value and importance of environmentally sensitive lands and Open Space resources to agricultural productivity, biodiversity, and the welfare of county residents (see Appendix E). These general plans call for programs to offset both the
biological and non-biological impacts of Converting Open Spaces to non-Open Space use. The SJMSCP recognizes the multiple uses and benefits of Open Spaces and, while its primary purpose is to provide comprehensive mitigation to offset impacts to plants, fish and wildlife and their habitats, the establishment of Open Space Preserves will also offset many non-biological impacts associated with the Conversions of Open Spaces consistent with the directives of local general plans.

Consistent with this multi-use/multi-benefit view of Open Spaces, the proposed funding plan spreads costs of permanently preserving Open Space and habitat land in San Joaquin County among not only new development, but also among other beneficiaries of the SJMSCP. Therefore, fees will be paid, pursuant to the SJMSCP, for the Conversion of all Open Space land categories: Agricultural Habitat Lands, Natural Lands (vernal pool lands as described above and non-vernal pool lands as described here), and Multi-Purpose Open Space Lands.

This spreading of costs among all categories of Open Space lands requires that a relative value be established for each category of Open Space land. To establish the relative value of Agricultural Habitat Lands and Natural Lands versus Multi-Purpose Open Space Lands, the funding analysis considered a number of options in an attempt to set forth a policy proposal that would be clear and accepted as fair for assigning fees to Agricultural Habitat Lands and non-vernal pool Natural Lands versus Multi-Purpose Open Space Lands. The adopted policy is to value land that has high habitat value and other Open Space benefits at two times the value of land that has Open Space value, but low habitat value. Said another way, the Conversion of Agricultural Habitat Lands, such as row and field crops, and non-vernal pool Natural Lands, such as oak woodlands or grasslands in the Southwest Zone, counts for twice the impact of Conversion of Multi-Purpose Open Space Lands, such as orchards and vineyards.

In terms of the SJMSCP's fee structure, this means that the Conversion of lands of high habitat value (Agricultural Habitat Lands and non-vernal pool Natural Lands) will require a fee twice as large as the fee paid for Converting Multi-Purpose Open Space Lands. The following table presents the application of this policy in terms of the development impact fee calculation for Conversion of Multi-Purpose Open Space Lands. Applying the multiplying factor of two, representing the relative value of Agricultural Habitat Lands and non-vernal pool Natural Lands, results in the following development impact fees.

In the following table, the fees for Agricultural Habitat Lands, non-vernal pool Natural Lands and Multi-Purpose Open Space Lands are determined by dividing the total cost of acquiring, enhancing, managing and administering Preserves to compensate for Converting Open Spaces in all three land categories. Multi-Purpose Open Space fees are assigned a value of half that assigned to Agricultural Habitat and non-vernal Pool Natural Lands. The total compensation costs of $127,300,000 are divided by the

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sum of all Agricultural Habitat and non-vernal pool Natural Lands to be Converted plus one-half the total number of Multi-Purpose Open Space acres to be Converted. This results in a fee of $1,500 per acre for Agricultural Habitat and non-vernal pool Natural Lands. The fee for Multi-Purpose Open Spaces is half of the Agricultural Habitat/non-vernal pool Natural Lands fee of $1,500, or $750 per acre.
TABLE 7.4-3
CALCULATION OF DEVELOPMENT IMPACT FEE BASED ON FAIR SHARE ANALYSIS

<table>
<thead>
<tr>
<th>DEVELOPMENT IMPACT FEE CALCULATION FACTORS</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated Cost of Compensation for Agricultural Habitat Land and Non-Vernal Pool Natural Land to be Converted (see Table 7.3-2)</td>
<td>$127,300,000/a/</td>
</tr>
<tr>
<td>Estimated Acres of Agricultural Habitat Land and Non-Vernal Pool Natural Land (including Submerged Aquatic Habitat) to be Converted /b/</td>
<td>65,943</td>
</tr>
<tr>
<td>Estimated Acres of Multi-Purpose Open Space Land to be Converted (see Table 4.2-2)</td>
<td>37,465</td>
</tr>
<tr>
<td>Multiplier for Agricultural Habitat Land and Non-Vernal Pool Natural Land Conversion (see this section)</td>
<td>1</td>
</tr>
<tr>
<td>Multiplier for Multi-Purpose Open Space Conversion (see this section)</td>
<td>0.5</td>
</tr>
</tbody>
</table>

FORMULA FOR CALCULATING AGRICULTURAL HABITAT LAND AND NON-VERNAL POOL NATURAL LAND IMPACT FEE

\[(65,943 \times Y) + (37,465 \times .5Y) = $127,300,000\]

where \(Y\) equals impact fee for Conversion of Agricultural Habitat Lands and Non-Vernal Pool

Natural Lands. Thus,

\[Y = \frac{127,300,000}{65,943 + (.5 \times 37,465)}\]
\[Y = \frac{127,300,000}{84,676}\]
\[Y = 1,503, \text{ rounded to } $1,500\]

Impact Fee for Conversion of Agricultural Habitat Lands and Non-Vernal Pool Natural Lands (using 1x multiplier) | $1,500 |
Impact Fee for Conversion of Multi-Purpose Open Space (using .5x multiplier) | $750 |

/a/ Rounded from $127,306,113
/b/ Per Table 4.2-2, Agricultural Habitat Land (57,635 acres) + Natural Lands (14,202 acres) - Vernal Pool Natural Lands (5,894 acres) = 65,943 acres.
In summary, the SJMSCP requires payment of development fees according to the types of habitat Converted to non-Open Space uses as follows:
Vernal Pool Habitat: $30,000 for wetted surface area and $5,000 for upland grasslands, or an $8,000 per acre average cost, assuming 12% of each vernal pool grassland acre is wetted surface area. Thus, a fee of $8,000 per acre will be required for each acre of vernal pool grassland. Converted to non-open space when individuals elect not to undertake a wetland delineation to establish a wetted surface area of less than 12%. Individuals may hire qualified biologists, at their own cost, to undertake wetland delineations to establish a wetted surface area of less than 12% of the total acreage. Fees will then be calculated based upon the actual wetted surface area and upland grassland totals ($30,000 and $5,000 per acre, respectively) when wetland delineations, approved by the U.S. Army Corps, are submitted.

Non-Vernal Pool Natural Lands: $1,500 per acre

Agricultural Habitat Lands: $1,500 per acre

Multi-Purpose Open Space Lands: $750 per acre

These fees will be adjusted to 2001 dollars pursuant to the California Construction Cost Index (CCCI) and Section 7.5.2.2 six months after the SJMSCP's Effective Date. Thereafter, fees will be adjusted annually as provided in Section 7.5.2.2.

7.4.1.4 VELB Mitigation Fee for Maintenance Activities which Do Not Convert Habitat

A special fee category for maintenance activities shall apply when removal of elderberries occurs for maintenance. The fee shall be paid to a VELB mitigation bank approved by the Permitting Agencies. The current fee, as established in the VELB Conservation Fund Account managed by the Center for Natural Lands Management, and approved by the USFWS, is $1,800 per VELB Unit (one unit= one stem over 1” in diameter at ground level which is removed). Fees shall be established by the JPA during preconstruction surveys (i.e., counts of stems to be removed with and without exit holes shall be completed during preconstruction surveys) and shall be paid to the JPA prior to ground disturbance or stem removal, whichever comes first.

7.4.1.5 Comparison of SJMSCP Fees With Those of Other Habitat Conservation Plans

A comparison of the funding strategy of the SJMSCP with funding plans of other regional habitat plans was prepared by Hausrath Economics Group and indicates the following:
<table>
<thead>
<tr>
<th>Plan</th>
<th>Proposed or Existing Fees</th>
<th>Comments</th>
</tr>
</thead>
</table>
| San Joaquin County (approval pending)/a/ | $8,000 per acre (Vernal Pool Habitat) $1,500 per acre (non-vernal pool Natural Land, Agricultural Habitat Land) $750 per acre (Multi-Purpose Open Space Land) | Funds 18% of SJMSCP costs.  
Funds 37% of SJMSCP costs.  
Funds 10% of SJMSCP costs.  
Total: Fees fund 65% of SJMSCP Cost  
Remaining 35% to be funded through re-sales, sales of conservation banking credits, land leases, other state and federal sources. |
| Metro Bakersfield (approved)  | $1,250 per acre                                                                           | Funds 100 percent of plan costs. Metropolitan Bakersfield has substantially lower land acquisition costs than other plans presented in this table. |
| Natomas Basin (approved)      | $2,240 per acre                                                                           | Funds 100 percent of plan costs.                                                                                                                                 |
| Yolo County (approval pending) | $2,630 per acre                                                                           | Funds 100 percent of plan costs.                                                                                                                                 |
| San Diego (approved)          | Not Yet Established                                                                       | Private development expected to contribute about one-third of total Preserve lands. A local (regional) funding source is proposed to fund 50 percent of other acquisition and management costs.  
State and federal sources fund the other 50 percent of public acquisition and on-going management costs. |

/a/ Vernal pool fees are proposed at $30,000 per wetted surface acre and $5,000 per upland acre for an average fee of $8,000 per acre for vernal pool grassland Conversions.
7.4.2 OTHER FUNDING SOURCES

7.4.2.1 Development Fees

Development fees, as described in Sections 7.3 and shown in Table 7.4-1, new development will provide approximately 65%\(^{37}\) of SJMSCP funding costs. As indicated in Table 7.2.5-2, habitat acquisition costs will be approximately 65% of the total cost of the SJMSCP. While all funding sources will be combined within a single funding pool, this comparison of funding sources and Plan costs indicates that development fees should provide funding equivalent to approximately 100% of the costs of acquiring (but not enhancing or managing) the 100,841 acres of SJMSCP Preserve lands.

7.4.2.2 State And Federal Funding

State and federal funding sources are expected to provide approximately 16% of the total cost of implementing the SJMSCP. The JPA will be responsible for preparing grant applications or undertaking other actions, as necessary, to secure these funds. Pursuant to Section 7.5.3 of the SJMSCP, state and federal funds and other grant funds must be secured three years in advance of the need to expend such funds to avoid potential funding shortfalls. As indicated in Table 7.2.5-2, management costs for the Plan will total approximately 16% of the total Plan cost. While all funding sources will be combined within a single funding pool, this comparison of costs and funding sources indicates that state and federal funding sources should provide funding equivalent to approximately 100% of management costs for the 100,841 acres of SJMSCP Preserve lands. Section 7.5.2.4 describes the procedures to be undertaken should anticipated state and federal funds not be obtained, resulting in funding shortfalls.

7.4.2.3 Mitigation Banking

Mitigation banking pursuant to the SJMSCP is described in Section 5.3.2.4. As discussed in Section 5.3.2.4, mitigation banks may be in the form of banks established by the JPA or by private property owners. Mitigation banks used to offset impacts to wetlands must be consistent with Federal Register Notice: November 28, 1995, Vol. 60, No. 228, Federal Guidance for the Establishment, Use and Operation of Mitigation Banks. All mitigation banks, whether SJMSCP banks or private mitigation banks, shall be reviewed and approved in writing by the Permitting Agencies prior to their use.

It is anticipated that mitigation banking efforts undertaken by the JPA will be primarily for the establishment of vernal pool mitigation banks in the eastern portion of San Joaquin County. Typically, large tracts of vernal

\(^{37}\) See footnote /b/, Table 7.4-1.
Mitigation bank revenues compose only 2% of the overall funding for the Plan. Since income for vernal pool mitigation bank sales was estimated at only one-half the current market rate for the sale of vernal pool mitigation credits, this funding source is considered reliable.

7.4.2.4 Lease Revenues

The JPA will own some lands in fee title (approximately 10% of total Preserve acreages is anticipated to be held in fee title by the end of the 50-year Plan term). Normally, these will be dry land grazing lands which support vernal pools in the eastern portion of the County. Some limited acreages held in fee title may be able to produce row and field crops. It is anticipated that the JPA will lease portions of some lands held in fee title to farmers or ranchers to grow row and field crops (where appropriate) or, more likely, to graze cattle. The compatibility of proposed activities to be conducted by the lessee and conservation goals shall be determined by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC. Income from the sale of these leases is expected to provide a revenue source for the SJMSCP.

To achieve Plan income in the range of $13 million (as anticipated in Table 7.4-1) over the 50-year term of the Plan, lease revenues need to average $133,334 per year from 5,150+ acres of lands held in fee title (this acreage is just over 5% of total Preserve lands, or approximately half of the lands expected to be held in fee title), or approximately $26 per acre. In San Joaquin County, leases and rentals can range from $50 to $300/acre with dry land grazing revenue holding at $18/acre.\(^{38}\) Given this range of

\(^{38}\) Center for Natural Lands Management has cited lease revenue incomes for cattle grazing in San Joaquin County at approximately $18/acre; the Sacramento Business Journal has cited that a city in Sacramento County will be acquiring 2,000 acres for future park and
prices, it appears the SJMSCP can easily achieve an overall lease-back revenue of $26 per acre.

7.4.2.5 Revolving Fund/Re-sales

The recycling of funds from the re-sale of lands using a fixed portion of the SJMSCP funds, designated as a revolving fund, is expected to provide 10% of the monies necessary to fund the SJMSCP.

This process involves the acquisition of land, placing of a conservation easement on that land, and then re-sale of the land. Monies generated from the re-sale will be used to acquire additional lands in the same manner. Monies used for the acquisition of habitat are thus re-used, or recycled. At each acquisition and sale, it is expected that some transaction costs will be lost from the revolving fund. Therefore, the "revolving fund" monies decreases as time passes. Many land trusts find the process so valuable, however, that their revolving funds are frequently replenished to reimburse transaction costs lost and to allow continuing acquisition of Preserve lands with the revolving fund. If the JPA finds this approach highly successful, financing of more than 10% of SJMSCP acquisition costs could be realized.

This method has been little tested by public agencies. However, the cities of Dixon and Vacaville recently purchased, placed an open-space easement on, and resold 1,003 acres within a nine-month period. According to the city managers of those jurisdictions, this was done with a loss of only $13,000-$20,000 in transaction costs. In addition, these managers report a similar transaction successfully completed in Douglas County, Nevada for 10,000 acres. In discussions with the Trust for Public Land, this use of a re-sale or revolving fund is considered a primary tool for financing acquisitions by major land trust organizations. Therefore, the re-sale funding component of the SJMSCP appears extremely promising and a stable source of funding.

7.4.2.6 Other Funding Sources

This funding category, which includes private fund-raising, hunting revenues, license plate revenues (if pursued), land dedications (charitable contributions) and investments (e.g., purchase of non-Preserve lands for future re-sale and profit). The SJMSCP Funding Plan combines other funding sources with lease revenues (Section 7.4.2.4). Only funding from recreational use and expects to generate $100,000 in income from leasing the land for farming equaling a $50/acre lease revenue. EPS, in its analysis of the North Natomas HCP (p. 13, October 1, 1995, public review draft) projected gross revenues of between $88 and $175/acre for rice growing (averaged from a $150-200 actual range). In addition, per the publication "Trends in Agricultural Land Values," presented at the Spring meeting of the California Chapter of the American Society of Farm Managers and Rural Appraisers (April 2, 1992, Fresno, CA) projected income ranging from $125 to $300 per acre.

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lease revenues has been calculated into the overall funding for the SJMSCP due to the unpredictability of other funding sources in this category. However, the likelihood of receiving SJMSCP funding from some of these sources is evaluated as follows:

The potential for generating funds through hunting revenues is unknown. However, duck hunting clubs are somewhat popular in portions of San Joaquin County located in the Sacramento-San Joaquin Delta along the Pacific Flyway. This is the most likely source of funds which might be generated through hunting pursuant to the SJMSCP.

Prior to the issuance of SJMSCP Permits, the San Joaquin Council of Governments was approached by several local landowners seeking to donate land to the SJMSCP Preserve system in exchange for tax benefits to be received by the local landowners pursuant to existing state and federal law. It is anticipated that this funding source, while unpredictable, will provide some SJMSCP Funding or, at least, provide Preserve lands at a little or no cost to the SJMSCP, thereby reducing Plan costs.

The JPA is authorized to make investments pursuant to Section 7.5.4. These investments may include the purchase of non-Preserve lands for resale and profit. Income from this potential funding source is dependent upon the local real estate market.

7.5 FUNDING ASSURANCES

7.5.1 EFFECTS OF PARTIAL PARTICIPATION

Throughout the planning process, income from development fees has been considered as a reliable source of funding for the Plan because development fees will be paid by individuals undertaking SJMSCP Permitted Activities and opting for Plan participation pursuant to city or County ordinances and fees will be collected, or bonds posted in compliance with Section 5.3.2.3 (i.e., while acquisition may be deferred pursuant to Section 8.6, collection of development fees to finance acquisition will occur at the same rate as development except as provided in Section 5.3.2.3).

However, during the planning process, concerns were raised that the SJMSCP might not be adopted by all local jurisdictions, resulting in potential funding shortfalls. To address this concern, an analysis of three scenarios (with participation by some, but not all, jurisdictions) was made to assess the effects of partial participation by local jurisdictions. The findings are summarized in the following table.

| TABLE 7.5-1 |
| PARTIAL PARTICIPATION FUNDING ANALYSIS |
## Projected Fees for Three Alternative Participation Scenarios

### Participating Jurisdictions

| Jurisdiction | Stockton, Tracy, Lathrop, Manteca | Stockton, Tracy, Lathrop, Manteca, San Joaquin County, San Joaquin County, Lodi |

### Acres of Land Conversion

<table>
<thead>
<tr>
<th></th>
<th>Acres</th>
<th>Percent</th>
<th>Acres</th>
<th>Percent</th>
<th>Acres</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Agricultural Habitat Land</strong></td>
<td>45,38</td>
<td>85%</td>
<td>52,80</td>
<td>86%</td>
<td>56,12</td>
<td>87%</td>
</tr>
<tr>
<td><strong>Natural Land/a/</strong></td>
<td>7,810</td>
<td>15%</td>
<td>8,381</td>
<td>14%</td>
<td>8,674</td>
<td>13%</td>
</tr>
<tr>
<td><strong>Sub-total</strong></td>
<td>53,19</td>
<td>100%</td>
<td>61,19</td>
<td>100%</td>
<td>64,80</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Multi-Purpose Open Space</strong></td>
<td>23,80</td>
<td>--</td>
<td>28,61</td>
<td>--</td>
<td>32,10</td>
<td>--</td>
</tr>
<tr>
<td><strong>Total Conversion</strong></td>
<td>77,00</td>
<td>--</td>
<td>89,80</td>
<td>--</td>
<td>96,91</td>
<td>--</td>
</tr>
<tr>
<td><strong>Multi-Purpose Open Space as Percent</strong></td>
<td>31%</td>
<td>--</td>
<td>32%</td>
<td>--</td>
<td>33%</td>
<td>--</td>
</tr>
</tbody>
</table>

### Development Impact Fees

<table>
<thead>
<tr>
<th>Land Type</th>
<th>Stockton, Tracy, Lathrop, Manteca</th>
<th>Stockton, Tracy, Lathrop, Manteca, San Joaquin County, Lodi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Habitat Land/non-vernal pool Natural Land Conversion</td>
<td>$1,600</td>
<td>$1,600</td>
</tr>
<tr>
<td>Multi-Purpose Open Space Conversion</td>
<td>$800</td>
<td>$800</td>
</tr>
</tbody>
</table>

/a/ Does not include 5,000 acres of vernal pool grassland Conversions.

Thus, under this analysis, potential funding shortfalls resulting from partial participation in the SJMSCP are translated into higher development fees than those described in Sections 7.4.1 and 7.4.1.3 to meet SJMSCP costs. As indicated in the preceding table, the partial participation assessment found that the proposed $1500/acre and $750/acre fees for Agricultural Habitat Land/non-vernal pool Natural Land and Multi-Purpose Open Space.
The Habitat Policy Advisory Committee (HPAC) was formed in 1994 for the purpose of working with a Technical Advisory Committee, formulating the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan. The HPAC included representatives from business, conservation, agriculture, the U.S. Fish and Wildlife Service, the California Department of Fish and Game, the U.S. Army Corps of Engineers (non-voting member), the San Joaquin County Board of Supervisors, the Lodi City Council/San Joaquin Council of Governments, local land trusts. All meetings of the HPAC were open to the public. This body was charged with reaching consensus among the diverse interests of the community and forwarding the SJMSCP to the San Joaquin Council of Governments for final approval and release to public agencies for adoption.

Space Land, respectively, could rise to $1600/acre and $800/acre, depending on the ultimate composition of the SJMSCP participants. The members of the SJMSCP Steering Committees found that the $50-$100 cost increase that could result from partial participation was acceptable. Therefore, if adoption of the SJMSCP is according to one of the scenarios contained in Table 7.5-1, then the SJMSCP fees used upon SJMSCP adoption shall be as established in Table 7.5-1.

If Plan participation, as gauged by conceptual approval hearings before the seven City Councils and the Board of Supervisors, is by other than full participation or one of the partial participation scenarios indicated in the above table, then fees shall be calculated in accordance with the actual participation scenario and shall be presented to the SJMSCP Habitat Policy Advisory Committee for review and approval before the SJMSCP is forwarded to local agencies for final adoption actions.

7.5.2 FUNDING SHORTFALLS/FEE ADJUSTMENTS

To ensure that inadequate funding does not prevent implementation of the requirements of the SJMSCP, the following measures shall be implemented, as necessary, and will be included in the SJMSCP Implementation Agreement:

A. Monitoring provision to assess the sufficiency of Plan funding (Section 7.5.2.1)
B. Annual adjustments to fees according to an established index (Section 7.5.2.2);
C. Adjusting fees at the time of SJMSCP adoption for consistency with the partial participation analyses (Section 7.5.2.3);
D. Implementation of a process to correct funding shortfalls (Section 7.5.2.4); and
E. A cap on the level of non-participation of individuals Converting Multi-Purpose Open Space lands (Section 8.4).

7.5.2.1 Monitoring Plan Funding

The following monitoring requirement will assist in assessing the status

---

The Habitat Policy Advisory Committee (HPAC) was formed in 1994 for the purpose of, working with a Technical Advisory Committee, formulating the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan. The HPAC included representatives from business, conservation, agriculture, the U.S. Fish and Wildlife Service, the California Department of Fish and Game, the U.S. Army Corps of Engineers (non-voting member), the San Joaquin County Board of Supervisors, the Lodi City Council/San Joaquin Council of Governments, local land trusts. All meetings of the HPAC were open to the public. This body was charged with reaching consensus among the diverse interests of the community and forwarding the SJMSCP to the San Joaquin Council of Governments for final approval and release to public agencies for adoption.
of SJMSCP funding:

In addition to the Plan's Annual Report requirements (see Section 5.9.1), the JPA shall undertake a review of the SJMSCP Funding Plan once every three years to: evaluate the adequacy of each funding source identified above, identify existing or potential funding problems, and identify corrective measures should they be needed in the event of actual or projected funding shortfalls. The findings of this review shall be provided to the Permitting Agencies in the Annual Report.

7.5.2.2 Annual Index Adjustments to Fees

To ensure that SJMSCP development fees, which were calculated in terms of 1996 dollars, keep pace with inflation, annual adjustments, consistent with the California Construction Cost Index (CCCI), shall be made to the fees described in Sections 7.4.1 and 7.4.1.3. Fees will be adjusted to 2001 dollars pursuant to the California Construction Cost Index (CCCI) and Section 7.5.2.2 six months after the SJMSCP’s Effective Date. Thereafter, fees will be adjusted annually as provided in this Section. Unlike the Consumer Price Index (CPI) which is based on the prices of typical goods and services (e.g., food, clothing, gasoline), the CCCI is based upon costs of lumber, steel, concrete, wages of construction workers and similar material costs and labor factors associated with construction costs. The CCCI is based upon information published monthly in the Engineering News Record (ENR). The ENR Building Cost Index is based upon indexes that the ENR prepares for twenty major U.S. cities including Los Angeles and San Francisco. The CCCI is calculated by the State of California's Real Estate Services Division Cost Control Unit by averaging the Los Angeles and San Francisco ENR Building Cost Indexes (future cost projections are developed by the State Department of Finance). The California Construction Cost Index used by the SJMSCP shall be the same as the CCCI used and calculated by the State of California (an average of costs from both Los Angeles and San Francisco). The CCCI used by the SJMSCP shall be the one-year averaged CCCI. Therefore, fee adjustments shall be made in January of each year based upon the preceding years' averaged CCCI. The CCCI baseline year for the SJMSCP is 1996. The CCCI baseline index to be used in calculating fee adjustment for the SJMSCP pursuant to the CCCI is 3470 (the 1996 index).

An alternative index for making annual adjustments to the fees may be adopted based upon actual experiences of the JPA as the Plan progresses. Such annual index adjustments shall be made only after the solicitation of input from affected parties through the public hearing process in accordance with Section 66000 et seq. of the California Government Code.
7.5.2.3 Partial Participation Fee Adjustments

As described in Section 7.5.1, potential funding shortfalls resulting from partial participation in the SJMSCP, would be translated into higher development fees than those described in Sections 7.4.1 and 7.4.1.3 to meet SJMSCP costs. As indicated in Table 7.5-1, the partial participation assessment found that the proposed $1500/acre and $750/acre fees for Agricultural Habitat Land/non-vernal pool Natural Land and Multi-Purpose Open Space Land, respectively, could rise to $1600/acre and $800/acre, depending on the ultimate composition of SJMSCP Plan Participants. The members of the SJMSCP Steering Committees found that the $50-$100 cost increase that could result from partial participation was acceptable. Therefore, if adoption of the SJMSCP is according to one of the scenarios contained in Table 7.5-1, then the SJMSCP fees used upon adoption of the SJMSCP shall be as established in Table 7.5-1. Section 7.5.1 describes the procedure for considering alternative fees if none of the alternatives described in Table 7.5-1 occur.

7.5.2.4 Addressing Funding Shortfalls

The SJMSCP Funding Plan provides projections of the likely costs of implementing the SJMSCP and identifies what funding sources are available to fund the SJMSCP over the next fifty years. However, it is possible that, over a fifty year period, state and federal funding sources (projected to supply 16% of the Plan's funding) could be eliminated, reduced, or even increased, from time to time; land costs could drastically rise or fall over the life of the Plan, thereby either positively or negatively affecting Plan costs; non-participation in the Plan by individuals converting Multi-Purpose Open Spaces could result in lower than projected funding levels; projected sales of mitigation banking credits could fail to materialize due to a slow-down in construction activities or market saturation or sales could exceed expectations; or other unanticipated economic or political changes might alter the costs or the availability of identified funding sources. Such changes could result in inadequate funding, preventing implementation of some or all pertinent requirements of the SJMSCP, or could indicate the need to adjust development fees in response to changing conditions.

For the purposes of the SJMSCP, a deficit of 15% or more of the total Preserve acres required pursuant to Section 4.1 of the SJMSCP for a period of three consecutive years, or a deficit or 30% for a period of one year, due to a lack of funding, shall be considered a funding shortfall. The elimination of a Preserve acreage deficit at any time restarts the time period necessary to establish a funding shortfall.

In the event of a funding shortfall, as defined in the preceding paragraph, the U.S. Fish and Wildlife Service and the California Department of Fish and Game, under their respective permits, will assess the impact of the funding deficiency on the scope and validity of the Take authorizations. The Joint Powers Authority, the California Department of Fish and Game,
and the U.S. Fish and Wildlife Service agree that they will then meet and confer to cooperatively develop a strategy to address the funding shortfall. The parties shall work to fulfill both the requirements of the SJMSCP Conservation Strategy and maintain Incidental Take coverage while working to remedy identified deficiencies. The JPA recognizes its responsibility to provide sufficient funding as necessary to meet its obligations pursuant to the SJMSCP and will use its authorities to correct funding shortfalls.

7.5.2.5 Effects of Funding Shortfalls and Fee Increases on Third Party Beneficiaries

Third Party Beneficiaries who have already paid fees pursuant to the SJMSCP shall not be required to pay additional fees pursuant to the SJMSCP in the event of a funding shortfall. Third Party Beneficiaries who have already paid fees pursuant to the SJMSCP shall not be required to pay additional fees in the event of a fee increase.

7.5.3 THREE-YEAR ADVANCE ACQUISITION OF STATE AND FEDERAL FUNDING AND OTHER GRANTS

To ensure that inadequate funding does not result due to a failure to secure adequate state and federal funding or other grants (e.g., grants from private foundations), the SJMSCP shall secure up to 16% of its anticipated funding (i.e., that percentage of total SJMSCP funding to be secured by "Other State and Federal Sources" per Table 7.4-1) three years in advance of the projected need to spend those funds. Compliance with this Section shall be required commencing two years after the issuance of the SJMSCP Permits.

A three-year projection of anticipated grant funding required pursuant to the SJMSCP Funding Plan shall be included in the SJMSCP Annual Report as required in Section 5.9.1.1(B)(4) and in the SJMSCP Funding Plan assessment required pursuant to Section 7.5.2.1. The projection shall include a statement of all state and/or federal funds and other grant funds secured by the SJMSCP as of the reporting dates and shall report any funding shortfalls which are not in compliance with this Section.

Failure to secure state and/or federal funds and other grant funds three years in advance of the need to spend the funds shall be addressed as described in Section 7.5.2.4. Failure to secure funds in advance of need pursuant to this Section shall be considered inconsistent with the SJMSCP Permits only if that failure results in the inability of the Permit Holders to meet their obligations pursuant to the terms of the SJMSCP.

7.5.4 INVESTMENT STRATEGY FOR SJMSCP FUNDS

7.5.4.1 Overview
The investment policies and practices of the JPA, to be formed within 120 calendar days of the Plan's Effective Date pursuant to the provisions of Section 8.1.3.1, shall be based on state law and prudent money management. All funds shall be invested in accordance with the JPA's Investment Policy, and California Government Code Sections 53601, 53601.1, 53601.5, 53635 and 53635.5. The investment of bond proceeds will be further restricted by the provisions of relevant bond documents.

7.5.4.2 Prudence

Investments shall be made with judgment and care -- under circumstances then prevailing -- which persons of prudence, discretion, and intelligence exercise in the management of their own affairs, not for speculation, but for investment, considering the probable safety of their capital as well as the probable income to be derived.

The standard of prudence to be used by investment officials shall be the "prudent person" standard and shall be applied in the context of managing an overall portfolio. Investment officers acting in accordance with written procedures and the investment policy and exercising due diligence shall be relieved of personal responsibility for an individual security's credit risk or market price changes, provided deviations from expectations are reported in a timely fashion and appropriate action is taken to control adverse developments.

7.5.4.3 Objectives

The primary objectives, in priority order, of the JPA's investment activities shall be:

1) **Safety.** Safety of principal is the foremost objective of the investment program. The JPA's investments shall be undertaken in a manner that seeks to ensure presentation of capital in the portfolio.

2) **Liquidity.** The JPA's investment portfolio will remain sufficiently liquid to enable the JPA's to meet its cash flow requirements.

3) **Return on Investment.** The JPA's investment portfolio shall be designed with the objective of attaining a market rate of return on its investments consistent with the constraints imposed by its safety objective and cash flow considerations.

7.5.4.4 Delegation of Authority

The management responsibility for the investment program shall be delegated to the Director, Administrative Services/Chief Financial Officer
who shall monitor and review all investments for consistency with this investment policy. No person may engage in an investment transaction except with as provided under the limits of this policy. The JPA may delegate its investment decision making and execution authority to an investment advisor. The advisor shall follow the policy and such other written instructions as are provided.

Delegation of authority is valid for one year and is good until the delegation expires or is revoked by action of the Board.

7.5.4.5 Ethics and Conflict of Interest

Officers and employees involved in the investment process shall refrain from personal business activities that could conflict with proper execution of the investment program, or which could impair their ability to make impartial decisions.

7.5.4.6 Internal Controls

The JPA shall establish a set of internal controls which can be documented in writing. The internal controls will be reviewed by the JPA and the external independent auditor. The controls shall be designed to prevent employee error, misrepresentations by third parties, unanticipated changes in financial markets, or imprudent actions by officers or employees of the JPA.

7.5.4.7 Permitted Investment Instruments

1. Government obligations for which the full faith and credit of the United States are pledged for the payment of principal and interest.

2. Obligations issued by Banks of Cooperatives, Federal Land Banks, Federal Intermediate Credit Banks, Federal Farm Credit Banks, Federal Home Loan Banks, the Federal Home Loan Bank Board, the Tennessee Valley District, or in obligations, participation, or other instruments of, or issued by, or fully guaranteed as to principal and interest by, the Federal National Mortgage Association; or in guaranteed portions of Small Business Administration notes; or in obligations, participation, or other instruments of, or issued by, a federal agency or a United States government-sponsored enterprise, or such agencies or enterprises which may be created.

3. Repurchase Agreements used solely as short-term investments not to exceed 30 days.

The JPA may enter in Repurchase Agreements with primary dealers in U.S. Government securities who are eligible to transact business with, and who report to, the Federal Reserve Bank of New York.
The following collateral restrictions will be observed: Only U.S. Treasury securities or Federal Agency securities, as described above in 1 and 2, will be acceptable collateral. All securities underlying Repurchase Agreements must be delivered to the JPA’s custodian bank versus payment or be handled under a tri-party repurchase agreement. The total market value of all collateral for each Repurchase Agreement must equal or exceed, on 102 percent of the total dollar value of the money invested by the JPA for the term of the investment. For any Repurchase Agreement with a term of more than one day, the value of the underlying securities must be at least weekly.

Market value must be calculated each time there is a substitution of collateral.

The JPA or its trustee shall have a perfected first security interest under the Uniform Commercial Code in all securities subject to Repurchase Agreement.

The JPA will have properly executed a PSA agreement with each counter party with which it enters into Repurchase Agreements.

4. Reverse repurchase agreements may be used only after prior approval of the JPA’s Board of Directors. If a reverse repurchase agreement is authorized, it may be utilized only if the security to be sold on reverse repurchase agreement has been owned and fully paid for by the JPA for a minimum of 30 days prior to the sale; the total of all reverse repurchase agreements on investments owned by the JPA does not exceed 20 percent of the book value of the portfolio; and the agreement does not exceed a term of 92 days, unless the agreement includes a written codicil guaranteeing a minimum earning or spread for the entire period between the sale of the security using a reverse repurchase agreement and the final maturity date of the same security. The proceeds of Reverse Repurchase Agreement may not be invested in securities whose maturity exceeds the term of the Reverse Repurchase Agreement.

5. Obligations of the State of California or any local agency within the state, including bond payable solely out of revenues from a revenue-producing property owned, controlled or operated by the state or any local agency; provided that the obligations are rated in one of the two highest categories by Moody's or Standard and Poor's.

6. Bankers' Acceptances issued by domestic or domestic branches of foreign banks, which are eligible for purchase by the Federal Reserve System, the short-term paper of which is rated in the highest category by Moody's Investors Services or by Standard & Poor's Corporation.
Purchases of Banker's Acceptances may not exceed 270 days maturity or 40 percent of the JPA's surplus money. No more than 10 percent of the JPA's surplus funds may be invested in the Banker's Acceptances of any one commercial bank.

7. Commercial paper rated in the highest short-term rating category, as provided by Moody's Investors Service, Inc. or Standard & Poor's Corporation; provided that the issuing corporation is organized and operating within the United States, has total assets in excess of $500 million and has an "A" or higher rating for its long-term debt, if any, as provided by Moody's or Standard & Poor's.

Purchases of eligible commercial paper may not exceed 180 days maturity nor represent more than 10 percent of the outstanding paper of an issuing corporation.

Purchase of commercial paper may not exceed 15 percent of the JPA's surplus money which may be invested. An additional 15 percent, or a total of 30 percent of the JPA's surplus money may be invested only if the dollar weighted average of the entire amount does not exceed 31 days.

8. Medium-term corporate notes issued by corporations organized and operating within the United States or by depository institutions licenses by the U.S. or any state and operating within the U.S. Medium-term corporate notes shall be rated in a rating category "A1" or its equivalent or better by a nationally recognized rating service.

9. FDIC or FSLIC insured or fully collateralized time certificates of deposit in financial institutions located in California.

Purchase of medium-term corporate notes may not exceed 30 percent of the agency's surplus money.

10. Negotiable certificates of deposit or deposit notes issued by a nationally or state-chartered bank or a state or federal savings and loan association or by a state-licensed branch of a foreign bank; provided that the senior debt obligations of the issuing institution are rated "AA" or better by Moody's or Standard & Poor's.

Purchase of negotiable certificates of deposit may not exceed 30 percent of the JPA's surplus money.

11. State of California's Local Agency Investment Fund

The LAIF portfolio should be reviewed periodically.

12. Insured savings account or money market account.
13. The California Asset Management Program

14. Shares of beneficial interest issued by diversified management companies that are money market funds registered with the Securities and Exchange Commission under the Investment Company Act of 1940. To be eligible for investment pursuant to this subdivision these companies shall either:

(A) Attain the highest ranking or highest letter and numerical rating provided by not less than two nationally recognized statistical rating services

(B) Have an investment advisor registered or exempt from registration with the Securities and Exchange Commission with not less than five years experience managing money market mutual funds with assets under management in excess of five hundred million dollars ($500,000,000). The purchase price of shares of beneficial interest purchased shall not include any commission that these companies may charge and shall not exceed 15 percent of the JPA's surplus money which may be invested pursuant to 53635 of the California Government Code.

Credit criteria listed to in this section refer to the credit of the issuing organization at the time the security is purchased. If a credit rating falls below the criteria stated, the Authority shall be notified.

7.5.4.8 Ineligible Investments

The JPA shall not invest any funds in inverse floaters, range notes, or interest-only strips that are derived from a pool of mortgages, or in any security that could result in zero interest accrual if held to maturity.

7.5.4.9 Maximum Maturity

Investment maturities shall be based on a review of cash flow forecasts. Maturities will be scheduled so as to permit the Authority to meet all projected obligations.

The maximum maturity will be no more than five years from purchase date to maturity date.

7.5.4.10 Sales Prior to Maturity

Securities shall not be purchased for the specific purpose of trading. However, sales prior to maturity are permitted under the following circumstances: (1) to meet an unanticipated disbursement, or (2) earn a higher overall rate of return by selling a security and reinvesting the
proceeds. Certain opportunities may involve the recognition of value losses. Book value trading losses are permitted. Any trading loss greater than 1% of principal value of any investment holding requires the following: (1) explanation of source of loss, (2) rationale for transactions resulting in recognition of loss, (3) estimation of time necessary to recoup the loss.

7.5.4.11 Reporting Requirements

The Director, Administrative Services/Chief Financial Officer shall render to the Executive Director and the Board of Directors an investment report each quarter, which shall include, at a minimum, the following information for each individual investment:

- Type of investment instrument
- Issuer name
- Purchase date
- Maturity date
- Purchase price
- Par Value
- Current market value and the source of the valuation
- Overall portfolio yield based on cost
- Sale Date of any investment sold prior to maturity

The quarterly report also shall (I) state compliance of the portfolio to the statement of investment policy, or manner in which the portfolio is not in compliance, (ii) include a description of any of the Authority’s funds, investments or programs that are under the management of contracted parties, including lending programs, and (iii) include a statement denoting the ability of the Authority to meet its expenditure requirements for the next six months, or provide an explanation as to why sufficient money shall, or may, not be available.

This quarterly report shall be submitted within 30 days following the end of the quarter.

The Director, Administrative Services/Chief Financial Officer shall annually render to the Board a statement of investment policy, which the Board shall consider at a public meeting.

7.5.4.12 Safekeeping and Custody

All securities, whether negotiable, bearer, registered, or non-registered, whether purchased for the JPA by the County or by financial advisors, consultants or managers, shall be delivered, either by book entry or physical delivery, to the JPA’s third party custodian, and held in the Authority’s name.
7.5.4.13 Amendment

This SJMSCP Investment Strategy may be amended by the JPA through the Minor Revision process established in Section 8.8.3. The JPA shall notify the Permitting Agencies of proposed substantive amendments to the Investment Strategy prior to adoption. All other amendments shall be reported in the SJMSCP Annual Report required pursuant to SJMSCP Section 5.9.1.

7.5.5 FUNDING ASSURANCES FOR AGENCIES WHICH DO NOT COLLECT FEES

Funding for SJMSCP compensation requirements and/or for the implementation of Incidental Take Minimization Measures, are provided by public and quasi-public agency Plan Participants as follows:

A. California Department of Transportation (Caltrans). The California Department of Transportation receives its funding from appropriations granted by the California Legislature. Monies appropriated by the Legislature to Caltrans are generated through multiple sources including gasoline taxes and monies appropriated through the Federal Highway Administration to the states. Funding for individual road and highway construction projects (those SJMSCP Permitted Activities to be undertaken by Caltrans within San Joaquin County) are funded through a detailed programming and allocation process. Project construction cannot commence until funding has been appropriated for each individual project based upon funding available through the Legislature—including those costs necessary to offset impacts to biological resources as required pursuant to the SJMSCP.

B. San Joaquin Area Flood Control Agency. The San Joaquin Area Flood Control Agency was formed in May, 1995, when the City of Stockton, San Joaquin County, and the San Joaquin County Flood Control and Water Conservation District (SJCFCWCD) entered into a Joint Powers Agency (JPA) agreement to plan, design, construct, operate, maintain and finance the San Joaquin Flood Control Agency Flood Protection Restoration Project in response to the Federal Emergency Management Agency's 1994 findings that the areas subject to 100-year flooding in and around Stockton, California, were much larger than those shown in previous Flood Insurance Rate Maps (FIRMs). SJAFCA has completed most of the construction of the flood control project (See Appendix L for a complete description of this SJMSCP Permitted Activity). Prior to construction, an Environmental Impact Report (EIR) was prepared and certified for the flood control project. The EIR identified the total acreage of impacts to biological resources occurring from levee improvements associated with the SJAFCA project. Mitigation to offset impacts...
to biological resources included participation in the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan. Because the Plan was not yet adopted, $238,000 has been deposited in an account for the acquisition, enhancement and maintenance of habitat pursuant to the SJMSCP.

C. **Stockton East Water District.** The Stockton East Water District (SEWD) was formed in 1948 and covers a service area of approximately 115,000 acres. SEWD's primary source of revenues is user fees generated from agricultural and municipal water users. The total annual operating budget of SEWD is approximately $10,000,000. Monies as required to implement Incidental Take Minimization Measures in conjunction with Maintenance Activities would derive from these sources.

D. **East Bay Municipal Utility District.** The East Bay Municipal Utilities District was formed in 1923 pursuant to the 1921 Municipal Utilities Act and has a service area of 325 square miles. EBMUD's annual operating budget is $178,900,000 with revenues derived primarily from district water sales (Source: EBMUD 1998 Annual Report). Monies as required to implement Incidental Take Minimization Measures in conjunction with Maintenance Activities would derive from these sources.

E. **South San Joaquin Irrigation District.** The South San Joaquin Irrigation District (SSJID) was formed in 1909 and covers a service area of approximately 72,000 acres. SSJID's primary source of revenues is water sales to primarily agricultural users. SSJID's annual operating budget is approximately $11,000,000. Monies for funding the South County Surface Water Supply Project (See Appendix L), including compensation and Incidental Take Minimization Measures pursuant to the SJMSCP, would be derived from these sources.

F. **Public Agency Projects Undertaken by Local Government Agencies.** Prior to undertaking public improvement projects, local governments (i.e., San Joaquin County, the San Joaquin County Council of Governments, and the cities of Escalon, Lodi, Lathrop, Manteca, Ripon, Stockton, and Tracy) adopt either a Regional Transportation Plan (for both motorized and non-motorized transportation improvements) or a Capital Improvement Plan (for non-transportation-related public improvements). These plans prioritize the construction of the various proposed public projects according to available funding for these projects. Projects are not approved for construction until available funding is identified for those projects by the public agencies. Funding for public agency projects comes from multiple sources including gasoline taxes (Measure K); local, state and federal grants; property taxes; property assessments. This process and these funds shall be used to finance public agency
projects undertaken pursuant to the SJMSCP by local government agencies.
7.6 COST-BENEFIT ANALYSIS

Before adopting the SJMSCP, many local jurisdictions asked if adoption of the SJMSCP would be more economical than continuing project-by-project evaluations as has occurred without the SJMSCP. To answer this question, Hausrath Economics Group prepared a cost-benefit analysis of the SJMSCP.

Identifying the costs and benefits of a program such as the SJMSCP requires a base case against which to conduct the evaluation. In this case, the comparison is not between habitat and Open Space conservation planning and associated requirements and the absence of such planning, but between the existing regulatory and conservation environment in San Joaquin County without the SJMSCP and what would be expected after implementation of the SJMSCP.

The following is a summary of the highlights of the findings of that analysis. Table 7.6-2 contains a more detailed description of the analysis. These quantified cost-benefits do not include the non-monetary benefits of the Plan which also will result from the Plan (e.g., quality of life, potentially avoiding new listings of species, Neighboring Land Protections etc.).

### TABLE 7.6-1
SJMSCP COST-BENEFIT ANALYSIS

<table>
<thead>
<tr>
<th></th>
<th>Annual Cost Savings</th>
<th>50-Year Cost Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residents, Taxpayers of San Joaquin County/a/</td>
<td>$248,150</td>
<td>$12,407,500</td>
</tr>
<tr>
<td>Local Governments</td>
<td>$222,300</td>
<td>$11,115,000</td>
</tr>
<tr>
<td>Permitting Agencies</td>
<td>$278,550</td>
<td>$13,927,500</td>
</tr>
<tr>
<td>Project Proponents/b/</td>
<td>$5,790,000</td>
<td>$289,500,000</td>
</tr>
</tbody>
</table>
| Legal: Conservation, Project Proponents and Governmental Agency interests/d/ | $81,000   | $4,050,000 
| **TOTAL COST SAVINGS UNDER THE SJMSCP/e/** | **$6,371,850** | **$318,592,500** |

/a/ These costs savings are included in the $5,790,000 annual savings contained within the "Project Proponent" category. These costs are those saved by public agencies when those agencies undertake public projects. These cost savings are counted only once in the total Plan savings of $6,371,850 annually.

/b/ Savings are found primarily through elimination of biological surveys performed by Project Proponents, staff development costs, consulting costs and legal costs. Please refer to the detailed analysis found in the Hausrath Economics Group Economic Analysis for the San Joaquin Multi-Species Habitat Conservation and Open Space Plan, April 7, 1997, (Appendix Q) for an accounting of subcategories with increased, decreased or unchanged costs which result in this total savings.

/c/ This cost savings reflects the savings after subtracting administration costs for the SJMSCP.

/d/ These cost savings could range as high as $200,000 per year. The total indicates an anticipated average.

In addition to these costs savings:
MONIES GENERATED FOR THE PURCHASE OF EASEMENTS AND FEE TITLE TO BE PAID TO LANDOWNERS. The Plan would generate approximately $160,000,000 solely for easement payments and purchase of fee title to be paid to landowners for the acquisition of Preserve lands.
TABLE 7.6-2
SJMSCP
SUMMARY OF COSTS AND BENEFITS FOR INTERESTED PARTIES

<table>
<thead>
<tr>
<th>INTERESTED PARTIES</th>
<th>BENEFITS</th>
<th>QUANTIFIED COST/BENEFITS - ANNUAL PROJECTIONS (Unless Otherwise Specified)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PROJECT PROPONENTS</strong>: SJMSCP</td>
<td>Provides consistent and predictable mitigation measures for plant, fish and wildlife impacts during the development process.</td>
<td>Total Savings of $5,790,000 in mitigation, Incidental Take Minimization Measures required in limited (and identified) cases and which carry a cost cap.</td>
</tr>
<tr>
<td>Permitted Activities: Project Proponents of residential, commercial, and industrial projects; public agencies, special districts and other sponsors of development projects in San Joaquin County</td>
<td>Guarantee of no further mitigation, except for Incidental Take Minimization Measures required in limited (and identified) cases and which carry a cost cap.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Streamlined Permitting Process - compliance with local, state and federal plant, fish and wildlife regulations is reduced to a single transaction resulting in savings in time, planning costs, and holding costs.</td>
<td></td>
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<tr>
<td></td>
<td>Eliminate costs of both biological surveys and pre-construction surveys for Project Proponents.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Facilitates the provision and maintenance of public facilities including transportation facilities, schools, parks, utilities, flood control structures and similar uses by streamlining the permitting and review process for these facilities.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Allows for off-site mitigation to a greater extent than is currently available, thereby allowing greater flexibility of use of project lands.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Economic development benefits. Cities and County may attract new businesses with guarantee of no project denials or delays based on local, state or federal plant, fish and wildlife regulations.</td>
<td></td>
</tr>
<tr>
<td>TOTAL SAVINGS:</td>
<td>Total Savings of $5,790,000 in mitigation, Incidental Take Minimization Measures required in limited (and identified) cases and which carry a cost cap.</td>
<td></td>
</tr>
<tr>
<td><strong>LOCAL GOVERNMENTS</strong> in San Joaquin County (Planning and Community Development Departments)</td>
<td>Time savings in performing environmental reviews for local agency staffs including reduced permit processing time and costs to manage biological surveys and project-by-project habitat conservation planning.</td>
<td>Savings of $222,300 annually in staff time costs. Staff time saved can be re-directed to other activities.</td>
</tr>
<tr>
<td></td>
<td>Reduces requirements for biological resources sections in EIRs and EISs to a simple incorporation, by reference, of the SJMSCP.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Economic development benefits (removes some roadblocks to residential and non-residential development than would otherwise be the case thereby allowing development in compliance with adopted general plans, without delay) would result in higher levels of local general fund revenue.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>If SJMSCP results in a higher level of state and federal spending in San Joaquin County, there would be some local economic benefit from the multiplier effect of that spending.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Provides mechanism for implementing the goals and policies and implementation programs for resources and Open Space management for local general plans and related, adopted, mitigation measures on projects adopted in conjunction with those plans.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maintains local land use control by prohibiting the use of the SJMSCP as a land use control document.</td>
<td></td>
</tr>
</tbody>
</table>
### INTERESTED PARTIES

**PERMITTING AGENCIES**

- Reduced time and cost for performing environmental reviews as compared to project-by-project reviews.
- Achieves goals of preserving habitat,
- Encourages cooperation, rather than antagonism, among interested parties and Permitting Agencies.
- Integrated regional system of Preserves is more beneficial as habitat. Habitat islands are replaced with large tracts of interconnected habitats with increased likelihood of long-term survival for species and may help to avoid future species listings.
- Provides economies of scale not available to individual mitigation projects.
- Increases the likelihood of maintaining local biodiversity for present and future generations.

**CONSERVATION AND ENVIRONMENTAL INTERESTS**

- Integrated regional system of Preserves is more beneficial as habitat. Habitat islands are replaced with large tracts of interconnected habitats with increased likelihood of long-term survival for species and may help to avoid future species listings.
- Gain formal role in determining priorities for Preserve acquisition and enhancement.
- Encourages cooperation among interested parties, instead of antagonism.
- Provides economies of scale not available to individual mitigation projects.
- Countywide plan offers foundation for increasing the likelihood of acquiring broad-based funding sources, including organized efforts to channel charitable resources to habitat and Open Space conservation in San Joaquin County.
- Increases the likelihood of maintaining local biodiversity for present and future generations.

**LANDOWNERS OF FUTURE DEVELOPMENT LANDS**

- Benefits of enhanced development climate and regional Preserve system could be reflected in higher land prices in the long-term.

**AGRICULTURAL HABITAT LAND OWNERS/NATURAL LAND OWNERS**

- Receive economic value for land as habitat and Open Space resource. Permanent preservation as agricultural land combined with potential reduction in the impacts of urban development. Reduces speculative incentives and negative impacts of nearby urbanization on agricultural production and agricultural land values.
- SJMSCP provides neighboring land protections, which currently do not exist, for those living near SJMSCP Preserves who desire to participate in the neighboring land protection program.
- Secondary benefits of preserving agricultural lands from Conversion to non-Open Space uses and protection of the agricultural economy.

**MULTI-PURPOSE OPEN SPACE/ORCHARD AND VINEYARD LANDOWNERS**

- Potential reduction in the impacts of urban development (in areas already designated for urban development) reduces speculative incentives and negative impacts of nearby urbanization on agricultural production and agricultural land values.
- SJMSCP provides neighboring land protections, which currently do not exist, for those living near SJMSCP Preserves who desire to participate in the neighboring land protection program.

### BENEFITS

**QUANTIFIED COST/BENEFITS - ANNUAL PROJECTIONS (Unless Otherwise Specified)**

**PERMITTING AGENCIES**

- State and federal agency savings of $278,550 annually in staff time costs. Staff time saved can be redirected to other activities.

**CONSERVATION AND ENVIRONMENTAL INTERESTS**

- Reduced litigation costs (ranging from $50,000 to $200,000 per case)

**LANDOWNERS OF FUTURE DEVELOPMENT LANDS**

- Highly variable.

**AGRICULTURAL HABITAT LAND OWNERS/NATURAL LAND OWNERS**

- Source of "Second Crop" income of up to $160,000,000 over the 50-year life of the SJMSCP.
<table>
<thead>
<tr>
<th>INTERESTED PARTIES</th>
<th>BENEFITS</th>
<th>QUANTIFIED COST/BENEFITS - ANNUAL PROJECTIONS</th>
</tr>
</thead>
</table>
| **RESIDENTS, TAXPAYERS, VISITORS**              | ▪ Comprehensive habitat conservation and Open Space plan (establishing approximately 100,841 acres of Preserves over the life of the Plan) improves prospects for maintaining and enhancing biological diversity and obtaining recreational, educational, and spiritual benefits therefrom.  
  ▪ Provides for compensation of the loss of Open Space and habitat for the residents of and visitors to San Joaquin County.  
  ▪ If SJMSCP results in increased state and federal spending in San Joaquin County, residents and businesses would benefit from the overall increase in economic activity in the County.  
  ▪ Savings of staff time at local, state and federal agencies means that staff time may be re-directed to other necessary and beneficial long-range planning services.  
  ▪ Increased level of quality of life translates into increased property values.  
  ▪ May provide increased opportunities for passive recreational use on lands which are to be acquired in fee title.  
  ▪ Preserves rural and scenic character on up to approximately 100,841 acres of Preserve lands through the use of both easements and fee title within approximately 50 years.  
  ▪ Residents of San Joaquin, local governments and other interested parties gain a formal role in implementing state and federal plant, fish and wildlife regulations in the County and in determining priorities for Preserve acquisition.  
  ▪ Maintains property values by identifying proposed Preserves through descriptions, rather than using maps and by restricting Preserves to lands where there are willing sellers.                                                                 | ▪ Savings to public agencies in habitat planning and consulting costs could reduce costs of public projects by approximately 5% of total savings to Project Proponents, or $248,150/year to taxpayers.                      |

November 14, 2000
8. PLAN IMPLEMENTATION

The following provides an overview of SJMSCP implementation.

8.1 PLAN PARTICIPANTS

8.1.1 PERMITTING AGENCIES

Pursuant to Section 10(a)(1)(B) of the ESA and Section 2081 of the CESA, the SJMSCP Permitting Agencies, for impacts to SJMSCP Covered Species resulting from Open Space land Conversions (resulting from SJMSCP Permitted Activities undertaken by Plan Participants, Third Parties or Project Proponents), are the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG).

8.1.2 PERMITTEES/PLAN PARTICIPANTS

The anticipated SJMSCP Permittees (also Plan Participants or Permit Holders), are: the cities of Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton, and Tracy; San Joaquin County [on behalf of San Joaquin County and the San Joaquin County Superintendent of Schools (for new schools and school expansions), ]; Stockton East Water District, East Bay Municipal Utility District; California Department of Transportation; San Joaquin Council of Governments; San Joaquin Area Flood Control Agency; and the South San Joaquin Irrigation District. The preceding are, collectively, the Plan Participants. Participation by these individual jurisdictions is voluntary (see Sections 7.6.1 and 8.1.3) and is subject to local approval by each agency. Responsibilities of Permittees include, among other things: collection of fees, maintenance of implementing ordinances/resolutions, conditioning permits (if applicable) and coordinating with the Joint Powers Authority (JPA) for Annual Report accounting.

8.1.2.1 Participation by East Bay Municipal Utility District (EBMUD)

A. Overview of Coverage. The East Bay Municipal Utility District (EBMUD) receives coverage pursuant to the SJMSCP Permits for: 1) Maintenance Activities as described in Section 8.2.1(3) and as defined in Chapter 10, and 2) Maintenance and minor expansion of the Camanche Day Use Area (including the addition of picnic tables, barbecues) and construction and maintenance of the Coast to Crest Trail (including construction of foot bridges and a spur leading from the main trail to the Camanche Day Use Area) within the existing EBMUD boundaries within San Joaquin County as described in Section 8.2.1(3). EBMUD receives coverage for Maintenance Activities, the Camanche Day Use Area and the Coast to Crest Trail.
on those lands indicated in Appendix X except for those lands situated along the FSCC Pipeline. Coverage for Maintenance Activities within the right-of-way of the proposed FSCC Pipeline is subject to a Minor Revision pursuant to Section 8.8.3 after construction of the pipeline is completed.

B. Incidental Take. EBMUD shall comply with the Incidental Take Minimization Measures described in Section 5.2.4 for Maintenance Activities undertaken pursuant to the SJMSCP. Within 60 days of the Plan's Effective Date, and prior to undertaking Maintenance Activities, the JPA or interim JPA shall issue an Incidental Take Minimization Requirements Memorandum to EBMUD.

The Incidental Take Requirements Memorandum shall reflect all Incidental Take Minimization Requirements applying to all habitat lands and all SJMSCP Covered Species located within the jurisdictional boundaries of EBMUD as designated on the map contained in Appendix X. The Incidental Take Minimization Measures will be determined based upon existing environmental baseline studies conducted for these areas and supplemented by pre-construction surveys as detailed in Section 5.2.2. This Incidental Take Minimization Requirements Memorandum shall be good for a period of 120 days from the date of issuance.

Thereafter, the Incidental Take Minimization Requirements Memorandum will be updated annually by the TAC, with the concurrence of the Permitting Agency representatives on the TAC, and forwarded to EBMUD by certified mail, return receipt requested. Each annual Incidental Take Minimization Requirements Memorandum shall be good for a period not to exceed one year from the date of issuance. Should new information affecting SJMSCP Covered Species become available during the one-year term of the Annual Incidental Take Minimization Memorandum, the TAC, with the concurrence of the Permitting Agencies' representatives on the TAC, may issue revisions to the Annual Incidental Take Minimization Memorandum. Revisions shall be forwarded to EBMUD by certified mail, return receipt requested.

C. Adoption of SJMSCP and Monitoring. Within 30 days of the Plan's Effective Date, EBMUD shall identify in writing, to the interim JPA, an EBMUD liaison (including the position or the name of the responsible individual and a phone number and address for contacting the responsible individual) to work with the JPA. The EBMUD liaison shall be responsible for providing quarterly reports according to the following schedule to the JPA outlining anticipated Maintenance Activities to be undertaken by EBMUD within each designated quarter.
For Quarter Covering

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<tr>
<th>Report Due</th>
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<td>December 1</td>
<td>January 1 - March 31</td>
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</table>

In addition, the EBMUD liaison shall notify the JPA by telephone when unscheduled or emergency Maintenance Activities must be undertaken which are not included in the Quarterly Reports.

D. Compensation, Reporting, Funding Assurances. Compensation and reporting requirements for Maintenance Activities undertaken by EBMUD are as described in Section 5.9.1.2. See Section 7.5.5 for details on funding assurances provided by this agency.

8.1.2.2 Participation by Stockton East Water District (SEWD)

A. Overview. The Stockton East Water District (SEWD) receives coverage pursuant to the SJMSCP Permits for Maintenance Activities as described in Section 8.2.1(3) and as defined in Chapter 10. SEWD receives coverage for Maintenance Activities undertaken on those lands within SEWD boundaries as indicated in Appendix X.

B. Incidental Take. SEWD shall comply with the Incidental Take Minimization Measures described in Section 5.2.4 for Maintenance Activities undertaken pursuant to the SJMSCP. Within 30 calendar days of receiving the SEWD quarterly report (See C, below), the JPA shall issue an Incidental Take Minimization Requirements Memorandum to SEWD.

The Incidental Take Requirements Memorandum shall reflect all Incidental Take Minimization Requirements applying to all habitat lands and all SJMSCP Covered Species located within the jurisdictional boundaries of SEWD as designated on the map contained in Appendix X for all Maintenance Activities identified in the SEWD quarterly report. The Incidental Take Minimization Measures will be determined based upon existing environmental baseline studies conducted for these areas and supplemented by pre-construction surveys as detailed in Section 5.2.2. The Incidental Take Minimization Requirements Memorandum shall be good for a period of 120 days from the date of issuance and may be updated with new information affecting SJMSCP Covered Species which becomes available during the 120-day term of the Incidental Take Minimization Memorandum. The TAC, with the concurrence of the Permitting Agencies' representatives on the TAC, may issue, and issue revisions to, the Incidental Take Minimization Memorandum.
Both the Incidental Take Minimization Requirements Memorandum and any revisions shall be forwarded to SEWD by certified mail, return receipt requested.

C. Adoption of SJMSCP and Monitoring. Within 30 days of the Plan's Effective Date, SEWD shall identify in writing, to the interim JPA, an SEWD liaison (including the position or the name of the responsible individual and a phone number and address for contacting the responsible individual) to work with the JPA. The SEWD liaison shall be responsible for providing quarterly reports according to the following schedule to the JPA outlining anticipated Maintenance Activities to be undertaken by the SEWD within each designated quarter.

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<tr>
<td>December 1</td>
<td>January 1 - March 31</td>
</tr>
</tbody>
</table>

In addition, the SEWD liaison shall notify the JPA by telephone when unscheduled or emergency Maintenance Activities must be undertaken which are not included in the Quarterly Reports.

D. Compensation, Reporting, Funding Assurances. Compensation and reporting requirements for Maintenance Activities undertaken by SEWD are as described in Section 5.9.1.2. See Section 7.5.5 for details on funding assurances provided by this agency.

8.1.2.3 Participation by South San Joaquin Irrigation District (SSJID)

A. Overview of Coverage. The South San Joaquin Irrigation District (SSJID) receives coverage pursuant to the SJMSCP Permits for Maintenance Activities as described in Section 8.2.1(3) and as defined in Chapter 10. SSJID receives coverage for Maintenance Activities on those lands indicated in Appendix X excepting for those lands located within the boundaries of the South County Surface Water Supply Project. Coverage for Maintenance Activities within the right-of-way of the proposed South County Surface Water Supply Project is subject to a Minor Revision pursuant to Section 8.8.3 after construction of the project is completed.

B. Incidental Take. SSJID shall comply with the Incidental Take Minimization Measures described in Section 5.2.4 for Maintenance Activities undertaken pursuant to the SJMSCP. Within 60 days of the Plan's Effective Date, and prior to undertaking Maintenance Activities, the JPA or interim JPA shall issue an Incidental Take
Minimization Requirements Memorandum to SSJID.

The Incidental Take Minimization Requirements Memorandum shall reflect all Incidental Take Minimization Requirements applying to all habitat lands and all SJMSCP Covered Species located within the jurisdictional boundaries of SSJID as designated on the map contained in Appendix X. The Incidental Take Minimization Measures will be determined based upon existing environmental baseline studies conducted for these areas and supplemented by pre-construction surveys as detailed in Section 5.2.2. This Incidental Take Minimization Requirements Memorandum shall be good for a period of 120 days from the date of issuance.

Thereafter, the Incidental Take Minimization Requirements Memorandum will be updated annually by the TAC, with the concurrence of the Permitting Agency representatives on the TAC, and forwarded to SSJID by certified mail, return receipt requested. Each annual Incidental Take Minimization Requirements Memorandum shall be good for a period not to exceed one year from the date of issuance. Should new information affecting SJMSCP Covered Species become available during the one-year term of the Annual Incidental Take Minimization Memorandum, the TAC, with the concurrence of the Permitting Agencies' representatives on the TAC, may issue revisions to the Annual Incidental Take Minimization Memorandum. Revisions shall be forwarded to SSJID by certified mail, return receipt requested.

C. Adoption of SJMSCP and Monitoring. Within 30 days of the Plan's Effective Date, SSJID shall identify in writing, to the interim JPA, a SSJID liaison (including the position or the name of the responsible individual and a phone number and address for contacting the responsible individual) to work with the JPA. The SSJID liaison shall be responsible for providing quarterly reports according to the following schedule to the JPA outlining anticipated Maintenance Activities to be undertaken by SSJID within each designated quarter.

<table>
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</tbody>
</table>

In addition, the SSJID liaison shall notify the JPA by telephone when unscheduled or emergency Maintenance Activities must be undertaken which are not included in the Quarterly Reports.
D. Compensation, Reporting, Funding Assurances. Compensation and reporting requirements for Maintenance Activities undertaken by SSJID are as described in Section 5.9.1.2. See Section 7.5.5 for details on funding assurances provided by this agency.

8.1.2.4 San Joaquin Area Flood Control Agency (SJAFCA)

As noted in Section 7.5.5, the San Joaquin Area Flood Control Agency is covered pursuant to the SJMSCP for the San Joaquin Flood Control Agency Flood Protection Restoration Project (see Appendix L). Prior to construction, an Environmental Impact Report (EIR) was prepared and certified for the flood control project. The EIR identified the total acreage of impacts to biological resources occurring from levee improvements associated with the SJAFCA project. SJAFCA has completed most of the construction of the flood control project including the mitigation measures, equivalent to the SJMSCP's Incidental Take Minimization Measures, identified in the project's EIR. Compensation requirements to offset impacts to biological resources included participation in the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (i.e., the payment of fees). Because the Plan was not yet adopted prior to ground disturbance, $238,000 has been deposited in an account for the acquisition, enhancement and maintenance of habitat pursuant to the SJMSCP.

8.1.2.5 California Department of Transportation (Caltrans)

A. Overview. Caltrans Maintenance Activities, as described in Chapter 10, and transportation construction projects (See Appendix L) are covered pursuant to the SJMSCP for those activities undertaken within San Joaquin County.

B. Incidental Take. Caltrans shall comply with the Incidental Take Minimization Measures described in Section 5.2.4 for the SJMSCP Permitted Activities undertaken pursuant to the SJMSCP. Within 30 calendar days of receiving the Caltrans quarterly report (See C, below), the JPA shall issue an Incidental Take Minimization Requirements Memorandum to Caltrans.

The Incidental Take Minimization Requirements Memorandum shall reflect all Incidental Take Minimization Requirements applying to all habitat lands and all SJMSCP Covered Species located which could be impacted as identified in the Caltrans quarterly report. The Incidental Take Minimization Measures will be determined based upon existing environmental baseline studies conducted for these areas and supplemented by pre-construction surveys as detailed in Section 5.2.2. The Incidental Take
Minimization Requirements Memorandum shall be good for a period of 120 days from the date of issuance and may be updated with new information affecting SJMSCP Covered Species which becomes available during the 120-day term of the Incidental Take Minimization Memorandum. The TAC, with the concurrence of the Permitting Agencies' representatives on the TAC, may issue, and issue revisions to, the Incidental Take Minimization Memorandum. Both the Incidental Take Minimization Requirements Memorandum and any revisions shall be forwarded to Caltrans by certified mail, return receipt requested.

C. Adoption of SJMSCP and Monitoring. Within 30 days of the Plan's Effective Date, Caltrans shall identify in writing, to the interim JPA, a Caltrans liaison (including the position or the name of the responsible individual and a phone number and address for contacting the responsible individual) to work with the JPA. The Caltrans liaison shall be responsible for providing quarterly reports according to the following schedule to the JPA outlining anticipated Maintenance Activities to be undertaken by Caltrans within each designated quarter.

<table>
<thead>
<tr>
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</tr>
</tbody>
</table>

In addition, the Caltrans liaison shall notify the JPA by telephone when unscheduled or emergency Maintenance Activities must be undertaken which are not included in the Quarterly Reports.

D. Compensation, Reporting, Funding Assurances. Compensation and reporting requirements for Maintenance Activities undertaken by Caltrans are as described in Section 5.9.1.2. Caltrans shall comply with the applicable Incidental Take Minimization Measures and Compensation requirements pursuant to the SJMSCP for transportation construction projects as described in the SJMSCP except that Caltrans also has the option to acquire Preserve lands consistent with the SJMSCP Preserve Design Criteria directly (with approval by the JPA and TAC, including the Permitting Agencies' representatives on the TAC), rather than through the JPA. See Section 7.5.5 for details on funding assurances provided by this agency.

8.1.3 IMPLEMENTING ENTITY - SJMSCP JOINT POWERS AUTHORITY (JPA)
8.1.3.1 Defined/Composition

As defined in the glossary, Chapter 10, the use of the term “Joint Powers Authority” includes the Joint Powers Authority and/or its designee or designees.

The SJMSCP will be administered on behalf of the Plan Participants by a Joint Powers Authority that has adequate authority to carry out the requirements of the Plan. The JPA shall be formed within 120 calendar days of the issuance of SJMSCP Permits. The San Joaquin Council of Governments (COG) shall contact each participating jurisdictions which shall name an elected official to the JPA. The COG shall organize the first meeting of the JPA representatives to formally establish the JPA and adopt governing rules for that organization consistent with the California Government Code as it applies to JPAs. The JPA shall consist of one representative from each of the cities that adopts the Plan, except that the City of Stockton shall have two elected representatives on the JPA, and two representatives from the San Joaquin County Board of Supervisors, if the County adopts the Plan. Representatives on the JPA shall be elected officials from these jurisdictions. Permitting Agency and Plan Participants who are not elected officials may serve in an advisory capacity, at their agency's discretion, as follows:

A. Permitting Agency representatives shall serve in an ex-officio\(^40\) capacity at the discretion of the individual Permitting Agencies.

B. Representatives of Plan Participation Agencies shall serve as ad hoc\(^41\) members at the discretion of their individual agencies.

8.1.3.2 Duties and Limitations of the Joint Powers Authority (JPA)

Duties of the JPA include, but are not limited to:

A. Implementing the following measures to minimize and mitigate the impacts of Incidental Take of the SJMSCP Covered Species within the Permit Area:

Inform Plan Participants of the need to condition project approvals with Incidental Take Minimization Measures; and perform preconstruction surveys to both determine appropriate Incidental Take Minimization Measures and to confirm that such measures have been implemented prior to and during site-

\(^{40}\) Per Webster's new Encyclopedic Dictionary: "because of an office"

\(^{41}\) Per Webster's New Encyclopedic Dictionary: "for the particular purpose or case at hand."
disturbance (see Sections 5.2.1, 5.2.2, and 5.2.3).

B. Implementing those measures provided in the SJMSCP to offset the unavoidable loss of habitat for the Covered Species through the establishment, maintenance and monitoring of replacement habitat as described below:

1. Collect development fees from Plan Participants (which have been collected from Project Proponents) on a regular basis to purchase and maintain Preserve lands. The JPA shall spend collected fees as necessary to comply with state law. The JPA shall establish a regular interval for collecting monies from Plan Participants. At least one collection of SJMSCP monies shall be made from Plan Participants each year.

2. Identify and make final decisions on Preserve land acquisitions based on SJMSCP adopted Preserve design criteria and conservation strategy. Final decisions for acquiring Preserve lands shall be made by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC as described in Section 8.1.4.

3. Negotiate easements and/or land acquisitions including covenants addressing land use within Preserves as described in Section 5.3.3.1.

4. Execute (prepare, coordinate, review and record) easements, fee acquisitions, in-lieu land dedications or purchases from mitigation banks.

5. Notwithstanding the cost estimates in Section 7.2 of the SJMSCP, in the event that land acquisition and other costs exceed the projected amounts, the JPA shall be bound to perform the duties contained herein.

6. In the event that costs of performance under the SJMSCP are less than estimated, JPA shall determine how to appropriate unexpended funds. In making its determination, the JPA may consider reducing fees for as long as a surplus remains, as long as a contingency is maintained for times when costs may be higher than anticipated.

7. Oversee Preserve management and enhancement duties as described in Sections 5.4.6 through 5.4.8.

Within 24 months of completing Site Disturbing Activities:
8. Acquire, through easement or fee title, and hold or transfer to CDFG or third party approved by the Permitting Agencies, three acres of Preserve lands for every one acre of Natural Land Converted from Open Space use pursuant to the SJMSCP and one acre of Preserve land for every acre of Agricultural Habitat Land Converted from Open Space use pursuant to the SJMSCP except as provided below in paragraph 9.

9. Acquire, through easement or fee title, and hold or transfer to CDFG or third party approved by the Permitting Agencies, three acres of Preserve lands for every one acre of vernal pool grasslands Converted from Open Space use consistent with the compensation requirements described in SJMSCP Section 4.1 and subject to the Conversion limits described in Section 5.5.2.5 (A)(1) and the jump-start acquisition requirements established in Section 5.5.7 for vernal pools.

10. Record, with the County Recorder, easements, transfers of title, or easements over lands associated with mitigation banks in favor of CDFG or third party approved by the Permitting Agencies. When transfer is to a third party approved by the Permitting Agencies, a Management Agreement shall be executed between the third party and the Permitting Agencies obligating the third party to the requirements of the SJMSCP pertaining to the maintenance and management of Preserve lands.

Consistent with Sections 5.3.2.3 and 8.6:

11. Monitor the Plan Participants to confirm that compensation in the form of fee payment, in-lieu land dedications, or purchase of mitigation banking credits, including payments for enhancement, monitoring, and long-term maintenance of Preserve lands, have occurred.

C. Conduct monitoring for Preserve lands and prepare Annual Reports for submittal to the Permitting Agencies in compliance with Section 5.9 of the SJMSCP.

D. Consider and oversee Plan amendments including preparing recommendations to Plan Participants for amendments and working with Permitting Agencies to gain approval on amendments.

E. Provide ongoing education to interested parties regarding the status and nature of the Plan.
F. Coordinate non-fee funding which may include: re-sales of lands, after recording conservation easements on Preserve lands, to generate monies for a revolving fund; construction of, and sales of credits in, SJMSCP mitigation banks; lease-backs on lands held in fee title; applying for grants and other activities as may be deemed necessary to assist in Plan funding.

G. Create and consult with citizen advisory groups as needed and appropriate (e.g., to assist in determining appropriate educational, recreational, or other beneficial uses of Preserve lands when such uses are consistent with the conservation goals of the SJMSCP and the landowner). Composition of citizens advisory groups shall vary depending upon the purpose for which the advisory groups are established. In establishing citizen advisory groups, the JPA shall seek to provide balanced representation from residents of San Joaquin County representing the diverse views of the community.

H. Create and consult with a TAC as described in Section 8.1.4.

The JPA shall not have eminent domain authority.

8.1.3.3 Assumption of Duties, including Preserve Management Responsibilities, if JPA Disbanded

In the event that the JPA should disband or otherwise be dissolved, the Permittees shall meet and consult with the Permitting Agencies to establish a replacement entity to manage the administration of the SJMSCP including management of SJMSCP Preserves. During this consultation process, the SJMSCP shall be managed by the San Joaquin Council of Governments. In the event that the San Joaquin Council of Governments is the JPA, disbanding of the JPA shall render the regular COG Board of Directors (which exists even without the JPA as the areas regional planning agency) as the interim JPA.

Within three months of dissolution of the JPA, the temporary management entity shall retain any firm(s) which may have already been under contract to the JPA to manage Preserves to continue Preserve management until such time as a new management entity is formed--provided such contractors have provided satisfactory services to the JPA in the past. In the event that no Preserve management contractors had been providing Preserve management services to the JPA, the temporary management entity shall immediately begin the process to identify and hire a contractor to continue Preserve management activities. Selection of a new Preserve management contractor by the temporary management entity shall not exceed 6 months.

8.1.4 TECHNICAL ADVISORY COMMITTEE (TAC)
A Technical Advisory Committee (TAC) shall be formed within 120 calendar days of the Effective Date. The Technical Advisory Committee shall be responsible for providing biological, technical and operational support to the Joint Powers Authority. The TAC will serve as an intermediary between "on the ground" SJMSCP activities conducted by the Land Manager and the decision-making function of the Joint Powers Authority. The TAC will evaluate biological, technical and operational issues of SJMSCP implementation, based on information provided by the Land Manager and other relevant information, and forward recommendations to the Joint Powers Authority.

Membership on the TAC shall be similar in composition to the SJMSCP Habitat Staff Working Group and shall have at least one representative each from the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers (upon issuance of a Federal Clean Water Act regional general permit, or equivalent), and the California Department of Fish and Game. In addition, the TAC shall include representation from the local agricultural community including the San Joaquin County Agricultural Commissioner and the U.C. Cooperative Extension Farm Advisor. Agricultural representation on the TAC is intended to allow the TAC the needed perspective to design conservation easements which allow the continuation of routine and ongoing agricultural practices consistent with SJMSCP Section 5.4.8.1(F). If or when conflicts arise between agricultural landowners (whether on or off Preserves) and the goals of the SJMSCP, the TAC shall act as a mediator and, whenever necessary, the TAC shall recommend revisions to the SJMSCP as necessary to resolve conflicts between the SJMSCP goals and routine and ongoing agricultural practices, through the SJMSCP Adaptive Management Plan (see Section 5.9.4) and subject to the approval of the JPA with the concurrence of the Permitting Agencies' representatives on the TAC. Additional membership on the TAC shall be established by the JPA but shall, at a minimum, include staff from the Plan Participants and representation from business, conservation, and agricultural interests (in particular, representation for agricultural landowners) as was reflected on the SJMSCP Habitat Staff Working Group. The TAC may use the expertise of technical advisors on an as needed basis to assist in fulfilling its duties.

Specific duties of the TAC shall be established by the JPA. It is anticipated that, at a minimum, TAC responsibilities shall include providing biological expertise including oversight of the SJMSCP monitoring program, evaluating proposals to acquire new Preserves, formulating Preserve Management Plans, formulating Incidental Take Minimization Measures for newly listed species, and recommending adaptive management procedures. Non-biological technical and operational responsibilities of the TAC shall include monitoring the day-to-day implementation of the Plan (e.g., fee collections, coordinating application and project reviews pursuant to the SJMSCP, implementation of Incidental Take Minimization Measures) and providing proposals to the Joint Powers Authority, as necessary, to ensure a coordinated
implementation of the Plan by multiple jurisdictions. Other responsibilities may be assigned to the TAC by the JPA as needed to ensure proper implementation of the SJMSCP.

Proposals and recommendations by the TAC pertaining to the identification or implementation of avoidance or mitigation measures, or the selection or management of Preserve lands, shall require the concurrence of the Permitting Agencies' representatives on the TAC.

A subcommittee of the TAC, including, at a minimum, TAC representatives from the U.C. Cooperative Extension and San Joaquin County Agricultural Commissioner's office shall be responsible for the implementation of Section 5.4.7.2 of the SJMSCP.

8.1.5 THIRD PARTIES

The glossary, Chapter 10, defines “Third Parties” as Project Proponents that receive authorization under the Permits for the Incidental Take of a Covered Species during the undertaking of a Permitted Activity in accordance with the SJMSCP.

8.1.5.1 Creation of and Authorizations Granted to Third Parties

Upon the completion of the actions set forth in Section 8.7, the Permit Holders may allow, within San Joaquin County, the Incidental Take of SJMSCP Covered Species by Third Parties under the direct control of the Permit Holders, specifically including Project Proponents undertaking SJMSCP Permitted Activities pursuant to the authority granted to the Permit Holders by the SJMSCP Permits.

A. The permitting of Incidental Take by the Permit Holders for Third Parties shall occur upon the local jurisdictions’ final approval of the project (i.e., certification of the CEQA and/or NEPA environmental document) with attached conditions addressing Incidental Take Minimization Measures pursuant to Section 5.2.1.1 and compensation through fee payments, bonding, in-lieu land dedications or purchase of approved mitigation banking credits in accordance with the timing requirements in Section 5.3.2.3.

B. The authorization for Incidental Take provided to the Permit Holders and granted to Third Parties shall run concurrent with the specific land development approval granted by the Permit Holder and extending through completion of all construction activities, including completion of construction pursuant to individual building permits granted in accordance with the land development approval. Should activities be undertaken by a person or persons other than the original Third Party to whom
the Incidental Take approval was extended, Take Authorizations can be extended to a person or persons as prescribed in Section 9 of the Implementation Agreement.

Incidental Take authorization shall not exceed the Term of the Permits (50 years) unless: 1) final project approvals have been given pursuant to paragraph A prior to the expiration of the SJMSCP Permits, and 2) All work subject to the project approval shall be completed within 48 months of receiving the approvals, and 3) the JPA secures an extension of the SJMSCP Permits pursuant to the amendment procedures in Section 8.8 authorizing an extension of the appropriate SJMSCP Permit(s) for a period of up to 4 years to allow for the completion of specified projects authorized pursuant to the SJMSCP Permits prior to their expiration, but for which activities have not yet been completed.

C. Following approval by the Permit Holder of necessary authorizations and/or entitlements for an SJMSCP Permitted Activity to be undertaken by a Third Party in accordance with the requirements of the SJMSCP, and following receipt by the Permit Holder from the Third Party of assurance (e.g., payment of fees, posting of a bond, purchase of mitigation banking credits, completion of in-lieu land dedications, and implementation of Incidental Take Minimization Measures consistent with the SJMSCP) that the Third Party will provide all mitigation related to SJMSCP Covered Species in accordance with the provisions of the SJMSCP, the Parties shall not alter an existing mitigation obligation imposed by the Permit Holders on the Third Party.

8.1.5.2 Effect of SJMSCP Amendments on Third Parties

Amendments or other revisions to the SJMSCP subsequent to the approval of Incidental Take by a Permit Holder through a final project approval shall not affect the Incidental Take allowed, the level of compensation required, or the Incidental Take Minimization Measures required pursuant to the SJMSCP, by that final project approval unless the Third Party, the Permitting Agencies and the Permit Holder all agree to abide by the amendment or revision.

8.1.5.3 Effect of Revocation or Suspension of SJMSCP Permits on Incidental Take Authorizations Granted to Third Party Beneficiaries

In the event that one or more of the Permitting Agencies revoke or suspend one or more of the SJMSCP Permits, the assurances granted to Third Parties pursuant to the SJMSCP will remain in effect as to every individual Third Party that fulfills the mitigation obligations imposed upon
it by the Permit Holder in compliance with the SJMSCP as it existed on the date that the project approval was originally granted.

8.1.5.4 Effect of No Surprises Assurances on Third Parties

The effects of No Surprises Assurances on Third Parties is described in Section 9.1.1.2.

8.1.5.5 Effect of Designation of Critical Habitat on Third Parties

The effect of designation of critical habitat on Third Parties is the same as the effect described in Section 9.4.

8.1.5.6 Retention of Enforcement Authority Over Third Parties by Parties

The Parties reserve the right to enforce all applicable federal, state, or local laws against persons or entities which engage in unlawful land development activity without obtaining proper permits and approvals from the Parties. Also, the Parties reserve the right to enforce all applicable federal, state, or local laws against Third Parties which conduct land development activities within San Joaquin County which are not in compliance with land development approvals granted by the Permit Holders in compliance with the SJMSCP.

8.1.5.7 No Additional Rights to Sue Permitting Agencies Granted to Third Parties

Notwithstanding the use of the term “Third Party”, the SJMSCP shall confer no right upon Third Parties or any other person to sue the Permitting Agencies.

8.2 SJMSCP PERMITTED ACTIVITIES

8.2.1 SJMSCP PERMITTED ACTIVITIES

The following list describes the activities for which the SJMSCP will provide comprehensive compensation, avoidance and minimization of impacts to threatened, endangered, rare and other unlisted SJMSCP Covered Species for which Incidental Take authorization will be obtained under the Plan's associated permits (Permitted Activities). As described in Section 8.4(B), these Permitted Activities may be undertaken pursuant to the SJMSCP only by Project Proponents operating within the jurisdictional boundaries of a Permittee (i.e., if San Joaquin County opted not to adopt the SJMSCP and the City of Tracy adopted the SJMSCP, Project Proponents may undertake mining activities pursuant to the SJMSCP within the jurisdictional boundaries of the City of Tracy, but not within the jurisdictional boundaries of San Joaquin County).
Coverage for unmapped land uses or activities as designated in SJMSCP Section 3.4 and contained in the following list, are subject to case-by-case review by the JPA’s Technical Advisory Committee (TAC) to ensure that the biological impacts of the proposed projects fall are within the parameters established by the SJMSCP as originally adopted.

For unmapped land uses which are consistent with the overall biological intent of the SJMSCP and which do not introduce significant new biological conditions into the Plan area or the SJMSCP’s conservation program or result in significant new or different environmental impacts, or for land uses which have impacts which are equal to or are less than those described in the SJMSCP originally adopted; then the TAC, with the concurrence of the TAC’s representative from the Permitting Agencies, may permit SJMSCP Coverage for the proposed land use activity or action pursuant to a Minor Revision as described in SJMSCP Section 8.8.3 (45).

For those unmapped land uses which have an effect on the SJMSCP Covered Species and levels of Incidental Take which are greater than, but not significantly different than, those described in the SJMSCP originally adopted; coverage of the proposed land use activity or action may be permitted subject to a Minor Amendment as described in SJMSCP Section 8.8.4(D).

For those unmapped land uses which have an effect which is significantly different (i.e., greater than) that those described in the SJMSCP originally adopted, coverage of the land use may be permitted subject to a Major Amendment as described in SJMSCP Section 8.8.5(I).

Anticipated levels of Open Space Conversions, in acres, for these SJMSCP Covered Activities are provided in Table 4.2-1 and are described in detail in the following Sections:

1. Development: New commercial, residential, and industrial construction [both ministerial and discretionary (as defined in California's State CEQA Guidelines Sections 15369 and 15357) unless specifically exempted] and agricultural uses within the designated urban boundaries (as indicated on the SJMSCP Planned Land Use Map) requiring a discretionary entitlement (permit) by local public and private agencies.

2. Aggregate mining: Located both inside and outside of the designated urban boundaries as indicated on the SJMSCP Planned Land Use Map and pursuant to supplemental mapping indicating potential aggregate mining locations provided to the Permitting Agencies.

3. Public and Private Agency Activities (e.g., Highway Construction and Highway Maintenance undertaken by public agencies, Lodi Wastewater Project at White Slough, Mapped Recreational Facilities undertaken by public agencies, maintenance of existing facilities by irrigation districts, school expansions): Projects carried out by Plan Participants including new construction, expansion, and maintenance of existing or future: non-federal transportation projects described in Appendix L, school expansions, non-federal flood control projects described in Appendix L, and
parks and trails located both inside and outside of designated urban boundaries as indicated on the SJMSCP Planned Land Use Map. Maintenance Activities undertaken by Plan Participants on existing facilities, as described in Chapter 10, are Permitted Activities. Maintenance Activities which are Categorically Exempt pursuant to California's State CEQA Guidelines, as described in Chapter 10, are exempt from the SJMSCP compensation requirements.

4. Projects which could affect fisheries and/or wetlands indirectly, which are located within non-jurisdictional wetlands. Activities covered within this category are limited to the Conversion of three acres of submerged aquatic habitat, activities affecting up to three acres of Tule/Channel Island (I) habitats, and the SJMSCP’s 4,790 acres of water features to be compensated pursuant to the Plan at a ratio of 3:1 (all three acres to be created) throughout the life of the SJMSCP without a Major Amendment to the SJMSCP. Activities covered pursuant to this category shall not be located within jurisdictional wetlands, Waters of the United States, tidally influenced waters or waters occupied by fish species which are not covered by the SJMSCP (salmon, steelhead). This category is specifically intended to cover activities located within ephemeral drainages, small tributaries which are non-tidally influenced with flows below the threshold necessary to qualify as jurisdictional waters or Waters of the United States, and the upper reaches of the Calaveras River.

Activities covered in this category include: maintenance of SJAFCA levees, construction of new recreational facilities including trails and parks; construction of private-use small docks and constructing public and private use bridges and road crossings. Activities resulting in Take of water features other than submerged aquatic or “I” vegetation types may include any SJMSCP Covered Activity listed herein unless otherwise specifically prohibited by the SJMSCP (e.g., in the case of Take of known occupied riparian brush rabbit habitat).

5. Non-agricultural activities carried out by Plan Participants or Third Parties on agriculturally-zoned properties or other zoned properties located outside of boundaries indicated on the SJMSCP Planned Land Use Map

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The majority of activities composing this 4,790 acres will require issuance of a regional general Section 404 Federal Clean Water Act Permit or its equivalent. In the interim, activities covered in this category do not involve Section 404 of the Federal Clean Water Act until and unless a regional general permit is issued by the Corps pursuant to Section 5.6.

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and described in the following paragraphs. These use areas are unmapped, total 3,163 acres of anticipated Incidental Take, and are scattered throughout the County. These activities are subject to case-by-case reviews as prescribed in Section 3.4:

A. Communication Services

Communication services refers to commercial or public establishments or facilities which primarily provide electronic communication of audio/visual information via cable, microwave or radio frequency transmission including communication services which require the mounting of a wireless telecommunication facility on an existing building or structure (e.g., wireless communication facilities for cellular radio mobile services, paging services and personal communication services); communication services which require the construction of a new freestanding support structure for wireless telecommunication antennas and associated support equipment (e.g., wireless telecommunication mono-poles and lattice towers for cellular radio mobile services); communication services which require the construction of a new freestanding support structure for the purposes of radio or television broadcasting (e.g., radio and television broadcast towers and airport communication towers); and communication services which require the regular day-to-day presence of personnel at a site to provide the services being offered (e.g., radio and television broadcasting studios, cable TV administrative offices, and telegraph message centers).

B. Funeral/Interment Services: Mortuaries, crematoriums, columbariums, mausoleums and similar services when in conjunction with, and including, cemeteries

C. Major Impact Projects

Major impact services are those land intensive activities which must be located away from residences or concentrations of people due to the magnitude or nature of the operation's impacts on the surrounding environment including airports not primarily serving agricultural activities, sanitary landfills, hazardous waste disposal sites, and correctional institutions. Use of the SJMSCP to provide compensation for impacts to plants, fish and wildlife created by projects within this category requires approval by the JPA with the written concurrence of the Permitting Agencies' representatives on the TAC. A Permit Amendment pursuant to either Section 8.8.3 or 8.8.4 may be required to include projects within this category (e.g., to address issues pertaining to federal involvement or other special regulatory requirements associated with these activities). SJMSCP coverage for SJMSCP Permitted Activities associated with these projects which are listed as SJMSCP Permitted Activities in SJMSCP Section 8.2.1 do not
require prior written consent after a review by the Permitting Agencies [e.g., airport communication towers listed in 8.2.1(6)(A)].

D. Public Services: Fire stations, police stations, public administration centers, community centers

E. Recreation/Golf Courses: Campgrounds, parks, trails (coast-to-crest included), golf courses, outdoor sports clubs

F. Religious Assembly: Churches

G. Utility Services: Utility services refers to those facilities which provide electricity, solids, liquids, or gas through wires or pipes including utility services that are necessary to support principal development involving only minor structures (e.g., electrical distribution lines, utility poles, and pole transformers; sewer and water lines); and utility services involving major structures (e.g., natural gas transmission lines and substations).

H. Miscellaneous: Museums, libraries, and hospitals

6. Non-agricultural activities carried out by Plan Participants or Third Parties on agriculturally-zoned properties or other zoned properties located outside of boundaries indicated on the SJMSCP Planned Land Use Map and described in the following paragraphs. These use areas are scattered throughout the County and are subject to case-by-case reviews as prescribed in Section 3.4:

A. Natural Gas Well Drilling;

B. Homesites: Residences in AG zones are not covered by the SJMSCP, however residences in AG Urban or AG Limited Zones are included under the Plan.

7. Conversion of Vernal Pool Grasslands: Conversion of up to 5,000 acres of vernal pool grasslands to orchards or vineyards and for similar agricultural purposes when such agricultural activities trigger requirements of Section 404 of the Federal Clean Water Act and/or are subject to the ESA. This 5,000 acres is in addition to the Conversion of 894 acres of vernal pool grasslands for other SJMSCP Permitted Activities. The Conversion of vernal pool grasslands to orchards or vineyards requires the approval of the JPA with the concurrence of the Permitting Agencies' representatives on the TAC. Until and unless a programmatic general permit, or equivalent coverage, can be obtained from the U.S. Army Corps of Engineers, this activity shall require the acquisition of a separate Section 404 permit from that agency and a Consultation by the U.S. Fish and Wildlife Service (The U.S. Fish and Wildlife Service shall use the biological opinion generated for the SJMSCP to assist in facilitating its consultations with the Corps, where possible.)

8. Managing Reserves, Enhancing Preserves, Monitoring Preserves and Scientific Collection Associated with These Activities: Population surveys and scientific research
on Preserve lands or potential Preserve lands including, but not limited to, inventorying (e.g., trapping, handling, marking), monitoring, installing preserve enhancements (e.g., earth-moving to create new wetlands including vernal pools) as described in Section 5.8, research, scientific collection and similar habitat management activities conducted by the JPA or state, federal, or local agencies for the purposes of conserving or enhancing habitat for SJMSCP Covered Species. Activities in this category shall not trigger requirements for compensation and establishment of Preserves. See Section 5.8 for conditions associated with these activities.

9. Relocation of SJMSCP Covered Species: Relocation of SJMSCP Covered Species by qualified biologists hired by the JPA and approved by the CDFG and USFWS as prescribed in Section 5.2.5 of the SJMSCP.

10. Other Anticipated Projects - 5,340 acre contingency (e.g, annexations, general plan amendments adjacent to existing incorporated cities and defined communities; airport expansions adjacent to existing airports and Freeway Services Commercial) : General plan amendments (excluding the establishment of new towns or new communities—note: Mountain House new town is covered by the SJMSCP); city annexations; freeway service commercial; expansion of unincorporated, existing industrial areas; and similar anticipated projects located outside of designated urban boundaries as indicated on the SJMSCP Planned Land Use Map, but as approximately mapped for the purposes of analyzing potential impacts associated with this category of activities. Projects listed in this category of Permitted Activities shall be located adjacent to existing city limits, adjacent to the boundaries of defined communities, or adjacent to existing airport facilities (i.e., Stockton, Lodi and Tracy airports) as indicated on the SJMSCP Planned Land Use Map. A cap of 5,340 acres is allocated for Permitted Activities in this category. The 5,340 acres of Open Space Conversion resulting from Permitted Activities in this category are anticipated to include 1,018 acres of Natural Lands, 1,899 acres of Agricultural Habitat Lands and 2,423 acres of Multi-Purpose Open Space Lands. 5,340 acres of Open Space Conversion acreage has been included in Open Space Conversion estimates in SJMSCP Chapter 4.

8.2.2 PROJECTS NOT COVERED BY THE SJMSCP

8.2.2.1 General Categories of Projects Not Covered by the SJMSCP

A. Agricultural Activities. Agricultural activities, except as provided in Section 8.2.1, are not covered in the SJMSCP.

Any agricultural activity located on agriculturally zoned land which is not covered by this Plan remains subject to the ESA, CESA, CWA and other state and federal regulations. Property owners shall
Property owners are encouraged to contact the California Department of Fish and Game, the U.S. Fish and Wildlife Service, the National Marine Fisheries Services, the U.S. Army Corps of Engineers, and other state and federal agencies, to determine requirements pertaining to their projects. Incidental Take for species in the course of Routine and Ongoing Agricultural Activities on Neighboring Lands is addressed in Section 5.3.3.4.

B. **Dredging.** Dredging activities are not covered by the SJMSCP except for those dredging activities of limited size already permitted pursuant to Nationwide Permits #19 and #35 and Regional Permit #34 as described in Section 8.2.1.

All dredging activities remain subject to the ESA, CESA, CWA and other state and federal regulations. Property owners shall negotiate directly with state and federal agencies if mitigation is required by those agencies for dredging activities.

C. **Fish and Game Code Division 2, Chapter 6 (Streambed Alteration).** Activities subject to Division 2, Chapter 6 of the Fish and Game code must comply with applicable provisions thereof. It is recognized that the SJMSCP may be amended in the future to incorporate these provisions.

D. **Water Diversion and Conveyance.** Neither the diversion, nor the conveyance of water is covered by the SJMSCP.

E. **Existing Biological Opinions.** Activities currently receiving Take authorization under an existing biological opinion are not Permitted Activities in this SJMSCP.

F. **Pesticide Use.** The use of any pesticide, as defined in Chapter 10, in the Permit Area identified in the SJMSCP is not a covered activity.

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43 Property owners are encouraged to contact the California Department of Fish and Game, the U.S. Fish and Wildlife Service, the National Marine Fisheries Services, the U.S. Army Corps of Engineers, and other state and federal agencies, to determine requirements pertaining to their projects.

44 Incidental Take for species in the course of Routine and Ongoing Agricultural Activities on Neighboring Lands is addressed in Section 5.3.3.4.

45 Property owners are encouraged to contact the California Department of Fish and Game, the U.S. Fish and Wildlife Service, the National Marine Fisheries Services, the U.S. Army Corps of Engineers, and other state and federal agencies, to determine requirements pertaining to their projects.

46 Incidental Take for species in the course of regular farming practices are covered for agricultural lands located within the ranges of SJMSCP Covered Species located on Preserve lands when the presence of a special status species on that agricultural land is there as a result of an SJMSCP Preserve (see Section 5.3.3.1 and Appendix H).
under the SJMSCP and remains subject to the Federal Endangered Species Act, California Endangered Species Act, Federal Clean Water Act and other state and federal regulations. Property owners are encouraged to contact the California Department of Fish and Game, U.S. Fish and Wildlife Service, National Marine Fisheries Service, U.S. Army Corps of Engineers, and other state and federal agencies to determine requirements pertaining to their projects.

G. **Section 404 of the Federal Clean Water Act.** Activities involving tidally influenced wetlands, jurisdictional wetlands or Other Waters of the United States are not covered by the SJMSCP until and unless a programmatic general permit, or its equivalent is secured from the U.S. Army Corps of Engineers (See SJMSCP Section 5.6 for additional details). However, pursuant to Section 8.2.4, a Project Proponent may, with authorization from the Corps and acquisition of a Section 404 permit, use the SJMSCP to mitigate impacts to SJMSCP Covered Species.

Activities not receiving coverage under the SJMSCP may still be eligible to purchase mitigation credits from mitigation banks established under the SJMSCP and/or to use compensation ratios established under the SJMSCP if the landowner, the Permittee, and the Permitting Agencies' representatives on the TAC agree that this is appropriate and in keeping with the purposes of the SJMSCP (see Section 8.2.4).

8.2.2.2 **Specific Projects Not Covered by the SJMSCP**

The following projects are not covered and not affected by the SJMSCP:

1. Tracy Hills
2. The American River Water Resources Investigation Project
3. Folsom South Canal Connection of the East Bay Municipal Utility District Supplemental Water Supply Program
4. South County Surface Water Supply Project

8.2.3 **USE OF THE SJMSCP FOR PRIVATE ACTIVITIES REQUIRING FEDERAL APPROVAL - CONSIDERATION OF SJMSCP IN SECTION 7 CONSULTATIONS**

Private activities which are federally authorized, funded, or are carried out by federal agencies are not SJMSCP Permitted Activities. However, during Section 7 Consultations for projects which are federally authorized, funded, or are carried out by federal agencies occurring within San Joaquin County (e.g., Projects for which a Section 404 permit has been secured and the Permitting Agencies have approved mitigation pursuant to the SJMSCP for impacts to SJMSCP Covered Species), the U.S. Fish and Wildlife Service will, to the maximum extent feasible and consistent with the biological needs of the species: 1) rely upon the Section 7
Biological Opinion issued for the SJMSCP and, 2) to the maximum extent feasible and consistent with the biological needs of the species, rely upon the SJMSCP's conservation strategy when establishing minimization and mitigation, including compensation ratios, appropriate for these projects.

8.2.4 COVERAGE FOR ACTIVITIES NOT LISTED IN 8.2.1

Project Proponents not otherwise subject to the SJMSCP (See Section 9.8 of the Implementing Agreement) may participate in the SJMSCP upon making a request to the JPA. The JPA may approve such requests with the concurrence of the Permitting Agencies' representatives on the TAC. Approval of such requests shall be contingent upon the JPA making the following findings: 1) that sufficient Incidental Take acres remain pursuant to Section 4.1 as necessary for Project Proponents to undertake SJMSCP Permitted Activities listed in Section 8.2.1, and 2) mitigation pursuant to the SJMSCP is appropriate for the impacts on the Covered Species. Section 9.8 of the Implementation Agreement provides the process for obtaining coverage pursuant to this Section.

8.2.5 SJMSCP COMPENSATION ZONE MAPS

Payment of the development fee described in Sections 7.4.1 and 7.4.1.3 and/or other compensation will be determined based on preconstruction surveys in the field which confirm vegetation types on site as indicated by the SJMSCP Vegetation Maps. To assist planners in estimating potential fees for Project Proponents and to assist the JPA in monitoring the general amounts and types of habitats being Converted pursuant to the SJMSCP (i.e., Natural Lands, Agricultural Habitat Lands, Multi-purpose Open Space Land), the SJMSCP Compensation Zone Maps will be used as follows:

The SJMSCP Compensation Zone Maps are maps which classify the entire County into one of the following categories (which track general habitat type to determine compensation ratio requirements) and Fee Zones (used to determine fees on a per/acre basis), as described below:

1. Category A/ No-Pay Zone ($0/acre fee)
2. Category B/ Pay Zone A ($750/acre fee)
3. Category C/ Pay Zone B (Agriculture) ($1500/acre fee)
4. Category D/Pay Zone B (Natural) ($1,500/acre fee)
5. Category E/Pay Zone C (Vernal Pools) ($30,000/acre wetted);
Category A/ No-Pay Zone indicates parcels where Conversions of Open Space already have occurred (Urban Lands as described in Section 2.2.1.4) or where new Conversions of Open Spaces would not require compensation because

The subject parcel received a project approval prior to the Effective Date of the SJMSCP. Approved, for the purposes of this section means completion of the environmental review process (CEQA review) and approval of an entitlement through a public hearing process or issuance of an entitlement by a local planning agency if a public hearing is not required. Conditions of prior approval or statements of no impact shall be attached to these projects in accordance with the conditions of approval. Annexations, regardless of the date of approval, are not automatically exempt from the SJMSCP unless individual Project Proponents opt not to participate under the SJMSCP (see Section 8.4). Projects approved on or after the Effective Date of the SJMSCP are subject to the Plan unless individual Project Proponents opt not to participate under the SJMSCP (see Section 8.4).

There is no fee for SJMSCP Permitted Activities located within the No Pay Zone on the SJMSCP Compensation Zone Maps unless otherwise specified in pre-existing conditions of project approval.

Category B/ Pay Zone A includes parcels containing habitat types classified as Multi-Purpose Open Space as described in Section 2.2.1.3, which are not otherwise exempt. The fee for undertaking SJMSCP Permitted Activities on these parcels is currently $750 per acre.

Category C/ Pay Zone B includes parcels containing habitat types classified as Agricultural Habitat Lands pursuant to Section 2.2.1.2, which are not otherwise exempt. The fee for undertaking SJMSCP Permitted Activities on these parcels is currently $1,500 per acre.

Category D/Pay Zone B includes parcels containing habitat types classified as Natural Lands pursuant to Section 2.2.1.1, excluding those Natural Lands classified as Vernal Pool Grasslands (G3). The current fee within Pay Zone B is $1,500/acre.

Category E/Pay Zone C includes parcels containing Natural Lands classified as Vernal Pool Grasslands (G3) as indicated on the SJMSCP Vegetation Maps and as
verified by a site inspection conducted by the JPA, which are not otherwise exempt. The fee for undertaking SJMSCP Permitted Activities on these parcels is currently $30,000 per acre for wetted surface area and $5,000 for upland grasslands (an average cost per acre of $8,000, assuming 12% of the parcel is wetted surface area).

OTHER. In cases where a separate written agreement between the Project Proponent and the Permitting Agencies has been reached to address plants, fish and wildlife and habitat issues for a proposed project, the provisions of the agreement shall determine the appropriate fees and compensation. Wherever possible, these agreements shall be reflected on the SJMSCP Compensation Zone Maps. Agreements which reflect partial mitigation only (e.g., for cumulative impacts, but not for site specific impacts) are no included in this category.

The SJMSCP Compensation Zone Maps are hereby incorporated by reference. Prior to issuance of the SJMSCP Permits, the SJMSCP Compensation Zone Maps and SJMSCP Planned Land Use Map shall be reviewed and approved by each local jurisdiction requesting coverage under the SJMSCP Permits and the Permitting Agencies.

8.3 TERM OF THE PLAN AND SJMSCP PERMITS

The SJMSCP is a 50-year Plan and the SJMSCP Permits and authorizations shall have a term of 50 years. Therefore, all assessments for the SJMSCP are based on a 50-year planning horizon. Prior to the expiration of the SJMSCP Permits at the end of 50 years, the Permit Holders may apply to renew or amend the SJMSCP and its associated permits and authorizations to extend its term.
8.4 VOLUNTARY PLAN

The SJMSCP is a voluntary plan for both local jurisdictions (i.e., the cities and San Joaquin County) and for Project Proponents. This means that:

A. The cities, San Joaquin County and other potential Permittees will determine for themselves whether or not to become Plan Participants. The determination to participate or not participate in the Plan will be made through a public hearing at the San Joaquin County Board of Supervisors, for San Joaquin County, and, for the cities, through public hearings at the city councils of Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton and Tracy. For other potential Plan Participants, public hearings to consider adoption of the SJMSCP are not required, but may be held at the discretion of the individual agency.

B. Project Proponents in jurisdictions which do not opt for coverage under the SJMSCP will not have the opportunity to mitigate pursuant to the SJMSCP or to obtain ESA and CESA Incidental Take authority under the SJMSCP's associated permits.

C. Project Proponents who opt for SJMSCP coverage in jurisdictions which have opted for coverage under the SJMSCP, have the following options, unless their activities are otherwise exempted per Section 8.2.2.2 or 8.2.5, herein:

1. Pay the appropriate fee as indicated in Sections 7.4.1 and 7.4.1.3; or
2. Dedicate, as conservation easements or fee title, habitat lands (in-lieu dedications) as specified in Sections 5.3.2.1 and 5.3.2.2, herein; or
3. Purchase approved mitigation bank credits as specified in Section 5.3.2.4
4. Propose an alternative mitigation plan, consistent with the goals of the SJMSCP and equivalent in biological value to options 1-3, above, subject to approval by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC.

D. Project Proponents who opt against SJMSCP coverage in jurisdictions which have opted for SJMSCP coverage (i.e., non-participants in the SJMSCP) shall satisfy applicable ESA, CESA, NEPA, CEQA, and other applicable local, state and federal laws and regulations provisions through consultations with the Permitting Agencies and local planning agencies.

E. To ensure sufficient participation in the Plan as necessary to
provide adequate Plan funding and to meet the requirements established in the SJMSCP conservation strategy, given the voluntary nature of the Plan, the following limitations to non-participation in the SJMSCP apply:

1. **Non-participation by Project Proponents Converting Multi-Purpose Open Space lands while undertaking SJMSCP Permitted Activities shall not exceed 25% of the total acres of Multi-Purpose Open Space Lands Converted by Project Proponents undertaking SJMSCP Permitted Activities for the period commencing with the Effective Date of the SJMSCP Permits and ending December 31st of the current year of SJMSCP implementation (i.e., if the SJMSCP has been operating for one year, the one-year average for non-participation of Project Proponents Converting Multi-Purpose Open Space Lands as of December 31st of the first year shall not exceed 25% of the total acres of Multi-Purpose Open Space Lands Converted in the past year by Project Proponents undertaking SJMSCP Permitted Activities—similarly, if the SJMSCP has been operating for five years, the five-year average for non-participation of Project Proponents Converting Multi-Purpose Open Space Lands for SJMSCP Permitted Activities as of December 31st of the fifth year shall not exceed 25% of the total acres of Multi-Purpose Open Space Lands converted in the past five years). If the average non-participation of Project Proponents Converting Multi-Purpose Open Space lands exceeds 25% of the total acres of Multi-Purpose Open Space lands Converted since the commencement of the SJMSCP, as indicated in the SJMSCP Annual Report (Section 5.9.1.1), the JPA shall meet and confer with the Permitting Agencies to assess the impact of the non-participation on the scope and validity of the Take authorizations and to cooperatively develop a strategy intended to address any deficiencies and to maintain a level of conservation and Incidental Take authorization afforded by the permits until identified deficiencies can be remedied (TAC meetings attended by the Permitting Agencies' TAC representatives fulfill this meet and confer requirement so long as the Permitting Agency TAC representatives concur with the findings of the TAC). If the Parties cannot develop such a strategy, the Permitting Agencies can act pursuant
to Section 16 of the Implementation Agreement (revocation/suspension/termination).

Mitigation undertaken pursuant to a Section 7, a habitat conservation plan other than the SJMSCP, or negotiated with the Permitting Agencies that is consistent with the SJMSCP (e.g., a private landowner negotiates mitigation and compensation directly with CDFG for a project site upon which biological surveys have been completed and a state-listed species is found), shall not be counted as part of the 25% non-participation acreage limit.

In addition, unmapped SJMSCP Activities which are subject to a case-by-case review pursuant to Section 3.4 also shall not be counted as part of this 25% non-participation acreage limit. Multi-Purpose Open Space Conversions exempted from the SJMSCP pursuant to SJMSCP Section 8.2.2.2 or Section 8.2.5 shall not be counted as part of the 25% non-participation acreage limit.

Funding shortfalls are not anticipated as a result of the provisions contained within the preceding paragraph. However, the JPA recognizes its responsibility to provide sufficient compensation pursuant to the SJMSCP for Open Space land Conversion activities which are undertaken pursuant to the SJMSCP and will use its authorities to correct identified deficiencies. If a potential funding shortfall is identified, the funding shortfall shall be addressed pursuant to the requirements established in Section 7.5.2.4 of the SJMSCP.

2. Non-participation by Project Proponents
Converting Vernal Pool Grassland habitats within the SJMSCP Vernal Pool Zone (mapped as G3 vegetation on the SJMSCP Vegetation Maps) shall not exceed 25% of the total acres of Vernal Pool Grassland habitats (G3) Converted within the Vernal Pool Zone for the period commencing with the Effective Date of the SJMSCP Permits and ending December 31st of the current year of SJMSCP implementation (i.e., if the SJMSCP has been operating for one year, the one-year average for non-participation of Project Proponents Converting Vernal Pool Grassland habitats within the Vernal Pool Zone as of December 31st of the 1st year shall not exceed 25% of the total acres of Vernal Pool Grassland habitats within the Vernal Pool Zone.
Converted in the past year --similarly, if the SJMSCP has been operating for 5 years, the 5-year average for non-participation of Project Proponents Converting Vernal Pool Grassland habitats within the *Vernal Pool Zone* as of December 31st of the 5th year shall not exceed 25% of the total acres of Vernal Pool Grassland habitats within the *Vernal Pool Zone* Converted in the past 5 years. If the average non-participation of Project Proponents Converting Vernal Pool Grassland habitats within the *Vernal Pool Zone* exceeds 25% of the total acres of Vernal Pool Grassland habitats within the *Vernal Pool Zone* Converted since the commencement of the SJMSCP, as indicated in the SJMSCP Annual Report (Section 5.9.1.1), then the JPA shall meet and confer with the Permitting Agencies to assess the impact of the non-participation on the scope and validity of the Take authorizations and to cooperatively develop a strategy intended to address any deficiencies and to maintain a level of conservation and Incidental Take authorization afforded by the permits until identified deficiencies can be remedied (TAC meetings attended by the Permitting Agencies' TAC representatives fulfill this meet and confer requirement so long as the Permitting Agency TAC representatives concur with the findings of the TAC). If the Parties cannot develop such a strategy, the Permitting Agencies can act pursuant to Section 16 of the *Implementation Agreement* (revocation/suspension/termination). The JPA recognizes its responsibility to provide sufficient compensation pursuant to the SJMSCP for Open Space land Conversion activities which are undertaken pursuant to the SJMSCP and will use its authorities to correct identified deficiencies.

Unmapped SJMSCP Activities which are subject to a case-by-case review pursuant to Section 3.4 shall not be counted as part of this 25% non-participation acreage limit.

3. Project Proponents opting for non-participation for projects involving property located within the San Joaquin kit fox movement corridor identified in Appendix G (those lands located southwest of I-580 and designated as core or buffer areas) shall provide minimization and mitigation consistent with the goals of the SJMSCP and equivalent in
biological value to the requirements established within the SJMSCP.

4. In the event of a funding shortfall resulting from a lack of SJMSCP participation due to the voluntary nature of the SJMSCP, as described in paragraphs 1-3, above, the funding shortfall shall be addressed pursuant to the requirements established in Section 7.5.2.4 of the SJMSCP.

5. All non-participation occurring pursuant to paragraphs 1-3, above, shall be reported in the SJMSCP Annual Report pursuant to Section 5.9.1.1.

The SJMSCP is not responsible for providing compensation to offset either plant, fish and wildlife or non-wildlife impacts associated with the Conversion of Open Spaces to non-Open Space uses for activities undertaken by those Project Proponents opting against SJMSCP coverage unless such non-participation will threaten the SJMSCP's ability to achieve conservation goals or to otherwise fully compensate for Open Space land Conversions which are covered by the SJMSCP for Project Proponents opting for Plan participation as described above in E(1), E(2) and E(4).

8.5 PAY-AS-YOU-GO

The need for compensation pursuant to the SJMSCP is triggered by new development. The SJMSCP is a "Pay-As-You-Go" Plan. This means that mitigation pursuant to the Plan is triggered only when and only if SJMSCP Permitted Activities occur and when individual Project Proponents participate in the Plan. While compensation is not required until development occurs, the JPA is permitted to and shall pursue opportunities to purchase surplus lands to "get ahead" and establish Preserves in advance of Open Space Conversions whenever feasible.

8.6 ACQUISITION OF JUMP START LANDS/1,000-ACRE DEFERRAL /JUMP STARTS FOR VERNAL POOLS AND VELB

To assist in balancing the impacts of new development with Preserve acquisition efforts, within six months of issuance of the SJMSCP permits, the SJMSCP Joint Powers Authority (JPA) shall acquire Preserve lands totaling approximately 350 acres. As long as these initial Preserve acres are in place, the acquisition of additional Preserve lands required to offset Incidental Take need not precisely balance Incidental Take until approximately 1,000 acres of development involving SJMSCP Permitted Activities have occurred from the
date of issuance of the SJMSCP Permits. This deferral will allow funds to accumulate sufficiently to purchase significant blocks of Preserve lands. If 350 acres of jump-start Preserve lands are not in place within six months, the Permitting Agencies may pursue appropriate remedies as established in Section 16 of the Implementation Agreement (revocation/suspension/termination).

After the first 1,000 acres of development involving SJMSCP Permitted Activities, and so long as the 350 acre jump-start remains in place, acquisition of Preserve lands must conform to the compensation ratios set forth in Section 4.1 of the SJMSCP; provided, however, that if the JPA possesses funds sufficient to acquire Preserve lands in accordance with the compensation ratio, acquisition may occur up to 24 months from the land Conversion or development requiring compensation. The JPA shall possess sufficient funds for the purposes of this provision if it has allocated sufficient existing funds to purchase Preserve lands at the per acre cost identified in Table 7-1 of the SJMSCP (and adjusted annually for inflation pursuant to SJMSCP Section 7.5.2.2) to compensate for all such land Conversion or development that has occurred pursuant to the SJMSCP. If there is insufficient funding, the funding shortfall provisions of Section 7.5.2.4 shall apply. To defer Preserve land acquisitions, the JPA must possess sufficient funds, whether or not fees have been collected for the Conversion or development requiring compensation.

This will allow the accumulation of funds sufficient to acquire larger tracts of significant Preserve lands than could occur if acquisition funds had to be immediately expended.

Timing of fee collections, in-lieu land dedications or purchase of mitigation banking credits shall conform with the provisions of Section 5.3.2.3 and are subject to the maintenance of the 350-acre jump-start. For projects less than or equal to 350 acres in size (equal to in size or smaller than the jump-start), collection of fees or purchase of banking credits will occur prior to or at the time of issuance of Building Permits subject to the limits established and except as otherwise provided in Section 5.3.2.3. For projects exceeding 350 acres, collection of fees for land acquisition or purchase of banking credits will occur as described in Section 5.3.2.3. Dedications of land occurring in-lieu of fee payments or in-lieu of purchase of banking credits shall occur prior to Ground Disturbance except as provided in Section 5.3.2.3.

Vernal Pools. Limits on the amount of Conversion acres of vernal pool grasslands is limited within this 24-month deferral period pursuant to Sections 5.5.2.5 and 5.5.7 and requires a jump-start acquisition of up to six wetted acres of vernal pools within twelve months of issuance of the SJMSCP Permits.

VELB. Pursuant to SJMSCP Section 5.5.4, a 25-acre jump-start acquisition also is required to offset impacts to the Valley elderberry longhorn beetle. The first 10 acres of the jump-start shall be acquired within twelve months of issuance of the SJMSCP Permits and the remainder shall be acquired within three years of the issuance of SJMSCP Permits.

8.7 COMMENCEMENT OF TAKE

The SJMSCP Implementing Agreement, Section 13.1, establishes the requirements for commencing Take pursuant to the SJMSCP.

8.7.2 EFFECTIVE DATE

The SJMSCP Permits shall be effective as to all executing Parties upon execution of the Implementation Agreement by the Service, the Department and any three Local Governments (Effective Date). The SJMSCP
Permits will be immediately effective as to all listed species, and will be effective as to unlisted SJMSCP Covered Species upon the listing of such species as endangered, threatened, or rare.

After the Effective Date, the SJMSCP Permits shall become effective for additional Parties after the completion of actions A(1-4) of Section 8.7.1 by each new Permittee.

8.7.3 INTERIM JPA AND INTERIM TAC

The San Joaquin Council of Governments (COG) shall act as the interim JPA until a permanent JPA is formed. A permanent JPA shall be formed, consistent with Section 8.1.3.1 within 120 calendar days of the Effective Date. The existing TAC used for the SJMSCP Planning process, with the addition of the San Joaquin County Agricultural Commissioner and the U.C. Cooperative Extension Farm Advisor, shall serve as the SJMSCP's interim TAC. A permanent TAC shall be formed within 120 calendar days of the Effective Date consistent with Section 8.1.4.

8.7.4 Termination of Participation by A Necessary Party

If any one of the Necessary Parties established in Section 8.7.1(I)(A) terminates its participation in the Plan, the JPA shall meet and confer with the Permitting Agencies to determine to what extent, if any, Incidental Take authority may continue to be provided under the remaining SJMSCP Permits. In making this determination, the Permitting Agencies shall evaluate the benefits to Covered Species resulting from the participation of entities other than the Necessary Party and any other relevant information.

8.8 AMENDMENTS AND REVISIONS

8.8.1 OVERVIEW

There are four types of changes which may be made to the SJMSCP and/or to the SJMSCP Permits and/or its associated documents:

A. Clerical Changes for Map and Local Jurisdictional Plan Revisions
B. Minor Revisions
C. Minor Amendments
D. Major Amendments

8.8.2 CLERICAL CHANGES

The following changes shall be made by the JPA as clerical changes.

8.8.2.1 SJMSCP Compensation Zone Maps and SJMSCP Vegetation Maps

Revisions to the SJMSCP Vegetation Maps and to the SJMSCP Compensation Zone Maps which do not exceed the limits established in Sections 2.2.1.1 or 2.2.1.2 of the SJMSCP shall not require any amendment of the Section 10(a) or Section 2081(b) Permit, the SJMSCP, or its associated documents.

Changes to Natural Land and Agricultural Habitat Land designations on the SJMSCP Compensation Zone Maps and SJMSCP Vegetation Maps shall be handled as clerical changes by the JPA. Clerical changes shall be made by the JPA in response to a written request submitted by a Permittee which includes documentation

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(e.g., aerial photos-aerial photo evidence shall be dated prior to or on the date of SJMSCP Permit issuance) supporting the proposed clerical change. Annual reports (Section 5.9.1) shall include a summary of clerical changes made to the SJMSCP Compensation Zone Maps and SJMSCP Vegetation Maps in the preceding calendar year.

8.8.2.2 Updating Construction Windows for SJMSCP Covered Fish Species

Consistent with Section 5.2.4.30, the JPA will automatically revise the construction windows established by the Permitting Agencies for SJMSCP Covered Fish Species.

8.8.2.3 Updating Pesticide Use Bulletins/Appendix A

Consistent with Section 5.4.6.3(A)(1), the JPA will automatically update Appendix A to reflect revised pesticide use bulletins published by the U.S. Environmental Protection Agency in coordination with the California Environmental Protection Agency Department of Pesticide Regulation and the County Agricultural Commissioner.

8.8.3 MINOR REVISIONS (CHANGES TO THE SJMSCP NOT REQUIRING AMENDMENT)

Minor Revisions include changes deriving from the SJMSCP Adaptive Management Plan (Section 5.9.4) and all other changes specifically listed in this subsection. Minor revisions do not require any amendment to the SJMSCP, the Section 10(a) or Section 2081(b) Permits, or to the SJMSCP's Implementing Agreement, but do require documentation.

Minor revisions shall be approved by the JPA following approval by the TAC. If TAC representatives from the Service or the Department objects to or disagrees with a proposed minor revision, the JPA shall not approve the minor revision and it shall be treated instead as a minor amendment pursuant to Sections 8.8.4 or 8.8.5. The JPA shall maintain documentation of each Minor Revision and list these, as required, in the annual report.

Changes which are minor revisions may include, but are not limited to:

1. Changing survey or monitoring methodologies and timing, including those resulting from ongoing research on SJMSCP Covered Species;

2. Establishing and amending preconstruction survey methodologies, including modifying timing of SJMSCP Covered Plant preconstruction survey methodologies on a case-by-case basis pursuant to Sections 5.2.2.4 and 5.2.2.5,

3. Identifying indicator species to be used in and establishing specific survey methodologies for focused species/habitat surveys on SJMSCP Preserves as part of the SJMSCP Biological Monitoring Plan (Section 5.9.2.8 through 5.9.2.10),

4. Modifying existing or establishing new Incidental Take Minimization Measures as provided for in Sections 5.2.3.2 and 5.9.4,

5. Amending conservation easement language where such language differs from pre-approved language provided in Appendix H so long as these changes are consistent with the goals and

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objectives of the SJMSCP,

6. Replacing Preserve easements with easements of equivalent or greater biological value,

7. Approving and establishing Preserves smaller than 40-acres for the large-flowered fiddleneck, hospital canyon larkspur, showy madias, and oak woodlands; or establishing Preserves smaller than the minimums specified in Section 5.4.4 if determined to be biologically beneficial to SJMSCP Covered Species as determined by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC,

8. Establishing mitigation measures necessary to assist SJMSCP Covered Species in crossing through linear barriers to dispersal pursuant to Section 5.8,

9. Establishing full or partial waivers of SJMSCP compensation requirements pursuant to Section 5.5.9,

10. Establishing measures as necessary to achieve complete avoidance of SJMSCP Covered Species sufficient to eliminate SJMSCP compensation requirements pursuant to Section 5.5.9,

11. Modifying reporting protocols for Annual Reports,

12. Revising the SJMSCP Biological Monitoring Plan pursuant to Section 5.9.4.4,

13. Establishing a standard format for the Biological Monitoring Report,

14. Changing the form and/or content of SJMSCP GIS database forms pursuant to Section 5.9.3.3,

15. Revising Preserve enhancement and management techniques pursuant to Section 5.9.4.2,

16. Establishing methodologies for and undertaking reintroduction of SJMSCP Covered Species pursuant to Section 5.9.4.5 unless the TAC, with the concurrence of the Permitting Agencies' representatives on the TAC, determine that the proposed reintroduction program is inconsistent with the overall biological intent of the SJMSCP and introduces significant new biological conditions into the Plan Area or the SJMSCP conservation program or may result in significant new or different environmental impacts.

17. Establishing new Preserve design criteria pursuant to Section 5.9.4.6,

18. Incorporating new recovery plans into the SJMSCP,

19. Revising Preserve enhancement or management practices to avoid interference with Routine and Ongoing Agricultural Practices

20. Using experimental techniques on Preserves pursuant to Section 5.9.4.3,

21. Incorporating revisions to Programmatic Opinions pursuant to Section 5.9.4.7,
22. Establishing remedial action for Preserves as a result of Changed Circumstances consistent with Section 9.3,

23. Modifying neighboring land protection exceptions (to extend neighboring land protection coverage to a neighboring land) based on biological survey data pursuant to Section 5.3.3.4,

24. Establishing the contents/protocols for biological surveys undertaken to remove exceptions pursuant to neighboring land protections pursuant to Section 5.3.3.4 (to extend neighboring land protection coverage to a neighboring land),

25. Establishing the need and Preserve design criteria for the 135 acres allocated for neighboring land protection Preserve lands pursuant to Section 5.3.3.4,

26. Adjusting compensation ratios for neighboring land preserves from 1:167 (1 acre for every 167 acres of Preserves established) to not less than 1:200,

27. Approving recreational or income-generating uses for SJMSCP Preserves consistent with Sections 5.4.6 through 5.4.8,

28. Decisions to develop population viability indices or having to do with specific population monitoring techniques;

29. Any revision of a minor or technical nature to approve Preserve Management Plans;

30. Any other revision of a technical nature that is consistent with the overall biological intent of the SJMSCP and does not introduce significant new biological conditions into the Plan area or the SJMSCP's conservation program or result in significant new or different environmental impacts,

31. Covering activities not otherwise listed as Permitted Activities in the SJMSCP consistent with Section 8.2.4 that do not, due to special circumstances, otherwise require a major amendment pursuant to NEPA.

32. The addition of an SJMSCP Permitted Activity that:
   A. Is substantially the same as another SJMSCP Permitted Activity listed in SJMSCP Section 8.2.1; and
   B. Disturbs less than two acres of habitat for an individual project; and
   C. Will disturb less than twenty-five acres of habitat within the 50-year term of the SJMSCP; and
   D. Does not involve the disturbance of a jurisdictional wetland; and
   E. Does not require approvals, special certifications or consultations related to environmental factors from state or federal agencies which are mandated by state or federal law; and
F. Is consistent with the overall biological intent of the SJMSCP and does not introduce significant new biological conditions into the Plan area or the SJMSCP’s conservation program or result in significant new or different environmental impacts; and

G. Does not, due to special circumstances, require a major amendment pursuant to NEPA.

SJMSCP Permitted Activities added pursuant to this provision shall be reported in the SJMSCP’s Annual Report (SJMSCP Section 5.9.1) and shall not, for the 50-year term of the SJMSCP: 1) exceed 200 acres of habitat Conversion (e.g., Natural Lands and Agricultural Habitat Lands); 2) result in an increase in the Incidental Take limits established in the SJMSCP Permits; or 3) exceed the habitat Conversion limits established for any single species or habitat type pursuant to Sections 5.5.1 or 5.5.2. SJMSCP Permitted Activities added pursuant to this provision shall require the same compensation and Incidental Take Minimization Measures required for all other SJMSCP Permitted Activities.

33. Covering projects included in the Major Impact category pursuant to Section 8.2.1(6)(C),

34. Coverage for SJMSCP Covered Species which are currently unlisted, but which become listed during the term of the SJMSCP.

35. Making annual adjustments to the SJMSCP Development Fees pursuant to the CCCI or revising the index used for making annual adjustments for inflation as provided in Section 7.5.2.2,

36. Making amendments to the SJMSCP's investment strategy,

37. Adding new funding sources to the SJMSCP's Funding Plan,

38. Amending the compensation requirements for the VELB pursuant to Section 5.9.4.11,

39. Adding coverage for Maintenance Activities undertaken by the East Bay Municipal Utility District on its FSCC Pipeline after completion of the project construction,

40. Changes to the membership of the TAC which retains representation from the Permitting Agencies.

41. Changes to the membership of the JPA which retains elected representatives from participating Cities and the County (if the SJMSCP is adopted by the County).

42. Amendments to the Cities’ or County’s general plans or zoning ordinances pertaining to land use outside of the SJMSCP’s designated urban boundaries, as shown on the SJMSCP Planned Land Use Map, shall be reported in the Annual Reports described in Section 5.9.1 of the SJMSCP. This shall be deemed sufficient to comply with the SJMSCP for the enactment of land use designation amendments not exceeding the 5,000 acre cap established in Section 8.2.1.(10) over the life of the Plan. If general plan amendments and annexations result in increasing proposed urban boundaries by more than 5,000 acres over the life of the
Depending upon impacts to Covered Species and Habitat, raising the initial cap from 3,363 to 5,894 may be a minor revision, minor amendment or major amendment.

### 8.8.4 MINOR AMENDMENTS

Minor Amendments to the SJMSCP require amendment to the SJMSCP and Section 2081(b) Permit, but shall not require amendment of the Implementation Agreement or the Section 10(a) Permit. Minor Amendments are amendments to the SJMSCP of a minor or technical nature where the effect on the SJMSCP Covered Species and levels of Incidental Take are not significantly different than those described in the SJMSCP originally adopted. Minor Amendments include, but are not limited to:

A. Changes to the *SJMSCP Compensation Zone Maps* or *SJMSCP Vegetation Zone Maps* exceeding the limits established by *SJMSCP Sections 2.2.1.1* and *2.2.1.2* by less than 250 acres;

B. The addition of an SJMSCP Permitted Activity which is similar to SJMSCP Permitted Activities listed in Section 8.2.1 of the SJMSCP as originally adopted, which is determined by the JPA, with the concurrence of the TAC, to require more extensive consultation than required for the addition of Permitted Activities pursuant to Section 8.8.3 and provided that such an amendment is consistent with the provisions of NEPA.

C. Changes to Neighboring Land Protections with the potential to increase restrictions on routine and ongoing agricultural activities on neighboring lands or to reduce the level of protections afforded to neighboring lands pursuant to Section 5.3.3.4 as that Section is adopted on the Effective Date and excluding those changes listed in Section 8.8.3 (23-26). Plan amendments undertaken pursuant to this provision C shall be approved or denied only after the JPA: 1) notifies the Permittee Cities allowing 30 days for the Permittee Cities to provide input; 2) notifies San Joaquin County (whether or not that entity is a Permittee) and allows 30 days for San Joaquin County to provide input; and 3) after the JPA holds a
properly notice public hearing prior to taking a final action. Public hearing notices pursuant to this section shall be made at least 30 days in advance of the public hearing.

D. Approving for SJMSCP Coverage, unmapped land uses identified in SJMSCP Section 8.2.1 for those land uses which have an effect on the SJMSCP Covered Species and levels of Incidental Take which are greater than, but not significantly different than, those described in the SJMSCP originally adopted. The U.S. Fish and Wildlife Service and the California Department of Fish and Game, shall respond to a proposed minor amendment pursuant to this paragraph within thirty (30) calendar days of receipt of the request, provided that sufficient supporting documentation is included with the request.

To amend the SJMSCP conservation plan without amending the SJMSCP Permits, the JPA shall submit to the U.S. Fish and Wildlife Service and the California Department of Fish and Game⁴⁸, in writing, a description of:

1. The proposed amendment;
2. An explanation of why the amendment is necessary or desirable; and
3. A description of why the JPA believes the effects of the proposed Minor Amendment are more beneficial than or not significantly different from those described in the SJMSCP as originally adopted.

The U.S. Fish and Wildlife Service and the California Department of Fish and Game, shall respond to a proposed minor amendment within sixty (60) calendar days of receipt of the request, provided that sufficient supporting documentation is included with the request [except as otherwise provided in 8.8.4(D)]. The Permitting Agencies shall provide a written response to the proposed Minor Amendment. The response shall either: 1) concur with the proposed Minor Amendment, 2) require that the proposed Minor Amendment be treated as a Major Amendment pursuant to Section 8.8.5, or 3) deny concurrence with the proposed Minor Amendment. If the Permitting Agencies require the proposed minor amendment to be treated as a Major Amendment, or deny concurrence with the proposed Minor Amendment, they shall include in their written response, a detailed explanation for the reasons for such determinations.

Concurrent with the submission of the proposed Minor Amendment to the Permitting Agencies, the JPA shall circulate the same information to all Plan Participants and shall include a notice setting forth the dates for public hearings at which minor amendments will be considered by the JPA.

A Minor Amendment shall become effective upon approval by the JPA and receipt of written concurrence from the U.S. Fish and Wildlife Service and the California Department of Fish and Game⁴⁹.

8.8.5 MAJOR AMENDMENTS

Major Amendments to the SJMSCP shall require an amendment of the Implementing Agreement, the Section 404 General Permit, and in certain cases, the SJMSCP Conservation Plan.

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⁴⁸ And to the U.S. Army Corps of Engineers if the request involves issues related to the SJMSCP’s Section 404 General Permit, if that Permit has been issued by the USACE.

⁴⁹ And the U.S. Army Corps of Engineers if the amendment involves issues related to the SJMSCP’s Section 404 General Permit, if that Permit has been issued by the USACE.
10(a)(1)(B) and the Section 2081(b) Permits.

Following receipt of a proposed Major Amendment, the Service shall publish notice of the proposed amendment to the Section 10(a) Permit in the Federal Register as required by ESA. The Service shall use its best efforts to process the proposed amendment within one hundred twenty (120) calendar days of publication, except where longer periods are required by law. Amendments to the Section 2081(b) Permit shall be processed in accordance with applicable CESA regulations (California Code of Regulations, Title 14, Section 783.0, et seq.).

The Parties anticipate that amendment of the Section 10(a) Permit and the Section 2081(b) Permit shall be treated as original permit applications. Such applications will typically require submittal of a revised habitat conservation plan, a completed permit application form with appropriate fees, a revised implementation agreement, and an environmental review document prepared in accordance with the National Environmental Policy Act. However, the Parties acknowledge that specific document requirements may vary based on the nature of the amendment.

Major Amendments are any of the following:

A. Proposed Minor Amendments required to be treated as Major Amendments pursuant to Section 8.8.4.

B. The listing under the ESA of a new species within the Plan Area which is not an SJMSCP Covered Species but which may be affected by SJMSCP Permitted Activities in accordance with Section 5.10.3.

C. Significant changes to the SJMSCP which were not addressed in the SJMSCP including, but not limited to the following:

1. Changes, including amendments to the method for calculating compensation for Incidental Take, which significantly increase the levels of Incidental Take permitted for the SJMSCP;
2. Changes to the development fees except as otherwise provided for in Section 7.5.2.2 of the SJMSCP. Plan amendments undertaken pursuant to this Section (C)(2) shall be approved or denied only after the JPA: a) notifies the Permittee Cities; b) notifies San Joaquin County (whether or not that entity is a Permitee); and c) after the JPA holds a properly notice public hearing providing a minimum of 30 days prior to the public hearing scheduled for taking a final action;
3. Changes to the SJMSCP Funding Plan with the potential to create a funding shortfall as defined in Section 7.5.2.4 and Chapter 10;
4. Amendments to the Cities’ planned urban boundaries as shown on the SJMSCP Planned Land Use Map in excess of 5,000 acres as described in Section 8.2.1.(10);
5. Changes to the SJMSCP Compensation Zone Maps or SJMSCP Vegetation Zone Maps exceeding the limits established by SJMSCP Sections 2.2.1.1 and 2.2.1.2 by more than 250 acres.

D. Other changes to the Permitted Activities, except as provided in Sections 8.8.3 and 8.8.4, which may result in significant adverse effects to the SJMSCP Covered Species which were not addressed in the SJMSCP as originally adopted.
E. Revisions with the potential to introduce significant new biological conditions into the Plan Area or into the conservation program as currently described in the SJMSCP, or significant new or different environmental impacts.

F. Extending the term of the SJMSCP Permits past the 50-year term.

G. Establishing the Resident's Participation program described in Section 5.11.

H. Increasing the countywide cap on Conversion of Natural Lands to more than 25,912 acres.

I. Approving for SJMSCP Coverage, unmapped land uses identified in SJMSCP Section 8.2.1 for those land uses which have an effect which is significantly different (i.e., greater than) that those described in the SJMSCP originally adopted.

The JPA shall propose Major Amendments in the same manner as required for proposing Minor Amendments pursuant to Section 8.8.4. In addition, amendments proposed to change development fees as described in (C)(2) shall be subject to the notification and public hearing requirements established in (C)(2).

8.9 SUSPENSION, REVOCATION, TERMINATION AND INDEPENDENT SEVERABILITY

Suspension and revocation of the SJMSCP Section 2081(b) Permits are governed by applicable CESA regulations (California Code of Regulations, title 14, Section 783.0, et. seq.). Additional procedures for suspension and revocation are provided in Section 16 of the Implementation Agreement.

Procedures for the suspension and revocation of SJMSCP Permits are described in Section 16 of the Implementation Agreement (Appendix J). Termination of the permits is discussed in Section 16 of the Implementation Agreement.

The Permitting Agencies and/or Permit Holders may take any of the actions described in Section 16 of the Implementation Agreement either jointly, or separately and independently of each other.
9. ASSURANCES AND CHANGED CIRCUMSTANCES

9.1 USFWS ASSURANCES

9.1.1 NO SURPRISES RULE

9.1.1.1 General

In accordance with the Habitat Conservation Plan ("No Surprises") Assurances Rule (63 Federal Register 8859) incorporated herein by reference and attached as Appendix F, it is acknowledged that the purpose of the SJMSCP is to provide for the conservation of SJMSCP Covered Species and the mitigation, minimization and compensatory measures required in connections with incidental taking of the SJMSCP Covered Species in the course of otherwise lawful activities (i.e., Permitted Activities pursuant to the SJMSCP) within San Joaquin County. Accordingly, as described below and except as otherwise required by law and/or provided under the terms of the SJMSCP and except for Unforeseen Circumstances, in particular as these requirements are addressed in Section 9.1.2, no further mitigation or compensation will be required by the Service to address impacts of Permitted Activities undertaken by Plan Participants to SJMSCP Covered Species pursuant to the Federal Endangered Species Act.

9.1.1.2 Effects on Third Parties

The USFWS shall not require the commitment of additional land or financial compensation or other form of mitigation from a Third Party pursuant to the SJMSCP beyond those imposed by the SJMSCP as the SJMSCP existed on the date that the Permit Holder granted project approval to the Third Party unless agreed to by the Third Party. If, due to Unforeseen Circumstances, additional compensation measures as defined in Section 9.1.2(E) become necessary, the provisions of Section 9 of the Implementation Agreement shall apply.

9.1.2 UNFORESEEN CIRCUMSTANCES

The USFWS shall not require the JPA, Plan Participants or Third Parties to commit additional land, additional land restrictions, or additional financial compensation for the SJMSCP Covered Species beyond that provided pursuant to the SJMSCP, provided that the JPA and Plan Participants are properly implementing the SJMSCP. If the USFWS subsequently determine that Unforeseen Circumstances have arisen and that additional land, additional land restrictions, or additional financial compensation beyond that required pursuant to the SJMSCP are necessary to provide for the conservation of a Covered Species, then the obligation
for such additional measures shall not rest with the JPA or Plan Participants or Third Parties.

A. Defined. "Unforeseen Circumstances" (defined in 50 C.F.R. Section 17.3) means changes in circumstances affecting a species or geographic area covered by a conservation plan that could not reasonably have been anticipated by plan developers and the Service at the time of the conservation plan's negotiation and development, and that result in a substantial and adverse change in the status of the covered species.

B. Relevant Factors. In deciding whether Unforeseen Circumstances exist which might warrant requiring additional conservation measures, the USFWS shall consider, but not be limited to, the factors identified in the No Surprises Final Rule including: (1) the size of the current range of the affected species; (2) the percentage of range adversely affected by the SJMSCP; (3) the percentage of the range conserved by the SJMSCP; (4) the ecological significance of that portion of the range affected by the SJMSCP; (5) the level of knowledge about the affected species and the degree of specificity of the species' conservation program under the SJMSCP; and (6) whether failure to adopt additional conservation measures would appreciably reduce the likelihood of survival and recovery of the affected species in the wild.

C. Burden and Documentation. As described in the No Surprises Final Rule, the USFWS shall have the burden of demonstrating that Unforeseen Circumstances exist, using the best scientific and commercial data available. Any findings of Unforeseen Circumstances must be clearly documented and based upon reliable technical information regarding the biological status and habitat requirements of the affected species.

D. Advance Notice. Except where there is substantial threat of imminent, significant adverse impacts to a Covered Species, the USFWS shall provide at least sixty (60) calendar days notice of a proposed finding of Unforeseen Circumstances, during which time the USFWS shall meet with the Permittees and JPA to discuss the proposed finding and to provide the Permittees and JPA with an opportunity to submit information to rebut the proposed finding.

E. Limits on Additional Conservation Measures. If the USFWS makes a finding of Unforeseen Circumstances in accordance with the procedures described above, and determine that additional conservation measures are warranted, such additional conservation measures shall conform to the maximum extent possible to the original terms of the SJMSCP.
Additional conservation measures shall be limited to those modifications, restrictions, and agreements described in Section 9.1.4.

9.1.3  EFFECTS OF UNFORESEEN CIRCUMSTANCES ON TAKE AUTHORIZATION

A finding of Unforeseen Circumstances shall not be grounds to suspend, terminate or otherwise revoke the Take Authorizations issued pursuant to the SJMSCP provided that the Permittees and JPA cooperate with the USFWS to identify and implement fair, reasonable and necessary modifications as specified in E, above, in Section 9.1.4, and so long as the implementation of these modifications are sufficient to avoid jeopardy to any species or adverse modification of designated critical habitat.  As described in the No Surprises Rule, the USFWS retains the right to take actions at its own expense to protect or conserve an SJMSCP Covered Species.

9.1.4  NOTIFICATION

It is the duty of the JPA to notify the USFWS, in writing, within 60 calendar days of becoming aware of an existing or potential Unforeseen Circumstance.  Similarly, the USFWS shall notify the JPA, in writing, within 60 calendar days, if the USFWS becomes aware of existing or potential Unforeseen Circumstance.

9.1.5  RECONCILIATION OF THE NO SURPRISES RULE, UNFORESEEN CIRCUMSTANCES, AND ADAPTIVE MANAGEMENT IN THE SJMSCP

The “No Surprises” Rule states, in part, that:

“In negotiating unforeseen circumstances, the Services will not require without the consent of the permittee, the commitment of additional land, water or financial compensation or additional restrictions on the use of land, water, including quantity and timing of delivery, or other natural resources beyond the level otherwise agreed upon for the species covered by the conservation plan.

If additional conservation and mitigation measures are deemed necessary to respond to unforeseen circumstances, the Services may require additional measures of the permittee where the conservation plan is being properly implemented, but only if such measures are limited to modifications within conserved habitat areas, if any, or to the conservation plan's operating conservation program for the affected species, and maintain the original terms of the conservation plan to the maximum extent possible. Additional conservation and mitigation measures will not involve the commitment of additional land, water or financial compensation or restrictions on the use of
land, water (including quantity and timing of delivery), or other natural resources otherwise available for development or use under the original terms of the conservation plan, without the consent of the permittee."

Thus, in the event that Unforeseen Circumstances adversely affect any of the SJMSCP Covered Species during the life of the Plan, the Permittees would not be required to provide additional financial compensation, land or land restrictions beyond those required by the SJMSCP at the time of issuance of the Section 10(a)(1)(B) Permit without their consent except as provided for Changed Circumstances as described in Section 9.3.

In light of the SJMSCP’s Adaptive Management Provisions which allow certain changes to occur throughout the life of the Plan, it is necessary to clarify what aspects of the conservation program are subject to the “No Surprises” Rule and for which, therefore the USFWS may not require additional mitigation as a result of Unforeseen Circumstances without the consent of the Permit Holders. The SJMSCP’s Adaptive Management provisions allow the SJMSCP to be revised as a result of new information on the life history or ecology of SJMSCP Covered Species generated through continuing research or information on the effectiveness of mitigation measures, and as a result of the SJMSCP’s monitoring programs. As a result, revisions may be made to several of the SJMSCP’s conservation components, including the technical aspects of mitigation land management and enhancement, implementation of Incidental Take Minimization Measures and monitoring of SJMSCP Covered Species.

However, pursuant to the “No Surprises” Rule, the Permittees and USFWS agree that the following SJMSCP components are not subject to modification as a result of the SJMSCP’s Adaptive Management provisions without the consent of the Permittees, except for those projects which constitute an action authorized, funded or carried out by a federal agency (i.e., have federal involvement) which are exempt from such assurances:

A. The 1:1 compensation ratio for Agricultural Habitat Lands, 3:1 compensation ratio for Natural Lands other than jurisdictional wetlands and Other Waters of the United States, the 3:1 compensation ratio (including a minimum 1 acre creation component) for Natural Lands which are also jurisdictional wetlands or Other Waters of the United States subject to Section 404 of the Federal Clean Water Act and/or subject to the ESA as described in Section 4.1 of the SJMSCP; and

B. Additional compensation measures shall not be imposed on Third Parties where Permit Holders have already granted final project approvals unless such additional conservation measures are agreed to by the Third Party; and
C. The SJMSCP Funding Plan, including the mitigation fee, except to the extent that the SJMSCP allows for base fee increases for inflation and provides authority to the JPA to make adjustments to the SJMSCP Funding Plan as necessary to maintain acquisition at the compensation ratios described above and except for funding shortfalls as described in Section 7.5.2.4; and

D. Any other change not currently described in the SJMSCP that would significantly increase the Plan’s costs or the interests in land of any of the Permittees or landowners in San Joaquin County.

9.2 CDFG ASSURANCES

9.2.1 GENERAL

The amendment, suspension and revocation of Section 2081(b) Permits is governed by CESA and regulations promulgated thereunder (i.e., Title 14 California Code of Regulations, Section 783.0, et seq.). Neither CESA nor the CESA regulations contain a rule or regulation analogous to the federal "No Surprises Rule." However, subject to CESA regulations, CDFG can provide assurances regarding additional mitigation based on the specific minimization and mitigation measures provided for in individual permits. If there is an adequate basis for determining that the measures in a particular permit will effectively minimize and fully mitigate the impacts of taking authorized during the full term of the permit, CDFG can provide commensurate assurances to the permit holder that additional measures will not be required.

Based on the SJMSCP Implementation Agreement and the SJMSCP, CDFG has concluded that assurances to SJMSCP Permittees regarding additional mitigation requirements are warranted. For so long as the JPA and the SJMSCP Permittees implement and adhere to the SJMSCP, the Implementation Agreement, and applicable Section 2081(b) Permits, CDFG shall not amend, suspend or revoke the Section 2081(b) Permit, nor otherwise impose or seek to impose on a SJMSCP Permittee any mitigation or compensation requirements for the SJMSCP Permitted Activities in addition to the mitigation and compensation provided for in the SJMSCP, the Implementation Agreement, and the applicable Section 2081(b) Permit, including, but not limited to, commitments of additional land or financial compensation, unless the CDFG determines that continuation of the activities authorized under the Section 2081(b) Permit would jeopardize the continued existence of an SJMSCP Covered Species, or unless otherwise required by law. If the CDFG makes a jeopardy determination, it shall amend, suspend or revoke, or require such additional mitigation or compensation only if, and to the extent, necessary to avoid jeopardy.
9.2.2 CHANGED CIRCUMSTANCES PROVIDED FOR IN THE SJMSCP

Changed Circumstances are addressed in Section 9.3. If CDFG determines that additional conservation and mitigation measures are deemed necessary to respond to Changed Circumstances and the additional measures are provided for in Section 9.3 of the SJMSCP, the JPA or the applicable SJMSCP Permittee shall implement the measures specified.

9.2.3 CHANGED CIRCUMSTANCES NOT PROVIDED FOR IN THE SJMSCP

If CDFG determines that additional conservation and mitigation measures are deemed necessary to respond to Changed Circumstances and the additional measures are not provided for in Section 9.3 of the SJMSCP, CDFG shall not require the additional measures without the consent of the JPA and the applicable SJMSCP Permittee(s), unless the measures are necessary to ensure that the continuation of the Permitted Activities will not jeopardize the continued existence of an SJMSCP Covered Species.

9.3 CHANGED CIRCUMSTANCES

Changed Circumstances are defined in Chapter 10.

Preserve areas within San Joaquin County represent the most important habitat areas in the County. Therefore, these Changed Circumstances provisions reflect reasonably foreseeable changes in circumstances that occur in the HCP area. These Changed Circumstances focus on the Preserves established pursuant to the SJMSCP and are not intended to cover these same circumstances if they occur within the Plan area, but outside of Preserves.

San Joaquin County, in consultation with the Service and CDFG, has identified the following Changed Circumstances: flood, drought, fire, invasion by exotic species, toxic spills, and illegal dumping of toxic materials. Emergency response and access to SJMSCP Preserves during many of these occurrences is addressed in SJMSCP Section 5.9.4.9.

9.3.1 FLOOD

As noted in the Preserve design criteria for the SJMSCP (Section 5.4.4), in particular Preserve design for Preserves within the Primary Zone of the Delta (Section 5.4.4.1), high priority is given to selecting lands "located so that permanent flooding, such as that caused by levee failure, will not result in a loss of habitat values (i.e., located near or above 0' mean sea level to avoid destruction of Preserves due to catastrophic flooding)" as described
in SJMSCP Sections 5.4.4.1(A1)(5) and 5.4.4.1(A2)(6). However, it is recognized that some flooding may occur from time to time within various SJMSCP Preserves (e.g., those adjacent to the Mokelumne, Calaveras, Stanislaus or San Joaquin Rivers) due to natural occurrences outside of the control of the man and it may be infeasible to prevent future occurrences or to fully remediate such events (e.g., the devastation of riparian brush rabbit populations along the Stanislaus River in Caswell State Park during the floods of 1996/97).

In the event that flooding disturbs all or part of an SJMSCP Preserve, the JPA, in consultation with the Permitting Agencies' representatives on the Technical Advisory Committee (TAC), will assess the extent of the damage. In making their evaluation, the JPA, and the Permitting Agencies' representatives on the TAC shall consider potential habitat benefits of the flooding. If potential benefits may occur from flooding, the JPA may monitor the area for a period of up to two years following the flood to assess the effects of the flooding on habitat values. If habitat values are found to be in decline as a result of flooding, the JPA, with the concurrence of the Permitting Agencies' representatives on the TAC, shall implement remedial action consistent with Section 9.3.6. Alternatively, the JPA, with the concurrence of the Permitting Agencies' representatives on the TAC may establish an alternative compensation site to replace habitat which suffers catastrophic destruction from flooding consistent with Section 9.3.6.

9.3.2 FIRE

If all or a portion of an SJMSCP Preserve is disturbed by fire, the JPA, Permitting Agencies' representatives on the TAC, will assess the extent of the damage. The JPA shall monitor the burned area for a period of two years following the fire to assess the amount of natural regeneration. If natural regeneration of native plant species is not occurring at a rate sufficient to create the desired insect and plant habitat, the JPA, with the concurrence of the Permitting Agencies' representatives on the TAC, shall undertake remediation consistent with the provisions of Section 9.3.6.

9.3.3 DROUGHT

In the event of drought, new plantings/revegetation efforts on Preserves shall be delayed until the cessation of the drought period. When local jurisdictions officially (i.e., public agencies within local jurisdictions) proclaim drought conditions and begin implementation of water preservation measures, the TAC, with the concurrence of the Permitting Agencies' representatives on the TAC, shall determine which water-consuming Preserve enhancement activities shall be delayed until the end of the drought period. The TAC shall emphasize the retention of existing vegetation planted by the JPA on Preserves and shall, wherever feasible, delay requirements to establish new vegetation on Preserves until the end of the drought period. Replacement of vegetation destroyed by
drought shall be consistent with the requirements of Section 9.3.6.

9.3.4 INVASION BY EXOTIC SPECIES

SJMSCP criteria for Preserve selection in SJMSCP Section 5.4.5(K) states that a high priority "shall be given to acquisition of Preserves without extensive cover by non-native invasive plant species (especially star thistle) which would require extensive control measures." Due to the high cost involved in labor-intensive eradication of exotic species (both plant and animal), the SJMSCP places a high priority on avoiding invasions by exotic species. However, should exotic species, such as the star thistle, inundate SJMSCP Preserves, the JPA, with the concurrence of the Permitting Agencies' representatives on the TAC, will assess the extent of the damage to Preserves and Preserve habitat values and identify and implement an appropriate remediation response consistent with Section 9.3.6. The local U.C. Cooperative Extension and San Joaquin County Agricultural Commissioner's Office also shall be consulted in evaluating appropriate methods for eradication of exotic species.

9.3.5 TOXIC SPILLS AND ILLEGAL DUMPING OF TOXIC MATERIALS

If one of these Circumstances occurs, the JPA, with the concurrence of the Permitting Agencies' representatives on the TAC, shall determine the extent of damage to Preserves and identify and implement any appropriate remediation response consistent with Section 9.3.6. In addition, consultation with local environmental health departments or other emergency response personnel shall occur to determine the appropriate Hazmat agencies and alternatives available for providing remediation.

Landowners shall continue to maintain their lands in a manner that prevents toxic spills and illegal dumping of toxic materials. The JPA and landowners maintain all rights to prosecute and seek remediation from responsible parties for toxic spills and illegal dumping of toxic materials.

9.3.6 REESTABLISHING PRESERVES AFTER CHANGED CIRCUMSTANCES

If a Changed Circumstance occurs on an SJMSCP Preserve, the JPA, in consultation with the TAC, shall assess the damage to the Preserves and estimate the costs and time required to re-establish the SJMSCP Preserves. The likelihood of Changed Circumstances occurring vary from high to low with corresponding ecological damage ranging from minor to severe (e.g., the risk of a minor ecologically damaging event occurring is high, the risk of a moderately ecologically damaging event is moderate and the risk of a severe ecologically damaging event is low). Repairs, reestablishment of habitat, or reacquisition of Preserve lands shall occur pursuant to the following schedule:
A. **Minor Damage/High Likelihood.** Minor damages to Preserves have the highest likelihood of occurring. Minor damages are those which are ecologically minor, typically occurring on 10 acres or less, and with repair costs of $26,000 or less. The JPA shall repair minor damage to Preserves within 18 months. Examples of minor damage may include: damage to Preserve fencing, damage to small patches (i.e., less than one acre) of young vegetation (i.e., generally vegetation up to and including 18 months in age), destruction of all or most of the habitat values on up to ten acres of an SJMSCP Preserve triggering the need to acquire replacement Preserve lands.\(^{50}\)

B. **Moderate Damage/Moderate Likelihood.** Moderate damages to Preserves have a moderate likelihood of occurring. Moderate damages are those which are ecologically moderate, typically 20 acres or less, and with repair costs of greater than $26,000 and less than $52,000. The JPA shall repair moderate damage to Preserves within 36 months. Examples of moderate repairs include: damage to medium patches (i.e., at least one acre in size and up to three acres in size) of moderately-aged vegetation (i.e., vegetation more than 18 months old, but less than three years of age), destruction of all or most of the habitat values of up to 20 acres of an SJMSCP Preserve triggering the need to acquire replacement Preserve lands.\(^{51}\)

C. **Severe Damage/Low Likelihood.** Severe damages to Preserves have a low likelihood of occurring. Severe damages are those which are ecologically severe, typically greater than 20 acres and with repair costs of $52,000 or greater. Normally severe damage takes five years or more to repair or reestablish. Severe damages shall be considered Unforeseen Circumstances and shall be subject to Section 9.1.2. Examples of severe damage may include: Destruction of large patches (i.e., greater than three acres) of mature (i.e., generally three years of age or older) vegetation, the destruction of all or part of an SJMSCP Preserve 20 acres or more in size.

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50 The threshold cost of $26,000 acres is based on the cost of entirely re-establishing biological values on 10 acres of SJMSCP Preserves. Chapter 7 establishes the cost of one acre of SJMSCP Preserve as $2,593/acre (rounded to $2,600/acre for these calculations). Therefore, the threshold cost for minor damages is $2,600/acre X 10 acres = $26,000.

51 The threshold cost of $52,000 acres is based on the cost of entirely re-establishing biological values on 20 acres of SJMSCP Preserves. Chapter 7 establishes the cost of one acre of SJMSCP Preserve as $2,593/acre (rounded to $2,600/acre for these calculations). Therefore, the threshold cost for minor damages is $2,600/acre X 20 acres = $52,000.

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The JPA shall include in the Annual Report (Section 5.9.1) repair costs and repair schedules undertaken or anticipated pursuant to the preceding schedule in response to Changed Circumstances. All monetary thresholds established in A-C, above, shall be adjusted annually, for inflation consistent with Section 7.5.2.2.

9.3.7 NOTIFICATION

It is the duty of the JPA to notify the Permitting Agencies, in writing, within 60 calendar days of becoming aware of an existing or potential Changed Circumstance. Similarly, the Permitting Agencies shall notify the JPA, in writing, within 60 calendar days, if any of the Permitting Agencies become aware of existing or potential Changed Circumstance.

9.4 CRITICAL HABITAT

At the time of the issuance of the SJMSCP Permits, no critical habitat was located within the existing or planned urban growth boundaries as indicated on the SJMSCP Planned Land Use Map, however critical habitat for the Delta smelt is located within the Primary Zone of the Delta outside of the urban growth boundaries within San Joaquin County.

Because the SJMSCP conservation strategy emphasizes the acquisition of occupied habitat for SJMSCP Covered Species (Section 5.4.5), places a high priority on acquiring lands occupied by SJMSCP Covered Species with limited distribution (Section 5.4.5-C) and protects critical movement corridors linking populations of SJMSCP Covered Species (e.g., the San Joaquin kit fox-Section 5.5.3) throughout the County, it is anticipated that the SJMSCP will preserve the most critically important habitat areas in the County within its SJMSCP Preserves.

Consistent with the No Surprises Rule attached as Appendix F, the USFWS agrees that if critical habitat is designated for any SJMSCP Covered Species and the SJMSCP is being implemented properly, then the USFWS shall not require that the Permit Holders, JPA, or Third Parties to commit additional land, impose additional land restrictions, or provide additional financial compensation beyond that described in the SJMSCP.
10. **GLOSSARY**

**Acquisition, Acquired**

The term “acquisition” or “acquired” means the acquisition of conservation or property rights to a particular land parcel for plant, fish, and/or wildlife Preserve purposes pursuant to the SJMSCP. Acquisition of Preserve lands under the SJMSCP will normally be through purchase of a conservation easement, through outright purchase of fee title with appropriate protective covenants, through acceptance of land dedications or through purchase or creation of mitigation banking credits.

**Advisory Agency Notices**

The notifications sent by the cities of Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton, or Tracy; or by San Joaquin County to responsible agencies and other interested parties (e.g., public works departments, building departments, environmental health departments, fire departments, police departments, local school districts, the California Department of Fish and Game, the U.S. Fish and Wildlife Service, Audubon Society, economic development agencies, Chamber of Commerce, historical societies, Building Industry officials) during the application review process for discretionary entitlements. These notices summarize land development proposals and solicit input from agencies regarding the ordinance requirements, potential impacts of the project and necessary mitigation to offset identified impacts.

**Agricultural Lands**

Agricultural Lands are lands which are 1) Agricultural Habitat Lands as defined in Chapter 10; and/or 2) Multi-Purpose Open Space Lands as defined in Chapter 10 which are designated as B4 (Feedlots/Nurseries), C (Cropland), C2 (Orchards and Vineyards), or as C5 (ruderal), on the SJMSCP Vegetation Maps; and/or 3) Natural Lands as defined in Chapter 10 which are designated as G (Valley Grasslands), G2 (Foothill Grasslands), G3 or (Vernal Pool Grasslands), which are used for dryland grazing; and/or 4) lands which are designated on a local general plan or zoned as agricultural; and/or 5) lands which are under a Williamson Act Contract.

**Agricultural Habitat Lands**

Lands which are in non-permanent-crop agricultural uses as of 1/1/99 as indicated on the SJMSCP SJMSCP Vegetation Maps. Agricultural Habitat Lands include perennial and annual croplands and some ruderal habitats. Agricultural Habitat Lands include the following mapped vegetation types: C3 (Row and field crops, ditched), C4 (Row and field crops, unditched), and C5 (Ruderal except for some ruderal lands classified as Multi-Purpose Open Space due to low habitat value). Agricultural Habitat Lands are found primarily on the County's valley floor and in the Delta. Agricultural rangelands are generally classified as Natural Lands since they are primarily grasslands or vernal pool grasslands. Orchards and vineyards are classified as Multi-Purpose Open Space Lands. Codes refer to mapping codes used on the SJMSCP Vegetation Maps. Detailed descriptions of each vegetation type are found in Chapter 2 of the Biological Analysis: San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP) prepared for the San Joaquin Council of Governments by Toyon Environmental Consultants, August 15, 1996 (Appendix K).

The SJMSCP compensation ratio for Agricultural Habitat Lands is one acre of Preserve land for each acre of Agricultural Habitat Land Converted. **This compensation requirement applies only to SJMSCP**
Permitted Activities. Agricultural activities are not covered by the SJMSCP (except that Conversion of wetlands as a result of agricultural activities requiring a Section 404 permit pursuant to the Federal Clean Water Act and/or subject to the ESA may be covered pursuant to the SJMSCP). Therefore, change of agricultural use of Agricultural Habitat Lands, Natural Lands, Multi-Purpose Open Space Lands or any lands by agricultural activities, except as noted above, triggers no actions or requirements related to the SJMSCP. Changes of agricultural uses of Agricultural Habitat Lands, Natural Lands, Multi-Purpose Open Space Lands or any lands by agricultural activities remain subject to the same legal requirements, including the need to comply with the Federal Endangered Species Act and/or CESA even when permits are not required pursuant to the Federal Clean Water Act, as were in effect before adoption of the SJMSCP and individuals are encouraged to consult with local, state and federal agencies to determine applicable regulations.

The term "Agricultural Habitat Land" as used in the SJMSCP is not equivalent to similar terms used in the 1996 Federal Farm Bill.

Agricultural processing

The Agricultural Processing use type refers to the processing of foods and beverages from agricultural commodities. The following are the categories of the Agricultural Processing use types:

(a) Preparation Services. Establishments primarily engaged in performing limited processing on crops, subsequent to their harvest, with the intent of preparing them for market or further processing. Typical uses include nut hulling and shelling, bean cleaning, corn shelling and sorting, and grading and packing of fruits and vegetables.

(b) Food manufacturing. Establishments engaged in manufacturing or processing foods and beverages for consumption. Typical uses include canning of fruits and vegetables, slaughter houses, creameries, and manufacture of prepared meat products.

When required, interpretations based on this definition shall be made by the San Joaquin County Community Development Director.

Animal feeding and Sales

The Animal Feeding and Sales use type refers to temporary holding of livestock on a fee or contract basis in preparation for slaughter, market, shipping or sales. Typical uses include livestock auction yards, stockyards, animal sales yards, and feedlots for cattle, hogs, or sheep.

Applicants

The terms "Applicant" and "Applicants" means the Permittees or Permit Holders.

Categorically Exempt

"Categorically Exempt" means a project which has been determined to have no significant effect on the environment pursuant to Section 15300 et. seq. of California's State CEQA Guidelines. Pursuant to Section 15300.2 of California's State CEQA Guidelines, SJMSCP Permitted Activities which will result in the Take of an SJMSCP Covered Species are not categorically exempt.
CESA

The California Endangered Species Act (California Fish and Game Code Sections 2050 et seq.) and regulations promulgated pursuant to that Act.

Changed Circumstances

Changed Circumstances are reasonably foreseeable circumstances, including natural catastrophes, that normally occur in an area and which could affect Covered Species.

Cities

The term “cities” means the cities of Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton, and Tracy, all of which are incorporated cities in San Joaquin County and are expected to be Plan Participants.

Conservation Plan

The term "Conservation Plan" means the SJMSCP and is the same as “Habitat Conservation Plan”.

Conversion, Convert, Converting, Converted

The term Conversion, Convert, Converting or Converted as used in the SJMSCP, means to change land from an existing Open Space use (e.g., Agricultural Habitat Lands, Natural Lands) to either a non-Open Space use (e.g., urban development) or to an Open Space use with a lower habitat value (e.g., changing vernal pool grasslands to orchards and vineyards or extending golf courses beneath the driplines of trees). Compensation requirements described in the SJMSCP apply only to SJMSCP Permitted Activities carried out by Plan Participants or Project Proponents. Agricultural activities are not covered by the SJMSCP (except that Conversion of wetlands as a result of agricultural activities requiring a Section 404 permit pursuant to the Federal Clean Water Act and/or subject to the ESA may be covered pursuant to the SJMSCP). Therefore, change of agricultural use of Agricultural Habitat Lands, Natural Lands, Multi-Purpose Open Space Lands or any lands by agricultural activities, except as noted above, triggers no actions or requirements related to the SJMSCP. Changes of agricultural uses of Agricultural Habitat Lands, Natural Lands, Multi-Purpose Open Space Lands or any lands by agricultural activities remain subject to the same legal requirements, including the need to comply with the Federal Endangered Species Act and/or CESA even when permits are not required pursuant to the Federal Clean Water Act, as were in effect before adoption of the SJMSCP and individuals are encouraged to consult with local, state and federal agencies to determine applicable regulations.

County

The term “County” means San Joaquin County, California, which is expected to be a Plan Participant.

Covered Species

The term “Covered Species” means the plant, fish and wildlife species listed in Table 2.2.2 of the SJMSCP.
which receive varying levels of coverage pursuant to the ESA, CESA and/or CEQA. Species receiving ESA Section 10(a)(1)(B) or CESA 2081 coverage, as indicated in Table 2.2.2., which are currently listed under ESA and CESA are covered immediately upon issuance of the permits. Covered Species currently unlisted under ESA and CESA, but named on the SJMSCP Permits and receiving Section 10(a)(1)(B) or CESA 2081 coverage, as indicated in Table 2.2.2., will be covered by the permits effective upon listing if listing should occur. Plants will be covered if Permitted Activities result in Take of such species under state or federal law for those plants designated in Table 2.2.2 to receive Section 10(a)(1)(B) or CESA 2081 coverage.

Creation

The term “creation” applies to the compensation requirements of the SJMSCP established in Section 4.1, for the Conversion of specific vegetation types from Open Space uses which are subject to Section 404 of the Federal Clean Water Act (e.g., jurisdictional areas or Other Waters of the United States). Creation is defined differently for different types of vegetation subject to Section 404 as follows:

Channel island (I), tule marsh and mud flat (I2), freshwater emergent wetland (W7) - Creation is the establishment of this vegetation type where previously none existed.

Ditches (D) - Creation includes both establishment of this vegetation type where previously none existed and revegetation of previously vegetated banks or other areas (e.g. areas located within flood zones) located along these waterways. Normally, creation shall involve extensive revegetation along these waterways in areas where little vegetation currently exists.

Vernal pool (G3, wetted surface area), vernal or seasonal wetland (W8 - wetted surface area) - Creation is either the establishment of a vernal pool where previously none existed or may be the restoration of a vernal pool which historically existed and for which a footprint remains on the landscape, but for which the hydrological regime has been displaced and shall be replaced.

Riparian (R, R2, R3, R4, R5, S), Rivers (W), tributary stream (W2), creek (W3), dead-end sloughs (W4), and canals (W9) - Creation of these vegetation types means revegetation of previously vegetated banks or other areas (e.g., areas located within the flood zones) located along these waterways. Normally, creation shall involve extensive revegetation along these waterways in areas where little vegetation currently exists.

Freshwater lake or pond - Creation of these vegetation types may be accomplished either through the establishment of a new lake or pond where previously none existed or by the restoration of riparian vegetation to a location (normally along the shoreline) of an existing lake or pond that is highly degraded or is devoid of vegetation, or by a combination of both methods. Restoration will normally be accomplished through extensive planting and maintenance of native vegetation. Creation of new ponds or lakes should be used when compensating for the elimination of a pond or lake and restoration through new planting should be used when
compensating for destruction of vegetation along the shorelines of lakes and ponds which otherwise shall remain on project sites. Lakes and ponds created as part of a new development (e.g., residential subdivision) may count as compensation pursuant to the SJMSCP subject to approval by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC.

*NOTE: Letters refer to map symbols on the SJMSCP Vegetation Maps.*

**Discretionary Entitlement**

A permit or other authorization required of a Project Proponent by a local jurisdiction to allow the undertaking of a Discretionary Project as that term is defined in California's State CEQA Guidelines Section 15357.

**Disturbing Activities**

See "Site Disturbing Activities".

**Effective Date**

The date that the Service, the Department and any three Local Governments complete execution of the Implementation Agreement thereby making the SJMSCP Permits effective as to all executing Parties.

**ESA**

The Federal Endangered Species Act (16 U.S. C. Subsections 1531-1544) and regulations promulgated pursuant to that Act.

**Evaporation Ponds**

Evaporation ponds include ponds constructed for sewage treatment and agricultural waste water evaporation ponds. Evaporation ponds exclude catch basins used for stormwater runoff management.

**Farm Labor Camp**

The Farm Labor Camp use type refers to any living unit occupied by seven (7) or more farm workers and their families occurring exclusively in association with agricultural labor. Typical uses include labor camps and labor supply camps.

**Feasible**

For the purposes of the SJMSCP, the term “feasible” has the same meaning as prescribed in Public Resources Code Section 21061.1. “Feasible” means capable of being accomplished in a successful manner
within a reasonable period of time, taking into account economic, environmental, social, and technological factors.

Funding Shortfall

For the purposes of the SJMSCP, and as described in detail in Section 7.5.2.4, a funding shortfall is a deficit of 15% or more of the money needed to acquire the total Preserve acres required pursuant to Section 4.1 of the SJMSCP for a period of three consecutive years, or a deficit of 30% for a period of one year, due to a lack of funding, shall be considered a funding shortfall. The elimination of a Preserve acreage deficit at any time restarts the time period necessary to establish a funding shortfall.

Ground Disturbing Activities

See Site Disturbing Activities.

Habitat Conservation Plan

The term "Habitat Conservation Plan" means the SJMSCP.

Incidental Take

The term “Incidental Take,” under the Federal Endangered Species Act, means Take of an SJMSCP Covered Species that is incidental to, and not the primary purpose of, the carrying out of an otherwise lawful activity.

Incidental Take Minimization Measures

The methods adopted by the SJMSCP, and implemented by those carrying out SJMSCP Permitted Activities, to reduce the levels of Incidental Take of SJMSCP Covered Species before and during the SJMSCP Permitted Activities are referred to as Incidental Take Minimization Measures.

Joint Powers Authority (JPA)

For the purposes of the SJMSCP, the term “Joint Powers Authority” includes the Joint Powers Authority and/or its designee or designees. The SJMSCP will be administered by a Joint Powers Authority (JPA) created pursuant to the Joint Exercise of Powers Act, California Government Code Sections 6500 et seq. The JPA shall have adequate authority to carry out the Plan on behalf of the Plan Participants. The JPA shall consist of one representative from each of the cities that adopts the Plan and two representatives from the San Joaquin County Board of Supervisors, if the County adopts the Plan. Representatives on the JPA shall be elected officials from the participating local jurisdictions. The JPA shall create and consult with advisory groups as needed and appropriate.
The JPA will be assisted by a qualified land management organization (see Land Manager) and administrative staff, as needed to implement the SJMSCP. The JPA includes a technical advisory committee as described in Section 8.1.4 and a citizen's advisory committee or committees to be formed as needed and appropriate.

Jurisdiction/Jurisdictional Boundaries

The SJMSCP applies to SJMSCP Permitted Activities (see above) located within the boundaries of San Joaquin County unless more precisely specified herein. For the cities, jurisdictional boundaries shall be equal to the incorporated city limits of the city. For the County, jurisdictional boundaries shall be equal to those lands located within San Joaquin County, which are located outside of incorporated city limits. For non-city and non-County Plan Participant agencies with adopted boundaries, jurisdictional boundaries shall be equivalent to the Plan Participant agency's designated and adopted boundaries. For Plan Participant agencies without adopted boundaries (e.g., Caltrans, San Joaquin Area Flood Control Agency), jurisdictional boundaries shall include all land located within San Joaquin County upon which SJMSCP Permitted Activities, consistent with the adopted goals of the Plan Participant agency, shall occur. For the East Bay Municipal Utility District, the Stockton East Water District and the South San Joaquin Irrigation District, jurisdictional boundaries are as established in Appendix X.

Jurisdictional boundaries may be altered over the life of the Plan through annexations by the cities and boundary adjustments by Plan Participant agencies pursuant to the SJMSCP Permitted Activities [Anticipated Projects Category Section 8.2.1(10)].

Jurisdictional Areas

See “Waters of the United States”.

Land Manager

A for profit or non-profit professional organization specializing in the acquisition, enhancement and management of land for plants, fish and wildlife which will assist the JPA in carrying out the Preserve requirements of the SJMSCP.

Maintenance Activities

SJMSCP Permitted Activities include, but are not limited to, maintenance activities for existing and planned buildings, roads, fences, pipelines and aqueducts including valves and pipe supports, bridges, ditches, levees, parks, wasteways, hatcheries and similar facilities. SJMSCP Covered
Maintenance Activities will normally be undertaken on facilities operated and/or maintained by: Caltrans, East Bay Municipal Utility District, Stockton East Water District, San Joaquin Area Flood Control Agency, South San Joaquin Irrigation District, Schools, city and County public works departments and similar quasi-public agencies. Maintenance activities will normally occur within rights-of-way, easements or lands held by the identified agencies.

Maintenance activities include, but are not limited to: Repair and replacement of fencing, gates and cattle guards; grading (i.e., re-grading of existing roads and other existing facilities to re-establish surfaces disturbed by erosion and similar degradation); resurfacing including graveling and re-paving; ditch cleaning; culvert replacement; mowing; discing (e.g., to re-establish fire breaks along roadsides); burning; spraying (water for dust control); mechanical weeding (including weed control for fire suppression and flood control); excavating for inspection, repair and/or replacement; mechanical brush clearing (including brush clearing from wasteways); patrolling and exercising valves; scraping; maintenance of drainages along rights of ways; maintenance of river crossings for utilities such as aqueducts; reconstruction or replacement of existing facilities with negligible or no expansion; and maintenance of landscaping. Maintenance activities typically include spraying. For the purposes of the SJMSCP, pesticide use, including spraying, is not a covered activity in the Permit Area.

See Section 5.9.1.2 for a description of reporting requirements for Maintenance Activities.

Multi-Purpose Open Space Lands

Multi-Purpose Open Space Lands include those vegetation types which are not classified as Agricultural Habitat Lands, Urban Lands, or Natural Lands. Multi-Purpose Open Space Lands include the following vegetation types mapped, as of 1/1/99, on the SJMSCP Vegetation Maps: B (Barren), B2 (Quarries), B3 (Landfills), B4 (Feedlots/Nurseries), B5 (Dredge Tailings), C (Cropland), C2 (Orchards and Vineyards), C5 (Ruderal - may also be classified as Agricultural Habitat Lands where habitat value is high), U3 (Cultivated parks and golf courses), and W9 (Canals that are cement-lined and/or have no riparian vegetation). Please note that some vacant infill parcels were mapped as U or U2 on the SJMSCP Vegetation Maps, but are considered as Multi-Purpose Open Space Lands and are subject to the SJMSCP as indicated on the SJMSCP Compensation Zone Maps because they are undeveloped, do not yet have final approval for development plans, or have approved development plans which include conditions permitting coverage pursuant to the SJMSCP.

Codes refer to mapping codes used on the SJMSCP Vegetation Maps. Detailed descriptions of each vegetation type are found in Chapter 2 of the Biological Analysis: San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP)
Natural Lands

Natural Lands include those lands which contain natural vegetation as of 1/1/99 as indicated on the SJMSCP Vegetation Maps and which are not irrigated or cultivated agricultural land. Natural Lands include the following SJMSCP vegetation types: BCN-Blue Oak-Conifer Savanna (< 10% canopy closure), BCN2-Blue Oak-Conifer Woodland (10-33% canopy closure), BCN3-Blue Oak-Conifer Forest (34-75% canopy closure), BCN4-Blue Oak-Conifer Forest (>75% canopy closure), BL-Blue Oak Savanna (< 10% canopy closure), BL2-Blue Oak Woodland (10-33% canopy closure), BL3-Blue Oak Forest (34-75% canopy closure), BL4-Blue Oak Forest (>75% canopy closure), D-Drainage Ditches, G-Valley Grasslands, G2-Foothill Grasslands, G3-Vernal Pool Grasslands, I-Channel Islands, I2-Tule Island and Mud Flat, O/G-Mixed Oak Savanna (<10% canopy closure), O2-Mixed Oak Woodland (10-33% canopy closure), O3-Mixed Oak Forest (34-75% canopy closure), O4-Mixed Oak Forest (>75% canopy closure), R-Great Valley Riparian Forest, R2-Great Valley Valley Oak Riparian Forest, R3-Great Valley Cottonwood Riparian Forest, R4-Arroyo Willow Thicket, R5-Great Valley Mixed Riparian Forest, S-Great Valley Riparian Scrub, S2-Elderberry Savanna, S3-Diablan Sage Scrub, SG-Sage/grassland, V-Valley Oak Savanna (<10% canopy closure), V2-Valley Oak Woodland (10-33% canopy closure), V3-Valley Oak Forest (34-75% canopy closure), V4-Valley Oak Forest (>75% canopy closure), W-River/Deep Water Channel (> 200 feet wide), W2-Tributary Stream (100-200 feet wide), W3-Creek (20-100 feet wide), W4-Dead-End Slough; W5-Freshwater Lake, Pond or Vernal Pool; W6-Sewer Treatment Ponds, W7-Freshwater Emergent Wetland, W8-Vernal or Seasonal Wetland, and W9-Canal (canals with riparian vegetation only are considered Natural Lands; cement-lined canals, or canals lacking riparian vegetation, are classified as Multi-Purpose Open Space Lands).

Codes refer to mapping codes used on the SJMSCP Vegetation Maps. Detailed descriptions of each vegetation type are found in Chapter 2 of the Biological Analysis: San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP) prepared for the San Joaquin Council of Governments by Toyon Environmental Consultants, August 15, 1996 (Appendix K).

The SJMSCP compensation ratio for development of Natural Lands (other than vernal pools) is three acres of Preserve land for each acre of Natural Land developed.

See also “Jurisdictional Areas/Waters of the United States and Vernal Pools.”

Neighboring Lands
For the purposes of SJMSCP Section 5.3.3.4, Neighboring Land Protections, a neighboring land is one located within one-half mile of the boundary of any lands established by the JPA as Preserves under the SJMSCP or within ten miles of the boundary of any lands established by the JPA as Preserves under the SJMSCP which will be managed for the Swainson's hawk.

Open Space

Lands mapped on the SJMSCP Vegetation Maps containing vegetation types classified pursuant to this Chapter as Natural Lands, Agricultural Habitat Lands, or Multi-Purpose Open Space Lands.

Permit/Permits

The terms "Permit" and "Permits" shall mean all of the following:

A. A CESA Section 2081(b) Incidental Take Permit to authorize Incidental Take of state-listed species including authorization of Take of state-listed species, and other unlisted species should they become listed, resulting from land use changes and other disturbances associated with SJMSCP Covered Activities, mitigation activities, management, monitoring and operation of the SJMSCP Preserve system including Neighboring Land Protections and for scientific purposes (e.g., trapping, handling, and marking of SJMSCP Covered Species). This Section 2081(b) Permit also will authorize Incidental Take of vernal pool and aquatic species which are covered by the SJMSCP for SJMSCP Covered Activities that do not require a permit under Section 404 of the Federal Clean Water Act, Section 10 of the Rivers and Harbors Act or other federal regulations that would trigger CESA. See also Section 5.6.1 for additional information related to the relationship of the SJMSCP and the SJMSCP's planned future regional general permit, or equivalent, expected to be secured from the U.S. Army Corps of Engineers pursuant to Section 404 of the Federal Clean Water Act;

B. An ESA Section 10 (a)(1)(B) Permit to authorize Incidental Take of federally-listed species, and other unlisted species should they become listed, including authorization of Take of federally-listed species resulting from impacts of land use changes and other disturbances associated with SJMSCP Covered Activities, mitigation activities, management, monitoring and operation of the SJMSCP Preserve system including Neighboring Land Protections and for scientific purposes (e.g., trapping, handling, and marking of SJMSCP Covered Species). This Section 10(a)(1)(B) Permit also will authorize Incidental Take of vernal pool and aquatic species
which are covered by the SJMSCP for SJMSCP Covered Activities that do not require a permit under Section 404 of the Federal Clean Water Act, Section 10 of the Rivers and Harbors Act or other federal regulations that would trigger an ESA consultation. See also Section 5.6.1 for additional information related to the relationship of the SJMSCP and the SJMSCP's planned future regional general permit, or equivalent, expected to be secured from the U.S. Army Corps of Engineers pursuant to Section 404 of the Federal Clean Water Act;

C. The ESA Section 10(a)(1)(B) Permit (see B, above) will allow for Take, as defined by the MBTA and pursuant to 50 C.F.R. 21.27, of those birds covered by the SJMSCP that are protected by the MBTA and federally-listed under the ESA, except for bald and golden eagles, pursuant to the Migratory Bird Treaty Act of 1918, as amended (16 U.S. C. Sections 703-712); and

D. Coverage pursuant to the California Environmental Quality Act for impacts to SJMSCP Covered Species occurring as a result of SJMSCP Covered Activities.

The SJMSCP Implementation Agreement establishes the necessary requirements to commence Incidental Take for local city and County jurisdictions, and special districts, and third parities. Implementing ordinances and/or resolutions adopted in conjunction with the requirements of the Implementation Agreement by local jurisdictions and special districts will formalize their acceptance of the SJMSCP as adequate compensation for and minimization of impacts to plants, fish and wildlife, and as partial mitigation for non-wildlife related impacts to recreation, agricultural lands, scenic values, and other beneficial Open Space uses. Further, these ordinances and/or resolutions adopted by local jurisdictions and special districts shall include findings that an agreement for payment of environmental review fees to the California Department of Fish and Game pursuant to Assembly Bill 3158 is not required for projects undertaken in compliance with the SJMSCP.

After the requirements of the Implementation Agreement relative to activation of the SJMSCP Permits are fulfilled as necessary to authorize the commencement of Incidental Take pursuant to the SJMSCP, the SJMSCP Joint Powers Authority intends to obtain the following permits and/or authorizations:

A. A programmatic streambed alteration agreement (either as Plan amendment or as a separate, but supplemental, permit to the SJMSCP) with the California Department of Fish and Game pursuant to Section 1600 et seq. of the California Fish and Game Code to provide a blanket agreement for SJMSCP Permitted Activities affecting streams. The California Department of Fish and Game indicates that the mitigation
contained within the SJMSCP can be used as a basis for establishing mitigation for plant, fish and wildlife species and their habitats pursuant to the proposed programmatic streambed alteration agreement (see Appendix V);

B. An ESA Section 10 (a)(1)(B) Permit to authorize Incidental Take of anadromous fish species including the Winter-run Chinook salmon (*Oncorhynchus tshawytshca*), Fall-run Chinook salmon (*Oncorhynchus tshawytshca*), Spring-run Chinook salmon (*Oncorhynchus tshawytshca*) and steelhead trout (*Oncorhynchus mykiss gairdneri*) from the National Marine Fisheries Services (NMFS);

C. A program to encourage individuals to undertake activities which are not otherwise subject to local, state or federal plant, fish and wildlife regulations, to provide plant, fish and wildlife enhancements on their properties without fear of prosecution or limitations on pre-existing legal activities should those plant, fish and wildlife enhancements attract SJMSCP Covered Species to their property. This program is outlined in Section 5.4. Adoption of this program will be pursued by the JPA after state and federal agencies have adopted guidelines and/or rules in conjunction with:

1. California's newly adopted legislation for addressing Incidental Take associated with routine and ongoing activities (i.e., Section 2086 et seq. of the California Fish and Game Code); and

2. the federal safe harbor program (note: the Final Rule for this program has been published).

D. A general permit(s) pursuant to Section 404(e) of the Federal Clean Water Act [33 CFR 322.2(f) and 323.2(h)], or an alternative equivalent authorization(s), issued by the U.S. Army Corps of Engineers in consultation with the U.S. Fish and Wildlife Service covering Waters of the United States for SJMSCP Permitted Activities affecting up to 707 acres of vernal pool wetted surface area and equivalent to 5,894 acres of vernal pool grasslands, 1,233 acres of Riparian habitats and 4,790 acres of Water Features;

E. A water quality certification or waiver from the California State Water Resources Control Board or Central Valley Regional Water Quality Control Board pursuant to Section 401 of the Federal Clean Water Act after issuance of the Section 404(e) general permit(s), or equivalent, for the activities covered in the Section 404(e) general permit(s), or equivalent, to be issued after initial adoption of the SJMSCP; and
F. Within three years of the Effective Date of the SJMSCP, the JPA shall secure a Federal Clean Water Act Section 404 regional general permit, or equivalent, from the U.S. Army Corps of Engineers or the JPA shall adopt a strategy to ensure that impacts to wetlands resulting from SJMSCP Covered Activities shall include compensation in the form of large, interconnected Preserves, consistent with the requirements of the SJMSCP rather than resulting in small, scattered Preserves as now occurs. Approval of an alternative strategy in lieu of a Section 404 Permit, or its equivalent from the U.S. Army Corps of Engineers, shall require review of the TAC, with the concurrence of the Permitting Agencies.

Once issued, these authorizations shall become SJMSCP Permits.

Permit Area

The term "Permit Area" means all of San Joaquin County excepting all federal lands and areas encompassing those projects not covered by the SJMSCP as listed in SJMSCP Section 8.2.2.2.

Permit Holder or Permit Holders

The term “Permit Holder” or "Permit Holders" has the same meaning as Permittee or Permittees.

Permitted Activities

“Permitted Activities” means activities carried out by Plan Participants or Third Parties in the Plan Area, as described in Section 8.2.1 of the HCP, which are covered by the HCP and for which Incidental Take is authorized under the Section (10)(a) Permits and Section 2081 Permits.

Permittee or Permittees

The term “Permittee” or "Permittees" means:
the cities of Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton, and Tracy;
San Joaquin County [on behalf of San Joaquin County and the San Joaquin County Superintendent of Schools (for new schools and school expansions)]; Stockton East Water District; East Bay Municipal Utility District; California Department of Transportation; San Joaquin Council of Governments; San Joaquin Area Flood Control Agency; and the South San Joaquin Irrigation District. See also Plan Participants and Applicant.

Permitting Agencies

For the purposes of the SJMSCP, the term “ Permitting Agencies” means the United States Fish and Wildlife Service and the California Department of Fish and Game NOTE: The U.S. Army Corps of Engineers Permitting Agency authority in the SJMSCP process will be maintained by the USACE through implementation of a Section 404 General Permit, rather than through a signature on the Implementation Agreement and shall

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become a Permitting Agency after issuance of such a permit, or its equivalent.

**Pesticide Use**

Pesticide use is defined as any application or use of a pesticide identified as a herbicide, insecticide, fungicide, rodenticide, or biocontrol agent by the Permitting Agencies’ representative on the TAC.

**Plan Area**

See "Permit Area."

**Plan Participants**

Plan Participants are the same as "Permittees."

**Preserve Category**

The term “Preserve Category” has the same meaning as “Preserve Type.”

**Preserve Lands**

The term “Preserve Lands” means land acquired and/or managed by the JPA and either held by the JPA or transferred, via recordation of a conservation easement or transfer of fee title, including protective covenants, in favor of CDFG or an approved third party, for management of habitat in perpetuity for the SJMSCP Covered Species. Also a parcel or parcels of land protected from future urban development or other disturbance and managed as a unit for the conservation and protection of SJMSCP Covered Species.

**Preserve Manager**

See "Land Manager."

**Preserve Types**

There are 12 Preserve Types established in the SJMSCP. “Preserve Types" are descriptions of the various kinds of Preserves that will be established by the SJMSCP. Preserve Types represent assemblages of individual vegetation types into habitats (i.e., each Preserve Type represents a habitat type).

The 12 Preserve Types are:

- Primary Zone of the Delta - Water's Edge Preserves (Large and Small)
- Primary Zone of the Delta - Flooded Field Preserves
- Southwest Zone - Grassland Preserves
Southwest Zone - Riparian Preserves
Southwest Zone - Blue Oak Conifer Preserves
Southwest Zone - Diablan Sage Scrub Preserves
Vernal Pool Zone - Vernal Pool Grassland Preserves
Central Zone - Row and Field Crop/Riparian Preserves
Central Zone - Wetlands Preserves
Central Zone - Oak Woodlands Preserves
Submerged Aquatic Vegetation Preserves (Central Zone and Primary Zone of the Delta)

Note: Within these Preserves there may be “Specialty Preserves” established for SJMSCP Covered Plant Species. Specialty Preserves normally will be less than 20 acres and include a population of these species.

Project Proponent

"Project Proponent" means a private individual or public agency, including Plan Participants, proposing to conduct Permitted Activities within the Plan Area.

Relocation

The term “relocation” means the trapping or capturing and moving off-site of an SJMSCP Covered Species to a new location.

Resales of Land/Revolving Fund

One SJMSCP funding method is the re-sale of land/revolving fund. For purposes of the SJMSCP, these two terms have the same meaning. Under this approach, land is purchased in fee title by the JPA, a conservation easement is placed on the land, then the land is re-sold. Profits from the land sales are used to purchase additional lands. This is similar to the method used by many major land trusts.

Routine and Ongoing Agricultural Activities

The following definition is intended for use only for the purposes of SJMSCP Section 5.3.3.4, Neighboring Land Protections and is not intended to define routine and ongoing agricultural activities for any other purpose.

"Routine and ongoing agricultural activities" are all activities undertaken on a farm or ranch for the purpose of producing or marketing any plant or animal product for commercial purposes, unless otherwise excepted below and provided the activities are consistent with the economics of agricultural operations. Routine and ongoing agricultural activities do not
include: Conversion of agricultural land to a nonagricultural use; timber harvesting activities governed by the State Board of Forestry; Conversion of grazing lands to orchards or vineyards (or other Conversion which triggers Section 404 of the Federal Clean Water Act); SJMSCP Permitted Activities listed in Section 8.2.1; Projects not covered by the SJMSCP as listed in Section 8.2.2.1; or specific projects not covered by the SJMSCP as listed in Section 8.2.2.1; installation of evaporation ponds; Conversions to wholesale nurseries, agricultural processing, farm labor camps, small animal raising, animal feeding and sales, and trucking facilities. After securing required entitlements, completing mitigation to offset potential impacts to habitat and/or species and after completion of project construction, and excepting expansions, the following activities shall be considered routine and ongoing agricultural activities for the purposes of receiving neighboring land protections pursuant to the provisions of Section 5.3.3.4: wholesale nurseries, agricultural processing, farm labor camps, small animal raising, animal feeding and sales, and trucking facilities.

Pursuant to Section 5.3.3.4(A)(2)-(G&H), special provisions exist for the extension of neighboring land protections to orchards and vineyards, wholesale nurseries, agricultural processing, farm labor camps, small animal raising, animal feeding and sales, and trucking facilities.

Section 2081(b) Permit

“Section 2081(b) Permit” means the Incidental Take authorization issued in accordance with the SJMSCP by CDFG under CESA pursuant to California Fish and Game Code Section 2081 et seq. to permit the Take of a species listed under CESA as threatened, rare or endangered, or any unlisted SJMSCP Covered Species should such a species become listed under CESA during the life of the Plan pursuant to the procedures established in Sections 11 and 12.3 of the Implementation Agreement.

Section 10(a)(1)(B) Permit

The permit issued in accordance with the SJMSCP by the USFWS to the Permittees under Section 10(a)(1)(B) of the Federal Endangered Species Act [16 U.S.C. Section 1539(1)(1)(B)] to allow the Incidental Take of Covered Species. See also, “Permit/Permits.”

Site Disturbing Activities

Site disturbing activities include, but are not limited to, site grading, land clearing (cutting down trees or removing other vegetation), deep-ripping wetland soils, or filling wetlands for the purposes of undertaking a private or public construction project or other SJMSCP Permitted Activity. These activities normally will occur after the issuance of permits from local jurisdictions and after public hearings are completed, when applicable. Site disturbing activities normally alter the vegetation cover of a parcel to
the extent that it is likely to result in the relocation of or harm to a plant, fish or wildlife species located on the parcel or will result in altering the hydrology of a wetland. Site disturbing activities exclude minor activities such as conducting land surveys to establish parcel and other boundaries (normally in anticipation of construction proposals), conducting geotechnical or soil surveys (generally limited to taking core samples 2" or less in diameter as long as such sampling does not alter the hydrology of any wetland--e.g., excludes punching holes in the water-retaining substrate of vernal pools) and similar minor activities as long as such minor activities will not alter the continuing occupation of a site by a plant, fish or wildlife species.

SJMSCP

“SJMSCP” means the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan, and has the same meaning as "Plan," “Conservation Plan” and “Habitat Conservation Plan.”

SJMSCP Permitted Activities

The term “SJMSCP Permitted Activities” has the same meaning as “Permitted Activities.”

SJMSCP Permit or Permits

The term “SJMSCP Permit” or SJMSCP Permits” has the same meaning as “Permit” or “Permits.”

SJMSCP Covered Species

The term “SJMSCP Covered Species” has the same meaning as “Covered Species.”

Small Animal Raising

Raising small animals for breeding proposes or for meat, fish, eggs or production. Typical uses include chicken farms, turkey farms, duck farms, pigeon farms, fish and frog farms, fish hatcheries, and rabbit farms.

Specialty Preserve

See “Preserve Type.”

Take

The term “Take,” is defined in the California Endangered Species Act, the Federal Endangered Species Act, the Migratory Bird Treaty Act and the
Bald and Golden Eagle Protection Act.

The ESA defines "Take" as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." "Harass" is further defined by federal regulation implementing the ESA to include "an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding or sheltering" (50 CFR 17.3). "Harm," as defined by regulation means, "an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering"(50 CFR 17.3). Take defined according to the Federal Endangered Species Act and its implementing regulations is broader than, and includes all forms of Take defined in the California Endangered Species Act and other federal statutes. The Term Take as used in the SJMSCP is used in its broadest sense, that is, as defined in the Federal Endangered Species Act.

Third Parties

"Third Parties” means those Project Proponents who receive Incidental Take authority under the provisions of the HCP and the Implementation Agreement, as described in Section 9 of the Implementation Agreement.

Unforeseen Circumstances

"Unforeseen Circumstances," defined in 50 C.F.R. Section 17.3, means changes in circumstances affecting a species or geographic area covered by a conservation plan that could not reasonably have been anticipated by plan developers and the Service at the time of the conservation plan's negotiation and development, and that result in a substantial and adverse change in the status of the covered species.

Urban Lands

Urban Lands are those lands which are already Converted from Open Space use by urban uses as of January 1, 2001. These include the following vegetation categories mapped on the SJMSCP Compensation Zone Maps (the equivalent of the SJMSCP Vegetation Maps, which have been field checked and corrected by agency staff): U (Urban) and U2 (Scraped/Paved). Some vacant infill parcels were mapped as U or U2 on the SJMSCP Vegetation Maps, but are considered as Multi-Purpose Open Space Lands and are subject to the fee payment requirements of the SJMSCP as indicated on the SJMSCP Compensation Zone Maps because they do not qualify for exemptions pursuant to Section 8.2.5 or Section 8.2.2.2 of the SJMSCP.

Vernal Pool Habitat

November 14, 2000

10-18
Vernal Pool Habitats are a subcategory of Natural Lands which contain vernal pools. Vernal Pools are usually found in the following vegetation categories mapped on the SJMSCP Compensation Zone Maps (the equivalent of the SJMSCP Vegetation Maps, which have been field checked and corrected by agency staff): G3 (Vernal pool grasslands), W5 (Freshwater lake, pond or vernal pool), and W8 (Vernal or seasonal wetland). Vernal pool habitats may occasionally be found in the following or other habitats: G (Valley grasslands), G2 (Foothill Grasslands) and other grasslands associated with blue oak and other Natural Lands with relatively open canopies.

The SJMSCP compensation ratio for vernal pools is two acres of existing vernal pool habitat plus one acre of created or restored vernal pool habitat for every vernal pool acre developed. Vernal pool habitats subject to this compensation ratio encompass the wetted vernal pool surface only. The wetted vernal pool surface area of vernal pool grasslands is assumed to be 12% of the total vernal pool grassland acre unless determined otherwise through a wetlands delineation undertaken by the Project Proponent. Upland grasslands associated with vernal pool habitats that are Converted by development will be compensated at the same rate as other Natural Lands (3:1), without a restoration/creation requirement.

Water Features

For the purposes of the SJMSCP, Water Features are defined as the following vegetation types mapped on the SJMSCP Vegetation Maps: W-River and Deep Water Channels (> 200 feet wide), W2- Tributary streams (100-200 feet wide), W3-Creeks (20-100 feet wide), W4-Dead-End Sloughs, W5- Freshwater Lakes or Ponds, W6- Sewer Treatment Ponds, W7- Freshwater Emergent Wetlands, W8-Seasonal Wetlands), W9-Canals (other than cement-lined canals) and D-Ditches.

Waters of the United States/Jurisdictional Areas

For purposes of the SJMSCP, the term “Waters of the United States/Jurisdictional Areas” are equivalent to “Wetlands and Other Waters of the United States” as defined in the Code of Federal Regulations (CFR), Section 33, Part 328, Section 328.3.

Section 404 of the Federal Clean Water Act (aka Federal Water Pollution Control Act, 33USC 1251-1387) regulates activities that result in the discharge of dredged or fill material into Waters of the United States or other alterations to Waters of the United States. Discharges which do not require permits pursuant to the SJMSCP's General Section 404 Permit and the Federal Clean Water Act are the same as those exempted pursuant to 33 CFR 323.4, and listed in Appendix U.

"Waters of the United States" is the term for all areas under federal jurisdiction in accordance with Section 404 of the Federal Clean Water Act. Waters of the United States are divided into wetlands and Other
Waters of the United States.

"Wetlands" means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

"Waters of the United States" means:

A. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

B. All interstate waters including interstate wetlands;

C. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:

1. Which are or could be used by interstate or foreseeing travelers for recreational or other purposes; or
2. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
3. Which are used or could be used for industrial purpose by industries in interstate commerce;

D. All impoundment waters otherwise defined as Waters of the United States under the definition;

E. Tributaries of waters identified in A-D above;

F. The territorial seas;

G. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in A-G above;

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the Clean Water Act [other than cooling ponds as defined in 40 CFR 123.11(m) which also meet the criteria of this definition] are not Waters of the United States.

The definition of "adjacent," "high tide line," "ordinary high water mark," and "tidal waters" shall be as defined in 33 CFR 328.3.
The following Natural Land categories, or portions thereof, may meet the definition of Waters of the United States or are normally associated with Waters of the United States and are addressed by the SJMSCP’s Section 404 General Permit, in addition to the SJMSCP Incidental Take Permits:

G3 -Vernal Pool Grasslands, I-Channel Islands, I2-Tule Island and Mud Flat, R-Great Valley Riparian Forest, R2- Great Valley Valley Oak Riparian Forest, R3-Great Valley Cottonwood Riparian Forest, R4-Arroyo Willow Thicket, R5-Great Valley Mixed Riparian Forest, S-Great Valley Riparian Scrub, W-River/Deep Water Channel (> 200 feet wide), W2 - Tributary Stream (100-200 feet wide), W3-Creek (20-100 feet wide), W4-Dead-End Slough, W5-Freshwater Lake or Pond or Vernal Pool, W7-Freshwater Emergent Wetland, W8-Vernal or Seasonal Wetland, W9-Canal.

Compensation for disturbances to Waters of the United States, which are also classified as Natural Lands, pursuant to the SJMSCP is three acres in compensation (i.e acquisition of Preserve Lands) for each acre Converted from Open Space uses. Vernal pool compensation pursuant to the SJMSCP is two acres of protection plus one acre of restoration or creation for every acre of vernal pool Converted.

See also Natural Lands, Vernal Pools.