4.3 Biological Resources

4.3.1 Methods and Significance Criteria

Methods

This section evaluates the effects on biological resources that would result from implementation of the proposed action and alternatives.

Anticipated changes in land cover/land use for each alternative are described in Chapter 2, Proposed Action and Alternatives. See Section 4.0, Environmental Consequences, for a description of the methodology used across all resource chapters for the analysis of cumulative effects.

For preparation of this section, the information used to conduct the environmental consequences analysis came primarily from information available in the Plan and associated GIS data but also included information obtained from available databases (e.g., the California Natural Diversity Database [CNDDB]), other mapping sources, and available reports and literature.

The methods used to evaluate permanent, temporary, and indirect effects on biological resources in this section are largely similar to those used in the Plan effects analysis (Chapter 4 of the Plan; see Appendix A). Effects on biological resources not covered in the Plan were similarly evaluated, relying on the same land cover mapping. Other biological resource issues were also considered: effects on state- and federally protected wetlands and waters, wildlife movement corridors, potential for introducing or spreading invasive plants, and consistency with other plans and policies.

The effects of implementing the Plan were evaluated quantitatively for those Covered Activities that would result in land conversion—primarily urban, suburban, and rural residential development—and qualitatively for Plan implementation actions that cannot be easily quantified, such as the conservation measures (e.g., habitat restoration and enhancement). The EIS/EIR relies on the quantification of effects developed for the Plan, as described in Section 4.3, Methods for Quantifying Effects, of the Plan. The assessment of these effects is not based on development footprints but rather on growth scenarios under the general plans of Placer County and the City of Lincoln (i.e., the local jurisdictions) as well as the Sacramento Area Council of Governments’ 2016 regional Metropolitan Transportation Plan/Sustainable Communities Strategy. The qualitative assessment of effects was based on the EIS/EIR team’s review and interpretation of the Plan’s conservation measures.

Implementation of Alternative 2, the proposed action, or other alternatives could result in direct, indirect, and cumulative impacts on biological resources. Direct impacts are those effects of a project that occur at the same time and place as project implementation, such as removal of habitat through ground disturbance. Indirect impacts are those effects that occur either later in time or at a distance from project activities but are reasonably foreseeable, such as downstream loss of aquatic species from effects on water quality. Direct and indirect impacts can be permanent or temporary. Cumulative impacts are those incremental effects of a project that, even if less than significant themselves, could in combination with the effects of other projects significantly affect biological resources.
Direct and indirect effects of Plan implementation and Covered Activities would be anticipated to result from the types of actions listed below. A more detailed discussion of the Covered Activities is provided in Chapter 3 of the Plan.

- Grading, excavation, trenching, and placement of fill material.
- Vegetation removal to reduce fire hazards and control invasive plants.
- Construction of new infrastructure.
- Widening of existing and development of new roads.
- Increase in impervious surfaces.
- Temporary disturbance associated with maintenance and/or operation of water facilities and other waterways.
- Increased disturbance of wildlife associated with recreation.

For the purposes of this analysis, and as defined in the Plan, temporary effects are defined as all effects that persist for less than 1 year. Projects with temporary effects would return habitat to pre-project conditions within 1 year from the time of groundbreaking. Impact and conservation acreages for the action alternatives are presented in Appendix H.

For each alternative, the analysis focuses on the resources of concern: natural communities, covered species, non-covered species, and general biological resources. Because this document is designed to satisfy both NEPA and CEQA requirements, each impact analysis presents a NEPA and a CEQA conclusion. The NEPA conclusion reflects comparison of the alternative’s effect with the effect of the no action alternative (the NEPA point of comparison).

The CEQA conclusion reflects comparison of the alternative’s effect with Existing Conditions (the CEQA baseline). The cumulative analyses for all resources and all alternatives are addressed at the end of this section.

Because the EIS/EIR defines habitat for tricolored blackbird and valley elderberry longhorn beetle differently than the Plan, the effects estimates for those species in the EIS/EIR are different than in the Plan, as described below.

- **Tricolored Blackbird:** As discussed in Section 3.3, *Affected Environment*, the EIS/EIR assumes that nesting and foraging habitat for tricolored blackbird could occur at any elevation in the Plan Area (i.e., up to the maximum elevation of 1,600 feet). The EIS/EIR uses the same natural community mapping as the Plan but includes more refined mapping datasets to complement these data. Because the species is known to nest in some specific crop types, crop type data for the Plan Area were obtained from the U.S. Department of Agriculture’s CropScape—Cropland Data Layer (U.S. Department of Agriculture 2009). Crop data were obtained for 2009 and queried for wheat and triticale (crop hybrid of wheat and rye), two crop types in which the species is known to nest (Meese 2014). Though crop types often change from year to year, the intent of this analysis is to provide an estimate of what these acreages could be in a given year. To estimate the Plan’s effects on these crops, their total acreages were multiplied by fractions of Other Ag permanently and temporarily affected under the Plan (i.e., Other Ag affected/Other Ag total). The Other Ag category includes all non-rice agriculture. This approach provides estimates of permanent and temporary impacts on these crop types; the impacts were added to the take limits for fresh emergent wetland in both the valley and foothills (the Plan species model only
considered fresh emergent marsh at elevations to 300 feet as suitable nesting habitat for tricolorred blackbird).

As noted in Section 3.3, Affected Environment, the EIS/EIR also considers blackberry thickets as suitable nesting substrates. Tricolorred blackbirds nest primarily in blackberry thickets in the foothill region of the Sierra Nevada (Airola et al. 2015:97), which includes the eastern portion of the Plan Area. To estimate the extent of this nesting habitat in the foothills, the GIS dataset associated with the California Department of Fish and Wildlife's (CDFW's) Northern Sierra Nevada Foothills Vegetation Project (Menke et al. 2011) was queried for the Rubus armeniacus vegetation alliance (Himalayan blackberry) in the Plan Area. To estimate what the Plan’s effects on this community could be, the vegetation alliance was intersected with the Plan land cover mapping for the foothills. The resulting spreadsheet showed the Plan land cover types in which these blackberry thickets occur. To develop an impact estimate on these blackberry thickets, the acreages of the thickets within each land cover type were multiplied by the fraction of those land cover types that would be affected under the Plan (Plan impact acres on land cover type in foothills/total acres land cover type in foothills). The resulting impact estimate was then added to the fresh emergent wetland impact throughout the Plan Area and the estimated impacts on wheat and triticale for total nesting impact.

As discussed in Section 3.3, Affected Environment, the EIS/EIR analysis expanded the Plan model for tricolorred blackbird foraging habitat to include the foothills and added rice. The EIS/EIR then used the Plan’s estimated effects on these communities to obtain an estimate of effects on tricolorred blackbird foraging habitat.

- **Valley Elderberry Longhorn Beetle:** As discussed in Section 3.3, Affected Environment, the EIS/EIR analysis expanded the Plan habitat model for valley elderberry longhorn beetle to include valley oak woodland, riverine/riparian, and urban riparian communities throughout the Plan Area (up to 1,600 feet in elevation). The effects were estimated using the Plan’s estimated effects on these communities throughout the Plan Area, except for urban riparian, for which there are no effects estimates. It was assumed that most areas surrounding urban riparian are already developed, that any impacts on this community would be minimal, and that if elderberry shrubs are present they would be detected during implementation of individual projects.

### Significance Criteria

NEPA regulations do not provide any guidance on thresholds of significance for biological resources. The U.S. Fish and Wildlife Service (USFWS) has determined that to inform its decision on the significance of effects on the human environment it is appropriate to use Appendix G of the State CEQA Guidelines; factual or scientific information and data; views of the public in the affected area; the policy/regulatory environment of affected jurisdictions; and regulatory standards of federal, state, regional, and local agencies. Therefore, in accordance with Appendix G of the State CEQA Guidelines and professional judgment, the EIS/EIR analysis assumes that action alternatives would result in a significant effect if they would result in any of the conditions listed below.

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW, USFWS, or the National Marine Fisheries Service (NMFS).

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the CDFW, USFWS, or NMFS.
• Have a substantial adverse effect on federally protected wetlands and waters as defined by Section 404 of the Clean Water Act (CWA) (including, but not limited to, marshes, and vernal pools) through direct removal, filling, hydrological interruption, or other means.

• Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

• Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

• Conflict with the provisions of an adopted habitat conservation plan (HCP), natural community conservation plan (NCCP), or other approved local, regional, or state habitat conservation plan.

4.3.2 Impacts and Mitigation Measures

Alternative 1—No Action

Under Alternative 1, urban development and public infrastructure projects would proceed pursuant to the approved general plans of Placer County and the City of Lincoln and in accordance with applicable South Placer Regional Transportation Authority (SPRTA) and Placer County Water Agency (PCWA) best management practices. Because the proposed buildout under Alternative 2, the proposed action, is based on the approved general plans and future growth scenarios, the effects of development under Alternative 1 would be the same as those under Alternative 2. However, no regional conservation strategy or conservation measures would be implemented; therefore, effects on biological resources associated with the conservation strategy and the specific conservation measures identified in the Plan would not occur.

Natural Communities

Impact BIO-1: Effects on vernal pool complex (NEPA: significant and unavoidable; CEQA: significant and unavoidable)

Under Alternative 1, development associated with implementation of the general plans of Placer County and the City of Lincoln would result in approximately 12,550 acres (28% of this community in the Plan Area) of permanent impacts and approximately 455 acres of temporary impacts on vernal pool complex.

Indirect impacts on vernal pool complex could result from construction activities in the Plan Area, such as grading, trenching, changes to hydrology, and changes to topography. Indirect effects on vernal pools are generally considered by USFWS to occur when ground-disturbing activities take place within 250 feet of a vernal pool—more specifically, when it can be demonstrated that the hydrology supporting a pool has been altered. Indirect effects on vernal pool complexes were estimated in the Plan at 1,979 acres. These indirect effects could adversely affect the functions and services of vernal pool–type wetlands and supporting uplands in vernal pool complexes.

Operations and maintenance activities associated with transportation, wastewater programs, water supply, solid waste management, and utilities in and adjacent to grasslands could result in the inadvertent introduction of invasive plant species, removal and trimming of vegetation for utility and transportation maintenance, ground disturbance associated with infrastructure maintenance...
and the establishment of seasonal fire breaks, and the accidental release of vehicle oils and fuels that could alter the species composition of this natural community.

Mitigation for these impacts would be developed and implemented on a project-specific basis pursuant to applicable existing local (e.g., general plans); state (e.g., California Endangered Species Act [CESA], 1600, CEQA); and federal (e.g., federal Endangered Species Act [ESA], CWA, NEPA) laws, regulations, and policies.

**NEPA Determination:** The permanent loss of 12,550 acres and temporary disturbance of 455 acres of vernal pool complex associated with Alternative 1, in the absence of a coordinated conservation effort, would be a significant impact.

**CEQA Determination:** The permanent loss of 12,550 acres and temporary disturbance of 455 acres of vernal pool complex associated with Alternative 1, in the absence of a coordinated conservation effort, would constitute a significant and unavoidable impact through the substantial loss of a natural community in the Plan Area.

**Impact BIO-2: Effects on grassland (NEPA: significant and unavoidable; CEQA: significant and unavoidable)**

Under Alternative 1, development associated with implementation of the Placer County and the City of Lincoln general plans would result in approximately 6,900 acres of permanent impacts (approximately 20% of this community) and approximately 235 acres of temporary impacts on grasslands in the Plan Area.

Operations and maintenance activities associated with transportation, wastewater programs, water supply, solid waste management, and utilities in and adjacent to grasslands could result in the inadvertent introduction of invasive plant species, removal and trimming of vegetation for utility and transportation maintenance, ground disturbance associated with utility maintenance and the establishment of seasonal fire breaks, and the accidental release of vehicle oils and fuels that could alter the species composition of this natural community.

Mitigation for these impacts would be developed and implemented on a project-specific basis.

**NEPA Determination:** The permanent loss of 6,900 acres and temporary disturbance of 235 acres of grassland associated with Alternative 1, in the absence of a coordinated conservation effort, would be a significant impact.

**CEQA Determination:** The permanent loss of 6,900 acres and temporary disturbance of 235 acres of grassland associated with Alternative 1, in the absence of a coordinated conservation effort, would constitute a significant and unavoidable impact through the substantial loss of a natural community in the Plan Area.

**Impact BIO-3: Effects on aquatic/wetland complex (NEPA: less than significant; CEQA: less than significant)**

Under Alternative 1, development associated with implementation of the Placer County and City of Lincoln general plans would result in approximately 260 acres (9% of this community in the Plan Area) of permanent impacts and approximately 105 acres of temporary impacts on aquatic/wetland complex.
Operations and maintenance activities associated with transportation, wastewater programs, water supply, solid waste management, and utilities in and adjacent to aquatic/wetland complex could result in the inadvertent introduction of invasive plant species, removal and trimming of vegetation for utility and transportation maintenance, ground disturbance associated with utility maintenance and the establishment of seasonal fire breaks, and the accidental release of vehicle oils and fuels that could alter the species composition of this natural community.

Mitigation for these impacts would be developed and implemented on a project-specific basis pursuant to the CWA, as well as ESA and CESA where applicable. The CWA requires a no net loss of wetland/waters functions and services.

NEPA Determination: The permanent loss of 260 acres and temporary disturbance of 105 acres of aquatic/wetland complex associated with Alternative 1 would be adverse. In light of the regulatory permitting requirements for aquatic/wetland complex, which require no net loss of wetland/waters functions and services, the effects of Alternative 1 would be likely reduced to a less than significant level.

CEQA Determination: The permanent loss of 260 acres and temporary disturbance of 105 acres of aquatic/wetland complex associated with Alternative 1 would be a significant impact. Compliance with regulatory permitting requirements for protected wetlands and waters, which require no net loss of wetland/waters functions and services, would likely reduce the impacts of Alternative 1 to a less-than-significant level.

Impact BIO-4: Effects on riverine/riparian complex (NEPA: less than significant; CEQA: less than significant)

Under Alternative 1, development associated with implementation of the Placer County and City of Lincoln general plans would result in approximately 490 acres (9% of this community in the Plan Area) of permanent impacts and approximately 165 acres of temporary impacts on riverine/riparian complex.

Operations and maintenance activities associated with transportation, wastewater programs, water supply, solid waste management, and utilities in and adjacent to riverine/riparian complex could result in the inadvertent introduction of invasive plant species, removal and trimming of vegetation for utility and transportation maintenance, ground disturbance associated with utility maintenance and the establishment of seasonal fire breaks, and the accidental release of vehicle oils and fuels that could alter the species composition of this natural community.

Mitigation for these impacts would be developed and implemented on a project-specific basis pursuant to the CWA and Fish and Game Code Sections 1600-1603, as well as ESA and CESA where applicable. The CWA requires a no net loss of wetland/waters functions and services.

NEPA Determination: The permanent loss of 490 acres and temporary disturbance of 165 acres of riverine/riparian complex associated with Alternative 1 would constitute a significant impact. In light of the regulatory permitting requirements for riverine/riparian complex, which typically require no net loss of riverine functions and services and mitigation for effects on riparian vegetation, the effects of Alternative 1 would be likely reduced to a less-than-significant level.

CEQA Determination: The permanent loss of 490 acres and temporary disturbance of 165 acres of riverine/riparian complex associated with Alternative 1 would be a significant impact. In light of the regulatory permitting requirements for riverine/riparian complex, which typically require no net
loss of riverine functions and services and mitigation for effects on riparian vegetation, the effects of Alternative 1 would likely be reduced to a less-than-significant level.

**Impact BIO-5: Effects on oak woodland (NEPA: significant and unavoidable; CEQA: significant and unavoidable)**

Under Alternative 1, development associated with implementation of the Placer County and City of Lincoln general plans would result in approximately 6,210 acres (12% of this community in the Plan Area) of permanent impacts and approximately 180 acres of temporary impacts on oak woodland.

Operations and maintenance activities associated with transportation, wastewater programs, water supply, solid waste management, and utilities in and adjacent to oak woodland could result in the inadvertent introduction of invasive plant species, removal and trimming of vegetation for utility and transportation maintenance, ground disturbance associated with utility maintenance and the establishment of seasonal fire breaks, and the accidental release of vehicle oils and fuels that could alter the species composition of this natural community.

Mitigation for these impacts would be developed and implemented on a project-specific basis under CEQA subject to the related ordinances of the City of Lincoln and Placer County.

**NEPA Determination:** The permanent loss of 6,210 acres and temporary disturbance of 180 acres of oak woodland associated with Alternative 1, in the absence of a coordinated conservation effort, a coordinated and connected reserve system, implementation of the avoidance and minimization measures, and implementation of the conditions on Covered Activities (see Chapter 8 of the Plan for a detailed account of all measures), would be a significant impact.

**CEQA Determination:** The permanent loss of 6,210 acres and temporary disturbance of 180 acres of oak woodland associated with Alternative 1, in the absence of a coordinated conservation effort, a coordinated and connected reserve system, implementation of the avoidance and minimization measures, and implementation of the conditions on Covered Activities (see Chapter 8 of the Plan for a detailed account of all measures), would constitute a significant and unavoidable impact through the substantial loss of a natural community in the Plan Area.

**Impact BIO-6: Effects on valley oak woodland (NEPA: significant and unavoidable; CEQA: significant and unavoidable)**

Under Alternative 1, development associated with implementation of the Placer County and City of Lincoln general plans would result in approximately 140 acres (10% of this community in the Plan Area) of permanent impacts and approximately 25 acres of temporary impacts on valley oak woodlands in the Plan Area.

Operations and maintenance activities associated with transportation, wastewater programs, water supply, solid waste management, and utilities in and adjacent to valley oak woodland could result in the inadvertent introduction of invasive plant species, removal and trimming of vegetation for utility and transportation maintenance, ground disturbance associated with utility maintenance and the establishment of seasonal fire breaks, and the accidental release of vehicle oils and fuels that could alter the species composition of this natural community.

Mitigation for these impacts would be developed and implemented on a project-specific basis under CEQA subject to the related ordinances of the City of Lincoln and Placer County.
**NEPA Determination:** The permanent loss of 140 acres and temporary disturbance of 25 acres of valley oak woodland associated with Alternative 1, in the absence of a coordinated conservation effort, a coordinated and connected reserve system, implementation of the avoidance and minimization measures, and implementation of the conditions on Covered Activities (see Chapter 8 of the Plan for a detailed account of all measures), would be a significant impact.

**CEQA Determination:** The permanent loss of 140 acres and temporary disturbance of 25 acres of valley oak woodland associated with Alternative 1, in the absence of a coordinated conservation effort, a coordinated and connected reserve system, implementation of the avoidance and minimization measures, and implementation of the conditions on Covered Activities (see Chapter 8 of the Plan for a detailed account of all measures), would constitute a significant and unavoidable impact through the substantial loss of a natural community in the Plan Area.

**Special-Status Plants**

**Impact BIO-7: Effects on special-status plants in vernal pool habitats (NEPA: significant and unavoidable; CEQA: significant and unavoidable)**

Several special-status plant species that grow in vernal pools are known to occur in the Plan Area region: dwarf downingia, Boggs Lake hedge-hyssop, hogwallow starfish, Ahart's dwarf rush, Red Bluff dwarf rush, legenere, pincushion navarretia, and adobe navarretia. There are known occurrences in the Plan Area for all these species. Table 4.3-1 shows the numbers of these recorded occurrences in each Plan Area component (California Department of Fish and Wildlife 2017; Consortium of California Herbaria 2017a; Preston pers. comm.).

Development in the Plan Area would result in permanent and temporary impacts on vernal pool habitat for special-status plants. Plan Area A includes 45,065 acres of vernal pool complex that are potential habitat for these species. In the Valley portion of the Plan Area, permanent impacts would total 570 acres of vernal pool–type wetland habitat within 12,400 acres of vernal pool complex (approximately 28% of the vernal pool complex community in Plan Area A). These impacts would result primarily from urban/suburban development, transportation projects, and infrastructure projects. Known occurrences of dwarf downingia (three) and pincushion navarretia (one) could be removed as a result of such projects. In Plan Area B, development in non-participating cities would result in 10 acres of permanent impacts on vernal pool-type wetlands. Known extant occurrences of dwarf downingia (nine), Boggs Lake hedge-hyssop (two), and legenere (one) could be removed as a result of these development activities. One occurrence of Red Bluff dwarf rush could also be affected; however, this record of the species is questionable and may be due to a misidentification of another species as Red Bluff dwarf rush. Additional undiscovered occurrences of special-status vernal pool plants could be removed in the Plan Area as a result of project construction in Plan Areas A and B.
Table 4.3-1. Known Occurrences of Special-Status Plant Species in Vernal Pool Habitats in Plan Area

<table>
<thead>
<tr>
<th>Species</th>
<th>Valley PFG</th>
<th>Plan Area B</th>
<th>Existing Reserve Area</th>
<th>Reserve Acquisition Area</th>
<th>Total # of Occurrences in Plan Area&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Total # of Occurrences in California&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dwarf downingia</td>
<td>3</td>
<td>11 (2)</td>
<td>3 (1)</td>
<td>4</td>
<td>21 (3)</td>
<td>126 (8)</td>
</tr>
<tr>
<td>Boggs Lake hedge-hyssop</td>
<td>0</td>
<td>3 (1)</td>
<td>1</td>
<td>0</td>
<td>4 (1)</td>
<td>94 (3)</td>
</tr>
<tr>
<td>Hogwallow starfish</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>175&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Ahart’s dwarf rush</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>13 (1)</td>
</tr>
<tr>
<td>Red Bluff dwarf rush&lt;sup&gt;c&lt;/sup&gt;</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>56(4)</td>
</tr>
<tr>
<td>Legenera</td>
<td>0</td>
<td>2 (1)</td>
<td>0</td>
<td>1</td>
<td>3 (1)</td>
<td>78 (8)</td>
</tr>
<tr>
<td>Pincushion navarretia</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>14</td>
</tr>
<tr>
<td>Adobe navarretia</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2&lt;sup&gt;b&lt;/sup&gt;</td>
<td>57</td>
</tr>
</tbody>
</table>

Note: Numbers in () are the number of occurrences that are extirpated or possibly extirpated.

<sup>a</sup> Sources: California Department of Fish and Wildlife 2017; Consortium of California Herbaria 2017a; Preston pers. comm.

<sup>b</sup> CRPR 4 species in this table are not recorded in the CNDDB, and the numbers of occurrences are based on the number of specimen records in the Consortium of California Herbaria (2017a), except for the single occurrence of hogwallow starfish in the RAA (Preston pers. comm.). Individual herbaria records do not necessarily correspond to what would be recorded as individual occurrences in the CNDDB, collections from the same location may be in more than one herbarium and be counted as more than one record, and the records do not include reviews for locations that may be extirpated. The occurrence numbers of CRPR 4 species in California, therefore, are included for context but should not be interpreted as absolute.

<sup>c</sup> Red Bluff dwarf rush occurs in mesic areas, including edges of vernal pools and wet areas in woodland habitats, and is, therefore, listed in both Table 4.3-1 and Table 4.3-2. Note that this occurrence in the CNDDB is in question and may be due to a misidentification of another species as Red Bluff dwarf rush. Because this record remains in the CNDDB and has not been resolved, it is included here.

An additional 100 acres of vernal pool complex would be permanently affected in the Foothills portion of the Plan Area, although there are no recorded occurrences of special-status vernal pool plant species in this area.

Temporary impacts of development activities on vernal pool wetland habitat for special-status plants would not exceed 25 acres in the Valley portion of the Plan Area and 5 acres in Plan Area B. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction.

Indirect impacts on vernal pool communities and wetland habitat in the Plan Area that support special-status plants could result from construction activities, such as grading and removal of vegetation. These activities could adversely affect habitat function for special-status plants by altering the topography and hydrology that supports vernal pools and wetland habitat.

Under Alternative 1, mitigation for impacts that affect occurrences and habitat of special-status vernal pool plants would be developed and implemented on a project-specific basis. Because no regional conservation strategy, conservation measures, or conditions on Covered Activities would be implemented, there would be no potential impacts on these species associated with vernal pool...
NEPA Determination: Implementation of Alternative 1 could result in the loss of extant occurrences of special-status plants, including up to 12 occurrences of dwarf downingia, 2 occurrences of Boggs Lake hedge-hyssop, 1 potential occurrence of Red Bluff dwarf rush, 1 occurrence of legenere, 1 occurrence of pincushion navarretia, and 1 occurrence of adobe navarretia. Alternative 1 would also permanently remove up to 580 acres of vernal pool–type wetland habitat for special-status plants in the Plan Area. No compensation for these impacts is specified under Alternative 1, but the impacts would be mitigated on a project-specific basis. Loss of vernal pool habitat and occurrences of special-status plants, in the absence of a coordinated conservation effort, a coordinated and connected reserve system, implementation of the avoidance and minimization measures, and implementation of the conditions on Covered Activities (see Chapter 8 of the Plan for a detailed account of all measures), would constitute a significant impact on special-status vernal pool species.

CEQA Determination: Implementation of Alternative 1 could result in the loss of extant occurrences of special-status plants, including up to 12 occurrences of dwarf downingia, 2 occurrences of Boggs Lake hedge-hyssop, 1 potential occurrence of Red Bluff dwarf rush, 1 occurrence of legenere, 1 occurrence of pincushion navarretia, and 1 occurrence of adobe navarretia. Alternative 1 would also permanently remove up to 580 acres of vernal pool–type wetland habitat for special-status plants in the Plan Area. No compensation for these impacts is specified under Alternative 1, but the impacts would be mitigated on a project-specific basis. Loss of vernal pool habitat and occurrences of special-status plants, in the absence of a coordinated conservation effort, a coordinated and connected reserve system, implementation of the avoidance and minimization measures, and implementation of the conditions on Covered Activities (see Chapter 8 of the Plan for a detailed account of all measures), would constitute a significant and unavoidable impact.

Impact BIO-8: Effects on special-status plants in oak woodland habitats (NEPA: significant and unavoidable; CEQA: significant and unavoidable)

Oak woodland habitats, as discussed here, include the oak–foothill pine and chaparral land cover types included in the oak woodland natural community, as well as valley oak woodland. Several special-status plant species that grow in oak woodland habitats are known to occur in the Plan Area region: big-scale balsamroot, Brandegee’s clarkia, stinkbells, Butte County fritillary, Red Bluff dwarf rush, dubious pea, hoary navarretia, streambank spring beauty, and sylvan microseris. There are recorded occurrences in the Plan Area for all these species except streambank spring beauty and sylvan microseris. Occurrences of streambank spring beauty occur near but outside of the PCWA operations and maintenance component of the Plan Area. Table 4.3-2 shows the numbers of these recorded occurrences in each Plan Area component (California Department of Fish and Wildlife 2017; Consortium of California Herbaria 2017b, 2017c, 2017d).
Table 4.3-2. Known Occurrences of Special-Status Plant Species in Oak Woodland Habitats in the Plan Area

<table>
<thead>
<tr>
<th>Species</th>
<th>Valley PFG</th>
<th>Foothills PFG</th>
<th>Plan Area B</th>
<th>Existing Reserve Area</th>
<th>Reserve Acquisition Area</th>
<th>PCWA O&amp;M</th>
<th>Total # of Occurrences in Plan Area a</th>
<th>Total # of Occurrences in California b</th>
</tr>
</thead>
<tbody>
<tr>
<td>Big-scale balsamroot</td>
<td>1 (1)</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>43 (2)</td>
<td></td>
</tr>
<tr>
<td>Brandegee's clarkia</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>89</td>
<td></td>
</tr>
<tr>
<td>Streambank spring beauty</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>75 b</td>
<td></td>
</tr>
<tr>
<td>Stinkbells</td>
<td>0</td>
<td>0</td>
<td>(1)</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>32 (2)</td>
<td></td>
</tr>
<tr>
<td>Butte County fritillary</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>235 (1)</td>
<td></td>
</tr>
<tr>
<td>Red Bluff dwarf rush c</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>56 (4)</td>
<td></td>
</tr>
<tr>
<td>Dubious pea</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Sylvan microseris</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>212 b</td>
<td></td>
</tr>
<tr>
<td>Hoary navarretia</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>76 b</td>
<td></td>
</tr>
</tbody>
</table>

Note: Numbers in () are the number of the total occurrences that are extirpated or possibly extirpated. O&M = operations and maintenance.

- Sources: California Department of Fish and Wildlife 2017; Consortium of California Herbaria 2017b, 2017c, 2017d.

- Most CRPR 4 species in this table, with the exception of Brandegee's clarkia, are not recorded in the CNDDDB; therefore, numbers of occurrences are based on information in the Consortium of California Herbaria (2017b, 2017c, 2017d). Individual herbaria records do not necessarily correspond to what would be recorded as individual occurrences in the CNDDDB, collections from the same location may be in more than one herbarium and be counted as more than one record, and the records do not include reviews for locations that may be extirpated. The total occurrence numbers of CRPR 4 species in California, therefore, are included for context but should not be interpreted as absolute.

- Note that this occurrence in the CNDDDB is in question and may be due to a misidentification of another species as Red Bluff dwarf rush. Because this record remains in the CNDDDB and has not been resolved, it is included here.

Development activities under Alternative 1 would result in permanent and temporary impacts on oak woodland habitat for special-status plants. Plan Area A includes 52,234 acres of oak woodland habitats that are potential habitat for these species. In the Valley portion of the Plan Area, permanent impacts would total 1,140 acres of oak woodland habitats (approximately 2% of total in Plan Area A). Known occurrences of big-scale balsamroot (one) and Brandegee's clarkia (four) in the Valley portion could be removed as a result of individual projects. In the Foothill portion, permanent impacts would total 5,200 acres of oak woodland habitats (approximately 10% of total oak woodland in Plan Area A); however, no extant occurrences of special-status plants are recorded in the Foothill Potential Future Growth Area (PFG). Impacts in Plan Area A would result primarily from urban/suburban development, transportation projects, and infrastructure projects. In Plan Area B, development activities in non-participating cities would result in impacts on a total of 20 acres of oak woodland habitats. Known occurrences of big-scale balsamroot, Brandegee’s clarkia, and dubious pea (one occurrence each) could be removed as a result of these activities. One occurrence of Red Bluff dwarf rush could also be affected; however, this record of the species is questionable and may be due to a misidentification of another species as Red Bluff dwarf rush. Additional undiscovered occurrences of special-status plants could be removed by project construction in Plan Areas A and B.
Temporary impacts of development activities on oak woodland habitats for special-status plants would not exceed 55 acres in the Valley portion of the Plan Area, 140 acres in the Foothill portion, and 10 acres in Plan Area B. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction.

Indirect impacts on oak woodland habitats that support special-status plants could result from construction activities in the Plan Area, such as grading and removal of vegetation. These activities could adversely affect habitat function for special-status plants by altering the topography and hydrology in these habitats.

Under Alternative 1, mitigation for impacts that affect occurrences of and habitat for special-status plants in oak woodlands would be developed and implemented on a project-specific basis. Because no regional conservation strategy, conservation measures, or conditions on Covered Activities would be implemented, there would be no potential impacts on these species associated with oak woodland restoration or creation activities, but there would also be no beneficial effects on special-status species in oak woodlands from managing and enhancing preserved oak woodland habitats.

**NEPA Determination:** Implementation of Alternative 1 could result in the loss of up to two occurrences of big-scale balsamroot, five occurrences of Brandegee’s clarkia, one potential occurrence of Red Bluff dwarf rush, and one occurrence of dubious pea. Alternative 1 would also result in the permanent removal of up to 6,350 acres of oak woodland habitats for special-status plants in the Plan Area. No compensation for these impacts is specified under Alternative 1, but the impacts would be mitigated on a project-specific basis. Loss of oak woodland habitats and occurrences of special-status plants, in the absence of a coordinated conservation effort, a coordinated and connected reserve system, implementation of the avoidance and minimization measures, and implementation of the conditions on Covered Activities (see Chapter 8 of the Plan for a detailed account of all measures), would constitute a significant impact on special-status species in oak woodlands.

**CEQA Determination:** Implementation of Alternative 1 could result in the loss of up to two occurrences of big-scale balsamroot, five occurrences of Brandegee’s clarkia, one potential occurrence of Red Bluff dwarf rush, and one occurrence of dubious pea. Alternative 1 would also result in the permanent removal of up to 6,350 acres of oak woodland habitats for special-status plants in the Plan Area. No compensation for these impacts is specified under Alternative 1, but the impacts would be mitigated on a project-specific basis. Loss of oak woodland habitats and occurrences of special-status plants, in the absence of a coordinated conservation effort, a coordinated and connected reserve system, implementation of the avoidance and minimization measures, and implementation of the conditions on Covered Activities (see Chapter 8 of the Plan for a detailed account of all measures), would constitute a significant and unavoidable impact.

**Impact BIO-9: Effects on special-status plants in grassland habitats (NEPA: significant and unavoidable; CEQA: significant and unavoidable)**

Several special-status plant species that occur in annual grasslands and vernal pool complex uplands are known to occur in the Plan Area region: big-scale balsamroot, hispid bird’s-beak, stinkbells, Red Bluff dwarf rush, sylvan microseris, and hoary navarretia. With the exception of hispid bird’s-beak, which would only occur in grassland or vernal pool upland habitat in the Plan Area, all these species also occur in oak woodland and chaparral habitats, as discussed in Impact BIO-8. There are recorded
occurrences in the Plan Area for all these species. Table 4.3-2 shows the numbers of these recorded occurrences in each Plan Area component; a single occurrence of hispid bird’s-beak is recorded in an existing preserve in Plan Area B (California Department of Fish and Wildlife 2017; Consortium of California Herbaria 2017c, 2017d).

Development activities under Alternative 1 would result in permanent and temporary impacts on grassland habitats for special-status plants. Plan Area A includes 21,887 acres mapped as grassland, as well as the upland portion of 45,065 acres mapped as vernal pool complex. Pasture is not included in this analysis as potential special-status plant habitat, because it is a managed habitat with almost no native plant species. Permanent impacts in the Valley portion of the Plan Area would total 3,500 acres of grassland habitat (approximately 15% of this community in Plan Area A) and 11,830 acres of vernal pool complex upland (approximately 26% of total vernal pool complex in Plan Area A). A known occurrence of big-scale balsamroot in the Valley portion of the Plan Area could be removed by anticipated projects. Permanent impacts in the Foothill portion would total 3,300 acres of grassland habitat (approximately 15% of the community in Plan Area A) and 100 acres of vernal pool complex upland (approximately 0.2% of total vernal pool complex in Plan Area A); however, no extant occurrences of special-status plants are recorded in the Foothill portion. Impacts in Plan Area A would result primarily from urban/suburban development, transportation projects, and infrastructure projects. In Plan Area B, permanent impacts from development activities in non-participating cities would affect 100 acres of grassland habitat and 40 acres of vernal pool complex upland. One known occurrence of big-scale balsamroot could be removed as a result of these activities. One occurrence of Red Bluff dwarf rush could also be affected; however, this record of the species is questionable and may be due to a misidentification of another species as Red Bluff dwarf rush. Additional undiscovered occurrences of special-status plants could be removed in the Plan Area as a result of project construction in Plan Areas A and B.

Temporary impacts of development activities on grassland habitat for special-status plants would not exceed 125 acres in the Valley portion of the Plan Area, 90 acres in the Foothill portion, and 20 acres in Plan Area B. Temporary impacts of such activities on vernal pool complex upland would not exceed 410 acres in the Valley Portion of the Plan area, 10 acres in the Foothill portion, and 5 acres in Plan Area B. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction.

Indirect impacts on grassland and vernal pool complex upland habitats that support special-status plants could result from construction activities such as grading and removal of vegetation. These activities could adversely affect habitat function for special-status plants by altering the topography and hydrology in grasslands and uplands surrounding vernal pools.

Under Alternative 1, mitigation for impacts that affect occurrences of and habitat for special-status plants in grasslands and vernal pool uplands would be developed and implemented on a project-specific basis. Because no regional conservation strategy, conservation measures, or conditions on Covered Activities would be implemented, there would be no potential impacts on these species associated with grassland or vernal pool upland restoration or creation activities, but there would also be no beneficial effects on special-status species in grassland or vernal pool upland from managing and enhancing preserved habitats.

**NEPA Determination:** Implementation of Alternative 1 could result in the loss of up to two occurrences of big-scale balsamroot and one potential occurrence of Red Bluff dwarf rush.
Alternative 1 would also result in the permanent removal of up to 6,900 acres of grassland and the upland portion of the 12,550 acres of vernal pool complex that are habitats for special-status plants in the Plan Area. No compensation for these impacts is specified under Alternative 1, but the impacts would be mitigated on a project-specific basis. Loss of grassland and vernal pool upland habitats and occurrences of special-status plants, in the absence of a coordinated conservation effort, a coordinated and connected reserve system, implementation of the avoidance and minimization measures, and implementation of the conditions on Covered Activities (see Chapter 8 of the Plan for a detailed account of all measures), would constitute a significant impact.

**CEQA Determination:** Implementation of Alternative 1 could result in the loss of up to two occurrences of big-scale balsamroot and one potential occurrence of Red Bluff dwarf rush. Alternative 1 would also result in the permanent removal of up to 6,900 acres of grassland and the upland portion of the 12,550 acres of vernal pool complex that are habitats for special-status plants in the Plan Area. No compensation for these impacts is specified under Alternative 1, but the impacts would be mitigated on a project-specific basis. Loss of grassland and vernal pool upland habitats and occurrences of special-status plants would constitute a significant and unavoidable impact.

**Impact BIO-10: Effects on special-status plants in fresh emergent marsh and riverine habitats (NEPA: significant and unavoidable; CEQA: significant and unavoidable)**

One special-status plant species that grows in fresh emergent marsh and slow-moving riverine habitats (Sanford's sagittaria) has potential to occur in the Plan Area region. Although the Plan Area is within the range of Sanford's sagittaria and supports suitable habitat for the species, there are no currently known occurrences in the Plan Area (California Department of Fish and Wildlife 2017).

Development activities under Alternative 1 would result in permanent and temporary impacts on marsh and riverine habitat for special-status plants. Potential habitats for these species in Plan Area A include 1,112 acres of marsh and 868 acres of riverine, a portion of which would be suitable habitat for Sanford's sagittaria. Permanent impacts in the Valley portion of the Plan Area would total 50 acres of fresh emergent marsh habitat (approximately 4% of this community in Plan Area A) and 80 acres of riverine habitat (approximately 9% of this community in Plan Area A). Permanent impacts in the Foothill portion would total 50 acres of fresh emergent marsh habitat (approximately 4% of this community in Plan Area A) and 30 acres of riverine habitat (approximately 3% of this community in Plan Area A). Impacts in Plan Area A would result primarily from urban/suburban development, transportation projects, and infrastructure projects. In Plan Area B, permanent impacts of development activities in non-participating cities would total 5 acres of fresh emergent marsh habitat and 5 acres of riverine habitat. No known occurrences of special-status plants associated with marsh or riverine habitats would be removed as a result of the projects; however, currently undiscovered occurrences of special-status plants could be removed in the Plan Area as a result of project construction in Plan Areas A and B.

Temporary impacts of development activities on fresh emergent marsh habitat for special-status plants would not exceed 25 acres in the Valley portion of the Plan Area, 15 acres in the Foothill portion, and 10 acres in Plan Area B. Temporary impacts on riverine habitat for special-status plants would not exceed 30 acres in the Valley portion of the Plan Area, 10 acres in the Foothill portion, and 10 acres in Plan Area B. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction.
Indirect impacts on fresh emergent marsh and riverine habitats that are suitable for special-status plants could result from construction activities, such as grading and removal of vegetation. These activities could adversely affect habitat function for special-status plants by altering the topography and hydrology that supports these habitats.

Under Alternative 1, mitigation for impacts that affect habitat for special-status plants in fresh emergent marsh and riverine habitats would be developed and implemented on a project-specific basis. Because no regional conservation strategy, conservation measures, or conditions on Covered Activities would be implemented, there would be no potential impacts on these species associated with fresh emergent marsh or riverine restoration or creation activities, but there would also be no beneficial effects on special-status species in these habitats from managing and enhancing preserved habitats. However, no special-status plants associated with fresh emergent marsh or riverine habitats are known to occur in the Plan Area and the amount of loss of these habitats would be a small percentage of the total community present in the Plan Area.

**NEPA Determination:** Implementation of Alternative 1 could affect currently undiscovered occurrences of special-status plants in freshwater emergent marsh and riverine habitats. Alternative 1 would also result in the permanent removal of up to 105 acres of fresh emergent marsh and 115 acres of riverine habitats for special-status plants in the Plan Area. No compensation for these impacts is specified under Alternative 1, and the impacts would be mitigated on a project-specific basis. Because of the uncertainty of adequately mitigating an impact of this extent in the absence of a regional conservation strategy, the impact on special-status species in emergent marsh and riverine habitats would be significant and unavoidable.

**CEQA Determination:** Implementation of Alternative 1 could affect currently undiscovered occurrences of special-status plants in freshwater emergent marsh and riverine habitats. Alternative 1 would also permanently remove up to 105 acres of fresh emergent marsh and 115 acres of riverine habitats for special-status plants in the Plan Area. No compensation for these impacts is included under Alternative 1, and the impacts would be mitigated on a project-specific basis. Because of the uncertainty of adequately mitigating an impact of this extent in the absence of a regional conservation strategy, the impact on special-status species in emergent marsh and riverine habitats would be significant and unavoidable.

**Special-Status Fish and Wildlife**

**Impact BIO-11: Potential for construction and operation effects on Chinook salmon (fall-/late fall–run) and Central Valley steelhead (NEPA: less than significant; CEQA: less than significant)**

Alternative 1 would result in permanent direct effects on riparian woodland/riverine habitat totaling 490 acres: 480 acres in Plan Area A (9% of total riverine/riparian habitat in the Plan Area) and 10 acres in Plan Area B. Temporary direct effects would total 165 acres (3% of this community) in Plan Area A and 20 acres in Plan Area B. These direct impacts would result from road crossings (i.e., bridge work and culverts) and water supply, flood control, and stormwater management activities.

These activities could cause a permanent change in substrate composition and channel morphology in aquatic habitat; create a permanent loss of shallow-water habitat, riparian vegetation, and instream woody material; and change instream flows if water is diverted from streams and if woody material, including beaver dams, is removed from creeks that could benefit habitat for fish.
Construction activities could also have direct effects on fish; heavy equipment use in the active channel could kill or injure fish. Finally, these activities could result in localized alterations in channel form and patterns of erosion and sedimentation that over time could alter aquatic habitat structure and function from existing conditions.

Temporary effects on salmonid streams are expected to result from road crossings, water supply projects, flood control projects, and instream restoration activities. Impact mechanisms associated with these activities include accidental introduction of contaminants and sediment into flowing water and noise at individual project construction sites.

Permanent indirect effects resulting from transportation projects and urban and rural residential development include noise, visual disturbance, and ground vibrations that could cause Chinook salmon and steelhead to avoid suitable aquatic habitat. Vehicles on bridges can increase noise levels and the release of petroleum-based chemicals into waterways, in turn causing decreased spawning, migratory, and rearing success. An increase in the input of contaminants (e.g., petroleum-based chemicals, pesticides, heavy metals) to waterways could result from the presence of new impervious surfaces associated with residential development, transportation projects, and other facilities if runoff enters waterways. Contaminants can adversely affect fish directly through exposure or indirectly through adverse effects on food organisms (e.g., macroinvertebrates), including the bioaccumulation of toxic compounds in these organisms.

Designated critical habitat for Central Valley steelhead in the Plan Area occurs in Coon Creek, Doty Creek, Auburn Ravine, Secret Ravine, Miner’s Ravine, and Dry Creek. Approximately 1.24 miles (1.3% of total designated critical habitat in the Plan Area) could be permanently affected by bridge construction, water supply, flood control, and stormwater management activities.

Essential fish habitat (EFH) for Chinook salmon also occurs in the Plan Area. Construction and operation of the activities listed above would result in permanent effects on EFH.

Alternative 1 could result in adverse effects on Chinook salmon and steelhead and their critical habitat. Project proponents would apply for permits on a project-by-project basis. Because no regional conservation strategy, conservation measures, or conditions on Covered Activities would be implemented, there would be no potential impacts on these species associated with habitat restoration or creation activities, but there would also be no beneficial effects of a regional conservation strategy on special-status species.

**NEPA Determination:** The permanent loss of 490 acres and temporary disturbance of 185 acres of riparian woodland/riverine habitat associated with Alternative 1 would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. However, in view of the regulatory and permitting requirements for streams and riparian habitat, as well as the likelihood of future project-level mitigation measures, the effects on steelhead and Chinook salmon would be less than significant.

**CEQA Determination:** The permanent loss of 490 acres and temporary disturbance of 185 acres of riparian woodland/riverine habitat associated with Alternative 1 would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. However, in view of the regulatory and permitting requirements for streams and riparian habitat, as well as the likelihood of future project-level mitigation measures, the effects on steelhead and Chinook salmon would be less than significant.
Impact BIO-12: Potential for construction and operation effects on non-covered species (hardhead and Pacific lamprey) (NEPA: less than significant; CEQA: less than significant)

Alternative 1 would result in permanent direct effects on riparian woodland/riverine habitat totaling 490 acres: 480 acres in Plan Area A (9% of total riverine/riparian habitat in the Plan Area) and 10 acres in Plan Area B. Temporary direct effects would total 165 acres (3% of this community) in Plan Area A and 20 acres in Plan Area B. These direct impacts would result from road crossings (i.e., bridge work and culverts) and water supply, flood control, and stormwater management activities.

These activities could cause a permanent change in substrate composition and channel morphology in aquatic habitat; create a permanent loss of shallow-water habitat, riparian vegetation, and instream woody material; and change instream flows if water is diverted from streams and if woody material, including beaver dams, is removed from creeks that could benefit habitat for fish. Construction activities could also have direct effects on fish; heavy equipment use in the active channel could kill or injure fish. Finally, these activities could result in localized alterations in channel form and patterns of erosion and sedimentation that over time could alter aquatic habitat structure and function from existing conditions.

Temporary effects on streams are expected to result from road crossings, water supply projects, flood control projects, and instream restoration activities. Impact mechanisms associated with these activities include accidental introduction of contaminants and sediment into flowing water and noise at project construction sites.

Permanent indirect effects resulting from transportation projects and urban and rural residential development include noise, visual disturbance, and ground vibrations that could cause hardhead and Pacific Lamprey to avoid suitable aquatic habitat. Vehicles on bridges can increase noise levels and the release of petroleum-based chemicals into waterways, in turn causing decreased spawning, migratory, and rearing success. An increase in the input of contaminants (e.g., petroleum-based chemicals) to waterways could result from the presence of new impervious surfaces associated with residential development, transportation projects, and other facilities if runoff enters waterways. Contaminants can adversely affect fish directly through exposure or indirectly through adverse effects on food organisms (e.g., macroinvertebrates), including the bioaccumulation of toxic compounds in these organisms.

**NEPA Determination:** The permanent loss of 490 acres and temporary disturbance of 185 acres of riparian woodland/riverine habitat associated with Alternative 1 would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. However, in view of the regulatory and permitting requirements for streams and riparian habitat, as well as the likelihood of future project-level mitigation measures, the effects on hardhead and Pacific lamprey would be less than significant.

**CEQA Determination:** The permanent loss of 490 acres and temporary disturbance of 185 acres of riparian woodland/riverine habitat associated with Alternative 1 would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. However, in view of the regulatory and permitting requirements for streams and riparian habitat, as well as the likelihood of future project-level mitigation measures, the effects on hardhead and Pacific lamprey would be less than significant.
Impact BIO-13: Effects on valley elderberry longhorn beetle (NEPA: less than significant; CEQA: less than significant)

The CNDDB lists 12 occurrences of valley elderberry longhorn beetle in the Plan Area (California Department of Fish and Wildlife 2017). Appendix D, Species Accounts, of the Plan provides more detail on the status and distribution of the species throughout its range.

Alternative 1 would result in permanent and temporary impacts on valley elderberry longhorn beetle habitat. Permanent impacts would result in the loss of up to 630 acres of habitat (7% of 8,153 acres of habitat in the Plan Area), primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. These losses would almost entirely occur within the Valley portion of Plan Area A, with small losses (20 acres) in Plan Area B.

Temporary impacts on valley elderberry longhorn beetle habitat would not exceed 190 acres (2%) of habitat in the Plan Area. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction.

Indirect effects on valley elderberry longhorn beetle habitat include accumulation of dust on shrubs resulting from up-wind disturbances, flood control practices that could fragment habitat used by valley elderberry longhorn beetle, increased risk of wildfire, and the spread of invasive plants and animals that could affect the species.

Mitigation for these impacts would be developed and implemented on a project-specific basis.

NEPA Determination: The permanent loss of 630 acres and temporary disturbance to 190 acres of valley elderberry longhorn beetle habitat associated with Alternative 1 would constitute a potentially significant impact through habitat modification and potential direct mortality of a special-status species. However, in view of the federal protections for this species and the likely project-level mitigation, the effects of Alternative 1 on valley elderberry longhorn beetle would be less than significant.

CEQA Determination: The permanent loss of 630 acres and temporary disturbance to 190 acres of valley elderberry longhorn beetle habitat associated with Alternative 1 would constitute a potentially significant impact through habitat modification and potential direct mortality of a special-status species. However, in view of the federal protections for this species and the likely project-level mitigation, the effects of Alternative 1 on valley elderberry longhorn beetle would be less than significant.

Impact BIO-14: Effects on vernal pool branchiopods (NEPA: significant and unavoidable; CEQA: significant and unavoidable)

The CNDDB lists 1 occurrence of Conservancy fairy shrimp, 63 occurrences of vernal pool fairy shrimp, and 3 occurrences of vernal pool tadpole shrimp in the Plan Area (California Department of Fish and Wildlife 2017).

Alternative 1 would result in permanent and temporary impacts on vernal pool complex and wetland habitat for vernal pool branchiopods. Permanent impacts would result in the loss of up to 12,550 acres of vernal pool complex, supporting 580 acres of vernal pool-type wetlands (28% and 26% of these habitats in the Plan Area, respectively). These impacts would result primarily from
urban/suburban development, rural residential development, transportation projects, and infrastructure projects. These losses would be primarily in the Valley portion of Plan Area A, with small losses occurring in the Foothill portion (100 acres) and Plan Area B (50 acres).

Temporary impacts on vernal pool branchiopod habitat would not exceed 25 acres of vernal pool–type wetlands (1% of this habitat type in the Plan Area) and 455 acres of vernal pool complex (1%). These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction.

Indirect impacts on vernal pool complex could result from construction activities in the Plan Area, such as grading, trenching, changes to hydrology, and changes to topography. Indirect effects on vernal pools are generally considered to occur when ground-disturbing activities take place within 250 feet of a vernal pool—more specifically, when it can be demonstrated that the hydrology supporting a pool has been altered. Indirect effects on vernal pool complexes were estimated in the Plan at 1,979 acres. These indirect effects could adversely affect the functions and services of vernal pool–type wetlands and supporting uplands in vernal pool complexes. These effects could result from construction and maintenance of infrastructure associated with urban and rural development, installation and maintenance of utility lines, road improvements, drainage facility improvements, and flood control projects.

Mitigation for these impacts would be developed and implemented on a project-specific basis.

**NEPA Determination:** The permanent loss of up to 12,550 acres of vernal pool complex supporting up to 580 acres of vernal pool–type wetland and temporary disturbance of 25 acres of wetland habitat and 455 acres of vernal pool complex habitat associated with Alternative 1, in the absence of a coordinated conservation effort, a coordinated and connected reserve system, implementation of the avoidance and minimization measures, and implementation of the conditions on Covered Activities (see Chapter 8 of the Plan for a detailed account of all measures), would constitute a significant impact through habitat modification and potential direct mortality of a special-status species.

**CEQA Determination:** The permanent loss of up to 12,550 acres of vernal pool complex supporting up to 580 acres of vernal pool–type wetland and temporary disturbance of 25 acres of wetland habitat and 449 acres of vernal pool complex habitat associated with Alternative 1, in the absence of a coordinated conservation effort, a coordinated and connected reserve system, implementation of the avoidance and minimization measures, and implementation of the conditions on Covered Activities (see Chapter 8 of the Plan for a detailed account of all measures), would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. Because it is not certain that project-level mitigation measures would adequately address this effect, it is considered a significant and unavoidable impact.

**Impact BIO-15: Effects on California red-legged frog (NEPA: less than significant; CEQA: less than significant)**

The CNDDB lists three occurrences of California red-legged frog in one population in the Plan Area, near the town site of Michigan Bluff near Foresthill (California Department of Fish and Wildlife 2017). All these occurrences are limited to a conservation bank site (Big Gun Conservation Bank) that is being managed for California red-legged frog (Plan Area B5). There are no known occurrences in Plan Area A, B1, B2, B3, or B4.
Alternative 1 would result in permanent and temporary impacts on California red-legged frog habitat. Permanent development projects would result in the loss of up to 672 acres of aquatic breeding and foraging habitat (8% of a total 8,532 acres of aquatic habitat) and up to 8,551 acres of upland movement and refugia habitat (11% of 75,306 acres of modeled upland habitat) in the Foothill portion of Plan Area A. These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects.

Development projects would temporarily affect up to 168 acres of aquatic habitat and 214 acres of upland habitat in the Foothill portion of Plan Area A. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction.

Short-term construction-related effects on California red-legged frog include the generation of dust, which has the potential to interfere with the oxygen diffusion process and can transport toxic compounds that may affect frogs. Runoff from urban development and other construction activities could degrade the aquatic habitats that support this species. Additional indirect effects are expected to result from in-stream activities that could degrade aquatic habitat; habitat fragmentation as a result of urban and rural development and the construction of new roads and other infrastructure; and the introduction, establishment, and spread of invasive plants and predators (e.g., domestic pets, raccoons, coyotes, skunks, bullfrogs) that thrive in human-dominated environments. Because California red-legged frogs are not expected to occur in Plan Area A, indirect effects on the species are expected to be negligible, if any.

Mitigation for these impacts would be developed and implemented on a project-specific basis.

**NEPA Determination:** The permanent loss of 672 acres of aquatic habitat and 8,551 acres of upland habitat and temporary loss of 168 acres of aquatic habitat and 214 acres of upland for California red-legged frog associated with Alternative 1, in the absence of a coordinated conservation effort, a coordinated and connected reserve system, implementation of the avoidance and minimization measures, and implementation of the conditions on Covered Activities (see Chapter 8 of the Plan for a detailed account of all measures), would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. However, in view of the federal protections for this species and the likely project-level mitigation, the effects of Alternative 1 on California red-legged frog would be less than significant.

**CEQA Determination:** The permanent loss of 672 acres of aquatic habitat and 8,551 acres of upland habitat and temporary loss of 168 acres of aquatic habitat and 214 acres of upland for California red-legged frog associated with Alternative 1, in the absence of a coordinated conservation effort, a coordinated and connected reserve system, implementation of the avoidance and minimization measures, and implementation of the conditions on Covered Activities (see Chapter 8 of the Plan for a detailed account of all measures), would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. Considering the federal protections for this species and the likely project-level mitigation, the effects of Alternative 1 on California red-legged frog would be less than significant.
Impact BIO-16: Effects on foothill yellow-legged frog (NEPA: less than significant; CEQA: less than significant)

Although foothill yellow-legged frog is widely scattered in suitable riverine and riparian habitat throughout the foothills of Placer County, the CNDD lists no occurrences of this species in the Plan Area (California Department of Fish and Wildlife 2017). The nearest record slightly more than 3 miles from the eastern border of the Plan Area. Appendix D, Species Accounts, of the Plan provides more detail on the status and distribution of yellow-legged frog throughout its range and in Placer County.

Alternative 1 would result in permanent and temporary impacts on foothill yellow-legged frog habitat. Permanent impacts would result in the loss of up to 155 acres of foothill yellow-legged frog year-round habitat (8% of a total 1,837 acres of suitable habitat) in the Foothill portion of the Plan Area (i.e., streams above 500 feet). These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects.

Permanent development projects would temporarily affect up to 39 acres of year-round foothill yellow-legged frog habitat in the Plan Area (2% of a total 1,837 acres). These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction.

Short-term construction-related effects on foothill yellow-legged frog include the generation of dust, which has the potential to interfere with the oxygen diffusion process and can transport toxic compounds that may affect frogs. Runoff from urban development and other activities could degrade the aquatic habitats that support this species. Additional indirect effects are expected to result from in-stream activities that could degrade aquatic habitat; habitat fragmentation as a result of urban and rural development and the construction of new roads and other infrastructure; and the introduction, establishment, and spread of invasive plants and predators (e.g., domestic pets, raccoons, coyotes, skunks, bullfrogs) that thrive in human-dominated environments.

Mitigation for these impacts would be developed and implemented on a project-specific basis.

**NEPA Determination:** Alternative 1 would result in the permanent loss of up to 155 acres and temporary loss of up to 39 acres of habitat for foothill yellow-legged frog. In the absence of a coordinated conservation effort, a coordinated and connected reserve system, implementation of the avoidance and minimization measures, and implementation of the conditions on Covered Activities (see Chapter 8 of the Plan for a detailed account of all measures), this would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. However, in view of the Section 404/401 regulations, Streambed Alteration Agreements for streams that support this species, and the likely project-level mitigation, the effects of Alternative 1 on foothill yellow-legged frog would be less than significant.

**CEQA Determination:** Alternative 1 would result in the permanent loss of up to 155 acres and temporary loss of up to 39 acres of habitat for foothill yellow-legged frog. In the absence of a coordinated conservation effort, a coordinated and connected reserve system, implementation of the avoidance and minimization measures, and implementation of the conditions on Covered Activities (see Chapter 8 of the Plan for a detailed account of all measures), this would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. However, in view of the Section 404/401 regulations, Streambed Alteration Agreements for
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streams that support this species, and the likely project-level mitigation, the effects of Alternative 1 on foothill yellow-legged frog would be less than significant.

**Impact BIO-17: Effects on western spadefoot, a non-covered species (NEPA: significant and unavoidable; CEQA: significant and unavoidable)**

The CNDDDB lists five occurrences of western spadefoot in the Plan Area (California Department of Fish and Wildlife 2017).

Alternative 1 would result in permanent and temporary impacts on western spadefoot habitat. Permanent impacts would result in the loss of up to 20,200 acres of potential western spadefoot habitat: 12,550 acres of vernal pool complex that includes 580 acres of vernal pool–type wetlands, 6,900 acres of grassland, 260 acres of aquatic/wetland, and 490 acres of riverine/riparian. The majority of potential habitat is located in Plan Area A, and losses would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. This analysis may overestimate effects on spadefoot because the analysis is based on habitat types that may not be suitable in their entirety for spadefoot.

Development activities would temporarily affect up to 960 acres of potential western spadefoot habitat: 455 acres of vernal pool complex that includes 30 acres of vernal pool type wetlands, 235 acres of grassland, 105 acres of aquatic/wetland, and 165 acres of riverine/riparian. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction.

Recurring maintenance activities in the Plan Area may directly (through inadvertent mortality) and indirectly (through noise, visual disturbance, and ground vibrations) affect western spadefoot.

Permanent development within 500 feet of western spadefoot habitat could indirectly affect the species through increased vehicular traffic and the development of new roadways, causing mortalities; in-stream activities and runoff from developed areas that could degrade aquatic habitat; habitat fragmentation as a result of urban and rural development and the construction of new roads and other infrastructure; introduction, establishment, and spread of invasive plant and animal species; and increased predation rates, from domestic pets and invasive wildlife species.

Mitigation for these impacts would be developed and implemented on a project-specific basis.

**NEPA Determination:** The permanent loss of up to 20,200 acres and temporary disturbance to 960 acres of potential western spadefoot habitat associated with Alternative 1, in the absence of a coordinated conservation effort, a coordinated and connected reserve system, implementation of the avoidance and minimization measures, and implementation of the conditions on Covered Activities (see Chapter 8 of the Plan for a detailed account of all measures), would constitute a significant impact through habitat modification and potential direct mortality of a special-status species.

**CEQA Determination:** The permanent loss of up to 20,200 acres and temporary disturbance to 960 acres of potential western spadefoot habitat associated with Alternative 1, in the absence of a coordinated conservation effort, a coordinated and connected reserve system, implementation of the avoidance and minimization measures, and implementation of the conditions on Covered Activities (see Chapter 8 of the Plan for a detailed account of all measures), would constitute a significant impact through habitat modification and potential direct mortality of a special-status species.
species. Because it is not certain that project-level mitigation measures would adequately address this effect, it is considered a significant and unavoidable impact.

**Impact BIO-18: Effects on giant garter snake (NEPA: less than significant; CEQA: less than significant)**

A population of giant garter snake has been documented approximately 1.5–5 miles west and south of the Placer County line in the Sutter and Natomas Basins of Sutter and Sacramento Counties; the closest occurrence is recorded in the Natomas Basin of Sacramento County, approximately 1.5 miles southwest of the Placer County line (Figure 5-3 in the Plan). Appendix D, *Species Accounts*, of the Plan provides more detail on the status and distribution of the species throughout its range.

Alternative 1 would result in permanent and temporary impacts on aquatic and upland habitat for giant garter snake. Permanent impacts would result in the loss of up to 1,438 acres of aquatic habitat (7% of a total 19,511 acres of habitat in the Plan Area) and 483 acres of upland habitat (14% of a total 3,537 acres). These losses would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects, primarily in the Valley portion of Plan Area A, with small losses (49 acres) in Plan Area B.

Temporary impacts on giant garter snake habitat would not exceed 203 acres of aquatic habitat in the Plan Area (1% of total aquatic habitat) and 22 acres of upland habitat (1% of total upland habitat). These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction.

Indirect effects could result from construction and maintenance of infrastructure associated with urban and rural development and from changes in hydrology caused by land conversion. Additionally, in-stream activities such as installation and maintenance of utility lines, road improvements, drainage facility improvements, and flood control projects may indirectly affect giant garter snake.

Mitigation for these impacts would be developed and implemented on a project-specific basis.

**NEPA Determination:** The permanent loss of 1,438 acres of aquatic habitat and 483 acres of upland habitat and temporary disturbance to 203 acres of aquatic habitat and 22 acres of upland giant habitat associated with Alternative 1, in the absence of a coordinated conservation effort, a coordinated and connected reserve system, implementation of the avoidance and minimization measures, and implementation of the conditions on Covered Activities (see Chapter 8 of the Plan for a detailed account of all measures), would constitute a significant effect. However, in view of the federal protections for this species and the likely project-level mitigation, the effects of Alternative 1 on giant garter snake would be less than significant.

**CEQA Determination:** The permanent loss of 1,438 acres of aquatic habitat and 483 acres of upland habitat and temporary disturbance to 203 acres of aquatic habitat and 22 acres of upland giant habitat associated with Alternative 1, in the absence of a coordinated conservation effort, a coordinated and connected reserve system, implementation of the avoidance and minimization measures, and implementation of the conditions on Covered Activities (see Chapter 8 of the Plan for a detailed account of all measures), would constitute a significant effect. However, in view of the federal protections for this species and the likely project-level mitigation, the effects of Alternative 1 on giant garter snake would be less than significant.
**Impact BIO-19: Effects on western pond turtle (NEPA: less than significant; CEQA: less than significant)**

The CNDDB lists four occurrences of western pond turtle in the Plan Area (California Department of Fish and Wildlife 2017).

Alternative 1 would result in permanent and temporary impacts on western pond turtle aquatic and upland habitat. Permanent impacts would result in the loss of 750 acres of aquatic habitat (7% of a total 10,244 acres of aquatic habitat) and up to 1,407 acres of upland habitat for western pond turtle (10% of a total 14,263 acres of upland habitat) in the Plan Area. These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects, primarily in the Valley and Foothill portions of Plan Area A; small losses (20 acres) would occur in Plan Area B.

Temporary impacts on western pond turtle would not exceed 250 acres of aquatic habitat (2% of total aquatic habitat) and 40 acres of upland habitat (less than 1% of total upland habitat). These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction.

Indirect effects are expected to result from increased vehicular traffic and the development of new roadways, causing mortalities; in-stream activities and runoff from developed areas that could degrade aquatic habitat; habitat fragmentation as a result of urban and rural development and the construction of new roads and other infrastructure; introduction, establishment, and spread of invasive plant and animal species; and increased predation rates, particularly on eggs and young, by domestic pets and invasive wildlife species.

Mitigation for these impacts would be developed and implemented on a project-specific basis.

**NEPA Determination:** The permanent loss of 750 acres of aquatic habitat and 1,407 acres of upland habitat and the temporary disturbance of 250 acres of aquatic habitat and 40 acres of upland habitat associated with Alternative 1, in the absence of a coordinated conservation effort, a coordinated and connected reserve system, implementation of the avoidance and minimization measures, and implementation of the conditions on Covered Activities (see Chapter 8 of the Plan for a detailed account of all measures), would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. Because impacts on this special-status species would likely entail appropriate project-level mitigation, the effects of Alternative 1 on western pond turtle would be less than significant.

**CEQA Determination:** The permanent loss of 750 acres of aquatic habitat and 1,407 acres of upland habitat and the temporary disturbance of 250 acres of aquatic habitat and 40 acres of upland habitat associated with Alternative 1, in the absence of a coordinated conservation effort, a coordinated and connected reserve system, implementation of the avoidance and minimization measures, and implementation of the conditions on Covered Activities (see Chapter 8 of the Plan for a detailed account of all measures), would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. Because impacts on this special-status species would likely entail appropriate project-level mitigation, the effects of Alternative 1 on western pond turtle would be less than significant.
Impact BIO-20: Effects on coast horned lizard, a non-covered species (NEPA: less than significant; CEQA: less than significant)

The Plan Area is within the known range of coast horned lizard and contains suitable habitat; however, there are no CNDDB records for the species within the Plan Area (California Department of Fish and Wildlife 2017).

Alternative 1 would result in permanent and temporary impacts on coast horned lizard habitat. Permanent impacts would result in loss of 13,625 acres of natural communities that contain suitable habitat elements for coast horned lizard (e.g., open areas with sandy substrates): 6,900 acres of grasslands (20% of this community in the Plan Area), 6,350 acres of oak and valley oak woodland (12%), and 375 acres of riparian woodland (less than 8%). These losses would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects.

Development activities would temporarily affect up to 555 acres of habitat for coast horned lizard: 235 acres of grassland (1% of this community), 205 acres of valley oak and oak woodland (<1%), and 115 acres of riparian woodland (2%) in the Plan Area. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction.

Indirect effects are expected to result from increased vehicular traffic and the development of new roadways, causing mortalities; habitat fragmentation as a result of urban and rural development and the construction of new roads and other infrastructure; introduction, establishment, and spread of invasive plant and animal species; and increased predation rates, from domestic pets and invasive wildlife species. Recurring maintenance activities within the Plan Area, such as transportation facility maintenance, utility service facilities maintenance, and vegetation management, may periodically directly and indirectly affect coast horned lizard.

Mitigation for these impacts would be developed and implemented on a project-specific basis.

**NEPA Determination:** The permanent loss of 13,625 acres and temporary disturbance of 555 acres of potential coast horned lizard habitat, associated with Alternative 1, in the absence of a coordinated conservation effort, a coordinated and connected reserve system, implementation of the avoidance and minimization measures, and implementation of the conditions on Covered Activities (see Chapter 8 of the Plan for a detailed account of all measures), would constitute a potentially significant impact through habitat modification and potential direct mortality of a special-status species. However, in view of the likely project-level mitigation, the effects of Alternative 1 on coast horned lizard would be less than significant.

**CEQA Determination:** The permanent loss of 13,625 acres and temporary disturbance of 555 acres of potential coast horned lizard habitat, associated with Alternative 1, in the absence of a coordinated conservation effort, a coordinated and connected reserve system, implementation of the avoidance and minimization measures, and implementation of the conditions on Covered Activities (see Chapter 8 of the Plan for a detailed account of all measures), would constitute a potentially significant impact through habitat modification and potential direct mortality of a special-status species. However, in view of the likely project-level mitigation, the effects of Alternative 1 on coast horned lizard would be less than significant.
Impact BIO-21: Effects on Swainson's hawk (NEPA: significant and unavoidable; CEQA: significant and unavoidable)

The CNDDB lists 17 extant occurrences of Swainson's hawks nesting in the Plan Area, all in the Valley portion (California Department of Fish and Wildlife 2017).

Alternative 1 would result in permanent and temporary impacts on Swainson’s hawk. Permanent impacts would not exceed 149 acres of nesting habitat (8% of nesting habitat in Plan Area A) and 16,267 acres of foraging habitat (30% of suitable habitat). These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects.

Temporary impacts on Swainson’s hawk habitat would not exceed 10 acres of nesting habitat and 602 acres of foraging habitat. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, infrastructure construction, and conservation activities.

In addition to habitat losses, development activities have the potential to directly affect Swainson's hawk through injury and mortality. Construction-related activities would not be expected to result in direct mortality of adult or fledged Swainson’s hawks if they were present in or near such activities, because they would be expected to avoid contact with construction equipment. However, if Swainson's hawks were to nest in or near a construction area, construction-related activities, including equipment operation, noise, and visual disturbances could affect nests or lead to their abandonment, potentially resulting in mortality of eggs and nestlings.

Swainson’s hawk nesting and foraging behavior in the vicinity of proposed construction areas could be directly affected by construction activities. Construction noise above background noise levels (i.e., greater than 50 A-weighted decibels [dBA]) could extend 500–5,250 feet from the edge of construction activities. However, no data are available that identify the extent to which these noise levels could affect Swainson’s hawks. Effects associated with construction include noise and visual disturbance caused by grading, contouring, and other ground-disturbing operations outside the project footprint but within 500 feet of it. Construction and subsequent maintenance-related noise and visual disturbances could mask calls and disrupt foraging and nesting behaviors. The use of mechanical equipment during construction activities could cause the accidental release of petroleum or other contaminants that could affect Swainson’s hawk foraging habitat.

Indirect effects are expected to result from increased vehicular traffic associated with the development of new roadways, causing mortalities; habitat fragmentation as a result of urban and rural development and the construction of new roads and other infrastructure; introduction, establishment, and spread of invasive plant species.

Mitigation for these impacts would be developed and implemented on a project-specific basis.

NEPA Determination: The permanent loss of 149 acres of nesting habitat and 16,267 acres of foraging habitat and the temporary disturbance of 10 acres of nesting habitat and 602 acres of foraging habitat associated with Alternative 1, in the absence of a coordinated conservation effort, a coordinated and connected reserve system, implementation of the avoidance and minimization measures, and implementation of the conditions on Covered Activities (see Chapter 8 of the Plan for a detailed account of all measures), would constitute a significant impact.
**CEQA Determination:** The permanent loss of 149 acres of nesting habitat and 16,267 acres of foraging habitat and the temporary disturbance of 10 acres of nesting habitat and 602 acres of foraging habitat associated with Alternative 1, in the absence of a coordinated conservation effort, a coordinated and connected reserve system, implementation of the avoidance and minimization measures, and implementation of the conditions on Covered Activities (see Chapter 8 of the Plan for a detailed account of all measures), would constitute a significant and unavoidable through a substantial loss of habitat (9% nesting and 30% foraging) and fragmentation of foraging habitat.

**Impact BIO-22: Effects on California black rail (NEPA: less than significant; CEQA: less than significant)**

The CNDDB lists two extant occurrences of California black rail in the Plan Area: one in the Valley portion of Plan Area B and one in the Foothill portion of the RAA in Plan Area A (California Department of Fish and Wildlife 2017).

Alternative 1 would result in permanent and temporary impacts on California black rail. Permanent impacts would not exceed 105 acres (9% of suitable habitat Plan Area A). These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. The impacts would be roughly equally split between the Valley and Foothill portions, with a small amount (5 acres) in Plan Area B.

Temporary impacts on California black rail habitat are estimated at 41 acres. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction.

In addition to causing habitat losses, construction activities have the potential to directly affect California black rails through injury and mortality. Operation of construction equipment may cause injury to or mortality of individuals. Risk would be greatest to eggs and nestlings susceptible to land-clearing activities through nest abandonment and increased exposure to the elements or to predators. Construction activities could temporarily fragment existing California black rail habitat; grading, filling, contouring, and other ground-disturbing operations could temporarily reduce the extent and functions supported by the affected habitat.

California black rail nesting behavior in the vicinity of proposed construction areas could be directly affected by construction activities. Construction noise above background noise levels (greater than 50 dBA) could extend 500–5,250 feet from the edge of construction activities. However, no data are available that identify the extent to which these noise levels could affect California black rail. Effects associated with construction include noise, dust, and visual disturbance caused by grading, filling, contouring, and other ground-disturbing operations outside the project footprint but within 500 feet of it. Construction and subsequent maintenance-related noise and visual disturbances could mask calls, disrupt foraging and nesting behaviors, and reduce the functions of suitable nesting habitat for this species. The use of mechanical equipment during construction activities could cause the accidental release of petroleum or other contaminants that could affect black rails in the surrounding habitat. The inadvertent discharge of sediment or excessive dust adjacent to black rail habitat could also affect the species.

Indirect effects are expected to result from increased vehicular traffic associated with the development of new roadways, causing mortalities; runoff from developed areas that could degrade habitat; habitat fragmentation as a result of urban and rural development and the construction of
new roads and other infrastructure; introduction, establishment, and spread of invasive plant and animal species; and increased predation rates, particularly on eggs and young, from domestic pets and invasive wildlife species.

Mitigation for these impacts would be developed and implemented on a project-specific basis.

**NEPA Determination:** The permanent loss of 105 acres and the temporary disturbance of 41 acres of California black rail habitat associated with Alternative 1 would be a significant impact. Because California black rail is a fully protected species, meaning that take cannot be authorized, and in view of the regulatory permitting requirements for wetlands, which typically require no net loss of wetland/waters functions and services, the effects of Alternative 1 would be less than significant under the assumption that take of the species would be avoided and impacts on habitat would be fully mitigated.

**CEQA Determination:** The permanent loss of 105 acres and the temporary disturbance of 41 acres of California black rail habitat associated with Alternative 1 would be a significant impact. Because California black rail is a fully protected species, meaning that take cannot be authorized, and in view of the regulatory permitting requirements for wetlands, which typically require no net loss of wetland/waters functions and services, the effects of Alternative 1 would be less than significant under the assumption that take of the species would be avoided and impacts on habitat would be fully mitigated.

**Impact BIO-23: Effects on burrowing owl (NEPA: significant and unavoidable; CEQA: significant and unavoidable)**

The CNDDB lists four extant occurrences of burrowing owl in the Plan Area, all in the Valley portion (California Department of Fish and Wildlife 2017).

Alternative 1 would result in permanent and temporary impacts on burrowing owl. Permanent impacts would not exceed 16,444 acres of habitat (30% in of suitable habitat Plan Area A). These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. The impacts would occur almost entirely with the valley portion of Plan Area A, with a smaller amount (200 acres) occurring in Plan Area B.

Temporary impacts on burrowing owl habitat would not exceed at 609 acres. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction.

In addition to causing habitat losses, construction activities have the potential to directly affect individual burrowing owls through injury and mortality. Operation of construction equipment may cause injury to or mortality of burrowing owls. Risk would be greatest to eggs and nestlings susceptible to land-clearing activities through nest abandonment and increased exposure to the elements or to predators. Construction activities could temporarily fragment existing burrowing owl habitat: grading, filling, contouring, and other initial ground-disturbing operations could temporarily reduce the extent and functions supported by the affected habitat.

Burrowing owl nesting behavior in the vicinity of proposed construction areas could be directly affected by construction activities. Construction noise above background noise levels (greater than 50 dBA) could extend 500–5,250 feet from the edge of construction activities. However, no data are available that identify the extent to which these noise levels could affect burrowing owl. Effects
associated with construction include noise, dust, and visual disturbance caused by grading, filling, contouring, and other ground-disturbing operations outside the project footprint but within 500 feet of it. Construction and subsequent maintenance-related noise and visual disturbances could mask calls, disrupt foraging and nesting behaviors, and reduce the functions of suitable nesting habitat for this species. The use of mechanical equipment during construction activities could cause the accidental release of petroleum or other contaminants that could affect burrowing owls in the surrounding habitat. The inadvertent discharge of sediment or excessive dust adjacent to burrowing owl habitat could also affect the species.

Indirect effects are expected to result from increased vehicular traffic associated with the development of new roadways, causing mortalities; runoff from developed areas that could degrade habitat; habitat fragmentation as a result of urban and rural development and the construction of new roads and other infrastructure; introduction, establishment, and spread of invasive plant and animal species; and increased predation rates, particularly on eggs and young, from domestic pets and invasive wildlife species.

Mitigation for these impacts would be developed and implemented on a project-specific basis.

**NEPA Determination:** The permanent loss of 16,444 acres and the temporary disturbance of 609 acres of burrowing owl habitat associated with Alternative 1, in the absence of a coordinated conservation effort, a coordinated and connected reserve system, implementation of the avoidance and minimization measures, and implementation of the conditions on Covered Activities (see Chapter 8 of the Plan for a detailed account of all measures), would constitute a significant impact.

**CEQA Determination:** The permanent loss of 16,444 acres and the temporary disturbance of 609 acres of burrowing owl habitat associated with Alternative 1, in the absence of a coordinated conservation effort, a coordinated and connected reserve system, implementation of the avoidance and minimization measures, and implementation of the conditions on Covered Activities (see Chapter 8 of the Plan for a detailed account of all measures), would constitute a significant and unavoidable impact through substantial loss of habitat (30%), habitat fragmentation, and potential mortality of a special-status species. Because it is not certain that project-level mitigation measures would adequately address this effect, it is considered a significant and unavoidable impact.

**Impact BIO-24: Effects on tricolored blackbird (NEPA: significant and unavoidable; CEQA: significant and unavoidable)**

The CNDDB lists 14 extant occurrences of tricolored blackbird in the Plan Area, all but one of which occur in the Valley portion of the Plan Area (California Department of Fish and Wildlife 2017). The occurrence in the Foothills portion is at an elevation just above 300 feet. All the occurrences are either in the RAA or on existing reserves.

Alternative 1 would result in permanent and temporary impacts on tricolored blackbird. Permanent impacts are estimated at 782 acres of nesting habitat (18% of total habitat in Plan Area A) and 22,268 acres of foraging habitat (21% in Plan Area A). These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. Most of the impacts on nesting and foraging habitat (77% and 81%, respectively) would be in the Valley portion of the Plan Area.

Temporary impacts on tricolored blackbird habitat are estimated at 103 acres of nesting habitat and 836 acres of foraging habitat. These temporary impacts would be associated with urban/suburban
development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction.

In addition to causing habitat losses, construction activities have the potential to directly affect tricolored blackbirds through injury and mortality. Operation of construction equipment may cause injury to or mortality of tricolored blackbirds. Risk would be greatest to eggs and nestlings susceptible to land-clearing activities through nest abandonment or increased exposure to the elements and to predators. Injury to or mortality of adults and fledged juveniles would not be expected because individuals would be expected to avoid contact with construction equipment. Construction activities could temporarily fragment existing tricolored blackbird habitat: grading, filling, contouring, and other initial ground-disturbing operations could temporarily reduce the extent and functions supported by the affected habitat.

Tricolored blackbird nesting behavior in the vicinity of proposed construction areas could be directly affected by construction activities. Construction noise above background noise levels (greater than 50 dBA) could extend 500–5,250 feet from the edge of construction activities. However, no data are available that identify the extent to which these noise levels could affect tricolored blackbird. Effects associated with construction include noise, dust, and visual disturbance caused by grading, filling, contouring, and other ground-disturbing operations outside the project footprint but within 1,300 feet of it. Construction and subsequent maintenance-related noise and visual disturbances could mask calls, disrupt foraging and nesting behaviors, and reduce the functions of suitable nesting habitat for these species. The use of mechanical equipment during construction activities could cause the accidental release of petroleum or other contaminants that could affect tricolored blackbirds in the surrounding habitat. The inadvertent discharge of sediment or excessive dust adjacent to tricolored blackbird habitat could also affect the species.

Indirect effects are expected to result from increased vehicular traffic associated with the development of new roadways, causing mortalities; runoff from developed areas that could degrade habitat; habitat fragmentation as a result of urban and rural development and the construction of new roads and other infrastructure; introduction, establishment, and spread of invasive plant and animal species; and increased predation rates, particularly on eggs and young, from domestic pets and invasive wildlife species.

Mitigation for these impacts would be developed and implemented on a project-specific basis.

**NEPA Determination:** The permanent loss of 782 acres of nesting habitat and 22,268 acres of foraging habitat and the temporary disturbance of 103 acres of nesting habitat and 836 acres of foraging habitat associated with Alternative 1, in the absence of a coordinated conservation effort, a coordinated and connected reserve system, implementation of the avoidance and minimization measures, and implementation of the conditions on Covered Activities (see Chapter 8 of the Plan for a detailed account of all measures), would constitute a significant impact.

**CEQA Determination:** The permanent loss of 782 acres of nesting habitat and 22,268 acres of foraging habitat and the temporary disturbance of 103 acres of nesting habitat and 836 acres of foraging habitat associated with Alternative 1, in the absence of a coordinated conservation effort, a coordinated and connected reserve system, implementation of the avoidance and minimization measures, and implementation of the conditions on Covered Activities (see Chapter 8 of the Plan for a detailed account of all measures), would constitute a significant impact through substantial loss of habitat (18% nesting and 21% foraging) and potential mortality of a special-status species. Because
it is not certain that project-level mitigation measures would adequately address this effect, it is considered a significant and unavoidable impact.

Impact BIO-25: Effects on non-covered bats (NEPA: less than significant; CEQA: less than significant)

The CNDDB lists three occurrences of Townsend's big-eared bat and one occurrence of pallid bat in the Plan Area (California Department of Fish and Wildlife 2017). At least 11 special-status bats are known to or could occur in the Plan Area (Townsend’s big-eared bat, pallid bat, spotted bat, silver-haired bat, western red bat, hoary bat, fringed myotis, Yuma myotis, long-eared myotis, long-legged myotis, and small-footed myotis). These bat species employ varied roost strategies, from solitary roosting in tree foliage to colonial roosting in trees, caves, mines, and artificial structures such as tunnels, buildings, and bridges. Various roost strategies also include night roosts, maternity roosts, migration stopover, and hibernation. The natural community/land cover types considered for the assessment of effects on bat roosting habitat comprise oak woodland and valley oak woodland (all types) and riverine/riparian. Because roosting habitat is by its nature the limiting factor for habitats’ ability to support bat populations, impacts on foraging habitat were not considered for the purposes of this analysis, although foraging habitat would benefit from the conservation actions proposed under the conservation strategy.

Alternative 1 would result in permanent and temporary impacts on special-status bat roosting habitat. Permanent impacts would result in the loss of up to 6,725 acres of bat roosting habitat (12% of suitable habitat in the Plan Area): 375 acres of riparian woodland, 140 acres of valley oak woodland, and 6,210 acres of oak woodland. In addition, bridge replacement and improvements could affect bats that utilize bridge weep holes and crevices for roosting. An unknown number of roost sites in artificial structures, orchards, and urban landscaping could also be affected.

Development projects would temporarily affect up to 320 acres of roosting habitat in the Plan Area. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction.

Permanent development within 500 feet of bat roosting habitat could cause alterations in behavior through visual and noise disturbances associated with both construction and normal ongoing human activities if bats are present. Recurring, periodic maintenance activities may indirectly (through noise and visual disturbance) affect roosting bats; activities such as vegetation management and bridge maintenance could result in harm or mortality to young and adults, as well as reduced reproductive success.

Mitigation for these impacts would be developed and implemented on a project-specific basis.

NEPA Determination: The permanent loss of 6,725 acres and temporary disturbance of 320 acres of potential roosting habitat for special-status bats associated with Alternative 1, in the absence of a coordinated conservation effort, a coordinated and connected reserve system, implementation of the avoidance and minimization measures, and implementation of the conditions on Covered Activities (see Chapter 8 of the Plan for a detailed account of all measures), would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. In view of the likely project-level mitigation, the effects of Alternative 1 on special-status bats would be less than significant.
**CEQA Determination:** The permanent loss of 6,725 acres and temporary disturbance of 320 acres of potential roosting habitat for special-status bats associated with Alternative 1, in the absence of a coordinated conservation effort, a coordinated and connected reserve system, implementation of the avoidance and minimization measures, and implementation of the conditions on Covered Activities (see Chapter 8 of the Plan for a detailed account of all measures), would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. In view of the Section 404/401 regulations and Streambed Alteration Agreements that would protect riparian woodland habitat and the likely project-level mitigation, the effects of Alternative 1 on special-status bats would be less than significant.

**Impact BIO-26: Effects on American badger, a non-covered species (NEPA: significant and unavoidable; CEQA: significant and unavoidable)**

The CNDDB lists one recorded occurrence of American badger in the Plan Area (California Department of Fish and Wildlife 2017).

Alternative 1 would result in permanent and temporary impacts on American badger habitat. Permanent impacts would result in the loss of up to 6,900 acres of grasslands (20% of this community in Plan Area A) that are potential habitat for American badger. The majority of potential habitat is located in Plan Area A and would be lost primarily as a result of urban/suburban development, rural residential development, transportation projects, and infrastructure projects.

Development projects would temporarily affect up to 235 acres of American badger habitat in the Plan Area. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction.

Permanent development within 500 feet of American badger habitat could cause alterations in behavior through visual and noise disturbances associated with both construction and normal ongoing activities. Recurring maintenance activities, such as transportation facility maintenance, utility service facilities maintenance, and vegetation management, may periodically affect American badger both directly and indirectly. Additional indirect effects are expected to result from increased vehicular traffic and the development of new roadways, causing mortalities; habitat fragmentation as a result of urban and rural development and the construction of new roads and other infrastructure; and the introduction, establishment, and spread of invasive plant and animal species.

Mitigation for these impacts would be developed and implemented on a project-specific basis.

**NEPA Determination:** The permanent loss of 6,900 acres and temporary disturbance of 235 acres of grassland habitat suitable to support American badger associated with Alternative 1, in the absence of a coordinated conservation effort, a coordinated and connected reserve system, implementation of the avoidance and minimization measures, and implementation of the conditions on Covered Activities (see Chapter 8 of the Plan for a detailed account of all measures), would constitute a significant impact through habitat modification and potential direct mortality of a special-status species.

**CEQA Determination:** The permanent loss of 6,900 acres and temporary disturbance of 235 acres of grassland habitat suitable to support American badger associated with Alternative 1, in the absence of a coordinated conservation effort, a coordinated and connected reserve system, implementation of the avoidance and minimization measures, and implementation of the conditions
on Covered Activities (see Chapter 8 of the Plan for a detailed account of all measures), would constitute a significant impact through a substantial amount of habitat modification (20% in the Plan Area) and potential direct mortality of a special-status species. Because it is not certain that project-level mitigation measures would adequately address this effect, it is considered a significant and unavoidable impact.

Other Biological Resources

Impact BIO-27: Effects on protected wetlands and waters (NEPA: less than significant; CEQA: less than significant)

Under Alternative 1, development associated with implementation of the Placer County and City of Lincoln general plans would result in approximately 1,330 acres of permanent impacts on constituent habitats (i.e., vernal pool, vernal pool–type wetland, fresh emergent marsh, lacustrine, non–vernal pool seasonal wetland, riparian, and riverine) that could contain or be considered protected wetlands and waters. Moreover, some agricultural lands and water conveyance facilities (e.g., rice lands, canals, ditches) may be considered protected wetlands and waters that could be affected under Alternative 1. Exact acreages of impacts would be determined based on project-level wetland delineations. These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. Effects on wetlands and waters would occur primarily in the Valley portion of the Plan Area.

Temporary impacts on protected wetlands and waters mapped as constituent habitats could be up to 300 acres. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction.

Operations and maintenance activities associated with transportation, wastewater programs, water supply, solid waste management, and utilities in and adjacent to wetlands and other waters could result in the inadvertent introduction of invasive plant species, removal and trimming of vegetation for utility and transportation maintenance, ground disturbance associated with utility maintenance and the establishment of seasonal fire breaks, and the accidental release of vehicle oils and fuels that could alter the species composition of these communities.

Mitigation for these impacts would be developed and implemented on a project-specific basis pursuant to the CWA. The CWA requires a no net loss of wetland/waters functions and services.

NEPA Determination: The permanent loss of approximately 1,330 acres and temporary disturbance of 300 acres of constituent habitats that could contain or be considered protected wetlands and waters associated under Alternative 1 would constitute a potentially significant impact. In view of the regulatory permitting requirements for protected wetlands and waters, which typically require no net loss of wetland/waters functions and services, the effects of Alternative 1 would likely be reduced to less than significant.

CEQA Determination: The permanent loss of approximately 1,330 acres and temporary disturbance of 300 acres of constituent habitats that could contain or be considered protected wetlands and waters associated under Alternative 1 would constitute a potentially significant impact. In view of the regulatory permitting requirements for protected wetlands and waters, which typically require no net loss of wetland/waters functions and services, the effects of Alternative 1 would likely be reduced to less than significant.
Impact BIO-28: Effects on fish and wildlife corridors (NEPA: significant and unavoidable; CEQA: significant and unavoidable)

Figure 4.3-1 shows the PFGs under the Plan relative to Essential Connectivity Areas (ECAs) mapped as part of the California Essential Habitat Connectivity Project. As seen in this figure, the Valley PFG overlaps with portions of the Curry Creek–Coon Creek ECA and the Coon Creek–Bear River ECA. Several existing reserves fall within the Curry Creek–Coon Creek ECA, which runs north–south and is dominated by vernal pool complex, annual grassland, and rice lands. The Valley PFG bisects this ECA in two areas: one is north of Nicolaus Road and west of State Route (SR) 65 and if built out entirely would result in a 0.75-mile separation between an existing vernal pool reserve to the north and vernal pool complex to the south. The other area is north of Sunset Boulevard and west of Fiddyment Road and if fully developed would create a 3-mile separation between vernal complex and grasslands north and south of this area. Buildout of this portion of the ECA could isolate natural lands to the south in Roseville and to the southeast in the Plan Area.

Some development would take place along the southern edge of the Coon Creek–Bear River ECA, in the portion of the PFG around Sheridan, and in the area south of Camp Far West Reservoir; however, large areas of the ECA would be within the RAA and would be available for conservation efforts. Connectivity of similar habitat types within this ECA would remain intact if the PFG were fully developed. This ECA is dominated by vernal pool complex and grasslands in the west and south and oak woodland to the east and north. The ECA would largely support wildlife movement both within and to areas outside the Plan Area.

The southeastern edge of the Foothill PFG overlaps the western edge of the Marble Valley–Sawtooth Ridge ECA in an area between Auburn Folsom Road on the west and Folsom Lake and the North Fork American River on the east. Most of the land cover in this area, dominated by oak woodland, is already protected as part of the Folsom Lake State Recreation Area and thus will likely remain suitable for wildlife movement.

**NEPA Determination:** Alternative 1 would result in the isolation of some natural habitats that are currently linked with similar habitats in the western half of the Plan Area; such isolation would constitute a potentially significant impact on wildlife corridors. In the absence of a coordinated conservation effort, a coordinated and connected reserve system, implementation of the avoidance and minimization measures, and implementation of the conditions on Covered Activities (see Chapter 8 of the Plan for a detailed account of all measures), effects on wildlife corridors from buildout under the general plans and continued rural residential development and agricultural conversion to less wildlife-friendly crops would be a significant impact.

**CEQA Determination:** Alternative 1 would result in the isolation of some natural habitats that are currently linked with similar habitats in the western half of the Plan Area; such isolation would constitute a potentially significant impact on wildlife corridors. In the absence of a coordinated conservation effort, a coordinated and connected reserve system, implementation of the avoidance and minimization measures, and implementation of the conditions on Covered Activities (see Chapter 8 of the Plan for a detailed account of all measures), effects on wildlife corridors from buildout under the general plans and continued rural residential development and agricultural conversion to less wildlife-friendly crops would be a significant impact. Because it is not certain that project-level mitigation measures would adequately address this effect, it is considered a significant and unavoidable impact.
Impact BIO-29: Effects of invasive plant species (NEPA: less than significant; CEQA: less than significant)

Alternative 1 could have adverse effects on natural communities, wildlife, and native plants as a result of the introduction and spread of invasive plant species through development, operations, maintenance, and some conservation activities throughout the Plan Area. Invasive plant species threaten the diversity or abundance of native plant species through competition for resources, predation, parasitism, hybridization with native populations, introduction of pathogens, and physical or chemical alteration of the invaded habitat. Unlike the native plants they displace, many invasive plant species do not provide the food, shelter, or other habitat components on which many native fish and wildlife species depend. Invasive species also have the potential to harm human health and the economy by adversely affecting natural ecosystems, water delivery, flood protection systems, recreation, agricultural lands, and developed areas.

The effects of invasive plant species and measures to reduce their introduction and spread are typically addressed on a project-by-project basis in the relevant environmental documents and permits.

**NEPA Determination:** Alternative 1 has the potential to result in the introduction and spread of invasive plant species; however, with implementation of typical project-level mitigation, this potential effect would be less than significant.

**CEQA Determination:** Alternative 1 has the potential to result in the introduction and spread of invasive plant species; however, implementation of typical project-level mitigation would reduce this potential impact to a less-than-significant level.

Alternative 2—Proposed Action

The analysis of effects under Alternative 2 verifies and relies on the effects estimates for natural communities and covered species presented in the Plan, with the exceptions described in Section 4.3.1, *Methods and Significance Criteria*. The analysis in this section also uses the Plan’s natural community mapping data for determining effects on non-covered species. The effects on natural communities, covered species, and streams and salmonid habitat under Alternative 2 are presented in Tables H-1, H-2, and H-3 in Appendix H, respectively. The conservation acreages are presented in Tables H-4 and H-5 in Appendix H.

Natural Communities

Impact BIO-1: Effects on vernal pool complex (NEPA: less than significant; CEQA: less than significant)

Covered Activities under Alternative 2, the proposed action, would result in permanent and temporary impacts on vernal pool complex. Permanent impacts on vernal pool complex totaling 12,550 acres, approximately 28% of this community in Plan Area A, would result primarily from urban/suburban development, a limited amount of rural residential development, transportation projects, and infrastructure projects. These losses would occur primarily in the Valley portion of Plan Area A, with small losses occurring in the Foothill portion (100 acres) and Plan Area B (50 acres).
Existing vernal pool complexes could be permanently altered by the restoration/creation of a portion of the 900 acres of vernal pool–type wetlands in these complexes through implementation of the conservation strategy. As described in CM3 VPCG-1, the Plan would allow vernal pool–type wetlands to be created/restored in up to 6,000 acres of existing vernal pool complex that can accommodate additional wetlands, typically in existing low- and medium-density vernal pool complexes (i.e., with less than 5% density of existing vernal pool-type wetlands), as well as in grasslands without existing vernal pools where there is evidence of vernal pools in the past and agricultural lands (e.g., field crops and rice lands). According to CM1 VPCG-1 and CM2 VPCG-2, some of this restoration and enhancement may also be undertaken in existing vernal pool–type wetlands to improve degraded conditions. If vernal pool restoration/creation is to be implemented in existing vernal pool complexes, these activities could affect upland resources and the hydrologic balance of the existing pools in these complexes.

To address these concerns, the Plan includes the following language in CM1 VPCG-2.

- Any sites identified for restoration/creation will not affect any vernal pools onsite.
- Sufficient land is available for protection to provide the necessary vernal pool complex restoration/creation, including surrounding grasslands, to ensure the local watershed is sustaining vernal pool hydrology.
- Vernal pool density is representative of intact vernal pool complex in the vicinity of the restoration site. Restoration will not result in a density of vernal pools greater than 10% density, unless it can be demonstrated by historical or other data (e.g., aerial photograph) that a higher density is appropriate. The intention is to mimic historic conditions for high value vernal pool complexes.

Furthermore, CM3 VPCG-2 states:

Creation of vernal pools within a vernal pool complex of existing pools can alter the hydrology of the existing pools and can affect ground-nesting bees and other upland plants and animals (U.S. Fish and Wildlife Service 2005). To minimize effects to existing vernal pool complexes, vernal pools will only be created in areas where they will be isolated hydrologically from existing pools and when adequate amounts of surrounding upland habitat are protected, as demonstrated in site-level restoration plans.

Temporary impacts of Covered Activities on vernal pool complex would not exceed 455 acres, or approximately 1% of this community in Plan Area A. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Conservation actions of Plan implementation that could temporarily affect vernal pool complex include restoration and enhancement actions such as grading and contouring to restore, create, and enhance vernal pool–type wetlands in reserves.

Indirect impacts on vernal pool complex could result from a variety of activities on adjoining land uses that change the hydrology of a complex as well as construction activities in the Plan Area, such as grading, trenching, and changes to topography. Indirect effects on vernal pools are generally considered to occur when ground-disturbing activities take place within 250 feet of a vernal pool—more specifically, when it can be demonstrated that the hydrology supporting a pool has been altered. Indirect effects on vernal pool complexes were estimated in the Plan at 1,979 acres. These indirect effects could adversely affect the functions and services of vernal pool–type wetlands and supporting uplands in vernal pool complexes.
Permanent loss of vernal pool complex under Alternative 2 would be offset by the protection and management of 17,000 acres, improving the overall functions and services of vernal pools, and the restoration/creation of 3,000 acres of vernal pool complex in reserves within the Plan Area. The protection and restoration of vernal pool complex would be supported by the following objectives and conservation measures.

- Objective VPCG-1.1, Protect Existing Vernal Pool Complexes
- CM1 L-2, Reserve Acquisition Strategy
- CM1 L-4, Connectivity within Plan Area
- CM1 VPCG-1, Vernal Pool Complex Protection
- CM1 VPCG-2, Reserve Design for Vernal Pool Restoration/Creation
- CM2 L-1, Vegetation Management and Invasive Plant Control
- CM2 L-3, Develop and Implement Fire Management Plans
- CM2 VPCG-1, Vernal Pool Complex Enhancement and Hydrologic Conditions
- CM3 VPCG-1, Vernal Pool Complex Restoration/Creation
- CM4 L-1, Low-Impact Development Standards
- CM4 VPCG-1, Conduct Outreach to Private Landowners

Temporarily affected vernal pool complexes would be restored through implementation of General Condition 4, Temporary Effects, which requires that temporarily affected areas be restored to pre-project conditions or better based on performance standards such as percent vegetative cover, restored topography, and restored hydrology.

Potential effects on vernal pool complex during construction and operations and maintenance would be avoided and minimized through the implementation of General Conditions 1, 2, and 4; Community Conditions 1.1, 1.2, 1.3, 1.4, and 1.5; and Regional Public Project Conditions 2 and 3. These conditions are described in Chapter 6 of the Plan.

These objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. The proposed landscape-level conservation of 20,000 acres of vernal pool complexes—17,000 acres protected and 3,000 acres restored/created—including enhancement of degraded conditions in existing complexes that would be protected and long-term management of these resources, would mitigate the effects of the proposed action. The proposed conditions further demonstrate the intent to avoid and minimize effects over the life of the Plan.

**NEPA Determination:** The permanent loss of 12,550 acres and temporary disturbance of 455 acres of vernal pool complex associated with Alternative 2, in the absence of other conservation actions, would constitute a potentially significant impact. These effects would be offset by the Plan's commitment to conserve 20,000 acres of vernal pool complex. As described in Chapter 5 of the Plan, Objective VPCG-1.1 and Conservation Measures CM1 L-2, CM1 L-4, CM1 VPCG-1, CM1 VPCG-2, CM2 L-1, CM2 L-3, CM2 VPCG-1, CM3 VPCG-1, CM4 L-1, and CM4 VPCG-1 would guide the implementation of vernal pool complex creation, enhancement, restoration, and protection by ensuring that reserve lands are established in large, interconnected blocks that result in no net loss of wetlands and provide sufficient upland habitat to facilitate the conservation and recovery of covered vernal pool
branchiopods. These measures would ensure that the reserves are managed in perpetuity for the benefit of covered and native species. As described in Chapter 6 of the Plan, potential effects on vernal pool complexes during construction would be avoided and minimized through the implementation of General Conditions 1, 2, and 4; Community Conditions 1.1, 1.2, 1.3, 1.4, and 1.5; and Regional Public Project Conditions 2 and 3. Considering these proposed conservation actions set forth by the Plan’s goals, objectives, conservation measures, and conditions, the overall effects of Alternative 2 on vernal pool complex in the Plan Area would be less than significant.

**CEQA Determination:** The permanent loss of 12,550 acres and temporary disturbance of 455 acres of vernal pool complex associated with Alternative 2, in the absence of other conservation actions, would constitute a significant impact through loss of a natural community in the Plan Area.

The natural community creation, enhancement, restoration, and protection together with conservation measures and conditions pertaining to the long-term management of vernal pool complex in the Plan Area support the conclusion that the impacts of Alternative 2 on vernal pool complex would be less than significant. No mitigation has been identified.

**Impact BIO-2: Effects on grassland (NEPA: less than significant; CEQA: less than significant)**

Covered Activities under Alternative 2, the proposed action, would result in both permanent and temporary impacts on the grassland natural community. Permanent impacts on grasslands would total 6,900 acres, or roughly 20% of the grassland in Plan Area A, resulting primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. These losses would be roughly split between the Valley and Foothill portions of Plan Area A (i.e., 3,400 and 3,300 acres, respectively), and approximately 100 acres would be lost in Plan Area B. An unknown amount of grassland may also be permanently converted to wetlands as part of vernal pool complex restoration, riparian restoration, marsh restoration, and oak woodland restoration. Exact amounts of grassland that would be converted to other natural communities is not known at this time, but these could comprise up to 3,000 acres if all the vernal pool complex restoration/creation were to be undertaken in the grassland community.

Temporary impacts on grasslands from Covered Activities would not exceed 235 acres, less than 1% of this community in Plan Area A. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Conservation actions from Plan implementation could also temporarily disturb grasslands at grading or vegetation management locations.

Permanent loss of grassland under Alternative 2 would be partially offset by the protection and management of 2,740 acres and the restoration of 1,000 acres of grasslands in reserves in the Plan Area. The protection and restoration of grasslands would be supported by the following objectives and conservation measures.

- Objective VPCG-1.3, Protect Grasslands
- Objective VPCG-1.4, Restore Grasslands
- CM2 VPCG-3, Grassland Protection
- CM3 VPCG-2, Grassland Restoration
- CM1 L-2, Reserve Acquisition Strategy
- CM2 L-1, Vegetation Management and Invasive Plant Control
- CM2 L-3, Develop and Implement Fire Management Plans

Because grasslands are a component of vernal pool complexes, the effects on grasslands would also be offset by the protection and restoration of 20,000 acres of vernal pool complex.

Temporarily affected grasslands would be restored with implementation of General Condition 4, Temporary Effects, which requires that temporarily affected areas be restored to pre-project conditions or better based on performance standards such as percent vegetative cover and restored topography.

These objectives, conservation measures, and the general condition establish performance standards for measuring the effectiveness of proposed conservation actions.

**NEPA Determination:** The permanent loss of 6,900 acres and temporary disturbance of 235 acres of grassland associated with Alternative 2, in the absence of other conservation actions, would constitute a potentially significant impact; however, with the protection and restoration guided by the Plan's goals, objectives, conservation measures, and conditions, the overall effects of Alternative 2 on grasslands in the Plan Area would be less than significant.

**CEQA Determination:** The permanent loss of 6,900 acres and temporary disturbance of 235 acres of grassland associated with Alternative 2, in the absence of other conservation actions, would constitute a significant impact through loss a natural community in the Plan Area.

The natural community restoration and protection activities would constitute adequate mitigation for CEQA purposes. The conservation measures for grasslands, in addition to those for vernal pool complexes, are more than sufficient to support the conclusion that the impacts of Alternative 2 on grassland would be less than significant. No mitigation has been identified.

**Impact BIO-3: Effects on aquatic/wetland complex (NEPA: less than significant; CEQA: less than significant)**

Covered Activities under Alternative 2, the proposed action, would result in permanent and temporary impacts on the aquatic/wetland complex natural community. Permanent impacts on aquatic/wetland complex would total 260 acres (9% of this community in the Plan Area): 105 acres of fresh emergent marsh, 103 acres of lacustrine, and 52 acres of non-veral pool seasonal wetlands. These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. These losses would be roughly split between the Valley and Foothill portions of Plan Area A (i.e., 120 and 130 acres, respectively), and approximately 10 acres would be lost in Plan Area B.

Temporary impacts on aquatic/wetland complex from Covered Activities would not exceed 105 acres—4% of this community in Plan Area A. These impacts—comprising 50 acres of fresh emergent marsh, 28 acres of lacustrine, and 27 acres of non-veral pool seasonal wetlands—would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Some conservation actions through Plan implementation may also temporarily disturb aquatic/wetland complex where grading, vegetation management, or other physical change to the natural community is required.
Permanent loss of aquatic/wetland complex under Alternative 2 would be offset by the protection and management of 600 acres, improving the overall functions and services of wetlands, and the restoration/creation of 410 acres of aquatic/wetland complex in reserves in the Plan Area. The protection and restoration of aquatic/wetland complex would be supported by the following objectives and conservation measures.

- **Objective AW-1.1, Protect Aquatic/Wetlands Complex Natural Community**
- **CM1 L-2, Reserve Acquisition Strategy**
- **CM1 AW-1, Aquatic/Wetlands Protection**
- **CM2 L-1, Vegetation Management and Invasive Plant Control**
- **CM2 AW-1, Aquatic/Wetlands Complex Vegetation Control**
- **CM2 AW-2, Fencing Wetlands and Ponds**
- **CM2 AW-3, Sediment Removal**
- **CM2 AW-6, Provision of Vegetative Cover**
- **CM 2 AW-8, Maintenance and Enhancement of Water Quality**
- **CM3 AW-1, Aquatic/Wetlands Complex Restoration/Creation**
- **CM4 AW-1, Conduct Public Outreach**

Temporarily affected aquatic/wetlands complex would be restored through implementation of General Condition 4, Temporary Effects, which requires that temporarily affected areas be restored to pre-project conditions or better based on performance standards, such as percent vegetative cover, restored topography, and restored hydrology within 1 year.

Potential effects on aquatic/wetlands complex during construction and operations and maintenance would be avoided and minimized through implementation of General Condition 1, Community Conditions 1.3 and 1.5, and Regional Public Project Conditions 2 and 3. These conditions are described in Chapter 6 of the Plan.

These objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. The acres of protection and restoration satisfy the typical mitigation that would be applied to the project-level effects, as well as mitigating the effects of the other conservation measures. The proposed conditions further demonstrate the intent to avoid and minimize effects over the life of the Plan.

- **NEPA Determination:** The permanent loss of 260 acres and temporary disturbance of 105 acres of aquatic/wetland complex associated with Alternative 2, in the absence of other conservation actions, would constitute a potentially significant impact. These effects would be offset by the Plan’s commitment to conserve 1,010 acres of aquatic/wetland complex. As described in Chapter 5 of the Plan, Objective AW-1.1 and Conservation Measures CM1 L-2, CM1 AW-1, CM2 L-1, CM2 AW-1, CM2 AW-2, CM2 AW-3, CM2 AW-6, CM 2 AW-8, CM3 AW-1, and CM4 AW-1 would guide the implementation of aquatic/wetland complex creation, enhancement, restoration, and protection by ensuring that a range of aquatic and wetland types are conserved and will increase the acreage and ecological function of wetland and aquatic communities in the Plan Area. These measures would ensure that the reserves are managed in perpetuity for the benefit of covered and native species. As described in Chapter 6 of the Plan, potential effects on
aquatic/wetland complexes during construction would be avoided and minimized through the implementation of General Condition 1; Community Conditions 1.3 and 1.5, and Regional Public Project Conditions 2 and 3. Considering these proposed conservation actions set forth by the Plan’s goals, objectives, conservation measures, and conditions, the overall effects of Alternative 2 on aquatic/wetland complex in the Plan Area would be less than significant.

**CEQA Determination:** The permanent loss of 260 acres and temporary disturbance of 105 acres of aquatic/wetland complex associated with Alternative 2, in the absence of other conservation actions, would constitute a significant impact through loss a natural community in the Plan Area.

The natural community creation, enhancement, restoration, and protection activities would constitute adequate mitigation for CEQA purposes. The conservation measures and conditions relevant to aquatic/wetland complex are more than sufficient to support the conclusion that the impacts of Alternative 2 on aquatic/wetland complex would be less than significant. No mitigation has been identified.

**Impact BIO-4: Effects on riverine/riparian complex (NEPA: less than significant; CEQA: less than significant)**

Covered Activities under Alternative 2, the proposed action, would result in permanent and temporary impacts on the riverine/riparian complex natural community. Permanent impacts on riverine/riparian complex would total 490 acres (9% of this community in the Plan Area): 165 acres of riverine and 375 acres of riparian. These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. A total of 150 acres would be lost in the Valley portion of Plan Area A, 330 acres in the Foothill portion, and 10 acres in Plan Area B. As discussed in Section 3.4.5, **Riverine/Riparian Complex**, of the Plan, because of limitations in mapping, not all the area mapped as riverine habitat consists of the wetted stream width but can include grasslands, valley oak woodland, fresh emergent wetland, off-channel wetlands, and seasonal wetlands. Unlike land conversion where the natural community is converted by the Covered Activity, in-stream activities would leave the stream channel intact and in some cases in an improved condition.

The descriptions of in-stream activities identified in Chapter 2, **Covered Activities**, and Section 4.4.1.6, **In-Stream Programs Effects**, of the Plan show that the actual activities within riverine habitat would be implemented along short segments, typically on the order of 100 feet, at multiple locations throughout the Plan Area. Covered Activities that would have quantifiable effects on streams consist of road crossings, water supply, pipelines not associated with road crossings (i.e., those pipelines going beneath streams and not attached to a bridge), flood control, and fish passage enhancement projects. Of these, road crossings would account for the majority of permanent effects on streams.

Temporary impacts on riverine/riparian complex from Covered Activities would not exceed 165 acres—3% of this community in Plan Area A. These impacts, comprising 50 acres of riverine and 115 acres of riparian, would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Some conservation actions through Plan implementation may also temporarily disturb riverine/riparian complex where grading, vegetation management, or other physical change to the natural community is required.
Permanent loss of riverine/riparian complex under Alternative 2 would be offset by the protection and management of 2,200 acres, improving the overall functions and services of these waters, and the restoration/creation of 1,425 acres of riverine/riparian complex in reserves in the Plan Area. The protection and restoration of riverine/riparian complex would be supported by the following objectives and conservation measures.

- Objective RAR-1.1, Protect Riverine/Riparian Complex
- Objective RAR-1.3, Restore Riverine/Riparian Complex
- CM1 L-2, Reserve Acquisition Strategy
- CM1 RAR-1, Riverine and Riparian Protection
- CM1 RAR-2, Reserve Design for Riparian Restoration
- CM2 L-1, Vegetation Management and Invasive Plant Control
- CM2 RAR-1, Riparian Vegetation Management
- CM3 RAR-1, Riparian Natural Community Restoration

Temporarily affected riverine/riparian complex would be restored through implementation of General Condition 4, Temporary Effects, which requires that temporarily affected areas be restored to pre-project conditions or better based on performance standards such as percent vegetative cover, restored topography, and restored hydrology.

Potential effects on riverine/riparian complex during construction and operations and maintenance would be avoided and minimized through the implementation of General Condition 1, Community Conditions 2.1, 2.2, 2.3, and 2.4, Stream Conditions 1 and 2, and Regional Public Project Conditions 2 and 3. These conditions are described in Chapter 6 of the Plan.

These objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. The acres of protection and restoration satisfy the typical mitigation that would be applied to the project-level effects, as well as mitigating the effects of the other conservation measures. The proposed conditions further demonstrate the intent to avoid and minimize effects over the life of the Plan.

- **NEPA Determination:** The permanent loss of 490 acres and temporary disturbance of 165 acres of riverine/riparian complex associated with Alternative 2, in the absence of other conservation actions, would constitute a potentially significant impact. These effects would be offset by the Plan's commitment to conserve 3,625 acres of riverine/riparian complex. As described in Chapter 5 of the Plan, Objectives RAR-1.1 and RAR-1.3, and Conservation Measures CM1 L-2, CM1 RAR-1, CM1 RAR-2, CM2 L-1, CM2 RAR-1, and CM3 RAR-1 would guide the implementation of riverine/riparian complex creation, enhancement, restoration, and protection by ensuring large intact riparian stands are protected, riverine habitat next to preserves are protected, invasive species are managed, in-stream habitat for fish and wildlife is enhanced, and areas are restored with native species. These measures would ensure that the reserves are managed in perpetuity for the benefit of covered and native species. As described in Chapter 6 of the Plan, potential effects on riverine/riparian complexes during construction would be avoided and minimized through the implementation of General Condition 1; Community Conditions 2.1, 2.2, 2.3, and 2.4; Stream Conditions 1 and 2; and Regional Public Project Conditions 2 and 3. Considering these proposed conservation actions set forth by the
Plan’s goals, objectives, conservation measures, and conditions, the overall effects of Alternative 2 on riverine/riparian complex in the Plan Area would be less than significant.

**CEQA Determination:** The permanent loss of 490 acres and temporary disturbance of 165 acres of riverine/riparian complex associated with Alternative 2, in the absence of other conservation actions, would constitute a significant impact through loss of a natural community in the Plan Area.

The natural community creation, enhancement, restoration, and protection activities would constitute adequate mitigation for CEQA purposes. The conservation measures and conditions relevant to riverine/riparian complex are more than sufficient to support the conclusion that the impacts of Alternative 2 on riverine/riparian complex would be less than significant. No mitigation has been identified.

**Impact BIO-5: Effects on oak woodland (NEPA: less than significant; CEQA: less than significant)**

Covered Activities under Alternative 2, the proposed action, would result in permanent and temporary impacts on the oak woodland natural community. Permanent impacts on oak woodland would total 6,210 acres (12% of this community in the Plan Area). These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. A total of 1,100 acres would be lost in the Valley portion of Plan Area A, 5,100 acres in the Foothill portion, and 10 acres in Plan Area B.

Temporary impacts on oak woodland from Covered Activities would not exceed 180 acres—less than 1% of the community present in Plan Area A. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Some conservation actions through Plan implementation may also temporarily disturb oak woodland in locations where grading, vegetation management, or other physical change to the natural community is required.

Permanent loss of oak woodland under Alternative 2 would be offset by the protection and management of 10,110 acres and the restoration of 100 acres of oak woodland in reserves in the Plan Area. The protection and restoration of oak woodland would be supported by the following objectives and conservation measures.

- Objective RAR-1.3, Restore Riverine/Riparian Complex
- Objective OW-1.1, Protect Oak Woodlands
- CM1 L-2, Reserve Acquisition Strategy
- CM1 OW-1, Oak Woodland Protection
- CM1 OW-2, Reserve Design for Oak Woodland Restoration
- CM2 L-1, Vegetation Management and Invasive Plant Control
- CM2 OW-1, Oak Woodland Vegetation Enhancement and Management
- CM2 OW-2, Control of Invasive Animals that Limit Oak Regeneration
- CM3 OW-1, Oak Woodland Restoration
Temporarily affected riverine/riparian complex would be restored with the implementation of General Condition 4, Temporary Effects, which requires that temporarily affected areas be restored to pre-project conditions or better based on performance standards such as percent vegetative cover and restored topography.

Potential effects on oak woodlands during construction and operations and maintenance would be avoided and minimized through implementation of General Condition 1 and Regional Public Project Conditions 2 and 3. These conditions are described in Chapter 6 of the Plan.

These objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. The acres of protection and restoration satisfy the typical mitigation that would be applied to the project-level effects, as well as mitigating the effects of the other conservation measures. The proposed conditions further demonstrate the intent to avoid and minimize effects over the life of the Plan.

**NEPA Determination:** The permanent loss of 6,210 acres and temporary disturbance of 180 acres of oak woodland associated with Alternative 2, in the absence of other conservation actions, would constitute a potentially significant impact; however, with the protection and restoration guided by the Plan’s goals, objectives, conservation measures, and conditions, the overall effects of Alternative 2 on oak woodland in the Plan Area would be less than significant.

**CEQA Determination:** The permanent loss of 6,210 acres and temporary disturbance of 180 acres of oak woodland associated with Alternative 2, in the absence of other conservation actions, would constitute a significant impact through loss of a natural community in the Plan Area. The natural community restoration and protection activities would constitute adequate mitigation for CEQA purposes. The conservation measures and conditions relevant to riverine/riparian complex are more than sufficient to support the conclusion that the impacts of Alternative 2 on oak woodland would be less than significant. No mitigation has been identified.

**Impact BIO-6: Effects on valley oak woodland (NEPA: less than significant; CEQA: less than significant)**

Covered Activities under Alternative 2, the proposed action, would result in permanent and temporary impacts on the valley oak woodland natural community. Permanent impacts on valley oak woodland would total 140 acres (10% of this community in the Plan Area). These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. A total of 30 acres would be lost in the Valley portion of Plan Area A, 100 acres in the Foothill portion, and 10 acres in Plan Area B.

Temporary impacts on valley oak woodland from Covered Activities would not exceed 25 acres—2% of this community in Plan Area A. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Some conservation actions through Plan implementation may also temporarily disturb valley oak woodland in locations where grading, vegetation management, or other physical change to the natural community is required.

Permanent loss of valley oak woodland under Alternative 2 would be offset by the protection and management of 190 acres and the restoration of 225 acres of valley oak woodland in reserves in the
Plan Area. The protection and restoration of oak woodland would be supported by the following objectives and conservation measures.

- Objective RAR-1.3, Restore Riverine/Riparian Complex
- Objective OW-1.1, Protect Oak Woodlands
- CM1 L-2, Reserve Acquisition Strategy
- CM1 OW-1, Oak Woodland Protection
- CM1 OW-2, Reserve Design for Oak Woodland Restoration
- CM2 L-1, Vegetation Management and Invasive Plant Control
- CM2 OW-1, Oak Woodland Vegetation Enhancement and Management
- CM2 OW-2, Control of Invasive Animals that Limit Oak Regeneration
- CM3 OW-1, Oak Woodland Restoration

Temporarily affected riverine/riparian complex would be restored through implementation of General Condition 4, Temporary Effects, which requires that temporarily affected areas be restored to pre-project conditions or better based on performance standards such as percent vegetative cover and restored topography.

Potential effects on valley oak woodlands during construction and operations and maintenance would be avoided and minimized through the implementation of General Condition 1 and Regional Public Project Conditions 2 and 3. These conditions are described in Chapter 6 of the Plan.

These objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. The acres of protection and restoration satisfy the typical mitigation that would be applied to the project-level effects, as well as mitigating the effects of the other conservation measures. The proposed conditions further demonstrate the intent to avoid and minimize effects over the life of the Plan.

**NEPA Determination:** The permanent loss of 140 acres and temporary disturbance of 25 acres of valley oak woodland associated with Alternative 2, in the absence of other conservation actions, would constitute a potentially significant impact; however, with the protection and restoration guided by the Plan’s goals, objectives, conservation measures, and conditions, the overall effects of Alternative 2 on valley oak woodland in the Plan Area would be less than significant.

**CEQA Determination:** The permanent loss of 140 acres and temporary disturbance of 25 acres of valley oak woodland associated with Alternative 2, in the absence of other conservation actions, would constitute a significant impact through loss of a natural community in the Plan Area.

The natural community restoration and protection activities would constitute adequate mitigation for CEQA purposes. The conservation measures and conditions relevant to valley oak woodland are more than sufficient to support the conclusion that the impacts under Alternative 2 on valley oak woodland would be less than significant. No mitigation has been identified.
Special-Status Plants

Impact BIO-7: Effects on special-status plants in vernal pool habitats (NEPA: less than significant with mitigation; CEQA: less than significant with mitigation)

Special-status plant species that grow in vernal pools and are known to occur in the Plan Area region include dwarf downingia, Boggs Lake hedge-hyssop, hogwallow starfish, Ahart's dwarf rush, Red Bluff dwarf rush, legenere, pincushion navarretia, and adobe navarretia. There are known occurrences in the Plan Area for all these species. Table 4.3-1 shows the numbers of these recorded occurrences in each Plan Area component (California Department of Fish and Wildlife 2017; Consortium of California Herbaria 2017a; Preston pers. comm.).

Covered Activities under Alternative 2, the proposed action, would result in permanent and temporary impacts on vernal pool habitat for special-status plants. Plan Area A includes 45,065 acres of vernal pool complex that are potential habitat for these species. In the Valley portion of the Plan Area, permanent impacts would total 570 acres of vernal pool-type wetland habitat and 12,400 acres of vernal pool complex (approximately 28% of the vernal pool complex community in Plan Area A). These impacts would result primarily from urban/suburban development, transportation projects, and infrastructure projects. Known occurrences of dwarf downingia (three) and pincushion navarretia (one) could be removed as a result of such projects. In Plan Area B, permanent impacts on vernal pool-type wetlands from Covered Activities in non-participating cities would total 10 acres. Known occurrences of dwarf downingia (nine), Boggs Lake hedge-hyssop (two), and legenere (one) could be removed as a result of these Covered Activities. One occurrence of Red Bluff dwarf rush could also be affected; however, this record of the species is questionable and may be due to a misidentification of another species as Red Bluff dwarf rush. Additional undiscovered occurrences of special-status vernal pool plants could be removed in the Plan Area as a result of project construction in Plan Areas A and B.

An additional 100 acres of vernal pool complex would be permanently affected in the Foothills portion of the Plan Area, although there are no recorded occurrences of special-status vernal pool plant species in this area.

An unknown amount of vernal pool complex wetland habitat may be permanently altered by the restoration/creation of a portion of the 900 acres of vernal pool, seasonal wetland, and seasonal swale wetlands included in implementation of the Plan's conservation strategy. If vernal pool restoration/creation is to take place in existing vernal pool complexes, these activities could affect existing wetland habitat, as well as upland resources and the hydrologic balance of the existing pools in these complexes. However, implementation of CM1 VPCG-2, Vernal Pool Complex Enhancement and Hydrologic Conditions, and CM3 VPCG-2, Grassland Restoration, would prevent restoration/creation from affecting existing vernal pools by ensuring that the local watershed is sufficient to support additional pools and that adequate upland habitat around existing pools is protected.

Temporary impacts of Covered Activities on vernal pool wetland habitat for special-status plants would not exceed 25 acres of vernal pool complex in the Valley portion of the Plan Area and 5 acres in Plan Area B. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Temporary effects associated with fuels management, vegetation management, and infrastructure operations and maintenance would occur in areas previously disturbed by similar activities (e.g.,
existing fire breaks, areas previously disturbed by infrastructure construction), and therefore the likelihood of rare plants occurring in these areas is low. Some conservation actions through Plan implementation may also temporarily disturb vernal pool wetland habitat for special-status plants in locations where grading, vegetation management, or other physical change is required.

Indirect impacts on vernal pool communities and wetland habitat in the Plan Area that support special-status plants could result from construction activities such as grading and removal of vegetation. These activities could adversely affect habitat function for special-status plants by altering the topography and hydrology that support vernal pools and wetland habitat.

Permanent loss of vernal pool habitat for special-status plants resulting from Covered Activities under Alternative 2 would be offset by the protection and management of 17,000 acres and restoration of 3,000 acres of vernal pool complex in reserves in the Plan Area. Within these areas, 790 acres of vernal pool-type wetlands would be protected and up to 900 acres restored. Known occurrences of dwarf downingia (four) and legenere (one) are within the Reserve Acquisition Area (RAA). Known occurrences of dwarf downingia (two), Boggs Lake hedge-hyssop (one), Ahart’s dwarf rush (one), and adobe navarretia (two) are already protected on existing reserves in the Plan Area. The protection and restoration of vernal pool habitat for special-status plants would be supported by the following conservation measures.

- CM1 L-2, Reserve Acquisition Strategy
- CM1 VPCG-1, Vernal Pool Complex Protection
- CM1 VPCG-2, Reserve Design for Vernal Pool Restoration/Creation
- CM1 AW-1, Aquatic/Wetlands Complex Protection
- CM2 L-1, Vegetation Management and Invasive Plant Control
- CM2 L-3, Develop and Implement Fire Management Plans
- CM2 VPCG-1, Vernal Pool complex and Grassland Vegetation Management
- CM2 AW-1, Aquatic/Wetlands Complex Vegetation Control
- CM2 AW-3, Sediment Removal
- CM3 VPCG-1, Vernal Pool Complex Restoration/Creation

Temporarily affected vernal pool habitat for special-status plants would be restored through implementation of General Condition 4, Temporary Effects, which requires that temporarily affected areas be restored to pre-project conditions or better, based on performance standards such as percent vegetative cover, restored hydrology, and restored topography.

Implementation of Community Condition 1, Wetland Avoidance and Minimization (Vernal Pool and Aquatic/Wetland Complex), and the specific measures contained in the condition would protect the hydrology and habitat quality of vernal pool habitat for special-status plants. Community Condition 1.4 would potentially offset loss of special-status plants through the salvaging of seed from affected pools for creation and restoration elsewhere.

Although they do not apply to special-status plant species, these conservation measures and conditions establish performance standards for considering the effectiveness of proposed conservation actions. In addition, the impacts of Covered Activities, which includes urban/suburban development, transportation projects, and infrastructure projects, under Alternative 2 on
occurrences of and habitat for non-covered special-status plants would be mitigated on a project-by-project basis through the local land use approval process, including CEQA review, for discretionary projects. Substantial ancillary benefits for these plant species are also expected to result from Plan implementation, because it would establish a comprehensive reserve management program that would enhance habitat conditions in a variety of natural communities that may support non-covered special-status plants. Any potential effects on these plants from fuels management, vegetation management, and infrastructure operations and maintenance, though not likely subject to additional environmental review, would be offset because the entities implementing these projects would be participating in the Plan and contributing funds for the implementation of the conservation strategy; furthermore the likelihood of rare plants occurring in these areas is low because these areas were likely previously disturbed by similar activities (e.g., existing fire breaks, areas previously disturbed by infrastructure construction). The implementation of conservation measures to create and restore vernal pool habitat, which may affect these plant populations, may not be subject to further approvals or review that may identify effects on these plants.

**NEPA Determination:** Implementation of Alternative 2 could result in the loss of extant occurrences of special-status plants, including up to 12 occurrences of dwarf downingia, 2 occurrences of Boggs Lake hedge-hyssop, 1 potential occurrence of Red Bluff dwarf rush, 1 occurrence of legenere, 1 occurrence of pincushion navarretia, and 1 occurrence of adobe navarretia. Alternative 2 would also permanently remove up to 580 acres of vernal pool-type wetland habitat for special status-plants in the Plan Area. However, the protection and restoration guided by the Plan’s goals, objectives, conservation measures, and conditions would ensure that habitat loss from Covered Activities, which include urban/suburban development, transportation projects, infrastructure projects, fuels management, vegetation management, and infrastructure operations and maintenance, would be compensated for and preserved habitat would be managed in perpetuity and thus the effects would be reduced to a less-than-significant level.

Conservation measures to create, restore, enhance, and manage vernal pool habitat could remove existing populations of special-status plants if these actions take place in previously undisturbed vernal pool complexes and if there are no opportunities to identify and avoid these populations through subsequent NEPA review; therefore, these activities could have significant impacts on special-status plants. Implementation of Mitigation Measure BIO-1 would reduce this effect to a less-than-significant level.

**CEQA Determination:** Implementation of Alternative 2 could result in the loss of extant occurrences of special-status plants, including up to 12 extant occurrences of dwarf downingia, 2 extant occurrences of Boggs Lake hedge-hyssop, 1 potential occurrence of Red Bluff dwarf rush, 1 extant occurrence of legenere, 1 occurrence of pincushion navarretia, and 1 occurrence of adobe navarretia. Alternative 2 would also permanently remove up to 580 acres of vernal pool-type wetland habitat for special-status plants in the Plan Area. However, the protection and restoration guided by the Plan’s goals, objectives, conservation measures, and conditions would ensure that habitat loss from Covered Activities, which include urban/suburban development, transportation projects, infrastructure projects, fuels management, vegetation management, and infrastructure operations and maintenance, would be compensated for, and preserved habitat would be managed in perpetuity and thus would reduce these effects to a less-than-significant level.

Conservation measures to create, restore, enhance, and manage vernal pool habitat could remove existing populations of special-status plants if these actions take place in previously undisturbed vernal pool complexes and if there are no opportunities to identify and avoid these populations.
through subsequent CEQA review; therefore, restoration, enhancement, and management activities could have significant impacts on special-status plants. Implementation of Mitigation Measure BIO-1 would reduce this potential impact to a less-than-significant level.

**Mitigation Measure BIO-1: Conduct surveys for and avoid special-status plants in proposed restoration and enhancement areas**

The Placer Conservation Authority (PCA) will retain qualified botanists to survey proposed restoration and enhancement areas, those portions of reserve areas where management activities will result in ground disturbing activities in previous undisturbed areas and/or vegetation removal, to document the presence of special-status plants before restoring and enhancing habitat where vegetation would be removed and/or grading would occur. Surveys would not be required for firebreaks in reserves that are pre-existing but would be required prior to the establishment of new firebreaks but not thereafter. Surveys would not be required prior to the use of cattle grazing. The botanists will conduct a floristic survey following recent CDFW botanical survey guidelines or other Resource Agency–approved protocol (California Department of Fish and Wildlife 2018). All plant species observed will be identified to the level necessary to determine whether they qualify as special-status plants or are plant species with unusual or significant range extensions. The guidelines also require that field surveys be conducted when special-status plants that could occur in the area are evident and identifiable, generally during the reported blooming period. To account for different special-status plant identification periods, one or more series of field surveys may be required in spring and summer.

If any special-status plants are identified during the surveys, the botanists will photograph them and map their locations, document the location and extent of the population on a CNDDB Survey Form, and submit the completed Survey Form to the CNDDB. Based on the mapped locations, the PCA will redesign or modify proposed habitat restoration to avoid direct or indirect effects on special-status plants.

Exclusionary construction fencing and explanatory signage will be placed around the perimeter of special-status plant occurrences that could be affected by restoration activities throughout the period during which such activities are conducted. Signage will explain the nature of the sensitive resource and warn that no effect on the plants is allowed. The fencing will include a buffer zone of at least 20 feet between the special-status plants and construction activities. All exclusionary fencing will be maintained in good condition throughout the construction period. The establishment of activity exclusion zones will not be required if construction-related disturbances would occur more than 250 feet from the occupied habitat site.

Before any work, including grading, occurs in the restoration or enhancement area, a qualified biologist will conduct mandatory contractor/worker awareness training for construction personnel. The awareness training will be provided to all construction personnel to brief them on the need to avoid effects on special-status plants and the penalties for not complying with permit requirements. The biologist will inform all construction personnel about the life history of special-status plant species that occur in the restoration area, the importance of maintaining habitat, and the terms and conditions of the authorizing document. Proof of this instruction will be submitted to CDFW or other overseeing agency, as appropriate.

The PCA or its contractors will retain qualified biologists to monitor construction activities adjacent to special-status plants. The biologists will assist the construction crew, as needed, to
comply with all project implementation restrictions and guidelines. In addition, the biologists will be responsible for ensuring that the PCA or its contractors maintain the exclusion fencing adjacent to special-status plants.

**Impact BIO-8: Effects on special-status plants in oak woodland habitats (NEPA: less than significant with mitigation; CEQA: less than significant with mitigation)**

Oak woodland habitats, as discussed here, include the oak–foothill pine and chaparral land cover types included in the oak woodland natural community, as well as valley oak woodland. Several special-status plant species grow in oak woodland habitats and are known to occur in the Plan Area region: big-scale balsamroot, Brandegee’s clarkia, stinkbells, Butte County fritillary, Red Bluff dwarf rush, dubious pea, hoary navarretia, streambank spring beauty, and sylvan microseris. There are recorded occurrences in the Plan Area for all these species except streambank spring beauty and sylvan microseris. Occurrences of streambank spring beauty occur near but outside of the PCWA operations and maintenance component of the Plan Area. Table 4.3-2 shows the numbers of these recorded occurrences in each Plan Area component (California Department of Fish and Wildlife 2017; Consortium of California Herbaria 2017b, 2017c, 2017d).

Covered Activities under Alternative 2, the proposed action, would result in permanent and temporary impacts on oak woodland habitat for special-status plants. Plan Area A includes 52,234 acres of oak woodland habitats that are potential habitat for these species. In the Valley portion of the Plan Area, permanent impacts would total 1,130 acres of oak woodland habitats (approximately 2% of total in Plan Area A). Known occurrences of big-scale balsamroot (one) and Brandegee’s clarkia (four) in the Valley portion could be removed as a result of individual projects. In the Foothill portion, permanent impacts would total 5,200 acres of oak woodland habitats (approximately 10% of total oak woodland in Plan Area A); however, no extant occurrences of special-status plants are recorded in the Foothill PFG. Impacts in Plan Area A would result primarily from urban/suburban development, transportation projects, and infrastructure projects. In Plan Area B, Covered Activities in non-participating cities would result in impacts on a total of 20 acres of oak woodland habitats. Known occurrences of big-scale balsamroot, Brandegee’s clarkia, and dubious pea (one occurrence each) could be removed as a result of these Covered Activities. One occurrence of Red Bluff dwarf rush could also be affected; however, this record of the species is questionable and may be due to a misidentification of another species as Red Bluff dwarf rush. Additional undiscovered occurrences of special-status plants could be removed in the Plan Area as a result of project construction in Plan Areas A and B.

Temporary impacts of Covered Activities on oak woodland habitats for special-status plants would not exceed 55 acres in the Valley portion of the Plan Area, 140 acres in the Foothill portion, and 10 acres in Plan Area B. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Temporary effects associated with fuels management, vegetation management, and infrastructure operations and maintenance would occur in areas previously disturbed by similar activities (e.g., existing fire breaks, areas previously disturbed by infrastructure construction), and therefore the likelihood of rare plants occurring in these areas is low. Some conservation actions through Plan implementation may also temporarily disturb oak woodland habitats for special-status plants at locations of grading, vegetation management, or other physical change to the habitat.
Indirect impacts on oak woodland habitats that support special-status plants could result from construction activities in the Plan Area, such as grading and removal of vegetation. These activities could adversely affect habitat function for special-status plants by altering the topography and hydrology in these habitats.

Permanent loss of oak woodland habitats for special-status plants from Covered Activities under Alternative 2 would be offset by the protection and management of 10,110 acres of oak woodland and 190 acres of valley oak woodland, as well as restoration of 100 acres of oak woodland and 285 acres of valley oak woodland in reserves in the Plan Area. One known occurrence of Brandegee’s clarkia is already protected in an existing reserve in the Foothill RAA. The protection and restoration of oak woodland habitats for special-status plants would be supported by the following conservation measures.

- CM1 L-2, Reserve Acquisition Strategy
- CM1 OW-1, Oak Woodland Protection
- CM1 OW-2, Reserve Design for Oak Woodland Restoration
- CM2 L-1, Vegetation Management and Invasive Plant Control
- CM2 L-3, Develop and Implement Fire Management Plans
- CM2 OW-1, Oak Woodland Vegetation Enhancement and Management
- CM2 OW-2, Control of Invasive Animals that Limit Oak Regeneration
- CM3 OW-1, Oak Woodland Restoration

Temporarily affected oak woodland habitats for special-status plants would be restored through implementation of General Condition 4, Temporary Effects, which requires that temporarily affected areas be restored to pre-project conditions or better, based on performance standards such as percent vegetative cover, restored hydrology, and restored topography.

Implementation of Community Conditions 3.1, Valley Oak Woodland Alliance, and 3.2, Valley oak Woodland and Individual Valley Oak Trees, would protect valley oak woodlands larger than 1 acre and the hydrology of the woodlands, as well as valley oak woodlands smaller than 1 acre and individual valley oak trees.

Although they do not apply to special-status plant species, these conservation measures and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. In addition, the impacts of Covered Activities, which includes urban/suburban development, transportation projects, and infrastructure projects, under Alternative 2 on occurrences of and habitat for non-covered special-status plants would be mitigated on a project-by-project basis for discretionary projects. Substantial ancillary benefits for these plant species are expected to result from Plan implementation, because it would establish a comprehensive reserve management program that would enhance habitat conditions in a variety of natural communities that may support special-status plants. Any potential effects on these plants from fuels management, vegetation management, and infrastructure operations and maintenance, though not likely subject to additional environmental review, would be offset because the entities implementing these projects would be participating in the Plan and contributing funds for the implementation of the conservation strategy; furthermore the likelihood of rare plants occurring in these areas is low because these areas were likely previously disturbed by similar activities (e.g., existing fire breaks, areas previously disturbed by infrastructure construction). The implementation of conservation
measures to create and restore oak woodland habitat, which may affect these plant populations, may not be subject to further approvals or review that may identify effects on these plants.

**NEPA Determination:** Implementation of Alternative 2 could result in the loss of up to two occurrences of big-scale balsamroot, five occurrences of Brandegee’s clarkia, one potential occurrence of Red Bluff dwarf rush, and one occurrence of dubious pea. Alternative 2 would also result in the permanent removal of up to 6,350 acres of oak woodland habitats for special-status plants in the Plan Area. However, the protection and restoration guided by the Plan’s goals, objectives, conservation measures, and conditions would ensure that habitat loss from Covered Activities, which include urban/suburban development, transportation projects, infrastructure projects, fuels management, vegetation management, and infrastructure operations and maintenance would be compensated for and preserved habitat would be managed in perpetuity and thus the effects would be reduced to a less-than-significant level.

Conservation measures to create, restore, enhance, and manage oak woodland habitat could remove existing populations of special-status plants if these actions take place in previously undisturbed oak woodlands and if there are no opportunities to identify and avoid these populations through subsequent NEPA review; therefore these activities could have adverse impacts on special-status plants. Implementation of Mitigation Measure BIO-1 would reduce this effect to a less-than-significant level.

**CEQA Determination:** Implementation of Alternative 2 could result in the loss of up to two occurrences of big-scale balsamroot, five occurrences of Brandegee’s clarkia, one potential occurrence of Red Bluff dwarf rush, and one occurrence of dubious pea. Alternative 2 would also permanently remove up to 6,350 acres of oak woodland habitats for special-status plants in the Plan Area. However, the protection and restoration guided by the Plan’s goals, objectives, conservation measures, and conditions would ensure that habitat loss from Covered Activities, which include urban/suburban development, transportation projects, infrastructure projects, fuels management, vegetation management, and infrastructure operations and maintenance, would be compensated for and preserved habitat would be managed in perpetuity and thus the effects would be reduced to a less-than-significant level.

Conservation measures to create, restore, enhance, and manage oak woodland habitat could remove existing populations of special-status plants if these actions take place in previously undisturbed oak woodlands and if there are no opportunities to identify and avoid these populations through subsequent CEQA review; therefore, restoration and enhancement activities could have adverse impacts on special-status plants. Implementation of Mitigation Measure BIO-1 would reduce this potential impact to a less-than-significant level.

**Mitigation Measure BIO-1: Conduct surveys for and avoid special-status plants in proposed restoration and enhancement areas**

**Impact BIO-9: Effects on special-status plants in grassland habitats (NEPA: less than significant with mitigation; CEQA: less than significant with mitigation)**

Several special-status plant species that occur in annual grasslands and vernal pool complex uplands are known to occur in the Plan Area region: big-scale balsamroot, hispid bird’s-beak, stinkbells, Red Bluff dwarf rush, sylvan microseris, and hoary navarretia. With the exception of hispid bird’s-beak, which only occurs in grassland or vernal pool upland habitat in the Plan Area, all these species also occur in oak woodland and chaparral habitats, as discussed in Impact BIO-8. There are recorded
Covered Activities under Alternative 2, the proposed action, would result in permanent and temporary impacts on grassland habitats for special-status plants. Plan Area A includes 21,887 acres mapped as grassland, as well as the upland portion of 45,065 acres mapped as vernal pool complex. Pasture is not included in this analysis as potential special-status plant habitat, because it is a managed habitat with almost no native plant species. Permanent impacts in the Valley portion of the Plan Area would total 3,400 acres of grassland habitat (approximately 15% of this community in Plan Area A) and 11,830 acres of vernal pool complex upland (approximately 26% of total vernal pool complex in Plan Area A). A known occurrence of big-scale balsamroot in the Valley portion of the Plan Area could be removed by anticipated projects. Permanent impacts in the Foothill portion would total 3,300 acres of grassland habitat (approximately 15% of the community in Plan Area A) and 100 acres of vernal pool complex upland (approximately 0.2% of total vernal pool complex in Plan Area A); however, no extant occurrences of special-status plants are recorded in the Foothill portion. Impacts in Plan Area A would result primarily from urban/suburban development, transportation projects, and infrastructure projects. In Plan Area B, permanent impacts from Covered Activities in non-participating cities would affect 100 acres of grassland habitat and 40 acres of vernal pool complex upland. One known occurrence of big-scale balsamroot could be removed as a result of these Covered Activities. One occurrence of Red Bluff dwarf rush could also be affected; however, this record of the species is questionable and may be due to a misidentification of another species as Red Bluff dwarf rush. Additional undiscovered occurrences of special-status plants could be removed in the Plan Area as a result of project construction in Plan Areas A and B.

An unknown amount of vernal pool complex wetland habitat may be permanently altered by the restoration/creation of a portion of the 900 acres of vernal pool, seasonal wetland, and seasonal swale wetlands included in implementation of the Plan's conservation strategy. If vernal pool restoration/creation is to take place in existing vernal pool complexes, these activities could affect upland resources and the hydrologic balance of the existing pools in these complexes. However, implementation of CMI VPCG-2, Vernal Pool Complex Enhancement and Hydrologic Conditions, and CM3 VPCG-2, Grassland Restoration, would ensure that restoration/creation activities retain sufficient local watershed uplands to support additional pools and to protect adequate upland habitat around existing pools.

Temporary impacts of Covered Activities on grassland habitat for special-status plants would not exceed 125 acres in the Valley portion of the Plan Area, 90 acres in the Foothill portion, and 20 acres in Plan Area B. Temporary impacts of Covered Activities on vernal pool complex upland would not exceed 410 acres in the Valley portion of the Plan area, 10 acres in the Foothill portion, and 5 acres in Plan Area B. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Temporary effects associated with fuels management, vegetation management, and infrastructure operations and maintenance would occur in areas previously disturbed by similar activities (e.g., existing fire breaks, areas previously disturbed by infrastructure construction), and therefore the likelihood of rare plants occurring in these areas is low. Some conservation actions through Plan implementation may also temporarily affect grassland habitat for special-status plants in locations where grading, vegetation management, or other physical change to grassland habitat is required.
Indirect impacts on grassland and vernal pool complex upland habitats that support special-status plants could result from construction activities such as grading and removal of vegetation. These activities could adversely affect habitat function for special-status plants by altering the topography and hydrology in grasslands and uplands surrounding vernal pools.

Permanent loss of grassland habitat for special-status plants from Covered Activities under Alternative 2 would be offset by the protection and management of 2,740 acres of grassland and up to 16,210 acres of vernal pool complex uplands (estimated flexible conservation acreage), as well as restoration of 1,000 acres of grassland and up to 2,100 acres of vernal pool complex uplands in Plan Area reserves. The protection and restoration of grassland and vernal pool complex upland habitat for special-status plants would be supported by the following conservation measures.

- CM1 L-2, Reserve Acquisition Strategy
- CM2 L-1, Vegetation Management and Invasive Plant Control
- CM2 L-3, Develop and Implement Fire Management Plans
- CM3, VPCG-1, Vernal Pool Complex Restoration/Creation
- CM3 VPCG-2, Grassland Restoration

Temporarily affected grassland and vernal pool complex upland habitats for special-status plants would be restored through implementation of General Condition 4, Temporary Effects, which requires that temporarily affected areas be restored to pre-project conditions or better, based on performance standards such as percent vegetative cover, restored hydrology, and restored topography.

Although they do not apply to special-status plant species, these conservation measures and conditions establish performance standards for considering the effectiveness of proposed conservation actions. In addition, the impacts of Covered Activities, which includes urban/suburban development, transportation projects, and infrastructure projects, under Alternative 2 on occurrences of and habitat for non-covered special-status plants would be mitigated on a project-by-project basis for discretionary projects. Ancillary benefits for these plant species are also expected to result from Plan implementation, because it would establish a comprehensive reserve management program that would enhance habitat conditions in a variety of natural communities that may support non-covered special-status plants. Any potential effects on these plants from fuels management, vegetation management, and infrastructure operations and maintenance, though not likely subject to additional environmental review, would be offset because the entities implementing these projects would be participating in the Plan and contributing funds for the implementation of the conservation strategy; furthermore the likelihood of rare plants occurring in these areas is low because these areas were likely previously disturbed by similar activities (e.g., existing fire breaks, areas previously disturbed by infrastructure construction). The implementation of conservation measures to create, restore, enhance, and manage grassland and upland vernal pool complex habitat, which may affect these plant populations, may not be subject to further approvals or review that may identify effects on these plants.

**NEPA Determination:** Implementation of Plan Alternative 2 could result in the loss of up to two occurrences of big-scale balsamroot and one potential occurrence of Red Bluff dwarf rush. Covered Activities associated with Alternative 2 would also result in the permanent removal of up to 6,900 acres of grassland and the upland portion of the 12,550 acres of vernal pool complex that supports habitat for special-status plants in the Plan Area. However, the protection and restoration guided by
the Plan’s goals, objectives, conservation measures, and conditions would ensure that habitat loss from Covered Activities, which include urban/suburban development, transportation projects, infrastructure projects, fuels management, vegetation management, and infrastructure operations and maintenance, would be compensated for and preserved habitat would be managed in perpetuity and thus the effects would be reduced to a less-than-significant level.

Conservation measures to create, restore, enhance, and manage grassland habitat could remove existing populations of special-status plants if these actions take place in previously undisturbed grassland and if there are no opportunities to identify and avoid these populations through subsequent NEPA review; therefore, these activities could have adverse impacts on special-status plants. Implementation of Mitigation Measure BIO-1 would reduce this effect to a less-than-significant level.

CEQA Determination: Implementation of Plan Alternative 2 could result in the loss of up to two occurrences of big-scale balsamroot and one potential occurrence of Red Bluff dwarf rush. Covered Activities associated with Alternative 2 would also permanently remove up to 6,900 acres of grassland and the upland portion of the 12,550 acres of vernal pool complex that supports habitat for special-status plants in the Plan Area. However, the protection and restoration guided by the Plan’s goals, objectives, conservation measures, and conditions would ensure that habitat loss from Covered Activities, which include urban/suburban development, transportation projects, infrastructure projects, fuels management, vegetation management, and infrastructure operations and maintenance would be compensated for and preserved habitat would be managed in perpetuity and thus the effects would be reduced to a less-than-significant level.

Conservation measures to create, restore, enhance, and manage grassland habitat could remove existing populations of special-status plants if these actions take place in previously undisturbed grassland and if there are no opportunities to identify and avoid these populations through subsequent CEQA review; therefore, these activities could have adverse impacts on special-status plants. Implementation of Mitigation Measure BIO-1 would reduce this potential impact to a less-than-significant level.

**Mitigation Measure BIO-1: Conduct surveys for and avoid special-status plants in proposed restoration and enhancement areas**

**Impact BIO-10: Effects on special-status plants in fresh emergent marsh and riverine habitats**

*NEPA: less than significant with mitigation; CEQA: less than significant with mitigation*

One special-status plant species that grows in fresh emergent marsh and slow-moving riverine habitats (Sanford’s sagittaria) has potential to occur in the Plan Area region. The Plan Area is within the range of Sanford's sagittaria and supports suitable habitat for the species. There are no CNDDB-documented occurrences in the Plan Area, although one CNDDB occurrence is in Sacramento County adjacent to the Plan Area (California Department of Fish and Wildlife 2017). There are a total of 93 occurrences in California, 8 of which are extirpated or possibly extirpated. In addition, there is inoculation of this species in the Silvergate Mitigation Bank that is not included in the CNDDB (Wildlands 2003). No impacts on the mitigation bank would result from implementation of the Plan.

Covered Activities under Alternative 2, the proposed action, would result in permanent and temporary impacts on marsh and riverine habitat for special-status plants. Potential habitats for these species in Plan Area A include 1,112 acres of marsh and 868 acres of riverine, a portion of which would be suitable habitat for Sanford's sagittaria. Permanent impacts in the Valley portion of
the Plan Area would total 50 acres of fresh emergent marsh habitat (approximately 4% of this community in Plan Area A) and 80 acres of riverine habitat (approximately 9% of this community in Plan Area A). Permanent impacts in the Foothill portion would total 50 acres of fresh emergent marsh habitat (approximately 4% of this community in Plan Area A) and 30 acres of riverine habitat (approximately 3% of this community in Plan Area A). Impacts in Plan Area A would result primarily from urban/suburban development, transportation projects, and infrastructure projects. In Plan Area B, permanent impacts of Covered Activities in non-participating cities would total 5 acres of fresh emergent marsh habitat and 5 acres of riverine habitat. No known occurrences of special-status plants associated with marsh or riverine habitats would be removed as a result of the projects; however, currently undiscovered occurrences of special-status plants could be removed in the Plan Area as a result of project construction in Plan Areas A and B.

Temporary impacts of Covered Activities on fresh emergent marsh habitat for special-status plants would not exceed 25 acres in the Valley portion of the Plan Area, 15 acres in the Foothill portion, and 10 acres in Plan Area B. Temporary impacts on riverine habitat for special-status plants would not exceed 30 acres in the Valley portion of the Plan Area, 10 acres in the Foothill portion, and 10 acres in Plan Area B. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Temporary effects associated with fuels management, vegetation management, and infrastructure operations and maintenance would occur in areas previously disturbed by similar activities (e.g., existing fire breaks, areas previously disturbed by infrastructure construction), and therefore the likelihood of rare plants occurring in these areas is low. Some conservation actions through Plan implementation may also temporarily disturb fresh emergency marsh habitat for special-status plants at locations where grading, vegetation management, or other physical change to the habitat is required.

Indirect impacts on fresh emergent marsh and riverine habitats that are suitable for special-status plants could result from construction activities such as grading and removal of vegetation. These activities could adversely affect habitat function for special-status plants by altering the topography and hydrology that support these habitats.

Permanent loss of fresh emergent marsh and riverine habitats for special-status plants from Covered Activities under Alternative 2 would be offset by the protection and management of 256 acres of fresh emergent marsh and up to 308 acres of riverine in Plan Area reserves. In addition, there would be restoration of up to 196 acres of fresh emergent marsh and up to 172 acres of riverine in Plan Area reserves. The protection of fresh emergent marsh and riverine habitats for special-status plants would be supported by the following conservation measures.

- CM1 L-2, Reserve Acquisition Strategy
- CM1 AW-1, Aquatic/Wetlands Complex Protection
- CM2 L-1, Vegetation Management and Invasive Plant Control
- CM2 L-3, Develop and Implement Fire Management Plans
- CM2 RAR-1, Riparian Vegetation Management
- CM2 AW-1, Aquatic/Wetlands Complex Vegetation Control
- CM2 AW-2, Fencing Wetlands and Ponds
- CM2 AW-3, Sediment Removal
- CM2 AW-7, Maintenance of Water Depths and Hydrological Cycles
- CM2 AW-9, Maintenance and Enhancement of Water Quality
- CM3 AW-1, Aquatic/Wetlands Complex Restoration/Creation

Temporarily affected fresh emergent marsh and riverine habitats for special-status plants would be restored through implementation of General Condition 4, Temporary Effects, which requires that temporarily affected areas be restored to pre-project conditions or better, based on performance standards such as percent vegetative cover, restored hydrology, and restored topography.

Implementation of Community Condition 2, Riverine and Riparian Avoidance and Minimization, and the specific measures contained in the condition would protect the hydrology and habitat quality of riverine habitat for special-status plants. Community Condition 1.2, Avoidance of Aquatic/Wetland Complex Constituent Habitat, would encourage avoidance of impacts on fresh emergent marsh habitat.

Although they do not apply to special-status plant species, these conservation measures and conditions establish performance standards for considering the effectiveness of proposed conservation actions. In addition, the impacts of Covered Activities, which includes urban/suburban development, transportation projects, and infrastructure projects, under Alternative 2 on occurrences of and habitat for non-covered special-status plants would be mitigated on a project-by-project basis for discretionary projects. Ancillary benefits for these plant species are also expected to result from Plan implementation, because it would establish a comprehensive reserve management program that would enhance habitat conditions in a variety of natural communities that may support non-covered special-status plants. Any potential effects on these plants from fuels management, vegetation management, and infrastructure operations and maintenance, though not likely subject to additional environmental review, would be offset because the entities implementing these projects would be participating in the Plan and contributing funds for the implementation of the conservation strategy; furthermore the likelihood of rare plants occurring in these areas is low because these areas were likely previously disturbed by similar activities (e.g., existing fire breaks, areas previously disturbed by infrastructure construction). The implementation of conservation measures to create, restore, enhance, and manage fresh emergent marsh and riverine habitats, which may affect these plant populations, may not be subject to further approvals or review that may identify effects on these plants.

**NEPA Determination:** Implementation of Alternative 2 could affect currently undiscovered occurrences of special-status plants in freshwater emergent marsh and riverine habitats. Alternative 2 would also result in the permanent removal of up to 105 acres of fresh emergent marsh and 115 acres of riverine habitats for special-status plants in the Plan Area. However, the protection and restoration guided by the Plan's goals, objectives, conservation measures, and conditions would ensure that habitat loss from Covered Activities, which include urban/suburban development, transportation projects, infrastructure projects, fuels management, vegetation management, infrastructure operations and maintenance, would be compensated for and preserved habitat would be managed in perpetuity and thus the effects would be reduced to a less-than-significant level.

Conservation measures to create, restore, enhance, and manage emergent marsh and riverine habitat could remove existing populations of special-status plants if these actions take place in previously undisturbed habitat and if there are no opportunities to identify and avoid these
populations through subsequent NEPA review; therefore these activities could have adverse impacts on special-status plants. Implementation of Mitigation Measure BIO-1 would reduce this effect to a less-than-significant level.

**CEQA Determination:** Implementation of Alternative 2 could affect currently undiscovered occurrences of special-status plants in freshwater emergent marsh and riverine habitats. Alternative 2 would also permanently remove up to 105 acres of fresh emergent marsh and 115 acres of riverine habitats for special-status plants in the Plan Area. However, the protection and restoration guided by the Plan’s goals, objectives, conservation measures, and conditions would ensure that habitat loss from Covered Activities, which include urban/suburban development, transportation projects, infrastructure projects, fuels management, vegetation management, infrastructure operations and maintenance, would be compensated for and preserved habitat would be managed in perpetuity and thus would reduce these effects to a less-than-significant level.

Conservation measures to create, restore, enhance, and manage emergent marsh and riverine habitats, which could remove existing populations of special-status plants if these actions take place in previously undisturbed habitat and if there are no opportunities to identify and avoid these populations through subsequent CEQA review; therefore, restoration could have significant impacts on special-status plants. Implementation of Mitigation Measure BIO-1 would reduce this potential impact to a less-than-significant level.

**Mitigation Measure BIO-1: Conduct surveys for and avoid special-status plants in proposed restoration and enhancement areas**

**Special-Status Fish and Wildlife**

**Impact BIO-11: Potential for construction and operation effects on Chinook salmon (fall-/late fall–run) and Central Valley steelhead (NEPA: less than significant; CEQA: less than significant)**

Implementation of the Plan Covered Activities under Alternative 2, the proposed action, would result in permanent and temporary direct effects on Central Valley steelhead and Chinook salmon habitat. Permanent direct effects on riparian woodland/riverine habitat would total 490 acres: 480 acres in Plan Area A (9% of total riverine/riparian habitat in the Plan Area) and 10 acres in Plan Area B. Implementation of the Plan Covered Activities under Alternative 2 would result in temporary direct effects on 165 acres: 145 acres in Plan Area A (3% of this community in Plan Area A) and 20 acres in Plan Area B. These direct impacts would result from road crossings (i.e., bridge work and culverts); water supply, flood control, and stormwater management activities; and activities of individual landowners, typically in rural residential settings. In addition, riparian/riverine protection, conservation, and enhancement activities associated with Plan implementation could affect Central Valley steelhead and Chinook salmon habitat.

These activities could cause a permanent change in substrate composition and channel morphology in aquatic habitat; create a permanent loss of shallow-water habitat, riparian vegetation, and instream woody material; and change instream flows if water is diverted from streams and if woody material, including beaver dams, is removed from creeks that could benefit habitat for fish.

Implementation of the Plan Covered Activities could also have direct effects on fish during construction; heavy equipment use in the active channel and impact pile driving could kill or injure fish. Finally, these activities could result in localized alterations in channel form and patterns of
erosion and sedimentation that over time could alter aquatic habitat structure and function from existing conditions.

Implementation of conservation measures addressing riverine and riparian communities and covered salmonids would have a beneficial permanent direct effect on steelhead and Chinook salmon. Aquatic habitat improvement activities include floodplain restoration/reconnection projects in the Dry Creek, Auburn Ravine, and Coon Creek watersheds; bridge and culvert improvement projects; channel improvements to natural channels; fish passage enhancements including removal of fish barriers, low-flow crossings, and development of fish screens; and placement of spawning gravels. These activities would benefit steelhead and Chinook salmon spawning, migratory, and rearing habitat, contributing to higher survival of these covered species in the Plan Area.

Temporary effects on salmonid streams are expected to result from road crossings, water supply projects, flood control projects, and instream restoration activities. Impact mechanisms associated with these activities include accidental introduction of contaminants and sediment into flowing water and noise at individual project construction sites. Removing or altering existing riparian habitat for habitat improvement activities under the Plan could temporarily affect water temperature and habitat complexity. Recurring maintenance activities within and outside the Plan Area, such as transportation facility maintenance, flood control and stormwater facility maintenance, and vegetation management, may have temporary direct effects on Chinook salmon and steelhead through the release of sediment and contaminants and the removal of in-channel woody material.

Permanent indirect effects resulting from transportation projects and urban and rural residential development include noise, visual disturbance, and ground vibrations that could cause Chinook salmon and steelhead to avoid suitable aquatic habitat. Vehicles on bridges can increase noise levels and the release of petroleum-based chemicals into waterways, in turn causing decreased spawning, migratory, and rearing success. An increase in the input of contaminants (e.g., petroleum-based chemicals, pesticides, heavy metals) to waterways could result from residential development, the presence of new impervious surfaces associated with residential development, transportation projects, and other facilities if runoff enters waterways. Contaminants can adversely affect fish directly through exposure or indirectly through adverse effects on food organisms (e.g., macroinvertebrates), including the bioaccumulation of toxic compounds in these organisms.

Designated critical habitat for Central Valley steelhead is present in the Plan Area. Critical habitat for steelhead occurs in Coon Creek, Doty Creek, Auburn Ravine, Secret Ravine, Miner’s Ravine, and Dry Creek. Approximately 1.24 miles (1.3% of total designated critical habitat in the Plan Area) could be permanently affected by bridge construction, flood control and stormwater management activities, natural resource protection activities, and the conservation strategy. The conservation strategy and the conditions listed below are expected to have a beneficial effect on critical habitat for Central Valley steelhead.

Essential fish habitat (EFH) for Chinook salmon also occurs in the Plan Area. Construction and operation of the activities listed above and the conservation strategy (restoration, enhancement, and management actions) would result in permanent effects on EFH. The conservation activities and Conditions discussed below will increase EFH value for Pacific salmonids and have a beneficial impact on EFH.
The Plan seeks to conserve and protect the stream systems throughout western Placer County and to increase spawning, rearing, and migratory success of covered salmonids in the Auburn Ravine, Coon Creek, and Dry Creek watersheds. The following landscape-, natural community–, and species-level objectives and conservation measures would provide fish movement, protect watershed health, and protect habitat for covered salmonids in support of goal FISH-1.

- Objective L-1.1, Establish a Large, Interconnected Reserve System
- Objective L-2.1, Protect Habitat Linkages
- Objective L-2.3, Establish East–West Corridors
- Objective L-3.1, Implement Low Impact Development Standards
- Objective L-3.2, Reduce Invasive Non-native Species and Increase Native Species
- Objective VPCG-1.1, Protect Existing Vernal Pool Complexes
- Objective VPCG-1.2, Restore/Create Vernal Pool Complexes
- Objective VPCG-1.3, Protect Grasslands
- Objective VPCG-1.4, Restore/Create Vernal Pool Complexes
- Objective RAR-1.1, Protect Riverine/Riparian Complex
- Objective RAR-1.2, Protect Riverine Habitat Constituent
- Objective RAR-1.3, Restore Riverine/Riparian Complex
- Objective RAR-1.5, Remove or Modify Fish Barriers;
- Objective RAR-1.7, Enhance Streams.
- Objective OW-1.1, Protect Oak Woodlands
- Objective OW-1.2, Restore Oak Woodlands
- Objective FISH-1.1, Protect Salmonid Spawning and Migrating Habitat
- Objective FISH-1.2, Protect Riparian Habitat for Fish
- Objective FISH-1.3, Protect Oak Woodlands for Fish
- CM1 RAR-1, Riverine and Riparian Protection
- CM1 RAR-2, Reserve Design for Riparian Restoration
- CM2 RAR-1, Riparian Vegetation Management
- CM2 RAR-2, Removal and/or Modification of Barriers to Fish Passage
- CM2 RAR-3, Modify Unscreened Water Diversion
- CM2 RAR-4, Improvement of In-channel Features
- CM2 RAR-7, Non-native Animals Species Control
- CM3 RAR-1, Riparian Natural Community Restoration

These objectives and conservation measures are intended to protect 88.6 stream miles in the Reserve System, including 25 stream miles of salmonid spawning habitat and 10 miles of salmonid migrating habitat, primarily on stream reaches along Coon Creek, Doty Ravine (a major tributary of
In addition to the biological objectives listed above, the following general, community, and stream system conditions would benefit covered salmonids.

- General Condition 1, Watershed Hydrology and Water Quality
- General Condition 2, Conservation Lands: Development Interface Design Requirements
- General Condition 3, Land Conversion
- General Condition 4, Temporary Effects
- General Condition 5, Conduct Worker Training
- Community Condition 2, Riverine and Riparian Avoidance and Minimization
- Community Condition 2.1, Riverine and Riparian Avoidance
- Community Condition 2.2, Minimize Riverine and Riparian Effects, Community Condition 2.3, Riverine and Riparian Restoration
- Community Condition 2.4, Placer County Water Agency Operations and Maintenance Best Management Practice
- Stream System Condition 1, Stream System Avoidance
- Species Condition 7, Central Valley Steelhead and Central Valley Fall-/Late Fall-Run Chinook Salmon (Salmonids)
- In-Stream and Stream System BMPs

The application of Low-Impact Development Standards would improve water quality for covered fish species. The restoration of riparian natural community would further benefit these species by providing cover and shade for thermoregulation and by providing vegetation that is a source of invertebrates upon which covered salmonids feed.

These goals, objectives, general conditions, and conservation measures establish performance standards for measuring the effectiveness of restoration actions. The acres of protection and restoration satisfy the typical mitigation that would be applied to the project-level effects, as well as mitigating the effects of the other conservation measures.

**NEPA Determination:** The permanent loss of 490 acres and temporary disturbance of 165 acres of riparian woodland/riverine habitat associated with Alternative 2, in the absence of other conservation actions, would constitute a potentially significant impact through habitat modification and potential direct mortality of a special-status species. However, with habitat protection and restoration associated with the conservation components, guided by landscape-scale goals and objectives, the overall effects of Alternative 2 on covered salmonids would be less than significant.
CEQA Determination: The permanent loss of 490 acres and temporary disturbance of 165 acres of riparian woodland/riverine habitat associated with Alternative 2, in the absence of other conservation actions, would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. The natural community restoration and protection activities would constitute adequate mitigation for CEQA purposes. The biological goals and conservation measures relevant to covered salmonids are more than sufficient to support the conclusion that the impacts of Alternative 2 on covered salmonids would be less than significant. No mitigation has been identified.

Impact BIO-12: Potential for construction and operation effects on non-covered species (hardhead and Pacific lamprey) (NEPA: less than significant; CEQA: less than significant)

Implementation of the Plan Covered Activities under Alternative 2, the proposed action, would result in permanent and temporary direct effects on hardhead and Pacific lamprey habitat. Permanent direct effects on riparian woodland/riverine habitat would total 490 acres: 480 acres in Plan Area A (9% of total riverine/riparian habitat in the Plan Area) and 10 acres in Plan Area B. Implementation of the Plan and Covered Activities under Alternative 2 would result in temporary direct effects on 165 acres: 145 acres in Plan Area A (3% of this community in Plan Area A) and 20 acres in Plan Area B. These direct impacts would result from road crossings (i.e., bridge work and culverts) and water supply, flood control, and stormwater management activities. In addition, riparian/riverine protection, conservation, and enhancement activities of Plan implementation could affect hardhead and Pacific lamprey habitat.

These activities could cause a permanent change in substrate composition and channel morphology in aquatic habitat; create a permanent loss of shallow-water habitat, riparian vegetation, and instream woody material; and change instream flows if water is diverted from streams and if woody material, including beaver dams, is removed from creeks that could benefit habitat for fish. Implementation of the Plan and Covered Activities could also have direct effects on fish during construction; heavy equipment use in the active channel could kill or injure fish. Finally, these activities could result in localized alterations in channel form and patterns of erosion and sedimentation that over time could alter aquatic habitat structure and function from existing conditions.

Implementation of conservation measures addressing riverine and riparian communities and covered salmonids would have a beneficial permanent direct effect on hardhead and Pacific lamprey through the protection and restoration of up to 3,121 acres of riverine/riparian habitat and 88.6 linear miles of open water habitat. Aquatic habitat improvement activities include floodplain restoration/reconnection projects in the Dry Creek, Auburn Ravine, and Coon Creek watersheds; bridge and culvert improvement projects; channel improvements to natural channels; fish passage enhancements including removal of fish barriers, low-flow crossings, and development of fish screens; and placement of spawning gravels (lamprey would benefit from spawning gravel placement). These activities would benefit hardhead and lamprey spawning, migratory, and rearing habitat, contributing to higher survival of non-covered species in the Plan Area.

Temporary effects on streams may result from road crossings, necessary operation and maintenance on water supply projects, flood control projects, and instream restoration activities. Impact mechanisms associated with these activities include accidental introduction of contaminants and sediment into flowing water and noise at project construction sites. Removing or altering existing riparian habitat in order to initiate habitat improvement activities under the Plan could
temporarily affect water temperature and habitat complexity. Recurring maintenance activities within and outside the Plan Area, such as transportation facility maintenance, flood control and stormwater facility maintenance, and vegetation management, may have temporary direct effects on hardhead and Pacific lamprey through the release of sediment and contaminants and the removal of in-channel woody material.

Permanent indirect effects resulting from transportation projects and urban and rural residential development include noise, visual disturbance, and ground vibrations that could cause hardhead and Pacific Lamprey to avoid suitable aquatic habitat. Vehicles on bridges can increase noise levels and the release of petroleum-based chemicals into waterways, in turn causing decreased spawning, migratory, and rearing success. An increase in the input of contaminants (e.g., petroleum-based chemicals, pesticides, heavy metals) to waterways could result from the presence of new impervious surfaces associated with residential development, transportation projects, and other facilities if runoff enters waterways. Contaminants such as pesticides and heavy metals can adversely affect fish directly through exposure or indirectly through adverse effects on food organisms (e.g., macroinvertebrates), including the bioaccumulation of toxic compounds in these organisms.

As disclosed in the discussion of Impact BIO-11, the goals, objectives, general conditions, and conservation measures establish performance standards for measuring the effectiveness of restoration actions. The acres of protection and restoration satisfy the typical mitigation that would be applied to the project-level effects, as well as mitigating the effects of the other conservation measures.

**NEPA Determination:** The permanent loss of 490 acres and temporary disturbance of 165 acres of riparian woodland/riverine habitat associated with Alternative 2, in the absence of other conservation actions, would constitute a potentially significant impact through habitat modification and potential direct mortality of a special-status species. However, with habitat protection and restoration associated with the conservation components, guided by landscape-scale goals and objectives, the overall effects of Alternative 2 on hardhead and Pacific lamprey would be less than significant.

**CEQA Determination:** The permanent loss of 490 acres and temporary disturbance of 165 acres of riparian woodland/riverine habitat associated with Alternative 2, in the absence of other conservation actions, would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. The natural community restoration and protection activities would constitute adequate mitigation for CEQA purposes. The biological goals and conservation measures relevant to covered salmonids are more than sufficient to support the conclusion that the impacts of Alternative 2 on hardhead and Pacific lamprey would be less than significant. No mitigation has been identified.

**Impact BIO-13: Effects on valley elderberry longhorn beetle (NEPA: less than significant; CEQA: less than significant)**

The CNDDB lists 12 occurrences of valley elderberry longhorn beetle in the Plan Area (California Department of Fish and Wildlife 2017). Appendix D, *Species Accounts*, of the Plan provides more detail on the status and distribution of the species throughout its range.

Covered Activities under Alternative 2, the proposed action, would result in permanent and temporary impacts on valley elderberry longhorn beetle habitat. Permanent impacts would result in the loss of up to 630 acres of habitat (7% of 8,153 acres of habitat in the Plan Area), primarily from
urban/suburban development, rural residential development, transportation projects, and infrastructure projects. These losses would almost entirely occur within the Valley portion of Plan Area A, with small losses (20 acres) in Plan Area B.

Temporary impacts of Covered Activities on valley elderberry longhorn beetle habitat would not exceed 190 acres (2%) of habitat in the Plan Area. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Restoration and enhancement under Plan implementation that could temporarily affect valley elderberry longhorn beetle habitat include grading and contouring to restore, create, and enhance wetlands in reserves.

Indirect effects on valley elderberry longhorn beetle habitat include accumulation of dust on shrubs resulting from up-wind disturbances, flood control practices that could fragment habitat used by valley elderberry longhorn beetle, increased risk of wildfire, and the spread of invasive plants and animals that could affect the species.

The permanent and temporary loss of valley elderberry longhorn habitat would be offset by the protection and management of 2,390 acres and restoration of 1,710 acres of valley elderberry longhorn beetle habitat. The protection and restoration of valley elderberry longhorn beetle habitat would be supported by the following goals, objectives, conservation measures, and conditions.

- GOAL VELB-1, Habitat to support a sustained population of valley elderberry longhorn beetle within the Reserve System
- Objective RAR-1.1, Protect Riverine/Riparian Complex
- Objective RAR-1.3, Restore Riverine/Riparian Complex
- Objective RAR-1.4, Enhance Riparian Vegetation
- Objective OW-1.4, Protect Oak Woodlands
- Objective VELB-1.1, Restore Valley Elderberry Longhorn Beetle Habitat
- CM1, Establish Reserve System
- CM2, Manage and Enhance the Reserve System
- CM3, Restore and Create Natural Communities and Covered Species’ Habitat.
- CM3 VELB-1, Valley Elderberry Longhorn Habitat Restoration
- CM1 RAR-1, Riverine and Riparian Protection
- CM2 RAR-1 Riparian Vegetation Management
- CM3 RAR-1, Riparian Natural Community Restoration
- CM1 OW-1, Oak Woodland Protection
- General Condition 2, Conservation Lands: Development Interface Design Requirements
- General Condition 4, Temporary Effects
- General Condition 5, Conduct Worker Training
- Community Condition 2, Riverine and Riparian Avoidance and Minimization
Stream System Condition 1, Stream System Avoidance
Stream System Condition 2, Stream System Mitigation: Restoration
Regional Public Projects Condition 1, Transportation and Other Infrastructure Projects Design Requirements
Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects Construction BMPs
Regional Public Projects Condition 3, Operations and Maintenance BMPs
Species Condition 8, Valley Elderberry Longhorn Beetle

The Plan’s model for valley elderberry longhorn beetle only considers modeled habitat up to an elevation of 650 feet; accordingly Species Condition 8 only requires surveys up to this elevation. As noted in Section 3.3, Affected Environment, the species is known to occur up to 1,875 feet in Placer County and is considered to occur up to 3,000 feet across the species’ range. There is a chance that elderberry shrubs, including occupied shrubs, could be missed if surveys are not conducted above 650 feet. Despite this limitation, the Plan’s protection, management, and restoration (which includes planting elderberry shrubs) of 4,100 acres of riparian habitat and valley oak woodland contrasted with 630 acres of impact (a ratio greater than 6:1) would more than compensate for the potential effects on the species.

These goals, objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. The acres of protection and restoration satisfy the typical mitigation that would be applied to the project-level effects, as well as mitigating the effects of the other conservation measures. The proposed conditions further demonstrate the intent to avoid and minimize effects over the life of the Plan.

NEPA Determination: The permanent loss of 630 acres and temporary disturbance of 190 acres of valley elderberry longhorn beetle habitat associated with Alternative 2, in the absence of other conservation actions, would constitute a potentially significant impact through habitat modification and potential direct mortality of a special-status species. However, with the protection and restoration guided by the Plan’s goals, objectives, conservation measures, and conditions, the overall effects of Alternative 2 on valley elderberry longhorn beetle would be less than significant.

CEQA Determination: The permanent loss of 630 acres and temporary disturbance to 190 acres of valley elderberry longhorn beetle habitat associated with Alternative 2, in the absence of other conservation actions, would constitute a significant impact as a result of habitat modification and potential direct mortality of a special-status species. The natural community restoration and protection activities would constitute adequate mitigation for CEQA purposes. The biological goals and conservation measures for valley elderberry longhorn beetle are more than sufficient to support the conclusion that the impacts of Alternative 2 on valley elderberry longhorn beetle would be less than significant. No mitigation has been identified.

Impact BIO-14: Effects on vernal pool branchiopods (NEPA: less than significant; CEQA: less than significant)

The CNDDB lists 1 occurrence of Conservancy fairy shrimp, 63 occurrences of vernal pool fairy shrimp, and 3 occurrences of vernal pool tadpole shrimp in the Plan Area (California Department of Fish and Wildlife 2017).
Covered Activities under Alternative 2, the proposed action, would result in permanent and temporary impacts on vernal pool complex and wetland habitat for vernal pool branchiopods. Permanent impacts would result in the loss of up to 580 acres of vernal pool–type wetlands within 12,550 acres of vernal pool complex (26% and 28% of these habitats in the Plan Area, respectively). These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. These losses would be primarily in the Valley portion of Plan Area A, with small losses occurring in Plan Area B (15 acres).

Temporary impacts of Covered Activities on vernal pool branchiopod habitat would not exceed 25 acres of vernal pool–type wetlands (1% of this habitat type in the Plan Area) and 455 acres of vernal pool complex (1%). These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, infrastructure construction, and conservation activities. Conservation actions through Plan implementation that could temporarily affect vernal pool complex include restoration and enhancement actions such as grading and contouring to restore, create, and enhance vernal pool–type wetlands in reserves.

Indirect impacts on vernal pool complex could result from construction activities in the Plan Area, such as grading, trenching, changes to hydrology, and changes to topography. Indirect effects on vernal pools are generally considered to occur when ground-disturbing activities take place within 250 feet of a vernal pool—more specifically, when it can be demonstrated that the hydrology supporting a pool has been altered. Indirect effects on vernal pool complexes were estimated in the Plan at 1,979 acres. These indirect effects could adversely affect the functions and services of vernal pool–type wetlands and supporting uplands in vernal pool complexes. These effects could result from construction and maintenance of infrastructure associated with urban and rural development, installation and maintenance of utility lines, road improvements, drainage facility improvements, and flood control projects.

Goal VPB-1 as set forth in the Plan seeks to sustain populations of vernal pool branchiopods within the Reserve System. Permanent loss of vernal pool complex under Alternative 2 would be offset by the protection and management of 17,000 acres and the restoration of 3,000 acres of vernal pool complex in reserves within the Plan Area. The protection and restoration of vernal pool complex would be supported by the following biological objectives, conservation measures, and conditions.

- Objective VPCG-1.1, Protect Existing Vernal Pool Complexes
- Objective VPB-1.1, Maintain Vernal Pool Fairy Shrimp Occupancy in the Reserve System
- Objective VPB-1.2, Maintain Vernal Pool Tadpole Shrimp Occupancy in the Reserve System
- Objective VPB-2.1, Protect Conservancy Fairy Shrimp Occurrences
- CM1, Establish Reserve System
- CM1 L-2, Reserve Acquisition Strategy
- CM1 L-4, Connectivity within Plan Area
- CM1 VPCG-1, Vernal Pool Complex Protection
- CM1 VPCG-2, Reserve Design for Vernal Pool Restoration/Creation
- CM1 VPB-1, Protection and Restoration of Occupied Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp Habitat
• CM2, Manage and Enhance the Reserve System
• CM2 L-1, Vegetation Management and Invasive Plant Control
• CM2 L-3, Develop and Implement Fire Management Plans
• CM2 VPCG-1, Vernal Pool Complex Enhancement and Hydrologic Conditions
• CM3, Restore and Create Natural Communities and Covered Species’ Habitat
• CM3 VPCG-1, Vernal Pool Complex Restoration/Creation
• CM3 VPB-1, Translocation of Vernal Pool Branchiopod Cysts
• CM4 L-1, Low-Impact Development Standards
• CM4 VPCG-1, Conduct Outreach to Private Landowners
• General Condition 1, Watershed Hydrology and Water Quality
• General Condition 2, Conservation Lands: Development Interface Design Requirements
• General Condition 4, Temporary Effects
• General Condition 5, Conduct Worker Training
• Community Condition 1, Wetland Avoidance and Minimization (Vernal Pool and Aquatic/Wetland Complex)
• Regional Public Projects Condition 1, Transportation and Other Infrastructure Projects Design Requirements
• Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects Construction BMPs
• Regional Public Projects Condition 3, Operations and Maintenance BMPs
• Species Condition 9, Conservancy Fairy Shrimp
• Species Condition 10, Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp

Objectives VPB-1.1 and VPB-1.2 would seek to maintain an occupancy rate equal to or greater than the rate lost as a result of Covered Activities within the 20,000 acres of protected, restored, and created vernal pool habitat described above. Objective VPB-2.1 would protect two occurrences of Conservancy fairy shrimp for the first occurrence lost and three occurrences for each additional occurrence lost. CM1 VPB-1 would ensure an occupancy rate that is equal to or greater than the occupancy rate of vernal pools lost as a result of Covered Activities. CM3 VPB-1 would be implemented primarily in sites that do not support populations of branchiopods and in restored or created wetlands.

These goals, objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of restoration actions. The acres of protection and restoration satisfy the typical mitigation that would be applied to the project-level effects, as well as mitigating the effects of the other conservation measures. The proposed conditions further demonstrate the intent to avoid and minimize effects over the life of the Plan.

NEPA Determination: The permanent loss of up to 580 acres of vernal pool–type wetlands within 12,550 acres of vernal pool complex and temporary disturbance of 25 acres of vernal pool–type wetlands within 445 acres of vernal pool complex associated with Alternative 2, in the absence of
other conservation actions, would constitute a potentially significant impact through habitat modification and potential direct mortality of a special-status species. However, with the protection and restoration guided by the Plan’s goals, objectives, conservation measures, and conditions, the overall effects of Alternative 2 on aquatic/wetland complex in the Plan Area would be less than significant.

**CEQA Determination:** The permanent loss of up to 580 acres of vernal pool type wetlands within 12,550 acres of vernal pool complex and temporary disturbance to 25 acres of vernal pool type wetlands within 445 acres of vernal pool complex habitat associated with Alternative 2, in the absence of other conservation actions, would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. The natural community restoration and protection activities would constitute adequate mitigation for CEQA purposes. The biological objectives, conservation measures, and conditions for vernal pool branchiopods are more than sufficient to support the conclusion that the impacts of habitat loss and direct mortality on vernal pool branchiopods under Alternative 2 would be less than significant. No mitigation has been identified.

**Impact BIO-15: Effects on California red-legged frog (NEPA: less than significant; CEQA: less than significant)**

The CNDDB lists three occurrences of California red-legged frog in one population in the Plan Area, near the townsite of Michigan Bluff near Foresthill (California Department of Fish and Wildlife 2017). All these occurrences are limited to a conservation bank site (Big Gun Conservation Bank) that is being managed for California red-legged frog (Plan Area B5). There are no known occurrences in Plan Areas A, B1, B2, B3, or B4.

Covered Activities under Alternative 2, the proposed action, would result in permanent and temporary impacts on habitat that is presumed to be currently unoccupied by California red-legged frog. Permanent development projects would result in the loss of up to 672 acres of currently unoccupied aquatic breeding and foraging habitat (8% of a total 8,532 acres of aquatic habitat) and up to 8,551 acres of currently unoccupied upland movement and refugia habitat (11% of 75,306 acres of modeled upland habitat) in the Foothill portion of Plan Area A. These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. Moreover, restoration, enhancement, and management actions associated with the Plan could result in inadvertent mortality; result in the release of contaminants (e.g., fuels, lubricants) into habitat, potentially affecting survival; and cause erosion that could affect habitat.

Covered Activities would temporarily affect up to 168 acres of currently unoccupied aquatic habitat and 214 acres of currently unoccupied upland habitat in the Foothill portion of Plan Area A. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, infrastructure construction, and conservation activities. Conservation actions that could temporarily affect California red-legged frog include grading and contouring to restore, create, and enhance wetlands and riparian habitat in reserves.

Short-term construction-related effects on California red-legged frog if individuals were to become established in portions of Plan Areas A, B1, B2, B3, or B4 include the generation of dust, which has the potential to interfere with the oxygen diffusion process and can transport toxic compounds that may affect frogs. Runoff from urban development and other Covered Activities could degrade the
aquatic habitats that support this species. Additional indirect effects are expected to result from in-stream activities that could degrade aquatic habitat; habitat fragmentation as a result of urban and rural development and the construction of new roads and other infrastructure; and the introduction, establishment, and spread of invasive plants and predators (e.g., domestic pets, raccoons, coyotes, skunks, bullfrogs) that thrive in human-dominated environments. Because California red-legged frogs are not expected to occur in Plan Areas A, B1, B2, B3, or B4, indirect effects on the species are expected to be negligible, if any.

Under Alternative 2, the permanent and temporary loss of California red-legged frog aquatic and upland habitat would be offset by the protection of 1,168 acres and restoration of 1,241 acres of aquatic habitat and the protection of 12,484 acres and restoration of 160 acres of upland habitat. The Plan would also protect 88.6 stream miles in the Reserve System, providing habitat and facilitating dispersal for California red-legged frogs.

The protection and restoration of occupied and suitable habitat for California red-legged frog would be supported by the following objectives, conservation measures, and conditions.

- Objective AW-1.1, Protect Aquatic/Wetland Complex Natural Community
- Objective AW-1.2, Restore/Create Aquatic/Wetland Complex Natural Community
- Objective RAR-1.1, Protect Riverine/Riparian Complex
- Objective RAR-1.3, Restore Riverine/Riparian Complex
- Objective CRLF-1.1, Protect Occupied California Red-legged Frog Habitat
- Objective CRLF-2.1, Protect Suitable California Red-Legged Frog Habitat in the Plan Area
- Objective CRLF-2.2, Restore Suitable California Red-Legged Frog Habitat
- CM1, Establish Reserve System
- CM1 L-4, Connectivity within Plan Area
- CM1 NC-1, Siting Restoration
- CM1 CRLF-1, Purchase of California Red-legged Frog Conservation Credits at the Big Gun Conservation Bank
- CM1 CRLF-2, California Red-legged Frog Habitat Protection
- CM2, Manage and Enhance the Reserve System
- CM2 L-4, Maintenance and Enhancement of Reserve System Permeability
- CM2 AW-5, Basking Habitat Enhancement
- CM2 RAR-1, Riparian Vegetation Management
- CM2 RAR-4, Improvement of In-channel Features
- CM2 RAR-7, Non-native Animal Species Control
- CM3, Restore and Create Natural Communities and Covered Species' Habitat
- CM3 AW-1, Aquatic/Wetlands Complex Restoration and Creation
- CM3 RAR-1, Riparian Natural Community Natural Community Restoration
- General Condition 1, Watershed Hydrology and Water Quality
• General Condition 2, Conservation Lands: Development Interface Design Requirements
• General Condition 4, Temporary Effects
• General Condition 5, Conduct Worker Training
• Community Condition 2, Riverine and Riparian Avoidance and Minimization
• Stream System Condition 1, Stream System Avoidance
• Stream System Condition 2, Stream System Mitigation: Restoration
• Regional Public Projects Condition 1, Transportation and Other Infrastructure Projects Design Requirements
• Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects Construction BMPs
• Regional Public Projects Condition 3, Operations and Maintenance BMPs

Achievement of Objective CRLF-1.1 would protect at least 2 acres of occupied California red-legged frog habitat in Plan Area B5 by Year 2 and an additional 2 acres by Year 5. Implementation of CM1 NC-1, CM1 CRLF-1, CM1 CRLF-2, CM2 AW-5, and CM3 AW-1 would result in a large interconnected Reserve System that provides aquatic and upland habitat for California red-legged frog, minimizes edge effects of development, and potentially facilitates movement and genetic exchange between populations if California red-legged frogs expand into the Plan Area. Implementation of CM1 L-4 and CM2 L-4 would facilitate California red-legged frog movement through the Reserve System. Implementation of CM2 RAR-1, CM2 RAR-4, CM2 RAR-7, and CM3 RAR-1 would reduce the spread of invasive non-native plant species, minimizing the degradation of California red-legged frog habitat (e.g., controlling plants that invade stream channels) and increasing habitat for the species within the stream system. These measures would also aim to control non-native invasive animal species, minimizing predation of California red-legged frogs by invasive predators.

These goals, objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of restoration actions. The acres of protection and restoration satisfy the typical mitigation that would be applied to the project-level effects, as well as mitigating the effects of the other conservation measures.

NEPA Determination: The permanent loss of 672 acres of aquatic habitat and 8,551 acres of upland habitat and the temporary loss of 168 acres of aquatic habitat and 214 acres of upland for California red-legged frog associated with Alternative 2, in the absence of other conservation actions, would constitute a potentially significant impact through habitat modification and potential direct mortality of a special-status species. However, with the protection and restoration guided by the Plan's goals, objectives, conservation measures, and conditions, the overall effects of Alternative 2 on California red-legged frog would be less than significant.

CEQA Determination: The permanent loss of 672 acres of aquatic habitat and 8,551 acres of upland habitat and the temporary loss of 168 acres of aquatic habitat and 214 acres of upland for California red-legged frog associated with Alternative 2, in the absence of other conservation actions, would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. The natural community restoration and protection activities would constitute adequate mitigation for CEQA purposes. The biological objectives, conservation measures, and conditions relevant to California red-legged frog are more than sufficient to support the conclusion.
that the impacts of habitat loss and direct mortality on California red-legged frog under Alternative 2 would be less than significant. No mitigation has been identified.

**Impact BIO-16: Effects on foothill yellow-legged frog (NEPA: less than significant; CEQA: less than significant)**

Although foothill yellow-legged frog is widely scattered in suitable riverine and riparian habitat throughout thefoothills of Placer County, the CNDDB lists no occurrences of this species in the Plan Area (California Department of Fish and Wildlife 2017). The nearest record slightly more than 3 miles from the eastern border of the Plan Area. Appendix D, *Species Accounts*, of the Plan provides more detail on the status and distribution of yellow-legged frog throughout its range and in Placer County.

Covered Activities under Alternative 2, the proposed action, would result in permanent and temporary impacts on foothill yellow-legged frog habitat. Permanent impacts would result in the loss of up to 155 acres of foothill yellow-legged frog year-round habitat (8% of a total 1,837 acres of suitable habitat) in the Foothill portion of the Plan Area (i.e., streams above 500 feet). These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. Other Covered Activities that could affect habitat are in-stream activities, which include flood control and stormwater management projects, fish passage projects, and bank stabilization activities. Moreover, implementation of Plan restoration, enhancement, and management actions could result in inadvertent mortality; result in the release of contaminants (e.g., fuels, lubricants) into habitat, potentially affecting survival; and cause erosion that could affect habitat.

Covered Activities would temporarily affect up to 39 acres of year-round foothill yellow-legged frog habitat in the Plan Area (2% of a total 1,837 acres). These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Conservation actions through Plan implementation that could temporarily affect foothill yellow-legged frog include grading and contouring to restore, create, and enhance wetlands and riparian habitat in reserves.

Short-term construction-related effects on foothill yellow-legged frog include the generation of dust, which has the potential to interfere with the oxygen diffusion process and can transport toxic compounds that may affect frogs. Runoff from urban development and other Covered Activities could degrade the aquatic habitats that support this species. Additional indirect effects are expected to result from in-stream activities that could degrade aquatic habitat; habitat fragmentation as a result of urban and rural development and the construction of new roads and other infrastructure; and the introduction, establishment, and spread of invasive plants and predators (e.g., domestic pets, raccoons, coyotes, skunks, bullfrogs) that thrive in human-dominated environments.

Under Alternative 2, the permanent and temporary loss of foothill yellow-legged frog habitat would be offset by the protection of 83 acres and restoration of 83 acres of foothill yellow-legged frog habitat in the Plan Area.

The protection and restoration of suitable habitat for foothill yellow-legged frog would be supported by the following objectives, conservation measures, and conditions.

- Objective RAR-1.1, Protect Riverine/Riparian Complex
- Objective RAR-1.2, Protect Riverine Habitat Constituent
- Objective RAR-1.3, Restore Riverine/Riparian Complex
- Objective FYLF-1.1, Protect Foothill Yellow-legged Frog Riverine Habitat
- Objective FYLF-1.2, Protect Foothill Yellow-legged Frog Riparian Habitat
- Objective FYLF-1.3, Restore Riparian Habitat for Foothill Yellow-legged Frog
- CM1, Establish Reserve System
- CM1 L-4, Connectivity within Plan Area
- CM1 FYLF-1, Foothill Yellow-legged Frog Habitat Protection
- CM1 NC-1, Siting Restoration
- CM2, Manage and Enhance the Reserve System
- CM2 L-4, Maintenance and Enhancement of Reserve System Permeability
- CM2 RAR-1, Riparian Vegetation Management
- CM2 RAR-4, Improvement of In-channel Features
- CM2 RAR-5, Non-native Animal Species Control
- CM3, Restore and Create Natural Communities and Covered Species’ Habitat
- CM3 RAR-1, Riparian Natural Community Restoration
- General Condition 1, Watershed Hydrology and Water Quality
- General Condition 2, Conservation Lands: Development Interface Design Requirements
- General Condition 4, Temporary Effects
- General Condition 5, Conduct Worker Training
- Community Condition 2, Riverine and Riparian Avoidance and Minimization
- Stream System Condition 1, Stream System Avoidance
- Stream System Condition 2, Stream System Mitigation: Restoration
- Regional Public Projects Condition 1, Transportation and Other Infrastructure Projects Design Requirements
- Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects Construction BMPs
- Regional Public Projects Condition 3, Operations and Maintenance BMPs

Implementation of CM1 FYLF-1, CM1 NC-1, and CM3 RAR-1 would result in a large interconnected Reserve System that provides riverine and riparian habitat for foothill yellow-legged frog, minimizes edge effects of development, and potentially facilitates movement and genetic exchange between populations if foothill yellow-legged frogs expand into the Plan Area. Implementation of CM2 RAR-1, CM2 RAR-4, CM2 RAR-5, and CM3 RAR-1 would reduce the spread of invasive non-native plant species, minimizing the degradation of foothill yellow-legged frog habitat (e.g., controlling plants that invade stream channels) and increasing habitat for the species within the stream system. These
measures would also aim to control non-native invasive animal species, minimizing predation of California red-legged frogs by invasive predators.

These goals, objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of restoration actions. The acres of protection and restoration satisfy the typical mitigation that would be applied to the project-level effects, as well as mitigating the effects of the other conservation measures.

**NEPA Determination:** The permanent loss of up to 155 acres and temporary loss of up to 39 acres of habitat for foothill yellow-legged frogs associated with Alternative 2, in the absence of other conservation actions, would constitute a potentially significant impact through habitat modification and potential direct mortality of a special-status species. However, with the protection and restoration guided by the Plan's goals, objectives, conservation measures, and conditions, the overall effects of Alternative 2 on foothill yellow-legged frog would be less than significant.

**CEQA Determination:** The permanent loss of up to 155 acres and temporary loss of up to 39 acres of habitat for foothill yellow-legged frogs associated with Alternative 2, in the absence of other conservation actions, would constitute a potentially adverse effect through habitat modification and potential direct mortality of a special-status species. The natural community restoration and protection activities would constitute adequate mitigation for CEQA purposes. The biological objectives, conservation measures, and conditions relevant to foothill yellow-legged frog are more than sufficient to support the conclusion that the impacts of habitat loss and direct mortality on foothill yellow-legged frog under Alternative 2 would be less than significant. No mitigation has been identified.

**Impact BIO-17: Effects on western spadefoot, a non-covered species (NEPA: less than significant; CEQA: less than significant)**

The CNDDB lists five occurrences of western spadefoot in western Placer County but within the incorporated boundaries of Roseville, a non-participating city (California Department of Fish and Wildlife 2017).

Covered Activities under Alternative 2, the proposed action, including infrastructure and other Permittee Covered Activities within Roseville, could result in permanent and temporary impacts on western spadefoot habitat. Permanent impacts would result in the loss of up to 20,200 acres of potential western spadefoot habitat in the Plan Area; this amount includes 12,550 acres of vernal pool complex supporting 580 acres of vernal pool-type wetlands, 6,900 acres of grassland, 260 acres of aquatic/wetland, and 490 acres of riverine/riparian. Most of this potential habitat is located in Plan Area A, and losses would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. This analysis may overestimate effects on spadefoot because the analysis is based on habitat types that may not be suitable in their entirety for spadefoot.

Covered Activities would temporarily affect up to 990 acres of potential western spadefoot habitat, including 30 acres of vernal pool-type wetlands within 455 acres of vernal pool complex, 235 acres of grassland, 105 acres of aquatic/wetland, and 165 acres of riverine/riparian. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, infrastructure construction, and conservation activities. Conservation actions
through Plan implementation that could temporarily affect western spadefoot include grading and contouring to restore, create, and enhance wetlands in reserves.

Recurring maintenance activities in the Plan Area may directly (through inadvertent mortality) and indirectly (through noise, visual disturbance, and ground vibrations) affect western spadefoot. Outside of the wet season, western spadefoots spend much of their time in underground burrows and crevices, making them vulnerable to ground-disturbing activities in upland areas they occupy. Moreover, restoration, enhancement, and management actions could result in inadvertent mortality; result in the release of contaminants (e.g., fuels, lubricants) into habitat, potentially affecting survival; and cause erosion that could affect habitat.

Permanent development within 500 feet of western spadefoot habitat could indirectly affect the species through increased vehicular traffic and the development of new roadways, causing mortalities; in-stream activities and runoff from developed areas that could degrade aquatic habitat; habitat fragmentation as a result of urban and rural development and the construction of new roads and other infrastructure; introduction, establishment, and spread of invasive plant and animal species; and increased predation rates from domestic pets, use of mosquitofish for mosquito abatement, and invasive wildlife species (e.g., bullfrogs).

Under Alternative 2, the permanent and temporary loss of western spadefoot habitat would be offset by implementation of the conservation strategy for vernal pool branchiopods, resulting in the protection and management of 17,000 acres and the restoration of 3,000 acres of wetland habitat and vernal pool complex. In addition, the protection of 2,740 acres and restoration of 1,000 acres of grassland; the protection of 600 acres and restoration of 410 acres of aquatic/wetlands; and the protection of 2,200 acres and protection of 1,425 acres of riverine/riparian could provide potential habitat for western spadefoot.

The protection, restoration, and management of suitable habitat for western spadefoot would be supported by the following objectives, conservation measures, and conditions.

- Objective VPCG-1.1, Protect Existing Vernal Pool Complexes
- Objective VPCG 1.2, Restore/Create Vernal Pool Complexes
- Objective VPCG-1.3, Protect Grasslands
- Objective VPCG-1.4, Restore Grasslands
- Objective AW-1.1, Protect Aquatic/Wetland Complex Natural Community
- Objective AW-1.2, Restore/Create Aquatic/Wetland Complex Natural Community
- Objective AW-1.3, Maintain and Enhance Wetlands and Ponds
- Objective RAR-1.1, Protect Riverine/Riparian Complex
- Objective RAR-1.2, Protect Riverine Constituent Habitat
- Objective RAR-1.3, Restore Riverine/Riparian Complex
- Objective RAR-1.4, Enhance Riparian Vegetation
- CM1, Establish Reserve System
- CM1 L-2, Reserve Acquisition Strategy
- CM1-L-3, Connectivity and Conservation within the Region
• CM1 L-4 Connectivity within the Plan Area
• CM1 VPCG-1, Vernal Pool Complex Protection
• CM1 VPCG-2, Reserve Design for Vernal Pool Restoration/Creation
• CM1 VPCG-3, Grassland Protection
• CM1 AW-1, Aquatic/Wetlands Complex Protection
• CM1 RAR-1, Riverine and Riparian Protection
• CM1 RAR-2, Siting Riparian Restoration
• CM2, Manage and Enhance the Reserve System
• CM2 L-1, Vegetation Management and Invasive Plant Control
• CM2 L-3, Develop and Implement Fire Management Plans
• CM2 L-4, Maintenance and Enhancement of Reserve System Permeability
• CM2 VPCG-1, Vernal Pool Complex Enhancement and Hydrologic Conditions
• CM2 AW-1, Aquatic/Wetlands Complex Vegetation Control
• CM2 AW-2, Fencing Wetlands and Ponds
• CM2 AW-4, Non-native Predator Control
• CM2 AW-7, Maintenance of Water Depths and Hydrological Cycles
• CM2 AW-8, Maintenance and Enhancement of Water Quality
• CM2 RAR-1, Riparian Vegetation Management
• CM2 RAR-4, Improvement of In-channel Features
• CM2 RAR-5, Non-native Animal Species Control
• CM3, Restore and Create Natural Communities and Covered Species’ Habitat
• CM3 AW-1, Aquatic/Wetlands Complex Restoration/Creation
• CM3 VPCG-1, Vernal Pool Complex Restoration/Creation
• CM3 VPCG-2 Grasslands Restoration
• CM3 RAR-1, Riparian Natural Community Restoration
• CM4 L-1, Low-Impact Development Standards
• CM4 VPCG-1, Conduct Outreach to Private Landowners.
• General Condition 1, Watershed Hydrology and Water Quality
• General Condition 2, Conservation Lands: Development Interface Design Requirements
• General Condition 4, Temporary Effects
• General Condition 5, Conduct Worker Training
• Community Condition 1, Wetland Avoidance and Minimization (Vernal Pool and Aquatic/Wetland Complex)
- Regional Public Projects Condition 1, Transportation and Other Infrastructure Projects Design Requirements
- Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects Construction BMPs
- Regional Public Projects Condition 3, Operations and Maintenance BMPs
- Species Condition 8, Conservancy Fairy Shrimp

Implementation of CM1-L-3, CM1 L-4, CM1 VPCG-3, CM3 VPCG-2, CM1 RAR-1, CM1 RAR-2, CM2 L-4, CM2 RAR-1, CM3 RAR-1, CM1 AW-1, and CM3 AW-1 would result in a large, interconnected Reserve System supporting upland and aquatic habitat for western spadefoot, enabling the species to disperse between primary habitat areas, and facilitating genetic exchange. Implementation of CM2 AW-2, CM2 RAR-4, and CM2 AW-7 would increase aquatic habitat for western spadefoot in the stream system.

Although they do not apply to non-covered special-status wildlife species, these objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. In addition, Covered Activities under Alternative 2 that affect habitat of non-covered special-status wildlife would be mitigated on a project-by-project basis for discretionary projects. Ancillary benefits for these wildlife species are also anticipated to result from Plan implementation, because it would establish a comprehensive reserve management program that would enhance habitat conditions in a variety of natural communities that may support non-covered special-status wildlife. Mitigation for impacts from projects that are not subject to discretionary review, including implementation of conservation measures to create and restore vernal pool complex, vernal pool–type wetlands, grassland, aquatic/wetland, and riverine/riparian habitat, is unlikely.

**NEPA Determination:** The permanent loss of up to 20,200 acres and temporary disturbance of up to 960 acres of potential western spadefoot habitat associated with Alternative 2, though likely an overestimate of effects, in the absence of other conservation actions, would constitute a potentially significant impact through habitat modification and potential direct mortality of a special-status species. However, with the protection and restoration guided by the Plan’s goals, objectives, conservation measures, and conditions, the overall effects of Alternative 2 on western spadefoot would be less than significant.

**CEQA Determination:** The permanent loss of up to 20,200 acres and temporary disturbance of up to 960 acres of potential western spadefoot habitat associated with Alternative 2, though likely an overestimate of effects, in the absence of other conservation actions, would constitute a potentially significant impact through habitat modification and potential direct mortality of a special-status species. The natural community restoration and protection activities would constitute adequate mitigation for CEQA purposes. The biological goals and conservation measures relevant to western spadefoot are more than sufficient to support the conclusion that the impacts of Alternative 2 on western spadefoot would be less than significant. No mitigation has been identified.

**Impact BIO-18: Effects on giant garter snake (NEPA: less than significant; CEQA: less than significant)**

A population of giant garter snake has been documented approximately 1.5–5 miles west and south of the Placer County line in the Sutter and Natoma Basins of Sutter and Sacramento Counties; the
The closest occurrence is recorded in the Natomas Basin of Sacramento County, approximately 1.5 miles southwest of the Placer County line (Figure 5-3 in the Plan) in Plan Area A. There are also multiple giant garter snake CNNDDB records immediately north and south of Cross Canal. These records do not mention snakes occurring in the canal itself (California Department of Fish and Wildlife 2017). Cross Canal is part of Plan Area B4, which is slated for fish passage improvements. Appendix D, Species Accounts, of the Plan provides more detail on the status and distribution of the species throughout its range. The far western portion of the Plan Area adjacent to Sutter and Sacramento Counties is within the American Basin Recovery Unit identified in the Recovery Plan for Giant Garter Snake (Thamnophis gigas) (U.S. Fish and Wildlife Service 2017).

Covered Activities under Alternative 2, the proposed action, would result in permanent and temporary impacts on aquatic and upland habitat for giant garter snake. Permanent impacts would result in the loss of up to 1,438 acres of aquatic habitat (7% of a total 19,511 acres of habitat in the Plan Area) and 483 acres of upland habitat (14% of a total 3,537 acres). These losses would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects, primarily in the Valley portion of Plan Area A, with small losses (49 acres) in Plan Area B.

Temporary impacts of Covered Activities on giant garter snake habitat would not exceed 203 acres of aquatic habitat in the Plan Area (1% of total aquatic habitat) and 22 acres of upland habitat (1% of total upland habitat). These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Conservation actions through Plan implementation that could temporarily affect giant garter snake habitat include restoration and enhancement actions such as grading and contouring to restore, create, and enhance wetlands in reserves.

Indirect effects could result from construction and maintenance of infrastructure associated with urban and rural development and from changes in hydrology caused by land conversion. Additionally, in-stream activities such as installation and maintenance of utility lines, road improvements, drainage facility improvements, and flood control projects may indirectly affect giant garter snake. Restoration, enhancement, and management actions could result in inadvertent mortality; result in the release of contaminants (e.g., fuels, lubricants) into habitat, potentially affecting survival; and cause erosion that could affect habitat.

Under Alternative 2, the permanent and temporary loss of giant garter snake aquatic and upland habitat would be offset by the protection of 2,000 acres of rice lands and additional protection and restoration of aquatic and wetland natural communities, for a total protection of 2,702 acres and restoration of 529 acres of aquatic habitat and the protection of 1,763 acres and restoration of 449 acres of upland habitat for giant garter snake.

The Plan establishes a goal of protecting suitable giant garter snake habitat to facilitate the expansion of giant garter snake into the Reserve System. Conservation activities would include measures to result in a large, interconnected Reserve System supporting upland and aquatic habitat enabling the species to disperse between primary habitat areas, and facilitating genetic exchange. Creation of basking sites, control of non-native invasive plants to maintain habitat integrity, and control of non-native predators to reduce mortality of individual snakes would all contribute to survival and restoration of the species. The protection, restoration, and management of suitable
habitat for giant garter snake would be supported by the following objectives, conservation
measures, and conditions.

- Objective GGS-1.1, Protect and Manage Giant Garter Snake Habitat
- CM1, Establish Reserve System
- CM1 L-4, Connectivity within the Plan Area
- CM1 NC-1, Siting Restoration
- CM1 AW-1, Aquatic/Wetlands Complex Protection
- CM1 GGS-1, Giant Garter Snake Habitat Protection
- CM2, Manage and Enhance the Reserve System
- CM2 L-4, Maintenance and Enhancement of Reserve System Permeability
- CM2 VPCG-3, Ground Squirrel Population Enhancement
- CM2 AW-1, Aquatic/Wetlands Complex Vegetation Control
- CM2 AW-2, Fencing Wetlands and Ponds
- CM2 AW-4, Non-native Predator Control
- CM2 AW-5, Basking Habitat Enhancement
- CM2 AW-7, Maintenance of Water Depths and Hydrological Cycles
- CM2 AW-8, Maintenance and Enhancement of Water Quality
- CM2 RAR-1, Riparian Vegetation Management
- CM2 RAR-4, Improvement of In-channel Features
- CM2 RAR-5, Non-native Animal Species Control
- CM2 AO-1, Provision of Patches of Native Vegetation in Rice Lands
- CM2 AO-2 Development and Water Implementation of a Water Management Plan
- CM3, Restore and Create Natural Communities and Covered Species’ Habitat.
- CM3 AW-1, Aquatic/Wetlands Complex Restoration/Creation
- General Condition 1, Watershed Hydrology and Water Quality
- General Condition 2, Conservation Lands: Development Interface Design Requirements
- General Condition 4, Temporary Effects
- General Condition 5, Conduct Worker Training
- Community Condition 2, Riverine and Riparian Avoidance and Minimization
- Stream System Condition 1, Stream System Avoidance
- Stream System Condition 2, Stream System Mitigation: Restoration
- Regional Public Projects Condition 1, Transportation and Other Infrastructure Projects Design Requirements
• Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects
  Construction BMPs
• Regional Public Projects Condition 3, Operations and Maintenance BMPs
• Species Condition 5, Giant Garter Snake

These goals, objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of restoration actions. The acres of protection and restoration satisfy the typical mitigation that would be applied to the project-level effects, as well as mitigating the effects of the other conservation measures.

NEPA Determination: The permanent loss of 1,438 acres of aquatic habitat and 483 acres of upland habitat and the temporary disturbance of 203 acres of aquatic habitat and 22 acres of upland habitat associated with Alternative 2, in the absence of other conservation actions, would constitute a potentially significant impact through habitat modification and potential direct mortality of a special-status species. However, with the protection and restoration guided by the Plan’s goals, objectives, conservation measures, and conditions, the overall effects of Alternative 2 on giant garter snake would be less than significant.

CEQA Determination: The permanent loss of 1,438 acres of aquatic and 483 acres of upland habitat and the temporary disturbance of 203 acres of aquatic and 22 acres of upland habitat associated with Alternative 2, in the absence of other conservation actions, would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. The natural community restoration and protection activities would constitute adequate mitigation for CEQA purposes. The biological objectives, conservation measures, and conditions relevant to giant garter snake are more than sufficient to support the conclusion that the impacts of habitat loss and direct mortality on giant garter snake under Alternative 2 would be less than significant. No mitigation has been identified.

Impact BIO-19: Effects on western pond turtle (NEPA: less than significant; CEQA: less than significant)

The CNDDB lists four occurrences of western pond turtle in the Plan Area (California Department of Fish and Wildlife 2017).

Covered Activities under Alternative 2, the proposed action, would result in permanent and temporary impacts on aquatic and upland habitat for western pond turtle. Permanent impacts would result in the loss of 750 acres of aquatic habitat (7% of a total 10,244 acres of aquatic habitat) and up to 1,407 acres of upland habitat for western pond turtle (10% of a total 14,263 acres of upland habitat) in the Plan Area. These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects, primarily in the Valley and Foothill portions of Plan Area A; small losses (20 acres) would occur in Plan Area B.

Temporary impacts of Covered Activities on western pond turtle would not exceed 250 acres of aquatic habitat (2% of total aquatic habitat) and 40 acres of upland habitat (less than 1% of total upland habitat). These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction.
Conservation actions through Plan implementation that could temporarily affect western pond turtle include grading and contouring to restore, create, and enhance wetlands in reserves.

Indirect effects are expected to result from increased vehicular traffic and the development of new roadways, causing mortalities; in-stream activities and runoff from developed areas that could degrade aquatic habitat; habitat fragmentation as a result of urban and rural development and the construction of new roads and other infrastructure; introduction, establishment, and spread of invasive plant and animal species; and increased predation rates, particularly on eggs and young, by domestic pets and invasive wildlife species. Moreover, restoration, enhancement, and management actions could result in inadvertent mortality; result in the release of contaminants (e.g., fuels, lubricants) into habitat, potentially affecting survival; and cause erosion that could affect habitat.

Under Alternative 2, the permanent and temporary loss of western pond turtle aquatic and upland habitat would be offset by the protection of 2,800 acres and restoration of 1,850 acres of aquatic habitat for western pond turtle and the protection of 3,859 acres and restoration of 1,930 acres of upland habitat.

The Plan establishes a goal of providing habitat for a sustained population of western pond turtles in the Reserve System. Conservation activities would include measures to result in a large, interconnected Reserve System supporting upland and aquatic habitat enabling the species to disperse between primary habitat areas, and facilitating genetic exchange. Increasing basking sites and cover, control of non-native invasive plants to maintain habitat integrity and access to basking sites, and control of non-native predators to reduce mortality of young turtles and eggs would all contribute to survival of the species. The protection, restoration, and management of suitable habitat for western pond turtle would be supported by the following objectives, conservation measures, and conditions.

- Objective WPT-1.1, Protect and Enhance Western Pond Turtle Habitat
- Objective WPT-1.2, Restore Western Pond Turtle Habitat
- CM1, Establish Reserve System
- CM1 L-4, Connectivity within the Plan Area
- CM1 NC-1, Siting Restoration
- CM1 WPT-1, Western Pond Turtle Habitat Protection
- CM2, Manage and Enhance the Reserve System
- CM2 L-4, Maintenance and Enhancement of Reserve System Permeability
- CM2 AW-1, Aquatic/Wetlands Complex Vegetation Control
- CM2 AW-2, Fencing Wetlands and Ponds, CM2 AW-3 Sediment Removal
- CM2 AW-4, Non-native Predator Control,
- CM2 AW-5, Basking Habitat Enhancement, CM2 RAR-4 Improvement of In-channel Features
- CM2 AW-7, Maintenance of Water Depths and Hydrological Cycles
- CM2 AW-8, Maintenance and Enhancement of Water Quality
- CM2 RAR-1, Riparian Vegetation Management
- CM2 RAR-5, Non-native Animal Species Control
These goals, objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of restoration actions. The acres of protection and restoration satisfy the typical mitigation that would be applied to the project-level effects, as well as mitigating the effects of the other conservation measures.

**NEPA Determination:** The permanent loss of 750 acres of aquatic habitat and 1,407 acres of upland habitat and the temporary disturbance of 250 acres of aquatic habitat and 40 acres of upland habitat associated with Alternative 2, in the absence of other conservation actions, would constitute a potentially significant impact through habitat modification and potential direct mortality of a special-status species. However, with habitat protection and restoration associated with the conservation components, guided by landscape-scale goals and objectives, the effects of Alternative 2 as a whole on western pond turtle would be less than significant.

**CEQA Determination:** The permanent loss of 750 acres of aquatic habitat and 1,407 acres of upland habitat and the temporary disturbance of 250 acres of aquatic habitat and 40 acres of upland habitat associated with Alternative 2, in the absence of other conservation actions, would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. The natural community restoration and protection activities would constitute adequate mitigation for CEQA purposes. The biological objectives, conservation measures, and conditions relevant to western pond turtle are more than sufficient to support the conclusion that the impacts of habitat loss and direct mortality on western pond under Alternative 2 would be less than significant. No mitigation has been identified.

**Impact BIO-20: Effects on coast horned lizard, a non-covered species (NEPA: less than significant with mitigation; CEQA: less than significant with mitigation)**

The CNDDB lists no occurrences of coast horned lizard in the Plan Area (California Department of Fish and Wildlife 2017).

Covered Activities under Alternative 2, the proposed action, would result in permanent and temporary impacts on coast horned lizard habitat. Permanent impacts would result in loss of 13,625
acres of natural communities that contain suitable habitat elements for coast horned lizard (e.g., open areas with sandy substrates): 6,900 acres of grasslands (20% of this community in the Plan Area), 6,350 acres of oak and valley oak woodland (12%), and 375 acres of riparian woodland (less than 8%). These losses would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. The suitable habitat elements for this species are open areas with sandy substrates; consequently, the impact acreage reported here, which is based on impacts on natural communities that may contain these elements, is likely a large overestimate.

Covered Activities would temporarily affect up to 555 acres of habitat for coast horned lizard: 235 acres of grassland (1% of this community), 205 acres of valley oak and oak woodland (<1%), and 115 acres of riparian woodland (2%) in the Plan Area. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Plan conservation actions that could temporarily affect coast horned lizard habitat include restoration and enhancement actions such as grading and contouring to restore, create, and enhance grasslands, oak woodlands and riparian habitat in reserves.

Indirect effects are expected to result from increased vehicular traffic and the development of new roadways, causing mortalities; habitat fragmentation as a result of urban and rural development and the construction of new roads and other infrastructure; introduction, establishment, and spread of invasive plant and animal species; and increased predation rates from domestic pets and invasive wildlife species. Recurring maintenance activities within the Plan Area, such as transportation facility maintenance, utility service facilities maintenance, and vegetation management, may periodically directly and indirectly affect coast horned lizard. Moreover, restoration, enhancement, and management actions could result in inadvertent mortality; result in the release of contaminants (e.g., fuels, lubricants) into habitat, potentially affecting survival; and cause erosion that could affect habitat.

Under Alternative 2, the permanent loss of coast horned lizard habitat would be offset by the protection of 14,932 acres and restoration of 2,638 acres of grassland, oak woodland, valley oak woodland, and riparian woodland communities in the Plan Area.

The protection, restoration, and management of suitable habitat for coast horned lizard would be supported by the following objectives, conservation measures, and conditions.

- CM1, Establish Reserve System
- CM1-L-3, Connectivity and Conservation within the Region
- CM1 L-4, Connectivity within the Plan Area
- CM1 NC-1, Siting Restoration
- CM1 VPCG-3, Grassland Protection
- CM1 RAR-1, Riverine and Riparian Protection
- CM1 RAR-2, Siting Riparian Restoration
- CM1 OW-1, Oak Woodlands Protection
- CM1 OW-2, Siting Oak Woodlands Restoration
- CM2, Manage and Enhance the Reserve System
- CM2 L-4, Maintenance and Enhancement of Reserve System Permeability
- CM2 RAR-1, Riparian Vegetation Management
- CM2 RAR-5, Non-native Animal Species Control
- CM2 OW-1, Oak Woodland Vegetation Enhancement and Management
- CM3, Restore and Create Natural Communities and Covered Species’ Habitat
- CM3, VPCG-2 Grasslands Restoration
- CM3 RAR-1, Riparian Natural Community Restoration
- General Condition 2, Conservation Lands: Development Interface Design Requirements
- General Condition 4, Temporary Effects
- General Condition 5, Conduct Worker Training
- Community Condition 2, Riverine and Riparian Avoidance and Minimization
- Community Condition 3, Valley Oak Woodland
- Regional Public Projects Condition 1, Transportation and Other Infrastructure Projects Design Requirements
- Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects Construction BMPs
- Regional Public Projects Condition 3, Operations and Maintenance BMPs

Although they do not apply to non-covered special-status wildlife species, these objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. In addition, Covered Activities under Alternative 2 that affect habitat of non-covered special-status wildlife would be mitigated on a project-by-project basis for discretionary projects. Ancillary benefits for these wildlife species are also anticipated to result from Plan implementation, because it would establish a comprehensive reserve management program that would enhance habitat conditions in a variety of natural communities that may support non-covered special-status wildlife. Mitigation for impacts from projects that are not subject to discretionary review, including implementation of conservation measures to create and restore grassland, valley oak woodland, oak woodland, and riparian woodland habitat, is unlikely.

**NEPA Determination:** The permanent loss of 13,625 acres and temporary disturbance of 555 acres of potential coast horned lizard habitat associated with Alternative 2, in the absence of other conservation actions, would constitute a potentially significant impact through habitat modification and potential direct mortality of a special-status species. However, with the protection and restoration guided by the Plan’s goals, objectives, conservation measures, and conditions and the implementation of Mitigation Measure BIO-2, the overall effects of Alternative 2 on coast horned lizard would be less than significant.

**CEQA Determination:** The permanent loss of 13,625 acres and temporary disturbance of 555 acres of potential coast horned lizard habitat associated with Alternative 2, in the absence of other conservation actions, would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. The natural community restoration and
protection activities would constitute adequate mitigation for CEQA purposes. The biological goals and conservation measures relevant to coast horned lizard and implementation of Mitigation Measure BIO-2 would reduce this impact to a less-than-significant level.

**Mitigation Measure BIO-2: Conduct preconstruction surveys for coast horned lizard**

For all ground-disturbing activities in sandy, friable soils related to conservation actions under the Plan, PCA will retain a qualified biologist to conduct a habitat assessment in areas that are relatively undisturbed or have a moderate to high potential to support the coast horned lizard. The biologist will survey for coast horned lizard in areas of suitable habitat concurrently with the preconstruction surveys for covered species. If coast horned lizards are found in work areas, the biologist will first attempt to allow the individuals to move out of the work area on their own, but if conditions do not allow this, the biologist will capture individuals and relocate them to the nearest suitable habitat outside the work area as allowed under the biologist's current Scientific Collecting Permit amended for such handling. To the extent feasible, work in areas of suitable habitat for coast horned lizard should not be conducted during periods of cold and hot temperatures (below 67°F and above 100°F), because individuals would be relatively inactive at these temperatures and could be taking cover in loose soil, in burrows or crevices, or under structures such as rocks or logs (Morey 2000). This measure would reduce the impact of horned lizards being crushed by vehicles and equipment.

**Impact BIO-21: Effects on Swainson's hawk (NEPA: less than significant; CEQA: less than significant)**

The CNDDB lists 17 extant occurrences of Swainson's hawks nesting in the Plan Area, all in the Valley portion (California Department of Fish and Wildlife 2017).

Covered Activities under Alternative 2, the proposed action, would result in permanent and temporary impacts on Swainson's hawk. Permanent impacts would not exceed 149 acres of nesting habitat (8% of nesting habitat in Plan Area A) and 16,267 acres of foraging habitat (30% of suitable habitat). These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects.

Temporary impacts on Swainson’s hawk habitat would not exceed 10 acres of nesting habitat and 602 acres of foraging habitat. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Implementation of Plan conservation actions may also temporarily disturb Swainson’s hawk habitat in locations where grading, vegetation management, or other physical change to the habitat is required.

In addition to resulting in habitat losses, Covered Activities have the potential to directly affect Swainson’s hawk through injury and mortality. Construction-related activities would not be expected to result in direct mortality of adult or fledged Swainson’s hawks if they were present in or near Covered Activities, because they would be expected to avoid contact with construction equipment. However, if Swainson’s hawks were to nest in or near a construction area, construction-related activities, including equipment operation, noise, and visual disturbances, could affect nests or lead to their abandonment, potentially resulting in mortality of eggs and nestlings.
Swainson's hawk nesting and foraging behavior in the vicinity of proposed construction areas could be directly affected by construction activities. Construction noise above background noise levels (i.e., greater than 50 A-weighted decibels [dBA]) could extend 500–5,250 feet from the edge of construction activities. However, no data are available that identify the extent to which these noise levels could affect Swainson's hawks. Effects associated with construction include noise and visual disturbance caused by grading, contouring, and other ground-disturbing operations outside the project footprint but within 500 feet of it. Construction and subsequent maintenance-related noise and visual disturbances could mask calls and disrupt foraging and nesting behaviors. The use of mechanical equipment during Covered Activities could cause the accidental release of petroleum or other contaminants that could affect Swainson’s hawk foraging habitat.

Indirect effects are expected to result from increased vehicular traffic associated with the development of new roadways, causing mortalities; habitat fragmentation as a result of urban and rural development and the construction of new roads and other infrastructure; and the introduction, establishment, and spread of invasive plant species.

Under Alternative 2, the permanent loss of Swainson’s hawk nesting habitat would be offset by the protection and management of 1,268 acres and restoration of 720 acres of nesting habitat. The loss of foraging habitat would be offset by the protection and management of up to 17,003 acres and restoration of 3,920 acres of foraging habitat.

The Plan establishes the goal of maintaining habitat to provide for a sustained population of Swainson’s hawks in the Plan Area. The protection, restoration, and management of suitable habitat for Swainson’s hawk would be supported by the following objectives, conservation measures, and conditions.

- Objective SWHA-1.1, Protect Swainson's Hawk Nest Trees
- Objective SWHA-1.2, Protect Swainson's Hawk Foraging Habitat
- Objective SWHA-1.3, Enhance Foraging Habitat
- Objective SWHA-1.4, Protect at least 20 isolated trees with the potential to be used as nesting sites for Swainson’s hawk, within the protected grasslands.
- CM1 SWHA-1, Protection of Swainson's Hawk Habitat
- CM2 SWHA-1, Swainson's Hawk Foraging Habitat Enhancement
- General Condition 1, Watershed Hydrology and Water Quality
- General Condition 2, Conservation Lands: Development Interface Design Requirements
- General Condition 4, Temporary Effects
- General Condition 5, Conduct Worker Training
- Community Condition 2.1, Riverine and Riparian Avoidance
- Community Condition 2.2, Minimize Riverine and Riparian Effects
- Community Condition 2.3, Riverine and Riparian Restoration
- Community Condition 3.1, Valley Oak Woodland Avoidance
- Community Condition 3.2, Valley Oak Woodland and Individual Valley Oak Trees
Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects
Construction BMPs

Regional Public Projects Conditions 3, Operation and Maintenance BMPs

Species Condition 1, Swainson's Hawk
  - Swainson's Hawk 1—requires preconstruction surveys during the nesting season
  - Swainson's Hawk 2—prohibits activity during the breeding season within a 1,320-foot buffer zone around a nest, monitoring of reduced buffers
  - Swainson's Hawk 3—requires active nest trees to not be removed during the nesting season
  - Swainson's Hawk 4—requires a construction monitor for active nests.

These objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. The conditions are described in Chapter 6 of the Plan.

NEPA Determination: The permanent loss of 149 acres of nesting habitat and 16,267 acres of foraging habitat and the temporary disturbance of 10 acres of nesting habitat and 602 acres of foraging habitat associated with Alternative 2, in the absence of other conservation actions, would constitute a potentially significant impact; however, with the proposed protection and restoration set forth by the Plan’s goals, objectives, conservation measures, and conditions, the overall effects of Alternative 2 on Swainson’s hawk in the Plan Area would be less than significant.

CEQA Determination: The permanent loss of 149 acres of nesting habitat and 16,267 acres of foraging habitat and the temporary disturbance of 10 acres of nesting habitat and 602 acres of foraging habitat associated with Alternative 2, in the absence of other conservation actions, would constitute a significant impact through loss of habitat and potential mortality of a special-status species. The natural community restoration and protection together with conservation measures and conditions relevant to the long-term management of habitat for Swainson’s hawk in the Plan Area support the conclusion that the impacts on Swainson’s hawk under Alternative 2 would be less than significant. No mitigation has been identified.

Impact BIO-22: Effects on California black rail (NEPA: less than significant; CEQA: less than significant)

The CNDDB lists two extant occurrences of California black rail in the Plan Area: one in the Valley portion of Plan Area B and one in the Foothill portion of the RAA in Plan Area A (California Department of Fish and Wildlife 2017). Research conducted by the University of California, Berkeley documented additional occurrences in the Valley portion of Plan Area A (Hall and Beissinger 2017).

Covered Activities under Alternative 2, the proposed action, would result in permanent and temporary impacts on California black rail. Permanent impacts would not exceed 105 acres (9% of suitable habitat Plan Area A). These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. The impacts would be evenly split between the Valley and Foothill portions, with a small amount (5 acres) in Plan Area B.

Temporary impacts on California black rail habitat are estimated at 41 acres. These temporary impacts would be associated with urban/suburban development, rural residential development,
transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Implementation of Plan conservation actions may also temporarily disturb California black rail habitat in locations where grading, vegetation management, or other physical change to the habitat is required.

In addition to habitat losses, Covered Activities have the potential to directly affect California black rails through injury and mortality. Operation of construction equipment may cause injury to or mortality of individuals. Risk would be greatest to eggs and nestlings susceptible to land-clearing activities through nest abandonment and increased exposure to the elements or to predators. Construction activities could temporarily fragment existing California black rail habitat; grading, filling, contouring, and other ground-disturbing operations could temporarily reduce the extent and functions supported by the affected habitat.

California black rail nesting behavior in the vicinity of proposed construction areas could be directly affected by construction activities. Construction noise above background noise levels (greater than 50 dBA) could extend 500–5,250 feet from the edge of construction activities. However, no data are available that identify the extent to which these noise levels could affect California black rail. Effects associated with construction include noise, dust, and visual disturbance caused by grading, filling, contouring, and other ground-disturbing operations outside the project footprint but within 500 feet of it. Construction and subsequent maintenance-related noise and visual disturbances could mask calls, disrupt foraging and nesting behaviors, and reduce the functions of suitable nesting habitat for this species. The use of mechanical equipment during Covered Activities could cause the accidental release of petroleum or other contaminants that could affect black rails in the surrounding habitat. The inadvertent discharge of sediment or excessive dust adjacent to black rail habitat could also affect the species.

Indirect effects are expected to result from increased vehicular traffic associated with the development of new roadways, causing mortalities; runoff from developed areas that could degrade habitat; habitat fragmentation as a result of urban and rural development and the construction of new roads and other infrastructure; introduction, establishment, and spread of invasive plant and animal species; and increased predation rates, particularly on eggs and young, from domestic pets and invasive wildlife species.

Under Alternative 2, the permanent loss of California black rail habitat would be offset by the protection and management of 256 acres and restoration of 175 acres of California black rail habitat.

The Plan establishes the goal of maintaining habitat to provide for a sustained population of California black rail in the Plan Area. The protection, restoration, and management of suitable habitat for California black rail would be supported by the following objectives, conservation measures, and conditions.

- Objective BLRA-1.1, Protect, Restore/Create, and Manage and Enhance California Black Rail Habitat
- CM1 BLRA-1, Siting California Black Rail Habitat Protection and Restoration
- CM2 BLRA-1, Maintenance and Enhancement of the Hydrology of California Black Rail Habitat
- CM2 BLRA-2, Protection of California Black Rail Habitat from Grazing and Other Vegetation Management Activities
- General Condition 1, Watershed Hydrology and Water Quality
- General Condition 2, Conservation Lands: Development Interface Design Requirements
- General Condition 4, Temporary Effects
- General Condition 5, Conduct Worker Training
- Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects Construction BMPs
- Regional Public Projects Conditions 3, Operation and Maintenance BMPs
- Species Condition 2, California Black Rail
  - California Black Rail 1—Requires preconstruction surveys
  - California Black Rail 2—Requires buffers and exclusion fencing around occupied habitat during construction
  - California Black Rail 3—Restricts habitat clearing where take is allowed to a period outside of the breeding season
  - California Black Rail 4—Requires mitigation for occupied or potential rail habitat to be done in-kind
  - California Black Rail 5—Requires monitoring during construction

These objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. The conditions are described in Chapter 6 of the Plan.

**NEPA Determination:** The permanent loss of 105 acres and the temporary disturbance of 41 acres of California black rail habitat associated with Alternative 2, in the absence of other conservation actions, would constitute a potentially significant impact; however, with the proposed protection and restoration set forth by the Plan's goals, objectives, conservation measures, and conditions, the overall effects of Alternative 2 on California black rail in the Plan Area would be less than significant.

**CEQA Determination:** The permanent loss of 105 acres and the temporary disturbance of 41 acres of California black rail habitat associated with Alternative 2, in the absence of other conservation actions, would constitute a significant impact through the loss of habitat and potential mortality of a special-status species. The natural community restoration and protection together with conservation measures and conditions relevant to the long-term management of habitat for California black rail in the Plan Area support the conclusion that the impacts on California black rail under Alternative 2 would be less than significant. No mitigation has been identified.

**Impact BIO-23: Effects on burrowing owl (NEPA: less than significant; CEQA: less than significant)**

The CNDDB lists four extant occurrences of burrowing owl in the Plan Area, all in the Valley portion (California Department of Fish and Wildlife 2017).

Covered Activities under Alternative 2, the proposed action, would result in permanent and temporary impacts on burrowing owl. Permanent impacts would not exceed 16,444 acres of habitat (30% in of suitable habitat Plan Area A). These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and
infrastructure projects. The impacts would occur almost entirely with the Valley portion of Plan Area A, with a smaller amount (200 acres) occurring in Plan Area B.

Temporary impacts on burrowing owl habitat would not exceed 609 acres. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Implementation of Plan conservation actions may also temporarily affect burrowing owl habitat in locations where grading, vegetation management, or other physical change to the habitat is required.

In addition to habitat losses, Covered Activities have the potential to directly affect individual burrowing owls through injury and mortality. Operation of construction equipment may cause injury to or mortality of burrowing owls. Risk would be greatest to eggs and nestlings susceptible to land-clearing activities through nest abandonment and increased exposure to the elements or to predators. Construction activities could temporarily fragment existing burrowing owl habitat: grading, filling, contouring, and other initial ground-disturbing operations could temporarily reduce the extent and functions supported by the affected habitat.

Burrowing owl nesting behavior in the vicinity of proposed construction areas could be directly affected by construction activities. Construction noise above background noise levels (greater than 50 dBA) could extend 500–5,250 feet from the edge of construction activities. However, no data are available that identify the extent to which these noise levels could affect burrowing owl. Effects associated with construction include noise, dust, and visual disturbance caused by grading, filling, contouring, and other ground-disturbing operations outside the project footprint but within 500 feet of it. Construction and subsequent maintenance-related noise and visual disturbances could mask calls, disrupt foraging and nesting behaviors, and reduce the functions of suitable nesting habitat for this species. The use of mechanical equipment during Covered Activities could cause the accidental release of petroleum or other contaminants that could affect burrowing owls in the surrounding habitat. The inadvertent discharge of sediment or excessive dust adjacent to burrowing owl habitat could also affect the species.

Indirect effects are expected to result from increased vehicular traffic associated with the development of new roadways, causing mortalities; runoff from developed areas that could degrade habitat; habitat fragmentation as a result of urban and rural development and the construction of new roads and other infrastructure; introduction, establishment, and spread of invasive plant and animal species; and increased predation rates, particularly on eggs and young, from domestic pets and invasive wildlife species.

Under Alternative 2, the permanent loss of burrowing owl habitat would be offset by the protection and management of 17,129 acres and restoration of 4,126 acres of burrowing owl habitat.

The Plan establishes the goal of maintaining sufficient habitat to maintain or increase the population size of overwintering western burrowing owls in the Reserve System, and to promote the expansion of a breeding population of burrowing owls into the Reserve System. The protection, restoration, and management of suitable habitat for burrowing owl would be supported by the following objectives, conservation measures, and conditions.

- Objective BUOW-1.1, Protect and Manage Ground Squirrel Colonies
- CM1 BUOW-1, Protection of Ground Squirrel Colonies
- CM1 BUOW-2, Prioritization of Occupied Areas
• CM2 BUOW-1, Installation and Maintenance of Artificial Burrows on the Reserve System.
• General Condition 1, Watershed Hydrology and Water Quality
• General Condition 2, Conservation Lands: Development Interface Design Requirements
• General Condition 4, Temporary Effects
• General Condition 5, Conduct Worker Training
• Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects Construction BMPs
• Regional Public Projects Condition 3, Operation and Maintenance BMPs
• Species Condition 3, Western Burrowing Owl
  o Burrowing Owl 1—Requires preconstruction surveys
  o Burrowing Owl 2—Establishes avoidance buffers during the breeding season
  o Burrowing Owl 3—Establishes non-breeding season avoidance buffers
  o Burrowing Owl 4—Allows for passive exclusion during the non-breeding season
  o Burrowing Owl 5—Requires monitoring during construction

These objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. The conditions are described in Chapter 6 of the Plan.

**NEPA Determination:** The permanent loss of 16,444 acres and the temporary disturbance of 609 acres of burrowing owl habitat associated with Alternative 2, in the absence of other conservation actions, would constitute a potentially significant impact; however, with the proposed protection and restoration set forth by the Plan's goals, objectives, conservation measures, and conditions, the overall effects of Alternative 2 on burrowing owl in the Plan Area would be less than significant.

**CEQA Determination:** The permanent loss of 16,444 acres and the temporary disturbance of 609 acres of burrowing owl habitat associated with Alternative 2, in the absence of other conservation actions, would constitute a significant impact through the loss of habitat and potential mortality of a special-status species. The natural community restoration and protection together with conservation measures and conditions relevant to the long-term management of habitat for burrowing owl in the Plan Area support the conclusion that the impacts on burrowing owl under Alternative 2 would be less than significant. No mitigation has been identified.

**Impact BIO-24: Effects on tricolored blackbird (NEPA: less than significant; CEQA: less than significant)**

The CNDDB lists 14 extant occurrences of tricolored blackbird in the Plan Area, all but one of which occur in the Valley portion of the Plan Area (California Department of Fish and Wildlife 2017). The occurrence in the Foothills portion is at an elevation just above 300 feet. All the occurrences are either in the RAA or on existing reserves.

Covered Activities under Alternative 2, the proposed action, would result in permanent and temporary impacts on tricolored blackbird. Permanent impacts are estimated at 782 acres of nesting habitat (18% of total habitat in Plan Area A) and 22,268 acres of foraging habitat (21% in Plan Area
A). These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. Most of the impacts on nesting and foraging habitat (77% and 81%, respectively) would be in the Valley portion of the Plan Area.

Temporary impacts on tricolored blackbird habitat are estimated at 103 acres of nesting habitat and 836 acres of foraging habitat. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Plan conservation actions may also temporarily disturb tricolored blackbird habitat in locations where grading, vegetation management, or other physical change to the habitat is required.

In addition to habitat losses, Covered Activities have the potential to directly affect tricolored blackbirds through injury and mortality. Operation of construction equipment may cause injury to or mortality of tricolored blackbirds. Risk would be greatest to eggs and nestlings susceptible to land-clearing activities through nest abandonment or increased exposure to the elements and to predators. Injury to or mortality of adults and fledged juveniles would not be expected because individuals would be expected to avoid contact with construction equipment. Construction activities could temporarily fragment existing tricolored blackbird habitat: grading, filling, contouring, and other initial ground-disturbing operations could temporarily reduce the extent and functions supported by the affected habitat.

Tricolored blackbird nesting behavior in the vicinity of proposed construction areas could be directly affected by construction activities. Construction noise above background noise levels (greater than 50 dBA) could extend 500–5,250 feet from the edge of construction activities. However, no data are available that identify the extent to which these noise levels could affect tricolored blackbird. Effects associated with construction include noise, dust, and visual disturbance caused by grading, filling, contouring, and other ground-disturbing operations outside the project footprint but within 1,300 feet of it. Construction and subsequent maintenance-related noise and visual disturbances could mask calls, disrupt foraging and nesting behaviors, and reduce the functions of suitable nesting habitat for these species. The use of mechanical equipment during Covered Activities could cause the accidental release of petroleum or other contaminants that could affect tricolored blackbirds in the surrounding habitat. The inadvertent discharge of sediment or excessive dust adjacent to tricolored blackbird habitat could also affect the species.

Indirect effects are expected to result from increased vehicular traffic associated with the development of new roadways, causing mortalities; runoff from developed areas that could degrade habitat; habitat fragmentation as a result of urban and rural development and the construction of new roads and other infrastructure; introduction, establishment, and spread of invasive plant and animal species; and increased predation rates, particularly on eggs and young, from domestic pets and invasive wildlife species.

Under Alternative 2, the permanent loss of tricolored blackbird nesting habitat would be offset by the protection and management of an estimated 906 acres and restoration of 196 acres of suitable tricolored blackbird nesting habitats. The loss of tricolored foraging habitat would be offset by the protection and management of up to 27,308 acres and restoration of 4,000 acres of suitable tricolored blackbird foraging habitats.

The Plan establishes the goal of maintaining habitat for a sustained population of tricolored blackbird in the Plan Area. The protection, restoration, and management of grasslands, vernal pool
complex, fresh emergent marsh, and agricultural lands would be supported by the following objectives, conservation measures, and conditions.

- Objective TRBL-1.1, Protect, Manage, and Enhance Tricolored Blackbird Nesting Habitat
- Objective TRBL-1.2, Protect, Restore, Manage, and Enhance Tricolored Blackbird Foraging Habitat
- Objective TRBL-1.3, Protect Tricolored Blackbird Colony Site
- Objective TRBL-1.4, Protect, Restore, Manage, and Enhance Tricolored Blackbird Foraging Habitat near Colony Sites
- Objective TRBL-1.5, Protect and/or Restore/Create Open Water near Tricolored Blackbird Colony Sites
- Objective TRBL-1.6, Restore Tricolored Blackbird Nesting Habitat.
- CM1 TRBL-1, Reserve Design for Tricolored Blackbird
- CM2 TRBL-1, Maintenance and Enhancement of Nesting Habitat for Tricolored Blackbird
- CM2 TRBL-2, Protection of Himalayan Blackberry Supporting Tricolored Blackbird Nest Colonies
- CM2 TRBL-3, Predator Management Plan
- CM3 TRBL-1, Tricolored Blackbird Habitat Restoration.
- General Condition 1, Watershed Hydrology and Water Quality
- General Condition 2, Conservation Lands: Development Interface Design Requirement
- General Condition 4, Temporary Effects
- General Condition 5, Conduct Worker Training
- Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects Construction BMPs
- Regional Public Projects Conditions 3, Operation and Maintenance BMPs
- Species Condition 4, Tricolored Blackbird
  - Tricolored Blackbird 1—requires preconstruction surveys during the nesting season
  - Tricolored Blackbird 2 requires preconstruction survey of foraging habitat within 3 miles of known colony site prior to initiation of Covered Activities.
  - Tricolored Blackbird 3—prohibits activity during the breeding season within a 1,300-foot buffer zone around the nest colony. This buffer may be modified to a minimum of 300 feet, with written approval from the Wildlife Agencies.
  - Tricolored Blackbird 4—prohibits activity during the nesting season if the area within 1,300 feet of a project site was found to be actively used as foraging habitat. This buffer may be modified to a minimum of 300 feet, with written approval from the Wildlife Agencies.
  - Tricolored Blackbird 5—requires a biological monitor to be present on-site to ensure that no Covered Activities occur within the buffer zone established around an active tricolored blackbird nest colony.
- Tricolored Blackbird 6—active foraging habitat that occurs within the no-disturbance buffer shall be monitored by the qualified biologist(s) to verify that the Covered Activity is not disrupting tricolored blackbird foraging behavior.

These objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. The conditions are described in Chapter 6 of the Plan.

**NEPA Determination:*** The permanent loss of 782 acres of nesting habitat and 22,268 acres of foraging habitat and the temporary disturbance of 103 acres of nesting habitat and 836 acres of foraging habitat associated with Alternative 2, in the absence of other conservation actions, would constitute a potentially significant impact; however, with the proposed protection and restoration set forth by the Plan’s goals, objectives, conservation measures, and conditions, the overall effects of Alternative 2 on tricolored blackbird in the Plan Area would be less than significant.

**CEQA Determination:*** The permanent loss of 782 acres of nesting habitat and 22,268 acres of foraging habitat and the temporary disturbance of 103 acres of nesting habitat and 836 acres of foraging habitat associated with Alternative 2, in the absence of other conservation actions, would constitute a significant impact through the loss of habitat and potential mortality of a special-status species. The natural community restoration and protection together with conservation measures and conditions relevant to the long-term management of habitat for tricolored blackbird in the Plan Area support the conclusion that the impacts on tricolored blackbird under Alternative 2 would be less than significant. No mitigation has been identified.

**Impact BIO-25: Effects on non-covered bats (NEPA: less than significant with mitigation; CEQA: less than significant with mitigation)**

The CNDDB lists three occurrences of Townsend’s big-eared bat and one occurrence of pallid bat, in the Plan Area (California Department of Fish and Wildlife 2017). At least 11 special-status bats are known to or could occur in the Plan Area (Townsend’s big-eared bat, pallid bat, spotted bat, silver-haired bat, western red bat, hoary bat, fringed myotis, Yuma myotis, long-eared myotis, long-legged myotis, and small-footed myotis). These bat species employ varied roost strategies, from solitary roosting in tree foliage to colonial roosting in trees, caves, mines, and artificial structures such as tunnels, buildings, and bridges. Various roost strategies also include night roosts, maternity roosts, migration stopover, and hibernation. The natural community/land cover types considered for the assessment of effects on bat roosting habitat comprise oak woodland and valley oak woodland (all types) and riverine/riparian. Because roosting habitat is by its nature the limiting factor for habitats’ ability to support bat populations, impacts on foraging habitat were not considered for the purposes of this analysis, although foraging habitat would benefit from the conservation actions proposed under the conservation strategy.

Covered Activities under Alternative 2, the proposed action, would result in permanent and temporary impacts on roosting habitat for special-status bat species. Permanent impacts would result in the loss of up to 6,725 acres of tree-roosting habitat (12% of suitable habitat in the Plan Area): 375 acres of riparian woodland, 140 acres of valley oak woodland, and 6,210 acres of oak woodland. In addition, bridge replacement and improvements could affect bats that utilize bridge weep holes and crevices for roosting. An unknown number of roost sites in artificial structures, orchards, and urban landscaping could also be affected.
Covered Activities would temporarily affect up to 320 acres of roosting habitat in the Plan Area. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Plan conservation actions that could temporarily affect special-status bats include grading and contouring to restore, create, and enhance riparian woodland and oak woodlands in reserves.

Permanent development within 500 feet of bat roosting habitat could cause alterations in behavior through visual and noise disturbances associated with both construction and normal ongoing human activities if bats are present. Recurring, periodic maintenance activities may indirectly (through noise and visual disturbance) affect roosting bats; activities such as vegetation management and bridge maintenance could result in harm or mortality to young and adults, as well as reduced reproductive success.

Under Alternative 2, the permanent and temporary loss of bat roosting habitat would be offset by the protection of 11,710 acres and restoration of 1,616 acres of covered species habitat that also support roosting habitat for special-status bats. In addition, the conservation strategy would protect and restore up to 47,300 acres of natural communities that provide foraging habitat (grassland, vernal pool complex, aquatic/wetland complex, riverine/riparian complex, oak woodland, valley oak woodland, agriculture) for special-status bats. The protection, restoration, and management of natural communities that provide roosting habitat for special-status bats would be supported by the following objectives, conservation measures, and conditions.

- CM1, Establish Reserve System
- CM1 L-3, Connectivity and Conservation within the Region
- CM1 L-4, Connectivity within the Plan Area
- CM1 NC-1, Siting restoration
- CM1 VPCG-1, Verna Pool Complex Protection
- CM1 VPCG-2, Reserve Design for Vernal Pool Restoration/Creation
- CM1 VPCG-3, Grassland Protection
- CM1 AW-1, Aquatic/Wetlands Complex Protection
- CM1 RAR-1, Riverine and Riparian Protection
- CM1 OW-1, Oak Woodland Protection
- CM1 OW-2, Siting Oak Woodlands Restoration
- CM1 AO-1, Ag Land and other Open Space Protection
- CM2, Manage and Enhance the Reserve System
- CM2 L-4, Maintenance and Enhancement of Reserve System Permeability
- CM2 RAR-1, Riparian Vegetation Management
- CM2 OW-1, Oak Woodland Vegetation Enhancement and Management
- CM2 AO-1, Provision of Patches of native Vegetation in Rice Lands.
- CM3, Restore and Create Natural Communities and Covered Species’ Habitat
4.3-95

Although they do not apply to non-covered special-status wildlife species, these conservation measures and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. In addition, Covered Activities, which include urban/suburban development, transportation projects, and infrastructure projects, under Alternative 2 that affect occurrences and habitat of non-covered special-status wildlife would be mitigated on a project-by-project basis for discretionary projects. Ancillary benefits are also expected to occur for these wildlife species as a result of the Plan, because it would establish a comprehensive reserve management program that would enhance habitat conditions in a variety of natural communities that may support non-covered special-status wildlife. Any potential effects on these species from fuels management, vegetation management, and infrastructure operations and maintenance, though not likely subject to additional environmental review, would be offset because the entities implementing these projects would be participating in the Plan and contributing funds for the implementation of the conservation strategy. The implementation of conservation measures to create, restore, enhance, and manage riparian woodland, valley oak woodland, and oak woodland habitat, which may affect roosting bats, may not be subject to further approvals or review that may identify effects on roosting bats.

**NEPA Determination:** The permanent loss of 6,725 acres and temporary disturbance of 320 acres of potential roosting habitat for special-status bats associated with Alternative 2, in the absence of other conservation actions, would constitute a potentially significant impact; however, with the
proposed protection and restoration set forth by the Plan’s goals, objectives, conservation measures, and conditions would ensure that habitat loss from Covered Activities, which include urban/suburban development, transportation projects, infrastructure projects, fuels management, vegetation management, and infrastructure operations and maintenance, would be compensated for and preserved habitat would be managed in perpetuity and thus the effects would be reduced to a less-than-significant level.

Conservation measures to create, restore, enhance, and manage riparian, valley oak woodland, and oak woodland habitat could affect roosting bats if these actions result in the trimming, removal, or disturbance of tree roosting habitat and if there are no opportunities to identify and avoid roosting bat habitat through subsequent NEPA review; therefore, these activities could have adverse impacts on special-status bats. Implementation of Mitigation Measure BIO-3 would reduce this effect to a less-than-significant level.

**CEQA Determination:** The permanent loss of 6,725 acres and temporary disturbance of 320 acres of potential roosting habitat for special-status bats associated with Alternative 2, in the absence of other conservation actions, would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. The natural community restoration and protection activities are expected to be concluded close enough to the timing of construction impacts to constitute mitigation for CEQA purposes. The proposed protection and restoration set forth by the Plan’s goals, objectives, conservation measures, and conditions would ensure that habitat loss from Covered Activities, which include urban/suburban development, transportation projects, infrastructure projects, fuels management, vegetation management, and infrastructure operations and maintenance, would be compensated for and preserved habitat would be managed in perpetuity and thus the effects would be reduced to a less-than-significant level.

Conservation measures to create, restore, enhance, and manage riparian, valley oak woodland, and oak woodland habitat could affect roosting bats if these actions result in the trimming, removal, or disturbance of tree roosting habitat and if there are no opportunities to identify and avoid roosting bat habitat through subsequent CEQA review; therefore, these activities could have adverse impacts on special-status bats. Implementation of Mitigation Measure BIO-3 would reduce this effect to a less-than-significant level.

**Mitigation Measure BIO-3:** Conduct preconstruction surveys for roosting bats and implement protective measures

This measure was designed to avoid and minimize adverse direct and indirect effects on special-status bats. However, baseline data regarding how bats use the Plan Area, individual numbers of bats, and how populations vary seasonally are not available. Consequently, it is difficult to quantify the reduction in species numbers. Bat species with potential to occur in the Plan Area employ varied roost strategies, from solitary roosting in tree foliage to colonial roosting in trees and artificial structures such as buildings and bridges. Daily and seasonal variations in habitat use are common. To achieve the highest likelihood of detection, PCA will assess the potential for bat roosting habitat in restoration or enhancement areas and conduct pre-activity bat surveys for those conservation actions that have a potential to directly affect bat roosting habitat, such as those actions that require the trimming or removal of trees and the removal or modification of bridges and structures. The assessment and surveys will include the components listed below.

- Identification of potential roosting habitat within project footprint.
- Daytime search for bats and bat sign in and around identified habitat.
- Evening emergence surveys at potential day-roost sites, using night-vision goggles and/or active full-spectrum acoustic monitoring where species identification is sought.
- Passive full-spectrum acoustic monitoring and analysis to detect bat use of the area from dusk to dawn over multiple nights.
- Additional onsite night surveys as needed following passive acoustic detection of special-status bats to determine nature of bat use of the structure in question (e.g., use of structure as night roost between foraging bouts).
- Qualified biologists will have knowledge of the natural history of the species that could occur in the study area and experience using full-spectrum acoustic equipment. During surveys, biologists will avoid unnecessary disturbance of occupied roosts.

**Preconstruction Surveys of Bridges and Other Structure (if Plan Conservation Actions involve Bridge/Structure Modifications)**

For any conservation actions that entail bridge or structure modifications, such as demolition of derelict buildings, before such work begins, qualified biologists will conduct a daytime search for bat sign and evening emergence surveys to determine if the bridge or structure is being used as a roost. Biologists conducting daytime surveys will listen for audible bat calls and use naked eye, binoculars, and a high-powered spotlight to inspect expansion joints, weep holes, and other features that could house bats. Bridge surfaces and the ground around the bridge or structure will be surveyed for bat sign, such as guano, staining, and prey remains.

Evening emergence surveys will consist of at least one biologist stationed on each side of the bridge or structure watching for emerging bats from one-half hour before sunset to 1–2 hours after sunset for a minimum of two nights in the season during which construction would take place. Night-vision goggles and/or full-spectrum acoustic detectors will be used during emergence surveys to assist in species identification. All emergence surveys will be conducted during favorable weather conditions (calm nights with temperatures conducive to bat activity and no predicted precipitation).

Additionally, passive monitoring with full-spectrum bat detectors will be used to assist in identifying species that are present. A minimum of four nights of acoustic monitoring surveys will be conducted in the season during which the construction would take place. If site security allows, detectors should be set to record bat calls for the duration of each night. To the extent possible, all monitoring will be conducted during favorable weather conditions (calm nights with temperatures conducive to bat activity and no predicted precipitation). The biologists will analyze the bat call data using appropriate software and prepare a report with the results of the surveys. If acoustic data suggest that bats may be using the bridge or structure as a night roost, biologists will conduct a night survey from 1–2 hours past sunset up to 6 hours past sunset to determine if the bridge is serving as a colonial night roost.

If suitable roost structures would be removed, additional surveys may be required to determine how the structure is used by bats: i.e., whether for night roosting, maternity roosting, migration stopover, or hibernation.
Preconstruction Tree Surveys

If tree removal or trimming is necessary under conservation actions, qualified biologists will examine trees to be removed or trimmed for suitable bat roosting habitat. High-value habitat features (e.g., large tree cavities, basal hollows, loose or peeling bark, larger snags, palm trees with intact thatch) will be identified and the area around these features searched for bats and bat sign (e.g., guano, culled insect parts, staining). Riparian woodland, orchards, and stands of mature broadleaf trees should be considered potential habitat for solitary foliage-roosting bat species.

If bat sign is detected, biologists will conduct evening visual emergence survey of the source habitat feature, from one-half hour before sunset to 1–2 hours after sunset for a minimum of two nights in the season within which construction would take place. Methodology should follow that described above for the bridge emergence survey.

Additionally, if suitable tree roosting habitat is present, acoustic monitoring with a bat detector will be conducted to assist in identifying species that are present. These surveys will be conducted in coordination with the acoustic monitoring conducted for the bridge or structure surveys.

Protective Measures for Bats using Bridges, Structures, or Trees

Avoidance and minimization measures will be necessary if it is determined that bats are using the bridge, structure, or trees as roost sites or if special-status bat species are detected during acoustic monitoring. PCA will determine appropriate measures in consultation with CDFW; such measures will include, as applicable, those listed below.

- Bats will be protected from noise, vibrations, and light that result from construction activities associated with water conveyance facilities, conservation components, and ongoing habitat enhancement, as well as operations and maintenance of aboveground water conveyance facilities, including the transmission facilities. This protection will be accomplished either by directing noise barriers and lights inward from the disturbance or by ensuring that the disturbances do not extend more than 300 feet from the point source.

- Disturbance of bridges or structures will be avoided between March 1 and October 31 (the maternity period) to avoid impacts on reproductively active females and dependent young.

- Exclusion devices will be installed from March 1 through October 31 to preclude bats from occupying the bridge during construction. Exclusionary devices will only be installed by or under the supervision of an experienced bat biologist.

- Tree removal will be avoided between April 15 and September 15 (the maternity period for bat species that use trees) to avoid impacts on pregnant females and active maternity roosts (colonial or solitary).

- Tree removal will be conducted between September 15 and October 31 to the maximum extent feasible—the period when bats are not likely to have entered winter hibernation and would not be caring for flightless young. If weather conditions remain conducive to regular bat activity beyond October 31, later tree removal may be considered in consultation with CDFW.

- Trees will be removed in pieces, rather than felling the entire tree.
If a maternity roost is located, whether solitary or colonial, that roost will remain undisturbed with a buffer as determined in consultation with CDFW until September 15 or until a qualified biologist has determined the roost is no longer active.

If a non-maternity roost is found, that roost will be avoided to the maximum extent feasible and an appropriate buffer established in consultation with CDFW. Every effort will be made to avoid the roost to the maximum extent feasible, as methods to evict bats from trees are largely untested. However, if the roost cannot be avoided, evictions will be attempted and procedures designed in consultation with CDFW to reduce the likelihood of mortality of evicted bats. In all cases, the following restrictions will apply:

- Eviction will not occur before September 15 and will match the timeframe for tree removal approved by CDFW.
- Qualified biologists will carry out or oversee the eviction tasks and monitor the tree trimming or removal.
- Eviction will take place late in the day or in the evening to reduce the likelihood of evicted bats falling prey to diurnal predators.
- Eviction will take place during weather and temperature conditions conducive to bat activity.
- Special-status bat roosts will not be disturbed.

Eviction procedures will include the following characteristics.

- Pre-eviction surveys will be conducted to obtain data to inform the eviction approach and subsequent mitigation requirements. Relevant data may include the species, sex, reproductive status, and number of bats using the roost, as well as roost conditions such as temperature and dimensions. Surveys may include visual emergence, night vision, acoustic, and capture techniques.

- Structural changes may be made to the roost if they can be undertaken without harming bats, such that the conditions in the roost are undesirable to roosting bats and the bats leave on their own (e.g., open additional portals to change temperature, wind, light, and precipitation regime in the roost).

- Noninjurious harassment, such as ultrasound deterrents or other sensory irritants, can be carried out at the roost site to encourage bats to leave on their own.

Prior to removal or trimming, after other eviction efforts have been attempted, any confirmed roost tree will be shaken, repeatedly struck with a heavy implement such as an axe, and several minutes allowed to elapse before felling the tree or trimming limbs to allow bats time to arouse and leave the tree. The biologists should search downed vegetation for dead and injured bats. The presence of dead or injured bats will be reported to CDFW.

Compensatory mitigation for the loss of non-tree-roosting habitat (e.g., bridge and structure) will be determined through consultation with CDFW and may include the construction and installation of suitable replacement habitat onsite. The conservation measures for riparian and oak woodland in the Plan would sufficiently mitigate any losses of tree-roosting habitat.
Impact BIO-26: Effects on American badger, a non-covered species (NEPA: less than significant with mitigation; CEQA: less than significant with mitigation)

There are no CNDDB records of American badger, in the Plan Area (California Department of Fish and Wildlife 2017).

Covered Activities under Alternative 2, the proposed action, would result in permanent and temporary impacts on American badger habitat. Permanent impacts would result in the loss of up to 6,900 acres of grasslands (20% of this community in Plan Area A) that are potential habitat for American badger. Most potential habitat is located in Plan Area A and would be lost primarily as a result of urban/suburban development, rural residential development, transportation projects, and infrastructure projects. These effects likely overestimate the extent of effects on habitat suitable for American badger because soils in the Valley portion of the Plan Area are less suitable because of the presence of dense clay soils, which are less likely to be used by badgers.

Covered Activities would temporarily affect up to 235 acres of American badger habitat in the Plan Area. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Plan conservation actions that could temporarily affect American badger habitat include grading and contouring to restore, create, and enhance grasslands in reserves.

Permanent development within 500 feet of American badger habitat could cause alterations in behavior through visual and noise disturbances associated with both construction and normal ongoing activities. Recurring maintenance activities, such as transportation facility maintenance, utility service facilities maintenance, and vegetation management, may periodically affect American badger both directly and indirectly. Additional indirect effects are expected to result from increased vehicular traffic and the development of new roadways, causing mortalities; habitat fragmentation as a result of urban and rural development and the construction of new roads and other infrastructure; and the introduction, establishment, and spread of invasive plant and animal species.

Under Alternative 2, the permanent and temporary loss of American badger habitat would be partially offset by protection of 2,740 acres and restoration of 1,000 acres of grassland that could provide potential habitat for the species.

The protection, restoration, and management of natural communities that provide roosting habitat for special-status bats would be supported by the following objectives, conservation measures, and conditions.

- CM1, Establish Reserve System
- CM1-L-3, Connectivity and Conservation within the Region
- CM1 L-4, Connectivity within the Plan Area
- CM1 NC-1, Siting restoration
- CM1 VPCG-3, Grassland Protection
- CM2, Manage and Enhance the Reserve System
- CM2 L-4, Maintenance and Enhancement of Reserve System Permeability
- CM3, Restore and Create Natural Communities and Covered Species’ Habitat
- CM3 VPCG-2, Grasslands Restoration
- General Condition 2, Conservation Lands: Development Interface Design Requirements
- General Condition 4, Temporary Effects
- General Condition 5, Conduct Worker Training
- Regional Public Projects Condition 1, Transportation and Other Infrastructure Projects Design Requirements
- Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects Construction BMPs
- Regional Public Projects Condition 3, Operations and Maintenance BMPs

Although they do not apply to non-covered special-status wildlife species, these objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. In addition, Covered Activities under Alternative 2 that affect habitat of non-covered special-status wildlife would be mitigated on a project-by-project basis for discretionary projects. Ancillary benefits for these wildlife species are also anticipated to result from Plan implementation, because it would establish a comprehensive reserve management program that would enhance habitat conditions in a variety of natural communities that may support non-covered special-status wildlife. Mitigation for impacts from projects that are not subject to discretionary review, including implementation of conservation measures to create and restore grassland habitat, is unlikely.

**NEPA Determination:** The permanent loss of 6,900 acres and temporary disturbance of 235 acres of grassland habitat suitable to support American badger associated with Alternative 2, in the absence of other conservation actions, would constitute a potentially significant impact. However, with the protection and restoration guided by the Plan’s goals, objectives, conservation measures, and conditions and the implementation of Mitigation Measure BIO-4, the overall effects of Alternative 2 on American badger would be less than significant.

**CEQA Determination:** The permanent loss of 6,900 acres and temporary disturbance of 235 acres of grassland habitat suitable to support American badger associated with Alternative 2, in the absence of other conservation actions, would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. The natural community restoration and protection activities are expected to be concluded close enough to the timing of construction impacts to constitute mitigation for CEQA purposes. The proposed protection and restoration set forth by the Plan’s goals, objectives, conservation measures, and conditions and implementation of Mitigation Measure BIO-4 would reduce permanent and temporary loss of American badger habitat and the potential mortality of the species to a less-than-significant level.

**Mitigation Measure BIO-4: Conduct preconstruction survey for American badger**

PCA will retain a qualified biologist to conduct surveys for American badger concurrently with the preconstruction survey for burrowing owl where conservation actions are to occur. If badgers are detected, the biologist will passively relocate badgers out of the work area prior to construction, if feasible. If an active den is detected within the work area, PCA will establish a suitable buffer distance and avoid the den until the qualified biologist determines the den is no longer active. Dens that are determined to be inactive by the qualified biologist will be collapsed by hand to prevent occupation of the den between the time of the survey and construction.
activities. In addition, ground disturbance in project-related conservation areas within 50 feet of active American badger dens will be prohibited. No dogs will be allowed on conservation areas with active American badger populations. Rodent control will be prohibited in areas with American badger populations to ensure rodent prey availability. Mitigation Measure BIO-4 is applicable to all ground-disturbing activities related to conservation actions.

**Other Biological Resources**

**Impact BIO-27: Effects on protected wetlands and waters (NEPA: less than significant; CEQA: less than significant)**

Covered Activities under Alternative 2, the proposed action, would result in permanent and temporary impacts on wetlands and waters protected under state and federal laws and regulations. Alternative 2 would result in approximately 1,330 acres of permanent impacts on constituent habitats (i.e., vernal pool, vernal pool–type wetland, fresh emergent marsh, lacustrine, non–vernal pool seasonal wetland, riparian, and riverine) that could contain or be considered protected wetlands and waters. These wetlands and some of these waters may be considered special aquatic sites, as defined under Section 404, Subpart E of the Clean Water Act. In the Plan Area, these special aquatic sites include wetlands; riffle/pool complexes, which can be found in both intermittent and perennial streams; and vegetated shallows, which may occur on the edge of some of the perennial streams within the Plan Area. Some agricultural lands and water conveyance facilities (e.g., rice lands, canals, ditches) may also be considered protected wetlands and waters that could be affected under Alternative 2. The acreage of wetlands that may occur agricultural lands in the Plan Area is not known at this time due to ongoing irrigation practices. Exact acreages of impacts would be determined based on project-level wetland delineations as necessary. For agricultural areas, determining the acres of wetlands in these areas may include the ceasing of irrigation long enough for its influence on vegetation to subside. These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, infrastructure operations and maintenance, and infrastructure projects. Effects on wetlands and waters would occur primarily in the Valley portion of the Plan Area.

Temporary impacts on protected wetlands and waters mapped as constituent habitats would not exceed 300 acres. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Implementation of Plan conservation actions under Alternative 4 may also temporarily affect protected wetlands and waters in locations where grading, vegetation management, or other physical change is required.

Permanent impacts on protected wetlands and waters under Alternative 2 would be offset through a watershed-based approach as described in the Western Placer County Aquatic Resources Program (CARP; Appendix B). Both the HCP/NCCP and CARP require compensatory mitigation for impacts on wetlands to be implemented at 1.5:1 and for riverine habitat at 1.52:1 through payment into an in-lieu fee (ILF) program or purchase of mitigation credits at an agency-approved mitigation bank. Most of this mitigation would be achieved through the enhancement (rehabilitation) of wetlands and waters, and creation (establishment)/restoration (reestablishment) of 2,715 acres of constituent habitats that would be considered protected wetlands and waters as described in the Plan, except for a portion of the 1,250 acres of riparian habitat that would be restored, which may not be classified as a wetland. The preservation and establishment/reestablishment of wetlands and
waters would be guided by the same objectives and conservation measures described above for vernal pool complex, aquatic/wetland complex, and riverine/riparian complex. Overall, the proposed wetland mitigation in the CARP would maintain or improve the functions and services of wetlands, including special aquatic sites, within the Plan Area.

Temporarily affected wetlands and waters would be restored through implementation of General Condition 4, Temporary Effects, which requires that temporarily affected areas be restored to pre-project conditions or better based on performance standards such as percent vegetative cover, restored topography, and restored hydrology.

The Plan includes several objectives and conservation measures to ensure that there would be no net loss of functions and services within the Plan Area as listed in Table 4.1 of the CARP. These objectives and measures would ensure that preserved, enhanced, and established/re-established wetlands and waters maintain or improve the physical, chemical, and biological processes of wetlands in these landscapes, including nutrient cycling, vegetation structure, plant and animal diversity, habitat for rare species, and habitat linkages/corridors. The services that these wetlands provide would include such benefits as flood control, groundwater recharge, and maintenance of water quality in receiving waters.

Potential effects on protected wetlands and waters during construction and operations and maintenance will be avoided and minimized through implementation of General Condition 1, Community Conditions 1.3 and 1.5, and Regional Public Project Conditions 2 and 3. These conditions are described in Chapter 6 of the Plan. The CARP provides additional specific avoidance and minimization measures, summarized in Table 4.2 of that document.

These objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. The acres of protection and restoration and the commitment to ratios established in the CARP satisfy the typical mitigation that would be applied to the project-level effects, as well as mitigating the effects of the other conservation measures. The proposed conditions further demonstrate the intent to avoid and minimize effects and to maintain or improve wetland and water functions and services over the life of the Plan.

NEPA Determination: The permanent loss of approximately 1,330 acres and temporary disturbance of 300 acres of constituent habitats that could contain or be considered protected wetlands and waters associated with Alternative 2, in the absence of other conservation actions, would constitute a potentially significant impact. The effects would be offset by the Plan’s commitment to mitigate at 1.5:1 for wetlands and 1.52:1 for riverine. As described in Table 4.1 of the CARP, the proposed mitigation would maintain or improve the functions and services of wetlands, including special aquatic sites, within the Plan Area. These objectives and measures would ensure that preserved, enhanced, and established/re-established wetlands and waters maintain or improve the physical, chemical, and biological processes of wetlands in these landscapes, including nutrient cycling, vegetation structure, plant and animal diversity, habitat for rare species, and habitat linkages/corridors. The services that these wetlands provide would include such benefits as flood control, groundwater recharge, and maintenance of water quality in receiving waters. General Condition 4 would ensure that temporarily affected wetlands and waters are restored to pre-project conditions or better based on performance standards. As described in Chapter 6 of the Plan, potential effects on wetlands and waters during construction would be avoided and minimized through the implementation of General Condition1; Community Conditions 1.3 and 1.5; and
Regional Public Project Conditions 2 and 3. Table 4.2 of the CARP includes additional avoidance and minimization measures for wetlands and waters. Considering these proposed conservation actions set forth by the Plan's goals, objectives, conservation measures, and conditions, the overall effects of Alternative 2 on wetlands and waters in the Plan Area would be less than significant.

**CEQA Determination:** The permanent loss of approximately 1,330 acres and temporary disturbance of 300 acres of constituent habitats that could contain or be considered protected wetlands and waters associated with Alternative 2, in the absence of other conservation actions, would constitute a significant impact through loss of protected wetlands and waters in the Plan Area. The natural community creation, enhancement, restoration, and protection activities and mitigation commitments under the CARP, which includes a commitment to mitigate at a 1.5:1 for wetlands and 1.52:1 for riverine, are more than sufficient to support the conclusion that the impacts on protected wetlands and waters under Alternative 2 would be less than significant. No mitigation has been identified.

**Impact BIO-28: Effects on fish and wildlife corridors (NEPA: less than significant; CEQA: less than significant)**

Figure 4.3-1 shows the Potential Future Growth Area (PFG) under the Plan relative to Essential Connectivity Areas (ECAs) mapped as part of the California Essential Habitat Connectivity Project. As seen in this figure, the Valley PFG area overlaps with portions of the Curry Creek–Coon Creek ECA and the Coon Creek–Bear River ECA. Several existing reserves fall within the Curry Creek–Coon Creek ECA, which runs north–south and is dominated by vernal pool complex, annual grassland, and rice lands. The Valley PFG bisects this ECA in two areas: one is north of Nicolaus Road and west of State Route (SR) 65 and if built out entirely would result in a 0.75-mile separation between an existing vernal pool reserve to the north and vernal pool complex to the south. The other area is north of Sunset Boulevard and west of Fiddyment Road and if fully developed would create a 3-mile separation between vernal complex and grasslands north and south of this area. Buildout of this portion of the ECA could isolate natural lands to the south in Roseville and to the southeast in the Plan Area.

A limited amount of additional rural residential development could take place along the southern edge of the Coon Creek–Bear River ECA, in the portion of the PFG around Sheridan, and in the area south of Camp Far West Reservoir; however, large areas of the ECA would be within the RAA and would be available for conservation efforts. Connectivity of similar habitat types within this ECA would remain intact if the PFG were fully developed. This ECA is dominated by vernal pool complex and grasslands in the west and south and oak woodland to the east and north. The ECA would largely support wildlife movement both within and to areas outside the Plan Area.

The southeastern edge of the Foothill PFG overlaps the western edge of the Marble Valley–Sawtooth Ride ECA in an area between Auburn Folsom Road on the west and Folsom Lake and the North Fork American River on the east. Most of the land cover in this area, dominated by oak woodland, is already protected as part of the Folsom Lake State Recreation Area and thus will likely remain suitable for wildlife movement.

The Plan includes several objectives and conservation measures to maintain and improve connectivity for the movement of covered species and other wildlife through the Plan Area. These measures include landscape-level objectives (Objectives L-1.1, L-2.1, L-2.2, L-2.3, and L-2.4) for establishing a large interconnected Reserve System that allows native and covered species to move within and outside of the Plan Area. These objectives would be met by most of the conservation
measures that address natural community protection and restoration but in particular by CM1 L-3, Connectivity and Conservation within the Region; CM1 L-4, Connectivity within the Plan Area; CM2 L-4, Maintenance and Enhancement of Reserve System Permeability; and CM2 RAR-2, Removal and/or Modification of Barriers to Fish Passage. Wildlife dispersal and corridors would also be addressed at the project level through Regional Public Projects Condition 1, which includes conditions for transportation projects to minimize the creation of barriers to wildlife dispersal.

**NEPA Determination:** Alternative 2 would result in the isolation of some natural habitats that are currently linked with similar habitats in the western half of the Plan Area; such isolation would constitute a potentially adverse effect on wildlife corridors. However, with implementation of the objectives, conservation measures, and conditions established in the Plan and the CARP, the movement of fish and wildlife within and to areas outside the Plan Area would generally be improved over the life of the Plan. Consequently, the impact on wildlife corridors would be less than significant.

**CEQA Determination:** Alternative 2 would result in the isolation of some natural habitats that are currently linked with similar habitats in the western half of the Plan Area; such isolation would constitute a significant impact. However, with implementation of the objectives, conservation measures, and conditions under the established in the Plan and the CARP, the movement of fish and wildlife within and to areas outside the Plan Area would generally be improved over the life of the Plan. Consequently, the impact on wildlife corridors would be less than significant. No mitigation has been identified.

**Impact BIO-29: Effects of invasive plant species (NEPA: less than significant; CEQA: less than significant)**

Covered Activities under Alternative 2, the proposed action, could have adverse effects on natural communities, wildlife, and native plants as a result of the introduction and spread of invasive plant species through development, operations, maintenance, and some conservation activities throughout the Plan Area. Invasive plant species threaten the diversity or abundance of native plant species through competition for resources, predation, parasitism, hybridization with native populations, introduction of pathogens, and physical or chemical alteration of the invaded habitat. Unlike the native plants they displace, many invasive plant species do not provide the food, shelter, or other habitat components on which many native fish and wildlife species depend. Invasive species also have the potential to harm human health and the economy by adversely affecting natural ecosystems, water delivery, flood protection systems, recreation, agricultural lands, and developed areas.

The Plan addresses the potential effects of invasive plant species through implementation of CM2 L-1, Vegetation Management and Invasive Plant Control; CM2 VPCG-1, Vernal Pool Complex and Grassland Vegetation Management; CM3 VPCG-2, Grassland Restoration; CM2 AW-1, Aquatic/Wetlands Complex Vegetation Control; CM2 RAR-1, Riparian Vegetation Management; CM2 OW-1, Oak Woodland Vegetation Enhancement and Management, and CM2 OW-2, Control of Invasive Animals that Limit Oak Regeneration, all of which include measures to identify, remove, or manage invasive plant species.

The introduction of invasive plant species would be further avoided and minimized through General Condition 1, which includes specifications for the use of native seed mixtures for erosion control; General Condition 2, which requires the use of non-invasive plants in landscaping adjacent to reserve properties; Community Condition 2.1, which includes a requirement to handle and dispose
of removed invasive plants to prevent further spread; and Regional Public Projects Condition 2, which includes post-construction BMPs to help avoid and minimize the introduction of invasive plants.

**NEPA Determination:** Alternative 2 has the potential to result in the introduction and spread of invasive plant species; however, implementation of the Plan’s objectives, conservation measures, and conditions would ensure that this effect is less than significant.

**CEQA Determination:** Alternative 2 has the potential to result in the introduction and spread of invasive plant species; however, implementation of the Plan’s objectives, conservation measures, and conditions would reduce this impact to a less-than-significant. No mitigation has been identified.

**Alternative 3—Reduced Take/Reduced Fill**

Alternative 3 would result in reduced take of species and reduced fill of wetlands in the Plan Area. As shown in Table 2-17 in Chapter 2, Proposed Action and Alternatives, of the EIS/EIR, land conversion in the valley would be 5% less than that under Alternative 2. The impact acreages for natural communities and covered species were provided to ICF by Placer County. The effects on natural communities, covered species, and streams and salmonid habitat under Alternative 3 are presented in Tables H-6, H-7, and H-8 in Appendix H, respectively. The conservation acreages are presented in Tables H-9 and H-10 in Appendix H.

**Natural Communities**

**Impact BIO-1: Effects on vernal pool complex (NEPA: less than significant; CEQA: less than significant)**

Covered Activities under Alternative 3, Reduced Take/Reduced Fill, would result in permanent and temporary impacts on vernal pool complex. Permanent impacts on vernal pool complex totaling 11,300 acres would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. These losses would occur primarily in the Valley portion of Plan Area A, with small losses occurring in the Foothill portion (100 acres) and Plan Area B (50 acres).

Existing vernal pool complexes could be permanently altered by the restoration/creation of a portion of the 810 acres of vernal pool–type wetlands in these complexes through implementation of the conservation strategy. As described in CM3 VPCG-1, the Plan would allow vernal pool–type wetlands to be created/restored in up to 6,000 acres of existing vernal pool complex that can accommodate additional wetlands, typically in existing low- and medium-density vernal pool complexes (i.e., with less than 5% density of existing vernal pool-type wetlands), as well as in grasslands without existing vernal pools and agricultural lands (e.g., field crops and rice lands). According to CM1 VPCG-1 and CM2 VPCG-2, some of this restoration and enhancement may also be undertaken in existing vernal pool–type wetlands to improve degraded conditions. If vernal pool restoration/creation is to be implemented in existing vernal pool complexes, these activities could affect upland resources and the hydrologic balance of the existing pools in these complexes.

To address these concerns, the Plan includes the following language in CM1 VPCG-2.

- Any sites identified for restoration/creation will not affect any vernal pools onsite.
- Sufficient land is available for protection to provide the necessary vernal pool complex restoration/creation, including surrounding grasslands, to ensure the local watershed is sustaining vernal pool hydrology.

- Vernal pool density is representative of intact vernal pool complex in the vicinity of the restoration site. Restoration will not result in a density of vernal pools greater than 10% density, unless it can be demonstrated by historical or other data (e.g., aerial photograph) that a higher density is appropriate. The intention is to mimic historic conditions for high value vernal pool complexes.

Furthermore, CM3 VPCG-2 states:

Creation of vernal pools within a vernal pool complex of existing pools can alter the hydrology of the existing pools and can affect ground-nesting bees and other upland plants and animals (U.S. Fish and Wildlife Service 2005). To minimize effects to existing vernal pool complexes, vernal pools will only be created in areas where they will be isolated hydrologically from existing pools and when adequate amounts of surrounding upland habitat are protected, as demonstrated in site-level restoration plans.

Temporary impacts of Covered Activities on vernal pool complex would not exceed 411 acres, or approximately 1% of this community in Plan Area A. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, infrastructure construction, and conservation activities. Conservation actions that could temporarily affect vernal pool complex include restoration and enhancement actions such as grading and contouring to restore, create, and enhance vernal pool–type wetlands in reserves.

Indirect impacts on vernal pool complex could result from construction activities in the Plan Area, such as grading, trenching, changes to hydrology, and changes to topography. Indirect effects on vernal pools are generally considered to occur when ground-disturbing activities take place within 250 feet of a vernal pool—more specifically, when it can be demonstrated that the hydrology supporting a pool has been altered. Indirect effects on vernal pool complexes were estimated in the Plan at approximately 15% of direct effects (permanent and temporary combined), which would be approximately 1,757 acres under Alternative 3. These indirect effects could adversely affect the functions and services of vernal pool–type wetlands and supporting uplands in vernal pool complexes.

Permanent loss of vernal pool complex under Alternative 3 would be offset by the protection and management of 16,158 acres and the restoration of 3,000 acres of vernal pool complex in reserves within the Plan Area. The protection and restoration of vernal pool complex would be supported by the following objectives and conservation measures.

- Objective VPCG-1.1, Protect Existing Vernal Pool Complexes
- CM1 L-2, Reserve Acquisition Strategy
- CM1 L-4, Connectivity within Plan Area
- CM1 VPCG-1, Vernal Pool Complex Protection
- CM1 VPCG-2, Reserve Design for Vernal Pool Restoration/Creation
- CM2 L-1, Vegetation Management and Invasive Plant Control
- CM2 L-3, Develop and Implement Fire Management Plans
- CM2 VPCG-1, Vernal Pool Complex Enhancement and Hydrologic Conditions
- CM3 VPCG-1, Vernal Pool Complex Restoration/Creation
- CM4 L-1, Low-Impact Development Standards
- CM4 VPCG-1, Conduct Outreach to Private Landowners

Temporarily affected vernal pool complexes would be restored through implementation of General Condition 4, Temporary Effects, which requires that temporarily affected areas be restored to pre-project conditions or better based on performance standards such as percent vegetative cover, restored topography, and restored hydrology.

Potential effects on vernal pool complex during construction and operations and maintenance would be avoided and minimized through the implementation of General Conditions 1, 2, and 4; Community Conditions 1.1, 1.2, 1.3, 1.4, and 1.5; and Regional Public Project Conditions 2 and 3. These conditions are described in Chapter 6 of the Plan.

These objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. The proposed landscape-level conservation of 20,000 acres of vernal complexes—17,000 acres protected and 3,000 acres restored/created, including enhancement of degraded conditions in existing complexes that would be protected, and long-term management of these resources—would mitigate the effects of the proposed action. The proposed conditions further demonstrate the intent to avoid and minimize effects over the life of the Plan.

**NEPA Determination:** The permanent loss of 11,300 acres and temporary disturbance of 411 acres of vernal pool complex associated with Alternative 3, in the absence of other conservation actions, would constitute a potentially significant impact. These effects would be offset by the Plan’s commitment to conserve 20,000 acres of vernal pool complex. As described in Chapter 5 of the Plan, Objective VPCG-1.1 and Conservation Measures CM1 L-2, CM1 L-4, CM1 VPCG-1, CM1 VPCG-2, CM2 L-1, CM2 L-3, CM2 VPCG-1, CM3 VPCG-1, CM4 L-1, and CM4 VPCG-1 would guide the implementation of vernal pool complex creation, enhancement, restoration, and protection by ensuring that reserve lands are established in large, interconnected blocks that result in no net loss of wetlands and provide sufficient upland habitat to facilitate the conservation and recovery of covered vernal pool branchiopods. These measures would ensure that the reserves are managed in perpetuity for the benefit of covered and native species. As described in Chapter 6 of the Plan, potential effects on vernal pool complexes during construction would be avoided and minimized through the implementation of General Conditions 1, 2, and 4; Community Conditions 1.1, 1.2, 1.3, 1.4, and 1.5; and Regional Public Project Conditions 2 and 3. Considering these proposed conservation actions set forth by the Plan’s goals, objectives, conservation measures, and conditions, the overall effects of Alternative 3 on vernal pool complex in the Plan Area would be less than significant.

**CEQA Determination:** The permanent loss of 11,300 acres and temporary disturbance of 411 acres of vernal pool complex associated with Alternative 3, in the absence of other conservation actions, would constitute a significant impact through loss of a natural community in the Plan Area. The natural community creation, enhancement, restoration, and protection together with conservation measures and conditions pertaining to the long-term management of vernal pool complex in the Plan Area support the conclusion that the impacts of Alternative 3 on vernal pool complex would be less than significant. No mitigation has been identified.
Impact BIO-2: Effects on grassland (NEPA: less than significant; CEQA: less than significant)

Covered Activities under Alternative 3, Reduced Take/Reduced Fill, would result in both permanent and temporary impacts on the grassland natural community. Permanent impacts on grasslands would total 7,040 acres of the grassland in Plan Area A, resulting primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. These losses would be roughly split between the Valley and Foothill portions of Plan Area A (i.e., 3,640 and 3,300 acres, respectively), and approximately 100 acres would be lost in Plan Area B. An unknown amount of grassland may also be permanently converted to wetlands as part of vernal pool complex restoration, riparian restoration, marsh restoration, and oak woodland restoration. Exact amounts of grassland that would be converted to other natural communities is not known at this time, but these could comprise up to 3,000 acres if all the vernal pool complex restoration/creation were to be undertaken in the grassland community.

Temporary impacts on grasslands from Covered Activities would not exceed 244 acres, less than 1% of this community in Plan Area A. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Conservation actions from Plan implementation could also temporarily disturb grasslands at grading or vegetation management locations.

Permanent loss of grassland under Alternative 3 would be partially offset by the protection and management of 2,796 acres and the restoration of 1,000 acres of grasslands in reserves in the Plan Area. The protection and restoration of grasslands would be supported by the following objectives and conservation measures.

- Objective VPCG-1.3, Protect Grasslands
- Objective VPCG-1.4, Restore Grasslands
- CM2 VPCG-3, Grassland Protection
- CM3 VPCG-2, Grassland Restoration
- CM1 L-2, Reserve Acquisition Strategy
- CM2 L-1, Vegetation Management and Invasive Plant Control
- CM2 L-3, Develop and Implement Fire Management Plans

Because grasslands are a component of vernal pool complexes, the effects on grasslands would also be offset by the protection and restoration of 19,158 acres of vernal pool complex.

Temporarily affected grasslands would be restored with implementation of General Condition 4, Temporary Effects, which requires that temporarily affected areas be restored to pre-project conditions or better based on performance standards such as percent vegetative cover and restored topography.

These objectives, conservation measures, and the general condition establish performance standards for measuring the effectiveness of proposed conservation actions.

**NEPA Determination:** The permanent loss of 7,040 acres and temporary disturbance of 244 acres of grassland associated with Alternative 3, in the absence of other conservation actions, would constitute a potentially significant impact; however, with the protection and restoration guided by
the Plan's goals, objectives, conservation measures, and conditions, the overall effects of Alternative 3 on grasslands in the Plan Area would be less than significant.

**CEQA Determination:** The permanent loss of 7,040 acres and temporary disturbance of 244 acres of grassland associated with Alternative 3, in the absence of other conservation actions, would constitute a significant impact through loss a natural community in the Plan Area. The natural community restoration and protection activities would constitute adequate mitigation for CEQA purposes. The conservation measures for grasslands, in addition to those for vernal pool complexes, are more than sufficient to support the conclusion that the impacts of Alternative 3 on grassland would be less than significant. No mitigation has been identified.

**Impact BIO-3: Effects on aquatic/wetland complex (NEPA: less than significant; CEQA: less than significant)**

Covered Activities under Alternative 3, Reduced Take/Reduced Fill, would result in permanent and temporary impacts on the aquatic/wetland complex natural community. Permanent impacts on aquatic/wetland complex would total 250 acres: 100 acres of fresh emergent marsh, 99 acres of lacustrine, and 50 acres of non–vernal pool seasonal wetlands. These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. These losses would be roughly split between the Valley and Foothill portions of Plan Area A (i.e., 110 and 130 acres, respectively), and approximately 10 acres would be lost in Plan Area B.

Temporary impacts on aquatic/wetland complex from Covered Activities would not exceed 101 acres. These impacts—comprising 48 acres of fresh emergent marsh, 27 acres of lacustrine, and 26 acres of non–vernal pool seasonal wetlands—would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Some conservation actions through Plan implementation may also temporarily disturb aquatic/wetland complex when grading, vegetation management, or other physical change to the natural community is required.

Permanent loss of aquatic/wetland complex under Alternative 3 would be offset by the protection and management of 577 acres, improving the overall functions and services of wetlands, and the restoration/creation of 395 acres of aquatic/wetland complex in reserves in the Plan Area. The protection and restoration of aquatic/wetland complex would be supported by the following objectives and conservation measures.

- Objective AW-1.1, Protect Aquatic/Wetlands Complex Natural Community
- CM1 L-2, Reserve Acquisition Strategy
- CM1 AW-1, Aquatic/Wetlands Protection
- CM2 L-1, Vegetation Management and Invasive Plant Control
- CM2 AW-1, Aquatic/Wetlands Complex Vegetation Control
- CM2 AW-2, Fencing Wetlands and Ponds
- CM2 AW-3, Sediment Removal
- CM2 AW-6, Provision of Vegetative Cover
- CM 2 AW-8, Maintenance and Enhancement of Water Quality
- CM3 AW-1, Aquatic/Wetlands Complex Restoration/Creation
- CM4 AW-1, Conduct Public Outreach

Temporarily affected aquatic/wetlands complex would be restored through implementation of General Condition 4, Temporary Effects, which requires that temporarily affected areas be restored to pre-project conditions or better based on performance standards, such as percent vegetative cover, restored topography, and restored hydrology within 1 year.

Potential effects on aquatic/wetlands complex during construction and operations and maintenance would be avoided and minimized through implementation of General Condition 1, Community Conditions 1.3 and 1.5, and Regional Public Project Conditions 2 and 3. These conditions are described in Chapter 6 of the Plan.

These objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. The acres of protection and restoration satisfy the typical mitigation that would be applied to the project-level effects, as well as mitigating the effects of the other conservation measures. The proposed conditions further demonstrate the intent to avoid and minimize effects over the life of the Plan.

**NEPA Determination:** The permanent loss of 250 acres and temporary disturbance of 101 acres of aquatic/wetland complex associated with Alternative 3, in the absence of other conservation actions, would constitute a potentially significant impact. These effects would be offset by the Plan's commitment to conserve 1,010 acres of aquatic/wetland complex. As described in Chapter 5 of the Plan, Objective AW-1.1 and Conservation Measures CM1 L-2, CM1 AW-1, CM2 L-1, CM2 AW-1, CM2 AW-2, CM2 AW-3, CM2 AW-6, CM 2 AW-8, CM3 AW-1, and CM4 AW-1 would guide the implementation of aquatic/wetland complex creation, enhancement, restoration, and protection by ensuring that a range of aquatic and wetland types are conserved and will increase the acreage and ecological function of wetland and aquatic communities in the Plan Area. These measures would ensure that the reserves are managed in perpetuity for the benefit of covered and native species. As described in Chapter 6 of the Plan, potential effects on aquatic/wetland complexes during construction would be avoided and minimized through the implementation of General Condition 1; Community Conditions 1.3 and 1.5, and Regional Public Project Conditions 2 and 3. Considering these proposed conservation actions set forth by the Plan's goals, objectives, conservation measures, and conditions, the overall effects of Alternative 3 on aquatic/wetland complex in the Plan Area would be less than significant.

**CEQA Determination:** The permanent loss of 250 acres and temporary disturbance of 101 acres of aquatic/wetland complex associated with Alternative 3, in the absence of other conservation actions, would constitute a significant impact through loss a natural community in the Plan Area. The natural community creation, enhancement, restoration, and protection activities would constitute adequate mitigation for CEQA purposes. The conservation measures and conditions relevant to aquatic/wetland complex are more than sufficient to support the conclusion that the impacts of Alternative 3 on aquatic/wetland complex would be less than significant. No mitigation has been identified.
Impact BIO-4: Effects on riverine/riparian complex (NEPA: less than significant; CEQA: less than significant)

Covered Activities under Alternative 3 would result in permanent and temporary impacts on the riverine/riparian complex natural community. Permanent impacts on riverine/riparian complex would total 475 acres: 106 acres of riverine and 369 acres of riparian. These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. A total of 135 acres would be lost in the Valley portion of Plan Area A, 330 acres in the Foothill portion, and 10 acres in Plan Area B.

As discussed in Section 3.4.5, Riverine/Riparian Complex, of the Plan, because of limitations in mapping, not all the area mapped as riverine habitat consists of the wetted stream width but can include grasslands, valley oak woodland, fresh emergent wetland, off-channel wetlands, and seasonal wetlands. Unlike land conversion where the natural community is converted by the Covered Activity, in-stream activities would leave the stream channel intact and in some cases in an improved condition.

The descriptions of in-stream activities in Chapter 2, Covered Activities, and Section 4.4.1.6, In-Stream Programs Effects, of the Plan show that the actual activities within riverine habitat would be implemented along short segments, typically on the order of 100 feet, at multiple locations throughout the Plan Area. Covered Activities that would have quantifiable effects on streams consist of road crossings, pipelines not associated with road crossings (i.e., those pipelines going beneath streams and not attached to a bridge), and water supply, flood control, and fish passage enhancement projects. Of these, road crossings would account for the majority of permanent effects on streams.

Temporary impacts on riverine/riparian complex from Covered Activities would not exceed 159 acres. These impacts, comprising 47 acres of riverine and 112 acres of riparian, would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Some conservation actions through Plan implementation may also temporarily disturb riverine/riparian complex where grading, vegetation management, or other physical change to the natural community is required.

Permanent loss of riverine/riparian complex under Alternative 3 would be offset by the protection and management of 2,133 acres, improving the overall functions and services of these waters, and the restoration/creation of 1,369 acres of riverine/riparian complex in reserves in the Plan Area. The protection and restoration of riverine/riparian complex would be supported by the following objectives and conservation measures.

- Objective RAR-1.1, Protect Riverine/Riparian Complex
- Objective RAR-1.3, Restore Riverine/Riparian Complex
- CM1 L-2, Reserve Acquisition Strategy
- CM1 RAR-1, Riverine and Riparian Protection
- CM1 RAR-2, Reserve Design for Riparian Restoration
- CM2 L-1, Vegetation Management and Invasive Plant Control
- CM2 RAR-1, Riparian Vegetation Management
• **CM3 RAR-1, Riparian Natural Community Restoration**

Temporarily affected riverine/riparian complex would be restored through implementation of General Condition 4, Temporary Effects, which requires that temporarily affected areas be restored to pre-project conditions or better based on performance standards such as percent vegetative cover, restored topography, and restored hydrology.

Potential effects on riverine/riparian complex during construction and operations and maintenance will be avoided and minimized through the implementation of General Condition 1, Community Conditions 2.1, 2.2, 2.3, and 2.4, Stream Conditions 1 and 2, and Regional Public Project Conditions 2 and 3. These conditions are described in Chapter 6 of the Plan.

These objectives, conservation measures, and conditions establish performance standards for considering the effectiveness of proposed conservation actions. The acres of protection and restoration satisfy the typical mitigation that would be applied to the project-level effects, as well as mitigating the effects of the other conservation measures. The proposed conditions further demonstrate the intent to avoid and minimize effects over the life of the Plan.

**NEPA Determination:** The permanent loss of 475 acres and temporary disturbance of 159 acres of riverine/riparian complex associated with Alternative 3, in the absence of other conservation actions, would constitute a potentially significant impact. These effects would be offset by the Plan's commitment to conserve 3,625 acres of riverine/riparian complex. As described in Chapter 5 of the Plan, Objectives RAR-1.1 and RAR-1.3, and Conservation Measures CM1 L-2, CM1 RAR-1, CM1 RAR-2, CM2 L-1, CM2 RAR-1, and CM3 RAR-1 would guide the implementation of riverine/riparian complex creation, enhancement, restoration, and protection by ensuring large intact riparian stands are protected, riverine habitat next to preserves are protected, invasive species are managed, in-stream habitat for fish and wildlife is enhanced, and areas are restored with native species. These measures would ensure that the reserves are managed in perpetuity for the benefit of covered and native species. As described in Chapter 6 of the Plan, potential effects on riverine/riparian complexes during construction would be avoided and minimized through the implementation of General Condition 1; Community Conditions 2.1, 2.2, 2.3, and 2.4; Stream Conditions 1 and 2; and Regional Public Project Conditions 2 and 3. Considering these proposed conservation actions set forth by the Plan's goals, objectives, conservation measures, and conditions, the overall effects of Alternative 3 on riverine/riparian complex in the Plan Area would be less than significant.

**CEQA Determination:** The permanent loss of 475 acres and temporary disturbance of 159 acres of riverine/riparian complex associated with Alternative 3, in the absence of other conservation actions, would constitute a significant impact through loss of a natural community in the Plan Area. The natural community creation, enhancement, restoration, and protection activities would constitute adequate mitigation for CEQA purposes. The conservation measures and conditions relevant to riverine/riparian complex are more than sufficient to support the conclusion that the impacts of Alternative 3 on riverine/riparian complex would be less than significant. No mitigation has been identified.

**Impact BIO-5: Effects on oak woodland (NEPA: less than significant; CEQA: less than significant)**

Covered Activities under Alternative 3, Reduced Take/Reduced Fill, would result in permanent and temporary impacts on the oak woodland natural community. Permanent impacts on oak woodland would total 6,225 acres. These impacts would result primarily from urban/suburban development,
rural residential development, transportation projects, and infrastructure projects. A total of 1,115 acres would be lost in the Valley portion of Plan Area A, 5,100 acres in the Foothill portion, and 10 acres in Plan Area B.

Temporary impacts on oak woodland from Covered Activities would not exceed 180 acres—less than 1% of the community present in Plan Area A. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Some conservation actions through Plan implementation may also temporarily disturb oak woodland in locations where grading, vegetation management, or other physical change to the natural community is required.

Permanent loss of oak woodland under Alternative 3 would be offset by the protection and management of 10,134 acres and the restoration of 100 acres of oak woodland in reserves in the Plan Area. The protection and restoration of oak woodland would be supported by the following objectives and conservation measures.

- Objective RAR-1.3, Restore Riverine/Riparian Complex
- Objective OW-1.1, Protect Oak Woodlands
- CM1 L-2, Reserve Acquisition Strategy
- CM1 OW-1, Oak Woodland Protection
- CM1 OW-2, Reserve Design for Oak Woodland Restoration
- CM2 L-1, Vegetation Management and Invasive Plant Control
- CM2 OW-1, Oak Woodland Vegetation Enhancement and Management
- CM2 OW-2, Control of Invasive Animals that Limit Oak Regeneration
- CM3 OW-1, Oak Woodland Restoration

Temporarily affected riverine/riparian complex would be restored with the implementation of General Condition 4, Temporary Effects, which requires that temporarily affected areas be restored to pre-project conditions or better based on performance standards such as percent vegetative cover and restored topography.

Potential effects on oak woodlands during construction and operations and maintenance would be avoided and minimized through implementation of General Condition 1 and Regional Public Project Conditions 2 and 3. These conditions are described in Chapter 6 of the Plan.

These objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. The acres of protection and restoration satisfy the typical mitigation that would be applied to the project-level effects, as well as mitigating the effects of the other conservation measures. The proposed conditions further demonstrate the intent to avoid and minimize effects over the life of the Plan.

**NEPA Determination:** The permanent loss of 6,225 acres and temporary disturbance of 180 acres of oak woodland associated with Alternative 3, in the absence of other conservation actions, would constitute a potentially significant impact; however, with the protection and restoration guided by the Plan's goals, objectives, conservation measures, and conditions, the overall effects of Alternative 3 on oak woodland in the Plan Area would be less than significant.
**CEQA Determination:** The permanent loss of 6,225 acres and temporary disturbance of 180 acres of oak woodland associated with Alternative 3, in the absence of other conservation actions, would constitute a significant impact through loss of a natural community in the Plan Area. The natural community restoration and protection activities would constitute adequate mitigation for CEQA purposes. The conservation measures and conditions relevant to riverine/riparian complex are more than sufficient to support the conclusion that the impacts of Alternative 3 on oak woodland would be less than significant. No mitigation has been identified.

**Impact BIO-6: Effects on valley oak woodland (NEPA: less than significant; CEQA: less than significant)**

Covered Activities under Alternative 3, Reduced Take/Reduced Fill, would result in permanent and temporary impacts on the valley oak woodland natural community. Permanent impacts on valley oak woodland would total 140 acres (10% of this community in the Plan Area). These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. A total of 30 acres would be lost in the Valley portion of Plan Area A, 100 acres in the Foothill portion, and 10 acres in Plan Area B.

Temporary impacts on valley oak woodland from Covered Activities would not exceed 25 acres—2% of this community in Plan Area A. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction, and conservation activities. Some conservation actions through Plan implementation may also temporarily disturb valley oak woodland in locations where grading, vegetation management, or other physical change to the natural community is required.

Permanent loss of valley oak woodland under Alternative 3 would be offset by the protection and management of 190 acres and the restoration of 285 acres of valley oak woodland in reserves in the Plan Area. The protection and restoration of oak woodland would be supported by the following objectives and conservation measures.

- Objective RAR-1.3, Restore Riverine/Riparian Complex
- Objective OW-1.1, Protect Oak Woodlands
- CM1 L-2, Reserve Acquisition Strategy
- CM1 OW-1, Oak Woodland Protection
- CM1 OW-2, Reserve Design for Oak Woodland Restoration
- CM2 L-1, Vegetation Management and Invasive Plant Control
- CM2 OW-1, Oak Woodland Vegetation Enhancement and Management
- CM2 OW-2, Control of Invasive Animals that Limit Oak Regeneration
- CM3 OW-1, Oak Woodland Restoration

Temporarily affected riverine/riparian complex would be restored through implementation of General Condition 4, Temporary Effects, which requires that temporarily affected areas be restored to pre-project conditions or better based on performance standards such as percent vegetative cover and restored topography.
Potential effects on valley oak woodlands during construction, and operations and maintenance would be avoided and minimized through the implementation of General Condition 1 and Regional Public Project Conditions 2 and 3. These conditions are described in Chapter 6 of the Plan.

These objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. The acres of protection and restoration satisfy the typical mitigation that would be applied to the project-level effects, as well as mitigating the effects of the other conservation measures. The proposed conditions further demonstrate the intent to avoid and minimize effects over the life of the Plan.

**NEPA Determination:** The permanent loss of 140 acres and temporary disturbance of 25 acres of valley oak woodland associated with Alternative 3, in the absence of other conservation actions, would constitute a potentially significant impact; however, with the protection and restoration guided by the Plan’s goals, objectives, conservation measures, and conditions, the overall effects of Alternative 3 on valley oak woodland in the Plan Area would be less than significant.

**CEQA Determination:** The permanent loss of 140 acres and temporary disturbance of 25 acres of valley oak woodland associated with Alternative 3, in the absence of other conservation actions, would constitute a significant impact through loss of a natural community in the Plan Area. The natural community restoration and protection activities would constitute adequate mitigation for CEQA purposes. The conservation measures and conditions relevant to valley oak woodland are more than sufficient to support the conclusion that the impacts under Alternative 3 on valley oak woodland would be less than significant. No mitigation has been identified.

### Special-Status Plants

**Impact BIO-7: Effects on special-status plants in vernal pool habitats (NEPA: less than significant with mitigation; CEQA: less than significant with mitigation)**

Special-status plant species that grow in vernal pools and are known to occur in the Plan Area region include dwarf downingia, Boggs Lake hedge-hyssop, hogwallow starfish, Ahart’s dwarf rush, Red Bluff dwarf rush, legenere, pincushion navarretia, and adobe navarretia. There are known occurrences in the Plan Area for all these species. Table 4.3-1 shows the numbers of these recorded occurrences in each Plan Area component (California Department of Fish and Wildlife 2017; Consortium of California Herbaria 2017a; Preston pers. comm.).

Covered Activities under Alternative 3, Reduced Take/Reduced Fill, would result in permanent and temporary impacts on vernal pool habitat for special-status plants. Plan Area A includes 45,065 acres of vernal pool complex that are potential habitat for these species. In the Valley portion of the Plan Area, permanent impacts would total 515 acres of vernal pool–type wetland habitat within 11,150 acres of vernal pool complex (approximately 25% of the vernal pool complex community in Plan Area A). These impacts would result primarily from urban/suburban development, transportation projects, and infrastructure projects. Known occurrences of dwarf downingia (three) and pincushion navarretia (one) could be removed as a result of such projects. In Plan Area B, permanent impacts on vernal pool–type wetlands from Covered Activities in non-participating cities would total 10 acres. Known occurrences of dwarf downingia (nine), Boggs Lake hedge-hyssop (two), and legenere (one) could be removed as a result of these Covered Activities. One occurrence of Red Bluff dwarf rush could also be affected; however, this record of the species is questionable and may be due to a misidentification of another species as Red Bluff dwarf rush. Additional
undiscovered occurrences of special-status vernal pool plants could be removed in the Plan Area as a result of project construction in Plan Areas A and B.

An additional 100 acres of vernal pool complex would be permanently affected in the Foothills portion of the Plan Area, although there are no recorded occurrences of special-status vernal pool plant species in this area.

An unknown amount of vernal pool complex wetland habitat may be permanently altered by the restoration/creation of a portion of the 810 acres of vernal pool, seasonal wetland, and seasonal swale wetlands included in implementation of the Plan’s conservation strategy. If vernal pool restoration/creation is to take place in existing vernal pool complexes, these activities could affect existing wetland habitat, as well as upland resources and the hydrologic balance of the existing pools in these complexes. However, implementation of CM1 VPCG-2, Vernal Pool Complex Enhancement and Hydrologic Conditions, and CM3 VPCG-2, Grassland Restoration, would prevent restoration/creation from affecting existing vernal pools by ensuring that the local watershed is sufficient to support additional pools and that adequate upland habitat around existing pools is protected.

Temporary impacts of Covered Activities on vernal pool wetland habitat for special-status plants would not exceed 23 acres of vernal pool complex in the Valley portion of the Plan Area and 5 acres in Plan Area B. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Temporary effects associated with fuels management, vegetation management, and infrastructure operations and maintenance would occur in areas previously disturbed by similar activities (e.g., existing fire breaks, areas previously disturbed by infrastructure construction) and therefore the likelihood of rare plants occurring in these areas is low. Some conservation actions through Plan implementation may also temporarily disturb vernal pool wetland habitat for special-status plants in locations where grading, vegetation management, or other physical change is required.

Indirect impacts on vernal pool communities and wetland habitat in the Plan Area that support special-status plants could result from construction activities such as grading and removal of vegetation. These activities could adversely affect habitat function for special-status plants by altering the topography and hydrology that support vernal pools and wetland habitat.

Permanent loss of vernal pool habitat for special-status plants resulting from Covered Activities under Alternative 3 would be offset by the protection and management of 16,158 acres and restoration of 3,000 acres of vernal pool complex in reserves in the Plan Area. Within these areas, 790 acres of vernal pool-type wetlands would be protected and up to 810 acres restored. Known occurrences of dwarf downingia (four) and legenere (one) are within the RAA. Known occurrences of dwarf downingia (two), Boggs Lake hedge-hyssop (one), Ahart’s dwarf rush (one), and adobe navarretia (two) are already protected on existing reserves in the Plan Area. The protection and restoration of vernal pool habitat for special-status plants would be supported by the following conservation measures.

- CM1 L-2, Reserve Acquisition Strategy
- CM1 VPCG-1, Vernal Pool Complex Protection
- CM1 VPCG-2, Reserve Design for Vernal Pool Restoration/Creation
- CM1 AW-1, Aquatic/Wetlands Complex Protection
- CM2 L-1, Vegetation Management and Invasive Plant Control
- CM2 L-3, Develop and Implement Fire Management Plans
- CM2 VPCG-1, Vernal Pool complex and Grassland Vegetation Management
- CM2 AW-1, Aquatic/Wetlands Complex Vegetation Control
- CM2 AW-3, Sediment Removal
- CM3 VPCG-1, Vernal Pool Complex Restoration/Creation

Temporarily affected vernal pool habitat for special-status plants would be restored through implementation of General Condition 4, Temporary Effects, which requires that temporarily affected areas be restored to pre-project conditions or better, based on performance standards such as percent vegetative cover, restored hydrology, and restored topography.

Implementation of Community Condition 1, Wetland Avoidance and Minimization (Vernal Pool and Aquatic/Wetland Complex), and the specific measures contained in the condition would protect the hydrology and habitat quality of vernal pool habitat for special-status plants. Community Condition 1.4 would potentially offset loss of special-status plants through the salvaging of seed from affected pools for creation and restoration elsewhere.

Although they do not apply to non-covered special-status plant species, these conservation measures and conditions establish performance standards for considering the effectiveness of proposed conservation actions. In addition, the impacts of Covered Activities, which include urban/suburban development, transportation projects, and infrastructure projects, under Alternative 3 on occurrences of and habitat for non-covered special-status plants would be mitigated on a project-by-project basis through the local land use approval process, including CEQA review, for discretionary projects. Substantial ancillary benefits for these plant species are also expected to result from Plan implementation, because it would establish a comprehensive reserve management program that would enhance habitat conditions in a variety of natural communities that may support non-covered special-status plants. Any potential effects on these plants from fuels management, vegetation management, and infrastructure operations and maintenance, though not likely subject to additional environmental review, would be offset because the entities implementing these projects would be participating in the Plan and contributing funds for the implementation of the conservation strategy; furthermore the likelihood of rare plants occurring in these areas is low because these areas were likely previously disturbed by similar activities (e.g., existing fire breaks, areas previously disturbed by infrastructure construction). The implementation of conservation measures to create and restore vernal pool habitat, which may affect these plant populations, may not be subject to further approvals or review that may identify effects on these plants.

**NEPA Determination:** Implementation of Alternative 3 could result in the loss of extant occurrences of special-status plants: up to 12 occurrences of dwarf downingia, 2 occurrences of Boggs Lake hedge-hyssop, 1 potential occurrence of Red Bluff dwarf rush, 1 occurrence of legenere, and 1 occurrence of pincushion navarretia. Alternative 3 would also permanently remove up to 525 acres of vernal pool–type wetland habitat for special status-plants in the Plan Area. However, the protection and restoration guided by the Plan’s goals, objectives, conservation measures, and conditions would ensure that habitat loss from Covered Activities, which include urban/suburban development, transportation projects, infrastructure projects, fuels management, vegetation management, and infrastructure operations and maintenance, would be compensated for and
preserved habitat would be managed in perpetuity and thus the effects would be reduced to a less-than-significant level.

Conservation measures to create, restore, enhance, and manage vernal pool habitat could remove existing populations of special-status plants if these actions take place in previously undisturbed vernal pool complexes and if there are no opportunities to identify and avoid these populations through subsequent NEPA review; therefore, these activities could have significant impacts on special-status plants. Implementation of Mitigation Measure BIO-1 would reduce this effect to a less-than-significant level.

CEQA Determination: Implementation of Alternative 3 could result in the loss of extant occurrences of special-status plants: up to 12 extant occurrences of dwarf downingia, 2 extant occurrences of Boggs Lake hedge-hyssop, 1 potential occurrence of Red Bluff dwarf rush, 1 extant occurrence of legenere, and 1 occurrence of pincushion navarretia. Alternative 3 would also permanently remove up to 525 acres of vernal pool–type wetland habitat for special-status plants in the Plan Area. However, the protection and restoration guided by the Plan's goals, objectives, conservation measures, and conditions would ensure that habitat loss from Covered Activities, which include urban/suburban development, transportation projects, infrastructure projects, fuels management, vegetation management, and infrastructure operations and maintenance, would be compensated for, and preserved habitat would be managed in perpetuity and thus would reduce these effects to a less-than-significant level.

Conservation measures to create, restore, enhance, and manage vernal pool habitat could remove existing populations of special-status plants if these actions take place in previously undisturbed vernal pool complexes and if there are no opportunities to identify and avoid these populations through subsequent CEQA review; therefore, restoration, enhancement, and management activities could have significant impacts on special-status plants. Implementation of Mitigation Measure BIO-1 would reduce this potential impact to a less-than-significant level.

Mitigation Measure BIO-1: Conduct surveys for and avoid special-status plants in proposed restoration and enhancement areas

Impact BIO-8: Effects on special-status plants in oak woodland habitats (NEPA: less than significant with mitigation; CEQA: less than significant with mitigation)

Oak woodland habitats, as discussed here, include the oak–foothill pine and chaparral land cover types included in the oak woodland natural community, as well as valley oak woodland. Several special-status plant species grow in oak woodland habitats and are known to occur in the Plan Area region: big-scale balsamroot, Brandegee’s clarkia, stinkbells, Butte County fritillary, Red Bluff dwarf rush, dubious pea, hoary navarretia, streambank spring beauty, and sylvan microseris. There are recorded occurrences in the Plan Area for all these species except streambank spring beauty and sylvan microseris. Occurrences of streambank spring beauty occur near but outside of the PCWA operations and maintenance component of the Plan Area. Table 4.3-2 shows the numbers of these recorded occurrences in each Plan Area component (California Department of Fish and Wildlife 2017; Consortium of California Herbaria 2017b, 2017c, 2017d).

Covered Activities under Alternative 3 would result in permanent and temporary impacts on oak woodland habitat for special-status plants. Plan Area A includes 52,234 acres of oak woodland habitats that are potential habitat for these species. In the Valley portion of the Plan Area, permanent impacts would total 1,145 acres of oak woodland habitats (approximately 2% of total...
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oak woodland in Plan Area A). Known occurrences of big-scale balsamroot (one) and Brandegee’s clarkia (four) in the Valley portion could be removed as a result of individual projects. In the Foothill portion, permanent impacts would total 5,200 acres of oak woodland habitats (approximately 10% of total oak woodland in Plan Area A); however, no extant occurrences of special-status plants are recorded in the Foothill portion. Impacts in Plan Area A would result primarily from urban/suburban development, transportation projects, and infrastructure projects. In Plan Area B, Covered Activities in non-participating cities would result in impacts on a total of 20 acres of oak woodland habitats. Known occurrences of big-scale balsamroot, Brandegee’s clarkia, and dubious pea (one occurrence each) could be removed as a result of these Covered Activities. One occurrence of Red Bluff dwarf rush could also be affected; however, this record of the species is questionable and may be due to a misidentification of another species as Red Bluff dwarf rush. Additional undiscovered occurrences of special-status plants could be removed in the Plan Area as a result of project construction in Plan Areas A and B.

Temporary impacts of Covered Activities on oak woodland habitats for special-status plants would not exceed 55 acres in the Valley portion of the Plan Area, 140 acres in the Foothill portion, and 10 acres in Plan Area B. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Temporary effects associated with fuels management, vegetation management, and infrastructure operations and maintenance would occur in areas previously disturbed by similar activities (e.g., existing fire breaks, areas previously disturbed by infrastructure construction), and therefore the likelihood of rare plants occurring in these areas is low. Some conservation actions through Plan implementation may also temporarily disturb oak woodland habitats for special-status plants at locations of grading, vegetation management, or other physical change to the habitat.

Indirect impacts on oak woodland habitats that support special-status plants could result from construction activities in the Plan Area, such as grading and removal of vegetation. These activities could adversely affect habitat function for special-status plants by altering the topography and hydrology in these habitats.

Permanent loss of oak woodland habitats for special-status plants from Covered Activities under Alternative 3 would be offset by the protection and management of 10,134 acres of oak woodland and 190 acres of valley oak woodland, as well as restoration of 100 acres of oak woodland and 285 acres of valley oak woodland in reserves in the Plan Area. One known occurrence of Brandegee’s clarkia is already protected in an existing reserve in the Foothill RAA. The protection and restoration of oak woodland habitats for special-status plants would be supported by the following conservation measures.

- CM1 L-2, Reserve Acquisition Strategy
- CM1 OW-1, Oak Woodland Protection
- CM1 OW-2, Reserve Design for Oak Woodland Restoration
- CM2 L-1, Vegetation Management and Invasive Plant Control
- CM2 L-3, Develop and Implement Fire Management Plans
- CM2 OW-1, Oak Woodland Vegetation Enhancement and Management
- CM2 OW-2, Control of Invasive Animals that Limit Oak Regeneration
CM3 OW-1, Oak Woodland Restoration

Temporarily affected oak woodland habitats for special-status plants would be restored through implementation of General Condition 4, Temporary Effects, which requires that temporarily affected areas be restored to pre-project conditions or better, based on performance standards such as percent vegetative cover, restored hydrology, and restored topography.

Implementation of Community Conditions 3.1, Valley Oak Woodland Alliance, and 3.2, Valley Oak Woodland and Individual Valley Oak Trees, would protect valley oak woodlands larger than 1 acre and the hydrology of the woodlands, as well as valley oak woodlands smaller than 1 acre and individual valley oak trees.

Although they do not apply to non-covered special-status plant species, these conservation measures and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. In addition, the impacts of Covered Activities, which includes urban/suburban development, transportation projects, and infrastructure projects, under Alternative 3 on occurrences of and habitat for non-covered special-status plants would be mitigated on a project-by-project basis for discretionary projects. Ancillary benefits for these plant species are expected to result from Plan implementation, because it would establish a comprehensive reserve management program that would enhance habitat conditions in a variety of natural communities that may support non-covered special-status plants. Any potential effects on these plants from fuels management, vegetation management, infrastructure operations and maintenance, though not likely subject to additional environmental review, would be offset because the entities implementing these projects would be participating in the Plan and contributing funds for the implementation of the conservation strategy; furthermore the likelihood of rare plants occurring in these areas is low because these areas were likely previously disturbed by similar activities (e.g., existing fire breaks, areas previously disturbed by infrastructure construction). The implementation of conservation measures to create and restore oak woodland habitat, which may affect these plant populations, may not be subject to further approvals or review that may identify effects on these plants.

**NEPA Determination:** Implementation of Alternative 3 could result in the loss of up to two occurrences of big-scale balsamroot, five occurrences of Brandegee's clarkia, one potential occurrence of Red Bluff dwarf rush, and one occurrence of dubious pea. Alternative 3 would also result in the permanent removal of up to 6,365 acres of oak woodland habitats for special-status plants in the Plan Area. However, the protection and restoration guided by the Plan's goals, objectives, conservation measures, and conditions would ensure that habitat loss from Covered Activities, which include urban/suburban development, transportation projects, infrastructure projects, fuels management, vegetation management, and infrastructure operations and maintenance, would be compensated for and preserved habitat would be managed in perpetuity and thus the effects would be reduced to a less-than-significant level.

Conservation measures to create, restore, enhance, and manage oak woodland habitat could remove existing populations of special-status plants if these actions take place in previously undisturbed oak woodlands and if there are no opportunities to identify and avoid these populations through subsequent NEPA review; therefore, these activities could have significant impacts on special-status plants. Implementation of Mitigation Measure BIO-1 would reduce this impact to a less-than-significant level.
**Environmental Consequences**

**Biological Resources**

_**CEQA Determination:**_ Implementation of Alternative 3 could result in the loss of up to two occurrences of big-scale balsamroot, five occurrences of Brandegee’s clarkia, one potential occurrence of Red Bluff dwarf rush, and one occurrence of dubious pea. Alternative 3 would also permanently remove up to 6,365 acres of oak woodland habitats for special-status plants in the Plan Area. However, the protection and restoration guided by the Plan's goals, objectives, conservation measures, and conditions would ensure that habitat loss from Covered Activities, which include urban/suburban development, transportation projects, infrastructure projects, fuels management, vegetation management, and infrastructure operations and maintenance, would be compensated for and preserved habitat would be managed in perpetuity and thus the effects would be reduced to a less-than-significant level.

Conservation measures to create, restore, enhance, and manage oak woodland habitat could remove existing populations of special-status plants if these actions take place in previously undisturbed oak woodlands and if there are no opportunities to identify and avoid these populations through subsequent CEQA review; therefore, restoration and enhancement activities could have adverse impacts on special-status plants. Implementation of Mitigation Measure BIO-1 would reduce this potential impact to a less-than-significant level.

**Mitigation Measure BIO-1: Conduct surveys for and avoid special-status plants in proposed restoration and enhancement areas**

**Impact BIO-9: Effects on special-status plants in grassland habitats (NEPA: less than significant with mitigation; CEQA: less than significant with mitigation)**

Several special-status plant species that occur in annual grasslands and vernal pool complex uplands are known to occur in the Plan Area region: big-scale balsamroot, hispid bird’s-beak, stinkbells, Red Bluff dwarf rush, sylvan microseris, and hoary navaretia. With the exception of hispid bird's-beak, which would only occur in grassland or vernal pool upland habitat in the Plan Area, all these species also occur in oak woodland and chaparral habitats, as discussed in Impact BIO-8. There are recorded CNDDB occurrences or herbarium records in the Plan Area for all these species. Table 4.3-2 shows the numbers of these recorded occurrences in each Plan Area component; a single occurrence of hispid bird's-beak is recorded in an existing preserve in Plan Area B (California Department of Fish and Wildlife 2017; Consortium of California Herbaria 2017c, 2017d).

Covered Activities under Alternative 3, Reduced Take/Reduced Fill, would result in permanent and temporary impacts on grassland habitats for special-status plants. Plan Area A includes 21,887 acres mapped as grassland, as well as the upland portion of 45,065 acres mapped as vernal pool complex. Pasture is not included in this analysis as potential special-status plant habitat, because it is a managed habitat with almost no native plant species. Permanent impacts in the Valley portion of the Plan Area would total 3,640 acres of grassland habitat (approximately 17% of this community in Plan Area A) and 10,635 acres of vernal pool complex upland (approximately 24% of total vernal pool complex in Plan Area A). A known occurrence of big-scale balsamroot in the Valley portion of the Plan Area could be removed by anticipated projects. Permanent impacts in the Foothill portion would total 3,300 acres of grassland habitat (approximately 15% of the community in Plan Area A) and 100 acres of vernal pool complex upland (approximately 0.2% of total vernal pool complex in Plan Area A); however, no extant occurrences of special-status plants are recorded in the Foothill portion. Impacts in Plan Area A would result primarily from urban/suburban development, transportation projects, and infrastructure projects. In Plan Area B, permanent impacts from Covered Activities in non-participating cities would affect 100 acres of grassland habitat and 40
acres of vernal pool complex upland. Known occurrences of big-scale balsamroot, and hispid bird's-beak (one of each) could be removed as a result of these Covered Activities. One occurrence of Red Bluff dwarf rush could also be affected; however, this record of the species is questionable and may be due to a misidentification of another species as Red Bluff dwarf rush. Additional undiscovered occurrences of special-status plants could be removed in the Plan Area as a result of project construction in Plan Areas A and B.

An unknown amount of vernal pool complex wetland habitat may be permanently altered by the restoration/creation of a portion of the 810 acres of vernal pool, seasonal wetland, and seasonal swale wetlands included in implementation of the Plan’s conservation strategy. If vernal pool restoration/creation is to take place in existing vernal pool complexes, these activities could affect upland resources and the hydrologic balance of the existing pools in these complexes. However, implementation of CMI VPCG-2, Vernal Pool Complex Enhancement and Hydrologic Conditions, and CM3 VPCG-2, Grassland Restoration, would ensure that restoration/creation activities retain sufficient local watershed uplands to support additional pools and to protect adequate upland habitat around existing pools.

Temporary impacts of Covered Activities on grassland habitat for special-status plants would not exceed 134 acres in the Valley portion of the Plan Area, 90 acres in the Foothill portion, and 20 acres in Plan Area B. Temporary impacts of Covered Activities on vernal pool complex upland would not exceed 368 acres in the Valley Portion of the Plan Area, 10 acres in the Foothill portion, and 5 acres in Plan Area B. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Temporary effects associated with fuels management, vegetation management, and infrastructure operations and maintenance would occur in areas previously disturbed by similar activities (e.g., existing fire breaks, areas previously disturbed by infrastructure construction), and therefore the likelihood of rare plants occurring in these areas is low. Some conservation actions through Plan implementation may also temporarily affect grassland habitat for special-status plants in locations where grading, vegetation management, or other physical change to grassland habitat is required.

Indirect impacts on grassland and vernal pool complex upland habitats that support special-status plants could result from construction activities such as grading and removal of vegetation. These activities could adversely affect habitat function for special-status plants by altering the topography and hydrology in grasslands and uplands surrounding vernal pools.

Permanent loss of grassland habitat for special-status plants from Covered Activities under Alternative 3 would be offset by the protection and management of 2,796 acres of grassland and up to 15,368 acres of vernal pool complex uplands (estimated flexible conservation acreage), as well as restoration of 1,000 acres of grassland and up to 2,190 acres of vernal pool complex uplands in Plan Area reserves. The protection and restoration of grassland and vernal pool complex upland habitat for special-status plants would be would be supported by the following conservation measures.

- CM1 L-2, Reserve Acquisition Strategy
- CM2 L-1, Vegetation Management and Invasive Plant Control
- CM2 L-3, Develop and Implement Fire Management Plans
- CM3, VPCG-1, Vernal Pool Complex Restoration/Creation
- CM3 VPCG-2, Grassland Restoration
Temporarily affected grassland and vernal pool complex upland habitats for special-status plants would be restored through implementation of General Condition 4, Temporary Effects, which requires that temporarily affected areas be restored to pre-project conditions or better, based on performance standards such as percent vegetative cover, restored hydrology, and restored topography.

Although they do not apply to non-covered special-status plant species, these conservation measures and conditions establish performance standards for considering the effectiveness of proposed conservation actions. In addition, the impacts of Covered Activities, which include urban/suburban development, transportation projects, and infrastructure projects, under Alternative 3 on occurrences of and habitat for non-covered special-status plants would be mitigated on a project-by-project basis for discretionary projects. Ancillary benefits for these plant species are also expected to result from Plan implementation, because it would establish a comprehensive reserve management program that would enhance habitat conditions in a variety of natural communities that may support non-covered special-status plants. Any potential effects on these plants from fuels management, vegetation management, and infrastructure operations and maintenance, though not likely subject to additional environmental review, would be offset because the entities implementing these projects would be participating in the Plan and contributing funds for the implementation of the conservation strategy; furthermore the likelihood of rare plants occurring in these areas is low because these areas were likely previously disturbed by similar activities (e.g., existing fire breaks, areas previously disturbed by infrastructure construction). The implementation of conservation measures to create, restore, enhance, and manage grassland and upland vernal pool complex habitat, which may affect these plant populations, may not be subject to further approvals or review that may identify effects on these plants.

**NEPA Determination:** Implementation of the Plan under Alternative 3 could result in the loss of up to two occurrences of big-scale balsamroot and one potential occurrence of Red Bluff dwarf rush. Covered Activities under Alternative 3 would also result in the permanent removal of up to 7,040 acres of grassland and the upland portion of the 11,300 acres of vernal pool complex that supports habitat for special-status plants in the Plan Area. However, the protection and restoration guided by the Plan’s goals, objectives, conservation measures, and conditions would ensure that habitat loss from Covered Activities, which include urban/suburban development, transportation projects, infrastructure projects, fuels management, vegetation management, and infrastructure operations and maintenance, would be compensated for, and preserved habitat would be managed in perpetuity and thus the effects would be reduced to a less-than-significant level.

Conservation measures to create, restore, enhance, and manage grassland habitat could remove existing populations of special-status plants if these actions take place in previously undisturbed grassland and if there are no opportunities to identify and avoid these populations through subsequent NEPA review; therefore, these activities could have significant impacts on special-status plants. Implementation of Mitigation Measure BIO-1 would reduce this effect to a less-than-significant level.

**CEQA Determination:** Implementation of the Plan under Alternative 3 could result in the loss of up to two occurrences of big-scale balsamroot and one potential occurrence of Red Bluff dwarf rush. Covered Activities under Alternative 3 would also permanently remove up to 7,040 acres of grassland and the upland portion of the 11,300 acres of vernal pool complex that supports habitat for special-status plants in the Plan Area. However, the protection and restoration guided by the Plan’s goals, objectives, conservation measures, and conditions would ensure that habitat loss from...
Covered Activities, which include urban/suburban development, transportation projects, infrastructure projects, fuels management, vegetation management, and infrastructure operations and maintenance would be compensated for, and preserved habitat would be managed in perpetuity and thus the effects would be reduced to a less-than-significant level.

Conservation measures to create, restore, enhance, and manage grassland habitat could remove existing populations of special-status plants if these actions take place in previously undisturbed grassland and if there are no opportunities to identify and avoid these populations through subsequent CEQA review; therefore, these activities could have significant impacts on special-status plants. Implementation of Mitigation Measure BIO-1 would reduce this potential impact to a less-than-significant level.

Mitigation Measure BIO-1: Conduct surveys for and avoid special-status plants in proposed restoration and enhancement areas

Impact BIO-10: Effects on special-status plants in fresh emergent marsh and riverine habitats (NEPA: less than significant with mitigation; CEQA: less than significant with mitigation)

One special-status plant species that grows in fresh emergent marsh and slow-moving riverine habitats (Sanford's sagittaria) has potential to occur in the Plan Area region. The Plan Area is within the range of Sanford's sagittaria and supports suitable habitat for the species. There are no CNDBB-documented occurrences in the Plan Area (California Department of Fish and Wildlife 2017). There are a total of 93 occurrences in California, 8 of which are extirpated or possibly extirpated. In addition, there is inoculation of this species in the Silvergate Mitigation Bank that is not included in the CNDBB (Wildlands 2003). No impacts on the mitigation bank would result from Plan implementation.

Covered Activities under Alternative 3, Reduced Take/Reduced Fill, would result in permanent and temporary impacts on marsh and riverine habitat for special-status plants. Potential habitats for these species in Plan Area A include 1,112 acres of marsh and 868 acres of riverine, a portion of which would be suitable habitat for Sanford's sagittaria. Permanent impacts in the Valley portion of the Plan Area would total 45 acres of fresh emergent marsh habitat (approximately 4% of this community in Plan Area A) and 71 acres of riverine habitat (approximately 7% of this community in Plan Area A). Permanent impacts in the Foothill portion would total 50 acres of fresh emergent marsh habitat (approximately 4% of this community in Plan Area A) and 30 acres of riverine habitat (approximately 3% of this community in Plan Area A). Impacts in Plan Area A would result primarily from urban/suburban development, transportation projects, and infrastructure projects. In Plan Area B, permanent impacts of Covered Activities in non-participating cities would total 5 acres of fresh emergent marsh habitat and 5 acres of riverine habitat. No known occurrences of special-status plants associated with marsh or riverine habitats would be removed as a result of the projects; however, currently undiscovered occurrences of special-status plants could be removed in the Plan Area as a result of project construction in Plan Areas A and B.

Temporary impacts of Covered Activities on fresh emergent marsh habitat for special-status plants would not exceed 23 acres in the Valley portion of the Plan Area, 15 acres in the Foothill portion, and 10 acres in Plan Area B. Temporary impacts on riverine habitat for special-status plants would not exceed 27 acres in the Valley portion of the Plan Area, 10 acres in the Foothill portion, and 10 acres in Plan Area B. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management,
vegetation management, infrastructure operations and maintenance, and infrastructure construction. Temporary effects associated with fuels management, vegetation management, and infrastructure operations and maintenance would occur in areas previously disturbed by similar activities (e.g., existing fire breaks, areas previously disturbed by infrastructure construction), and therefore the likelihood of rare plants occurring in these areas is low. Some conservation actions through Plan implementation may also temporarily disturb fresh emergency marsh habitat for special-status plants at locations where grading, vegetation management, or other physical change to the habitat is required.

Indirect impacts on fresh emergent marsh and riverine habitats that are suitable for special-status plants could result from construction activities such as grading and removal of vegetation. These activities could adversely affect habitat function for special-status plants by altering the topography and hydrology that support these habitats.

Permanent loss of fresh emergent marsh and riverine habitats for special-status plants from Covered Activities under Alternative 3 would be offset by the protection and management of 244 acres of fresh emergent marsh and up to 284 acres of riverine in Plan Area reserves. In addition, there would be restoration of up to 170 acres of fresh emergent marsh and up to 161 acres of riverine in Plan Area reserves. The protection of fresh emergent marsh and riverine habitats for special-status plants would be supported by the following conservation measures.

- CM1 L-2, Reserve Acquisition Strategy
- CM1 AW-1, Aquatic/Wetlands Complex Protection
- CM2 L-1, Vegetation Management and Invasive Plant Control
- CM2 L-3, Develop and Implement Fire Management Plans
- CM2 RAR-1, Riparian Vegetation Management
- CM2 AW-1, Aquatic/Wetlands Complex Vegetation Control
- CM2 AW-2, Fencing Wetlands and Ponds
- CM2 AW-3, Sediment Removal
- CM2 AW-7, Maintenance of Water Depths and Hydrological Cycles
- CM2 AW-9, Maintenance and Enhancement of Water Quality
- CM3 AW-1, Aquatic/Wetlands Complex Restoration/Creation

Temporarily affected fresh emergent marsh and riverine habitats for special-status plants would be restored through implementation of General Condition 4, Temporary Effects, which requires that temporarily affected areas be restored to pre-project conditions or better, based on performance standards such as percent vegetative cover, restored hydrology, and restored topography.

Implementation of Community Condition 2, Riverine and Riparian Avoidance and Minimization, and the specific measures contained in the condition would protect the hydrology and habitat quality of riverine habitat for special-status plants. Community Condition 1.2, Avoidance of Aquatic/Wetland Complex Constituent Habitat, would encourage avoidance of impacts on fresh emergent marsh habitat.

Although they do not apply to non-covered special-status plant species, these conservation measures and conditions establish performance standards for considering the effectiveness of
proposed conservation actions. In addition, the impacts of Covered Activities, which includes urban/suburban development, transportation projects, and infrastructure projects, under Alternative 3 on occurrences of and habitat for non-covered special-status plants would be mitigated on a project-by-project basis for discretionary projects. Ancillary benefits for these plant species are also expected to result from Plan implementation, because it would establish a comprehensive reserve management program that would enhance habitat conditions in a variety of natural communities that may support non-covered special-status plants. Any potential effects on these plants from fuels management, vegetation management, and infrastructure operations and maintenance, though not likely subject to additional environmental review, would be offset because the entities implementing these projects would be participating in the Plan and contributing funds for the implementation of the conservation strategy; furthermore the likelihood of rare plants occurring in these areas is low because these areas were likely previously disturbed by similar activities (e.g., existing fire breaks, areas previously disturbed by infrastructure construction). The implementation of conservation measures to create, restore, restore, and manage fresh emergent marsh and riverine habitats, which may affect these plant populations, may not be subject to further approvals or review that may identify effects on these plants.

**NEPA Determination:** Implementation of Alternative 3 could affect currently undiscovered occurrences of special-status plants in freshwater emergent marsh and riverine habitats. Alternative 3 would also result in the permanent removal of up to 100 acres of fresh emergent marsh and 106 acres of riverine habitats for special-status plants in the Plan Area. However, the protection and restoration guided by the Plan’s goals, objectives, conservation measures, and conditions would ensure that habitat loss from Covered Activities, which include urban/suburban development, transportation projects, infrastructure projects, fuels management, vegetation management, and infrastructure operations and maintenance, would be compensated for, and preserved habitat would be managed in perpetuity and thus the effects would be reduced to a less-than-significant level.

Conservation measures to create, restore, enhance, and manage emergent marsh and riverine habitats could remove existing populations of special-status plants if these actions take place in previously undisturbed habitat and if there are no opportunities to identify and avoid these populations through subsequent NEPA review; therefore, these activities could have adverse impacts on special-status plants. Implementation of Mitigation Measure BIO-1 would reduce this effect to a less-than-significant level.

**CEQA Determination:** Implementation of Alternative 3, Reduced Take/Reduced Fill, could affect currently undiscovered occurrences of special-status plants in freshwater emergent marsh and riverine habitats. Alternative 3 would also permanently remove up to 100 acres of fresh emergent marsh and 106 acres of riverine habitats for special-status plants in the Plan Area. However, the protection and restoration guided by the Plan’s goals, objectives, conservation measures, and conditions would ensure that habitat loss from Covered Activities, which include urban/suburban development, transportation projects, infrastructure projects, fuels management, vegetation management, and infrastructure operations and maintenance, would be compensated for, and preserved habitat would be managed in perpetuity and thus would reduce these effects to a less-than-significant level.

Conservation measures to create, restore, enhance, and manage emergent marsh and riverine habitats could remove existing populations of special-status plants if these actions take place in previously undisturbed habitat and if there are no opportunities to identify and avoid these
populations through subsequent CEQA review; therefore, restoration could have significant impacts on special-status plants. Implementation of Mitigation Measure BIO-1 would reduce this potential impact to a less-than-significant level.

**Mitigation Measure BIO-1: Conduct surveys for and avoid special-status plants in proposed restoration and enhancement areas**

### Special-Status Fish and Wildlife

**Impact BIO-11: Potential for construction and operation effects on Chinook salmon (fall-/late fall–run) and Central Valley steelhead (NEPA: less than significant; CEQA: less than significant)**

Implementation of the Plan Covered Activities under Alternative 3, Reduced Take/Reduced Fill, would result in permanent and temporary direct effects on Central Valley steelhead and Chinook salmon habitat. Permanent direct effects on riparian woodland/riverine habitat would total 475 acres: 465 acres in Plan Area A and 10 acres in Plan Area B. Implementation of the Plan and Covered Activities under Alternative 3 would result in temporary direct effects on 159 acres: 139 acres in Plan Area A and 20 acres in Plan Area B. These direct impacts would result from road crossings (i.e., bridge work and culverts); water supply, flood control, and stormwater management activities; and activities of individual landowners, typically in rural residential settings. In addition, riparian/riverine protection, conservation, and enhancement activities associated with Plan implementation could affect Central Valley steelhead and Chinook salmon habitat.

These activities could cause a permanent change in substrate composition and channel morphology in aquatic habitat; create a permanent loss of shallow-water habitat, riparian vegetation, and instream woody material; and change instream flows if water is diverted from streams and if woody material, including beaver dams, is removed from creeks that could benefit habitat for fish. Implementation of the Plan Covered Activities could also have direct effects on fish during construction; heavy equipment use in the active channel could kill or injure fish. Finally, these activities could result in localized alterations in channel form and patterns of erosion and sedimentation that over time could alter aquatic habitat structure and function from existing conditions.

Implementation of conservation measures addressing riverine and riparian communities and covered salmonids would have a beneficial permanent direct effect on steelhead and Chinook salmon. Aquatic habitat improvement activities include floodplain restoration/reconnection projects in the Dry Creek, Auburn Ravine, and Coon Creek Watersheds; bridge and culvert improvement projects; channel improvements to natural channels; fish passage enhancements including removal of fish barriers, low-flow crossings, and development of fish screens; and placement of spawning gravels. These activities would benefit steelhead and Chinook salmon spawning, migratory, and rearing habitat, contributing to higher survival of these covered species in the Plan Area.

Temporary effects on salmonid streams are expected to result from road crossings, water supply projects, flood control projects, and instream restoration activities. Impact mechanisms associated with these activities include accidental introduction of contaminants and sediment into flowing water and noise at individual project construction sites. Removing or altering existing riparian habitat for habitat improvement activities under the Plan could temporarily affect water...
temperature and habitat complexity. Recurring maintenance activities within and outside the Plan Area, such as transportation facility maintenance, flood control and stormwater facility maintenance, and vegetation management, may have temporary direct effects on Chinook salmon and steelhead through the release of sediment and contaminants and the removal of in-channel woody material.

Permanent indirect effects resulting from transportation projects and urban and rural residential development include noise, visual disturbance, and ground vibrations that could cause Chinook salmon and steelhead to avoid suitable aquatic habitat. Vehicles on bridges can increase noise levels and the release of petroleum-based chemicals into waterways, in turn causing decreased spawning, migratory, and rearing success. An increase in the input of contaminants (e.g., petroleum-based chemicals, pesticides, heavy metals) to waterways could result from residential development, presence of new impervious surfaces associated with residential development, transportation projects, and other facilities if runoff enters waterways. Contaminants can adversely affect fish directly through exposure or indirectly through adverse effects on food organisms (e.g., macroinvertebrates), including the bioaccumulation of toxic compounds in these organisms.

Designated critical habitat for Central Valley steelhead is present in the Plan Area. Critical habitat for steelhead occurs in Coon Creek, Doty Creek, Auburn Ravine, Secret Ravine, Miner’s Ravine, and Dry Creek. Approximately 1.24 miles (1.3% of total designated critical habitat in the Plan Area) could be permanently affected by bridge construction, flood control and stormwater management activities, natural resource protection activities, and the conservation strategy. The conservation strategy and the conditions listed below are expected to have a beneficial effect on critical habitat for Central Valley steelhead.

EFH for Chinook salmon also occurs in the Plan Area. Construction and operation of the activities listed above and the conservation strategy (restoration, enhancement, and management actions) would result in permanent effects on EFH. The conservation activities and Conditions discussed below will increase EFH value for Pacific salmonids and have a beneficial impact on EFH.

The Plan seeks to conserve and protect the stream systems throughout western Placer County and to increase spawning, rearing, and migratory success of covered salmonids in the Auburn Ravine, Coon Creek, and Dry Creek watersheds. The following landscape-, natural community–, and species-level objectives and conservation measures would provide fish movement, protect watershed health, and protect habitat for covered salmonids in support of goal FISH-1.

- Objective L-1.1, Establish a Large, Interconnected Reserve System
- Objective L-2.1, Protect Habitat Linkages
- Objective L-2.3, Establish East–West Corridors
- Objective L-3.1, Implement Low Impact Development Standards
- Objective L-3.2, Reduce Invasive Non-native Species and Increase Native Species
- Objective VPCG-1.1, Protect Existing Vernal Pool Complexes
- Objective VPCG-1.2, Restore/Create Vernal Pool Complexes
- Objective VPCG-1.3, Protect Grasslands
- Objective VPCG-1.4, Restore/Create Vernal Pool Complexes
- Objective RAR-1.1, Protect Riverine/Riparian Complex
Objective RAR-1.2, Protect Riverine Habitat Constituent

Objective RAR-1.3, Restore Riverine/Riparian Complex

Objective RAR-1.5, Remove or Modify Fish Barriers;

Objective RAR-1.7, Enhance Streams.

Objective OW-1.1, Protect Oak Woodlands

Objective OW-1.2, Restore Oak Woodlands

Objective FISH-1.1, Protect Salmonid Spawning and Migrating Habitat

Objective FISH-1.2, Protect Riparian Habitat for Fish

Objective FISH-1.3, Protect Oak Woodlands for Fish

CM1 RAR-1, Riverine and Riparian Protection

CM1 RAR-2, Reserve Design for Riparian Restoration

CM2 RAR-1, Riparian Vegetation Management

CM2 RAR-2, Removal and/or Modification of Barriers to Fish Passage

CM2 RAR-3, Modify Unscreened Water Diversion

CM2 RAR-4, Improvement of In-channel Features

CM2 RAR-7, Non-native Animals Species Control

CM3 RAR-1, Riparian Natural Community Restoration

These objectives and conservation measures are intended to protect 88.6 stream miles in the Reserve System, including 25 stream miles of salmonid spawning habitat and 10 miles of salmonid migrating habitat, primarily on stream reaches along Coon Creek, Doty Ravine (a major tributary of Coon Creek), and Auburn Ravine, in keeping with the Central Valley Chinook and Steelhead Recovery Plan (National Marine Fisheries Service 2014). In addition, 558 acres of riparian habitat along salmonid spawning stream reaches and 342 acres of riparian habitat along salmonid migrating reaches—primarily along Coon Creek, Doty Ravine, and Auburn Ravine—would also be protected. To protect and improve water quality and watershed integrity in the Coon Creek watershed, 12,490 acres of oak woodland and grassland would be protected in the Foothills portion of the Plan Area, and 9,869 acres in the Coon Creek watershed.

In addition to the biological objectives listed above, the following general, community, and stream system conditions would benefit covered salmonids.

General Condition 1, Watershed Hydrology and Water Quality

General Condition 2, Conservation Lands: Development Interface Design Requirements

General Condition 3, Land Conversion

General Condition 4, Temporary Effects

General Condition 5, Conduct Worker Training

Community Condition 2, Riverine and Riparian Avoidance and Minimization

Community Condition 2.1, Riverine and Riparian Avoidance
Community Condition 2.2, Minimize Riverine and Riparian Effects, Community Condition 2.3, Riverine and Riparian Restoration

Community Condition 2.4, Placer County Water Agency Operations and Maintenance Best Management Practice

Stream System Condition 1, Stream System Avoidance

Species Condition 7, Central Valley Steelhead and Central Valley Fall-/Late Fall-Run Chinook Salmon (Salmonids)

In-Stream and Stream System BMPs

The application of Low-Impact Development Standards will improve water quality for covered fish species. The restoration of riparian natural community will further benefit these species by providing cover and shade for thermoregulation and by providing vegetation that is a source of invertebrates upon which covered salmonids feed.

These goals, objectives, general conditions, and conservation measures establish performance standards for measuring the effectiveness of restoration actions. The acres of protection and restoration satisfy the typical mitigation that would be applied to the project-level effects, as well as mitigating the effects of the other conservation measures.

**NEPA Determination:** The permanent loss of 475 acres and temporary disturbance of 159 acres of riparian woodland/riverine habitat associated with Alternative 3, in the absence of other conservation actions, would constitute a potentially significant impact through habitat modification and potential direct mortality of a special-status species. However, with habitat protection and restoration associated with the conservation components, guided by landscape-scale goals and objectives, the overall effects of Alternative 3 on covered salmonids would be less than significant.

**CEQA Determination:** The permanent loss of 475 acres and temporary disturbance of 159 acres of riparian woodland/riverine habitat associated with Alternative 3, in the absence of other conservation actions, would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. The natural community restoration and protection activities would constitute adequate mitigation for CEQA purposes. The biological goals and conservation measures relevant to covered salmonids are more than sufficient to support the conclusion that the impacts of Alternative 3 on covered salmonids would be less than significant. No mitigation has been identified.

**Impact BIO-12: Potential for construction and operation effects on non-covered species (hardhead and Pacific lamprey) (NEPA: less than significant; CEQA: less than significant)**

Implementation of the Plan and Covered Activities under Alternative 3, Reduced Take/Reduced Fill, would result in permanent and temporary direct effects on hardhead and Pacific lamprey habitat. Permanent direct effects on riparian woodland/riverine habitat would total 475 acres: 465 acres in Plan Area A and 10 acres in Plan Area B. Implementation of the Plan and Covered Activities under Alternative 3 would result in temporary direct effects on 159 acres: 139 acres in Plan Area A and 20 acres in Plan Area B. These direct impacts would result from road crossings (i.e., bridge work and culverts) and water supply, flood control, and stormwater management activities. In addition, riparian/riverine protection, conservation, and enhancement activities associated with Plan implementation could affect hardhead and Pacific lamprey habitat.
These activities could cause a permanent change in substrate composition and channel morphology in aquatic habitat; create a permanent loss of shallow-water habitat, riparian vegetation, and instream woody material; and change instream flows if water is diverted from streams and if woody material, including beaver dams, is removed from creeks that could benefit habitat for fish. Implementation of the Plan and Covered Activities could also have direct effects on fish during construction; heavy equipment use in the active channel could kill or injure fish. Finally, these activities could result in localized alterations in channel form and patterns of erosion and sedimentation that over time could alter aquatic habitat structure and function from existing conditions.

Temporary effects on streams are expected to result from road crossings, water supply projects, flood control projects, and instream restoration activities. Impact mechanisms associated with these activities include accidental introduction of contaminants and sediment into flowing water and noise at project construction sites. Removing or altering existing riparian habitat in order to initiate habitat improvement activities under the Plan could temporarily affect water temperature and habitat complexity. Recurring maintenance activities within and outside the Plan Area, such as transportation facility maintenance, utility service facilities maintenance, flood control and stormwater facility maintenance, and vegetation management, may have temporary direct effects on hardhead and Pacific lamprey through the release of sediment and contaminants and the removal of in-channel woody material.

Permanent indirect effects resulting from transportation projects and urban and rural residential development include noise, visual disturbance, and ground vibrations that could cause hardhead and Pacific Lamprey to avoid suitable aquatic habitat. Vehicles on bridges can increase noise levels and the release of petroleum-based chemicals into waterways, in turn causing decreased spawning, migratory, and rearing success. An increase in the input of contaminants (e.g., petroleum-based chemicals) to waterways could result from the presence of new impervious surfaces associated with residential development, transportation projects, and other facilities if runoff enters waterways. Contaminants can adversely affect fish directly through exposure or indirectly through adverse effects on food organisms (e.g., macroinvertebrates), including the bioaccumulation of toxic compounds in these organisms.

Implementation of conservation measures addressing riverine and riparian communities and covered salmonids would have a beneficial permanent direct effect on hardhead and Pacific lamprey through the protection and restoration of up to 3,121 acres of riverine/riparian habitat and 88.6 linear miles of open water habitat. Aquatic habitat improvement activities include floodplain restoration/reconnection projects in the Auburn Ravine, Coon Creek, and Dry Creek watersheds; bridge and culvert improvement projects; channel improvements to natural channels; fish passage enhancements including removal of fish barriers, low-flow crossings, and development of fish screens; and placement of spawning gravels (lamprey would benefit from spawning gravel placement). These activities would benefit hardhead and lamprey spawning, migratory, and rearing habitat, contributing to higher survival of non-covered species in the Plan Area.

As disclosed in the discussion of Impact BIO-11, the goals, objectives, general conditions, and conservation measures establish performance standards for measuring the effectiveness of restoration actions. The acres of protection and restoration satisfy the typical mitigation that would be applied to the project-level effects, as well as mitigating the effects of the other conservation measures.
NEPA Determination: The permanent loss of 475 acres and temporary disturbance of 159 acres of riparian woodland/riverine habitat associated with Alternative 3, in the absence of other conservation actions, would constitute a potentially significant impact through habitat modification and potential direct mortality of a special-status species. However, with habitat protection and restoration associated with the conservation components, guided by landscape-scale goals and objectives, the overall effects of Alternative 3 on hardhead and Pacific lamprey would be less than significant.

CEQA Determination: The permanent loss of 475 acres and temporary disturbance of 159 acres of riparian woodland/riverine habitat associated with Alternative 3, in the absence of other conservation actions, would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. The natural community restoration and protection activities would constitute adequate mitigation for CEQA purposes. The biological goals and conservation measures relevant to covered salmonids are more than sufficient to support the conclusion that the impacts of Alternative 3 on hardhead and Pacific lamprey would be less than significant. No mitigation has been identified.

Impact BIO-13: Effects on valley elderberry longhorn beetle (NEPA: less than significant; CEQA: less than significant)

The CNDDB lists 12 occurrences of valley elderberry longhorn beetle in the Plan Area (California Department of Fish and Wildlife 2017). Appendix D, Species Accounts, of the Plan provides more detail on the status and distribution of the species throughout its range.

Covered Activities under Alternative 3, Reduced Take/Reduced Fill, would result in permanent and temporary impacts on valley elderberry longhorn beetle habitat. Permanent impacts would result in the loss of up to 615 acres of habitat (7% of 8,153 acres of habitat in the Plan Area), primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. These losses would almost entirely occur within the Valley portion of Plan Area A, with small losses (20 acres) in Plan Area B.

Temporary impacts of Covered Activities on valley elderberry longhorn beetle habitat would not exceed 184 acres (2%) of habitat in the Plan Area. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, infrastructure construction. Plan restoration and enhancement activities that could temporarily affect valley elderberry longhorn beetle habitat include grading and contouring to restore, create, and enhance wetlands in reserves.

Indirect effects on valley elderberry longhorn beetle habitat include accumulation of dust on shrubs resulting from up-wind disturbances, flood control practices that could fragment habitat used by valley elderberry longhorn beetle, increased risk of wildfire, and the spread of invasive plants and animals that could affect the species.

The permanent and temporary loss of valley elderberry longhorn habitat would be offset by the protection and management of 2,323 acres and restoration of 1,705 acres of valley elderberry longhorn beetle habitat. The protection and restoration of valley elderberry longhorn beetle habitat would be supported by the following goals, objectives, conservation measures, and conditions.

- GOAL VELB-1, Habitat to support a sustained population of valley elderberry longhorn beetle within the Reserve System
Objective RAR-1.1, Protect Riverine/Riparian Complex
Objective RAR-1.3, Restore Riverine/Riparian Complex
Objective RAR-1.4, Enhance Riparian Vegetation
Objective OW-1.4, Protect Oak Woodlands
Objective VELB-1.1, Restore Valley Elderberry Longhorn Beetle Habitat
CM1, Establish Reserve System
CM2, Manage and Enhance the Reserve System
CM3, Restore and Create Natural Communities and Covered Species' Habitat.
CM3 VELB-1, Valley Elderberry Longhorn Habitat Restoration
CM1 RAR-1, Riverine and Riparian Protection
CM2 RAR-1 Riparian Vegetation Management
CM3 RAR-1, Riparian Natural Community Restoration
CM1 OW-1, Oak Woodland Protection
General Condition 2, Conservation Lands: Development Interface Design Requirements
General Condition 4, Temporary Effects
General Condition 5, Conduct Worker Training
Community Condition 2, Riverine and Riparian Avoidance and Minimization
Stream System Condition 1, Stream System Avoidance
Stream System Condition 2, Stream System Mitigation: Restoration
Regional Public Projects Condition 1, Transportation and Other Infrastructure Projects Design Requirements
Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects Construction BMPs
Regional Public Projects Condition 3, Operations and Maintenance BMPs
Species Condition 8, Valley Elderberry Longhorn Beetle

The Plan's model for valley elderberry longhorn beetle only considers modeled habitat up to an elevation of 650 feet; accordingly Species Condition 8 only requires surveys up to this elevation. As noted in Section 3.3, Affected Environment, the species is known to occur up to 1,875 feet in Placer County and is considered to occur up to 3,000 feet across the species' range. There is a chance that elderberry shrubs, including occupied shrubs, could be missed if surveys are not conducted above 650 feet. Despite this limitation, the Plan's protection, management, and restoration (which includes planting elderberry shrubs) of 4,040 acres of riparian habitat and valley oak woodland contrasted with 630 acres of impact (a ratio greater than 6:1) would more than compensate for the potential effects on the species.

These goals, objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. The acres of protection and restoration satisfy the typical mitigation that would be applied to the project-level effects, as well as
mitigating the effects of the other conservation measures. The proposed conditions further demonstrate the intent to avoid and minimize effects over the life of the Plan.

**NEPA Determination:** The permanent loss of 615 acres and temporary disturbance of 184 acres of valley elderberry longhorn beetle habitat associated with Alternative 3, in the absence of other conservation actions, would constitute a potentially significant impact through habitat modification and potential direct mortality of a special-status species. However, with the protection and restoration guided by the Plan's goals, objectives, conservation measures, and conditions, the overall effects of Alternative 3 on valley elderberry longhorn beetle would be less than significant.

**CEQA Determination:** The permanent loss of 615 acres and temporary disturbance to 184 acres of valley elderberry longhorn beetle habitat associated with Alternative 3, in the absence of other conservation actions, would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. The natural community restoration and protection activities would constitute adequate mitigation for CEQA purposes. The biological goals and conservation measures for valley elderberry longhorn beetle are more than sufficient to support the conclusion that the impacts of Alternative 3 on valley elderberry longhorn beetle would be less than significant. No mitigation has been identified.

**Impact BIO-14: Effects on vernal pool branchiopods (NEPA: less than significant; CEQA: less than significant)**

The CNDDB lists 1 occurrence of Conservancy fairy shrimp, 63 occurrences of vernal pool fairy shrimp, and 3 occurrences of vernal pool tadpole shrimp in the Plan Area (California Department of Fish and Wildlife 2017).

Covered Activities under Alternative 3, Reduced Take/Reduced Fill, would result in permanent and temporary impacts on vernal pool complex and wetland habitat for vernal pool branchiopods. Permanent impacts would result in the loss of up to 1,300 acres of vernal pool complex supporting 520 acres of vernal pool–type wetlands within 1 (26% and 24% of these habitats in the Plan Area, respectively). These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. These losses would be primarily in the Valley portion of Plan Area A, with small losses occurring in Plan Area B (15 acres).

Temporary impacts of Covered Activities on vernal pool branchiopod habitat would not exceed 22 acres of vernal pool–type wetlands (1% of this habitat type in the Plan Area) and 404 acres of vernal pool complex (less than 1%). These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, infrastructure construction, and conservation activities. Plan conservation actions that could temporarily affect vernal pool complex include restoration and enhancement actions such as grading and contouring to restore, create, and enhance vernal pool–type wetlands in reserves.

Indirect impacts on vernal pool complex could result from construction activities in the Plan Area, such as grading, trenching, changes to hydrology, and changes to topography. Indirect effects on vernal pools are generally considered to occur when ground-disturbing activities take place within 250 feet of a vernal pool—more specifically, when it can be demonstrated that the hydrology supporting a pool has been altered. Indirect effects on vernal pool complexes were estimated in the Plan at 1,979 acres, which is approximately 15% of direct effects (permanent and temporary combined); under Alternative 3, assuming the indirect effects would also be 15% of direct, the
indirect effects would be approximately 1,757 acres. These indirect effects could adversely affect the functions and services of vernal pool-type wetlands and supporting uplands in vernal pool complexes. These effects could result from construction and maintenance of infrastructure associated with urban and rural development, installation and maintenance of utility lines, road improvements, drainage facility improvements, and flood control projects.

Goal VPB-1 as set forth in the Plan seeks to sustain populations of vernal pool branchiopods within the Reserve System. Permanent loss of vernal pool complex under Alternative 3 would be offset by the protection and management of 16,158 acres and the restoration of 3,000 acres of vernal pool complex in reserves within the Plan Area. The protection and restoration of vernal pool complex would be supported by the following biological objectives, conservation measures, and conditions.

- Objective VPCG-1.1, Protect Existing Vernal Pool Complexes
- Objective VPB-1.1, Maintain Vernal Pool Fairy Shrimp Occupancy in the Reserve System
- Objective VPB-1.2, Maintain Vernal Pool Tadpole Shrimp Occupancy in the Reserve System
- Objective VPB-2.1, Protect Conservancy Fairy Shrimp Occurrences
- CM1, Establish Reserve System
- CM1 L-2, Reserve Acquisition Strategy
- CM1 L-4, Connectivity within Plan Area
- CM1 VPCG-1, Vernal Pool Complex Protection
- CM1 VPCG-2, Reserve Design for Vernal Pool Restoration/Creation
- CM1 VPB-1, Protection and Restoration of Occupied Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp Habitat
- CM2, Manage and Enhance the Reserve System
- CM2 L-1, Vegetation Management and Invasive Plant Control
- CM2 L-3, Develop and Implement Fire Management Plans
- CM2 VPCG-1, Vernal Pool Complex Enhancement and Hydrologic Conditions
- CM3, Restore and Create Natural Communities and Covered Species' Habitat
- CM3 VPCG-1, Vernal Pool Complex Restoration/Creation
- CM3 VPB-1, Translocation of Vernal Pool Branchiopod Cysts
- CM4 L-1, Low-Impact Development Standards
- CM4 VPCG-1, Conduct Outreach to Private Landowners
- General Condition 1, Watershed Hydrology and Water Quality
- General Condition 2, Conservation Lands: Development Interface Design Requirements
- General Condition 4, Temporary Effects
- General Condition 5, Conduct Worker Training
- Community Condition 1, Wetland Avoidance and Minimization (Vernal Pool and Aquatic/Wetland Complex)
• Regional Public Projects Condition 1, Transportation and Other Infrastructure Projects Design Requirements
• Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects Construction BMPs
• Regional Public Projects Condition 3, Operations and Maintenance BMPs
• Species Condition 9, Conservancy Fairy Shrimp
• Species Condition 10, Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp

Objectives VPB-1.1 and VPB-1.2 would seek to maintain an occupancy rate equal to or greater than the rate lost as a result of Covered Activities within the 19,158 acres of protected, restored, and created vernal pool habitat described above. Objective VPB-2.1 would protect two occurrences of Conservancy fairy shrimp for the first occurrence lost and three occurrences for each additional occurrence lost. CM1 VPB-1 would ensure an occupancy rate that is equal to or greater than the occupancy rate of vernal pools lost as a result of Covered Activities. CM3 VPB-1 would be implemented primarily in sites that do not support populations of branchiopods and in restored or created wetlands.

These goals, objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of restoration actions. The acres of protection and restoration satisfy the typical mitigation that would be applied to the project-level effects, as well as mitigating the effects of the other conservation measures. The proposed conditions further demonstrate the intent to avoid and minimize effects over the life of the Plan.

**NEPA Determination:** The permanent loss of up to 11,300 acres of vernal pool complex supporting 520 acres of vernal pool-type wetlands and temporary disturbance of 404 acres of vernal pool complex supporting 22 acres of vernal pool-type wetlands associated with Alternative 3, in the absence of other conservation actions, would constitute a potentially significant impact through habitat modification and potential direct mortality of a special-status species. However, with the protection and restoration guided by the Plan’s goals, objectives, conservation measures, and conditions, the overall effects of Alternative 3 on aquatic/wetland complex in the Plan Area would be less than significant.

**CEQA Determination:** The permanent loss of up to 11,300 acres of vernal pool complex supporting 520 acres of vernal pool-type wetlands and temporary disturbance of 404 acres of vernal pool complex supporting 22 acres of vernal pool-type wetlands associated with Alternative 3, in the absence of other conservation actions, would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. The natural community restoration and protection activities would constitute adequate mitigation for CEQA purposes. The biological objectives, conservation measures, and conditions for vernal pool branchiopods are more than sufficient to support the conclusion that the impacts of habitat loss and direct mortality on vernal pool branchiopods under Alternative 3 would be less than significant. No mitigation has been identified.

**Impact BIO-15: Effects on California red-legged frog (NEPA: less than significant; CEQA: less than significant)**

The CNDDB lists three occurrences of California red-legged frog in one population in the Plan Area, near the town site of Michigan Bluff near Foresthill (California Department of Fish and Wildlife
2017). All of these occurrences are limited to a conservation bank site (Big Gun Conservation Bank) that is being managed for California red-legged frog (Plan Area B5). There are no known occurrences in Plan Areas A, B1, B2, B3, or B4.

Covered Activities under Alternative 3, Reduced Take/Reduced Fill, would result in permanent and temporary impacts on habitat that is presumed to be currently unoccupied by California red-legged frog. Permanent development projects would result in the loss of up to 672 acres of currently unoccupied aquatic breeding and foraging habitat (8% of a total 8,532 acres of aquatic habitat) and up to 8,551 acres of currently unoccupied upland movement and refugia habitat (11% of 75,306 acres of modeled upland habitat) in the Foothill portion of Plan Area A. These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. Moreover, Plan restoration, enhancement, and management actions could result in inadvertent mortality; result in the release of contaminants (e.g., fuels, lubricants) into habitat, potentially affecting survival; and cause erosion that could affect habitat.

Covered Activities would temporarily affect up to 168 acres of currently unoccupied aquatic habitat and 214 acres of currently unoccupied upland habitat in the Foothill portion of Plan Area A. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, infrastructure construction, and conservation activities. Conservation actions that could temporarily affect California red-legged frog include grading and contouring to restore, create, and enhance wetlands and riparian habitat in reserves.

Short-term construction-related effects on California red-legged frog if individuals were to become established in portions of Plan Area A, B1, B2, B3, and B4 include the generation of dust, which has the potential to interfere with the oxygen diffusion process and can transport toxic compounds that may affect frogs. Runoff from urban development and other Covered Activities could degrade the aquatic habitats that support this species. Additional indirect effects are expected to result from in-stream activities that could degrade aquatic habitat; habitat fragmentation as a result of urban and rural development and the construction of new roads and other infrastructure; and the introduction, establishment, and spread of invasive plants and predators (e.g., domestic pets, raccoons, coyotes, skunks, bullfrogs) that thrive in human-dominated environments. Because California red-legged frogs are not expected to occur in Plan Area A, B1, B2, B3, nor B4, indirect effects on the species are expected to be negligible, if any.

Under Alternative 3, the permanent and temporary loss of California red-legged frog aquatic and upland habitat would be offset by the protection of 1,168 acres and restoration of 1,241 acres of aquatic habitat and the protection of 12,484 acres and restoration of 160 acres of upland habitat. The Plan would also protect 88.6 stream miles in the Reserve System, providing habitat and facilitating dispersal for California red-legged frogs.

The protection and restoration of occupied and suitable habitat for California red-legged frog would be supported by the following objectives, conservation measures, and conditions.

- Objective AW-1.1, Protect Aquatic/Wetland Complex Natural Community
- Objective AW-1.2, Restore/Create Aquatic/Wetland Complex Natural Community
- Objective RAR-1.1, Protect Riverine/Riparian Complex
- Objective RAR-1.3, Restore Riverine/Riparian Complex
- Objective CRLF-1.1, Protect Occupied California Red-legged Frog Habitat
- Objective CRLF-2.1, Protect Suitable California Red-Legged Frog Habitat in the Plan Area
- Objective CRLF-2.2, Restore Suitable California Red-Legged Frog Habitat
- CM1, Establish Reserve System
- CM1 L-4, Connectivity within Plan Area
- CM1 NC-1, Siting Restoration
- CM1 CRLF-1, Purchase of California Red-legged Frog Conservation Credits at the Big Gun Conservation Bank
- CM1 CRLF-2, California Red-legged Frog Habitat Protection
- CM2, Manage and Enhance the Reserve System
- CM2 L-4, Maintenance and Enhancement of Reserve System Permeability
- CM2 AW-5, Basking Habitat Enhancement
- CM2 RAR-1, Riparian Vegetation Management
- CM2 RAR-4, Improvement of In-channel Features
- CM2 RAR-7, Non-native Animal Species Control
- CM3, Restore and Create Natural Communities and Covered Species' Habitat
- CM3 AW-1, Aquatic/Wetlands Complex Restoration and Creation
- CM3 RAR-1, Riparian Natural Community Natural Community Restoration
- General Condition 1, Watershed Hydrology and Water Quality
- General Condition 2, Conservation Lands: Development Interface Design Requirements
- General Condition 4, Temporary Effects
- General Condition 5, Conduct Worker Training
- Community Condition 2, Riverine and Riparian Avoidance and Minimization
- Stream System Condition 1, Stream System Avoidance
- Stream System Condition 2, Stream System Mitigation: Restoration
- Regional Public Projects Condition 1, Transportation and Other Infrastructure Projects Design Requirements
- Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects Construction BMPs
- Regional Public Projects Condition 3, Operations and Maintenance BMPs

Achievement of Objective CRLF-1.1 would protect at least 2 acres of occupied California red-legged frog habitat in Plan Area B5 by Year 2 and an additional 2 acres by Year 5. Implementation of CM1 NC-1, CM1 CRLF-1, CM1 CRLF-2, CM2 AW-5, and CM3 AW-1 would result in a large interconnected Reserve System that provides aquatic and upland habitat for California red-legged frog, minimizes edge effects of development, and potentially facilitates movement and genetic exchange between
populations if California red-legged frogs expand into the Plan Area. Implementation of CM1 L-4 and CM2 L-4 would facilitate California red-legged frog movement through the Reserve System. Implementation of CM2 RAR-1, CM2 RAR-4, CM2 RAR-7, and CM3 RAR-1 would reduce the spread of invasive non-native plant species, minimizing the degradation of California red-legged frog habitat (e.g., controlling plants that invade stream channels) and increasing habitat for the species within the stream system. These measures would also aim to control non-native invasive animal species, minimizing predation of California red-legged frogs by invasive predators.

These goals, objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of restoration actions. The acres of protection and restoration satisfy the typical mitigation that would be applied to the project-level effects, as well as mitigating the effects of the other conservation measures.

**NEPA Determination:** The permanent loss of 672 acres of aquatic habitat and 8,551 acres of upland habitat and the temporary loss of 168 acres of aquatic habitat and 214 acres of upland for California red-legged frog associated with Alternative 3, in the absence of other conservation actions, would constitute a potentially significant impact through habitat modification and potential direct mortality of a special-status species. However, with the protection and restoration guided by the Plan's goals, objectives, conservation measures, and conditions, the overall effects of Alternative 3 on California red-legged frog would be less than significant.

**CEQA Determination:** The permanent loss of 672 acres of aquatic habitat and 8,551 acres of upland habitat and the temporary loss of 168 acres of aquatic habitat and 214 acres of upland for California red-legged frog associated with Alternative 3, in the absence of other conservation actions, would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. The natural community restoration and protection activities would constitute adequate mitigation for CEQA purposes. The biological objectives, conservation measures, and conditions relevant to California red-legged frog are more than sufficient to support the conclusion that the impacts of habitat loss and direct mortality on California red-legged frog under Alternative 3 would be less than significant. No mitigation has been identified.

**Impact BIO-16: Effects on foothill yellow-legged frog (NEPA: less than significant; CEQA: less than significant)**

Although foothill yellow-legged frog is widely scattered in suitable riverine and riparian habitat throughout the foothills of Placer County, the CNDDB lists no occurrences of this species in the Plan Area (California Department of Fish and Wildlife 2017). The nearest record slightly more than 3 miles from the eastern border of the Plan Area. Appendix D, *Species Accounts*, of the Plan provides more detail on the status and distribution of yellow-legged frog throughout its range and in Placer County.

Covered Activities under Alternative 3, Reduced Take/Reduced Fill, would result in permanent and temporary impacts on foothill yellow-legged frog habitat. Permanent impacts would result in the loss of up to 155 acres of foothill yellow-legged frog year-round habitat (8% of a total 1,837 acres of suitable habitat) in the Foothill portion of the Plan Area (i.e., streams above 500 feet). These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. Other Covered Activities that could affect habitat are in-stream activities, which include flood control and stormwater management projects, fish passage projects, and bank stabilization activities. Moreover, Plan restoration, enhancement, and management actions could result in inadvertent mortality; result in the release of contaminants
(e.g., fuels, lubricants) into habitat, potentially affecting survival; and cause erosion that could affect habitat.

Covered Activities would temporarily affect up to 39 acres of year-round foothill yellow-legged frog habitat in the Plan Area (2% of a total 1,837 acres). These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, infrastructure construction. Plan conservation actions that could temporarily affect foothill yellow-legged frog include grading and contouring to restore, create, and enhance wetlands and riparian habitat in reserves.

Short-term construction-related effects on foothill yellow-legged frog include the generation of dust, which has the potential to interfere with the oxygen diffusion process and can transport toxic compounds that may affect frogs. Runoff from urban development and other Covered Activities could degrade the aquatic habitats that support this species. Additional indirect effects are expected to result from in-stream activities that could degrade aquatic habitat; habitat fragmentation as a result of urban and rural development and the construction of new roads and other infrastructure; and the introduction, establishment, and spread of invasive plants and predators (e.g., domestic pets, raccoons, coyotes, skunks, bullfrogs) that thrive in human-dominated environments.

Under Alternative 3, the permanent and temporary loss of foothill yellow-legged frog habitat would be offset by the protection of 83 acres and restoration of 83 acres of foothill yellow-legged frog habitat in the Plan Area.

The protection and restoration of suitable habitat for foothill yellow-legged frog would be supported by the following objectives, conservation measures, and conditions.

- Objective RAR 1.1, Protect Riverine/Riparian Complex
- Objective RAR-1.2, Protect Riverine Habitat Constituent
- Objective RAR-1.3, Restore Riverine/Riparian Complex
- Objective FYLF-1.1, Protect Foothill Yellow-legged Frog Riverine Habitat
- Objective FYLF-1.2, Protect Foothill Yellow-legged Frog Riparian Habitat
- Objective FYLF-1.3, Restore Riparian Habitat for Foothill Yellow-legged Frog
- CM1, Establish Reserve System
- CM1 L-4, Connectivity within Plan Area
- CM1 FYLF-1, Foothill Yellow-legged Frog Habitat Protection
- CM1 NC-1, Siting Restoration
- CM2, Manage and Enhance the Reserve System
- CM2 L-4, Maintenance and Enhancement of Reserve System Permeability
- CM2 RAR-1, Riparian Vegetation Management
- CM2 RAR-4, Improvement of In-channel Features
- CM2 RAR-5, Non-native Animal Species Control
- CM3, Restore and Create Natural Communities and Covered Species’ Habitat
- CM3 RAR-1, Riparian Natural Community Restoration
- General Condition 1, Watershed Hydrology and Water Quality
- General Condition 2, Conservation Lands: Development Interface Design Requirements
- General Condition 4, Temporary Effects
- General Condition 5, Conduct Worker Training
- Community Condition 2, Riverine and Riparian Avoidance and Minimization
- Stream System Condition 1, Stream System Avoidance
- Stream System Condition 2, Stream System Mitigation: Restoration
- Regional Public Projects Condition 1, Transportation and Other Infrastructure Projects Design Requirements
- Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects Construction BMPs
- Regional Public Projects Condition 3, Operations and Maintenance BMPs

Implementation of CM1 FYLF-1, CM1 NC-1, and CM3 RAR-1 would result in a large interconnected Reserve System that provides riverine and riparian habitat for foothill yellow-legged frog, minimizes edge effects of development, and potentially facilitates movement and genetic exchange between populations if foothill yellow-legged frogs expand into the Plan Area. Implementation of CM2 RAR-1, CM2 RAR-4, CM2 RAR-5, and CM3 RAR-1 would reduce the spread of invasive non-native plant species, minimizing the degradation of foothill yellow-legged frog habitat (e.g., controlling plants that invade stream channels) and increasing habitat for the species within the stream system. These measures would also aim to control non-native invasive animal species, minimizing predation of California red-legged frogs by invasive predators.

These goals, objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of restoration actions. The acres of protection and restoration satisfy the typical mitigation that would be applied to the project-level effects, as well as mitigating the effects of the other conservation measures.

**NEPA Determination:** The permanent loss of up to 155 acres and temporary loss of up to 39 acres of habitat for foothill yellow-legged frogs associated with Alternative 3, in the absence of other conservation actions, would constitute a potentially significant impact through habitat modification and potential direct mortality of a special-status species. However, with the protection and restoration guided by the Plan’s goals, objectives, conservation measures, and conditions, the overall effects of Alternative 3 on foothill yellow-legged frog would be less than significant.

**CEQA Determination:** The permanent loss of up to 155 acres and temporary loss of up to 39 acres of habitat for foothill yellow-legged frogs associated with Alternative 3, in the absence of other conservation actions, would constitute a potentially adverse effect through habitat modification and potential direct mortality of a special-status species. The natural community restoration and protection activities would constitute adequate mitigation for CEQA purposes. The biological objectives, conservation measures, and conditions relevant to foothill yellow-legged frog are more than sufficient to support the conclusion that the impacts of habitat loss and direct mortality on foothill yellow-legged frog under Alternative 3 would be less than significant. No mitigation has been identified.
Impact BIO-17: Effects on western spadefoot, a non-covered species (NEPA: less than significant; CEQA: less than significant)

The CNDDB lists five occurrences of western spadefoot in western Placer County but within the incorporated boundaries of Roseville, a non-participating city (California Department of Fish and Wildlife 2017).

Covered Activities under Alternative 3, including infrastructure and other Permittee Covered Activities within Roseville, could result in permanent and temporary impacts on western spadefoot habitat. Permanent impacts would result in the loss of up to 19,065 acres of potential western spadefoot habitat in the Plan Area; 11,300 acres of vernal pool complex supporting 525 acres of vernal pool-type wetlands, 7,040 acres of grassland, 250 acres of aquatic/wetland, and 475 acres of riverine/riparian. Most potential habitat is located in Plan Area A, and losses would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. This analysis may overestimate effects on spadefoot because the analysis is based on habitat types that may not be suitable in their entirety for spadefoot.

Covered Activities would temporarily affect up to 915 acres of potential western spadefoot habitat: 411 acres of vernal pool complex supporting 28 acres of vernal pool-type wetlands, 244 acres of grassland, 101 acres of aquatic/wetland, and 159 acres of riverine/riparian. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, infrastructure construction, and conservation activities. Plan conservation actions that could temporarily affect western spadefoot include grading and contouring to restore, create, and enhance wetlands in reserves.

Recurring maintenance activities in the Plan Area may directly (through inadvertent mortality) and indirectly (through noise, visual disturbance, and ground vibrations) affect western spadefoot. Outside the wet season, western spadefoots spend much of their time in underground burrows and crevices, making them vulnerable to ground-disturbing activities in upland areas they occupy. Moreover, restoration, enhancement, and management actions could result in inadvertent mortality; result in the release of contaminants (e.g., fuels, lubricants) into habitat, potentially affecting survival; and cause erosion that could affect habitat.

Permanent development within 500 feet of western spadefoot habitat could indirectly affect the species through increased vehicular traffic and the development of new roadways, causing mortalities; in-stream activities and runoff from developed areas that could degrade aquatic habitat; habitat fragmentation as a result of urban and rural development and the construction of new roads and other infrastructure; introduction, establishment, and spread of invasive plant and animal species; and increased predation rates from domestic pets, use of mosquitofish for mosquito abatement, and invasive wildlife species (e.g., bullfrogs).

Under Alternative 3, the permanent and temporary loss of western spadefoot habitat would be offset by implementation of the conservation strategy for vernal pool branchiopods, resulting in the protection and management of 16,158 acres and the restoration of 3,000 acres of wetland habitat and vernal pool complex. In addition, the protection of 2,796 acres and restoration of 1,000 acres of grassland; the protection of 577 acres and restoration of 395 acres of aquatic/wetlands; and the protection of 2,133 acres and restoration of 1,369 acres of riverine/riparian could provide potential habitat for western spadefoot.
The protection, restoration, and management of suitable habitat for western spadefoot would be supported by the following objectives, conservation measures, and conditions.

- Objective VPCG-1.1, Protect Existing Vernal Pool Complexes
- Objective VPCG 1.2, Restore/Create Vernal Pool Complexes
- Objective VPCG-1.3, Protect Grasslands
- Objective VPCG-1.4, Restore Grasslands
- Objective AW-1.1, Protect Aquatic/Wetland Complex Natural Community
- Objective AW-1.2, Restore/Create Aquatic/Wetland Complex Natural Community
- Objective AW-1.3, Maintain and Enhance Wetlands and Ponds
- Objective RAR-1.1, Protect Riverine/Riparian Complex
- Objective RAR-1-2, Protect Riverine Constituent Habitat
- Objective RAR-1.3, Restore Riverine/Riparian Complex
- Objective RAR-1.4, Enhance Riparian Vegetation
- CM1, Establish Reserve System
- CM1 L-2, Reserve Acquisition Strategy
- CM1 L-3, Connectivity and Conservation within the Region
- CM1 L-4 Connectivity within the Plan Area
- CM1 VPCG-1, Vernal Pool Complex Protection
- CM1 VPCG-2, Reserve Design for Vernal Pool Restoration/Creation
- CM1 VPCG-3, Grassland Protection
- CM1 AW-1, Aquatic/Wetlands Complex Protection
- CM1 RAR-1, Riverine and Riparian Protection
- CM1 RAR-2, Siting Riparian Restoration
- CM2, Manage and Enhance the Reserve System
- CM2 L-1, Vegetation Management and Invasive Plant Control
- CM2 L-3, Develop and Implement Fire Management Plans
- CM2 L-4, Maintenance and Enhancement of Reserve System Permeability
- CM2 VPCG-1, Vernal Pool Complex Enhancement and Hydrologic Conditions
- CM2 AW-1, Aquatic/Wetlands Complex Vegetation Control
- CM2 AW-2, Fencing Wetlands and Ponds
- CM2 AW-4, Non-native Predator Control
- CM2 AW-7, Maintenance of Water Depths and Hydrological Cycles
- CM2 AW-8, Maintenance and Enhancement of Water Quality
• CM2 RAR-1, Riparian Vegetation Management
• CM2 RAR-4, Improvement of In-channel Features
• CM2 RAR-5, Non-native Animal Species Control
• CM3, Restore and Create Natural Communities and Covered Species’ Habitat
• CM3 AW-1, Aquatic/Wetlands Complex Restoration/Creation
• CM3 VPCG-1, Vernal Pool Complex Restoration/Creation
• CM3 VPCG-2 Grasslands Restoration
• CM3 RAR-1, Riparian Natural Community Restoration
• CM4 L-1, Low-Impact Development Standards
• CM4 VPCG-1, Conduct Outreach to Private Landowners.
• General Condition 1, Watershed Hydrology and Water Quality
• General Condition 2, Conservation Lands: Development Interface Design Requirements
• General Condition 4, Temporary Effects
• General Condition 5, Conduct Worker Training
• Community Condition 1, Wetland Avoidance and Minimization (Vernal Pool and Aquatic/Wetland Complex)
• Regional Public Projects Condition 1, Transportation and Other Infrastructure Projects Design Requirements
• Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects Construction BMPs
• Regional Public Projects Condition 3, Operations and Maintenance BMPs
• Species Condition 8, Conservancy Fairy Shrimp

Implementation of CM1-L-3, CM1 L-4, CM1 VPCG-3, CM3 VPCG-2, CM1 RAR-1, CM1 RAR-2, CM2 L-4, CM2 RAR-1, CM3 RAR-1, CM1 AW-1, and CM3 AW-1 would result in a large, interconnected Reserve System supporting upland and aquatic habitat for western spadefoot, enabling the species to disperse between primary habitat areas, and facilitating genetic exchange. Implementation of CM2 AW-2, CM2 RAR-4, and CM2 AW-7 would increase aquatic habitat for western spadefoot in the stream system.

Although they do not apply to non-covered special-status wildlife species, these objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. In addition, Covered Activities under Alternative 3 that affect habitat of non-covered special-status wildlife would be mitigated on a project-by-project basis for discretionary projects. Ancillary benefits for these wildlife species are also anticipated to result from Plan implementation, because it would establish a comprehensive reserve management program that would enhance habitat conditions in a variety of natural communities that may support non-covered special-status wildlife. Mitigation for impacts from projects that are not subject to discretionary review, including implementation of conservation measures to create and restore
vernal pool complex, vernal pool–type wetlands, grassland, aquatic/wetland, and riverine/riparian habitat, is unlikely.

**NEPA Determination:** The permanent loss of up to 19,065 acres and temporary disturbance of up to 915 acres of potential western spadefoot habitat associated with Alternative 3, although likely an overestimate of effects, in the absence of other conservation actions, would constitute a potentially significant impact through habitat modification and potential direct mortality of a special-status species. However, with the protection and restoration guided by the Plan’s goals, objectives, conservation measures, and conditions, the overall effects of Alternative 3 on western spadefoot would be less than significant.

**CEQA Determination:** The permanent loss of up to 19,065 acres and temporary disturbance of up to 915 acres of potential western spadefoot habitat associated with Alternative 3, although likely an overestimate of effects, in the absence of other conservation actions, would constitute a potentially significant impact through habitat modification and potential direct mortality of a special-status species. The natural community restoration and protection activities would constitute adequate mitigation for CEQA purposes. The biological goals and conservation measures relevant to western spadefoot are more than sufficient to support the conclusion that the impacts of Alternative 3 on western spadefoot would be less than significant. No mitigation has been identified.

**Impact BIO-18: Effects on giant garter snake (NEPA: less than significant; CEQA: less than significant)**

A population of giant garter snake has been documented approximately 1.5–5 miles west and south of the Placer County line in the Sutter and Natomas Basins of Sutter and Sacramento Counties; the closest occurrence is recorded in the Natomas Basin of Sacramento County, approximately 1.5 miles southwest of the Placer County line (Figure 5-3 in the Plan). There are also multiple giant garter snake CNDDB records immediately north and south of Cross Canal. These records do not mention snakes occurring in the canal itself (California Department of Fish and Wildlife 2017). Cross Canal is part of Plan Area B4, which is slated for fish passage improvements. Appendix D, *Species Accounts*, of the Plan provides more detail on the status and distribution of the species throughout its range. The far western portion of the Plan Area adjacent to Sutter and Sacramento Counties is within the American Basin Recovery Unit identified in the *Recovery Plan for Giant Garter Snake* (*Thamnophis gigas*) (U.S. Fish and Wildlife Service 2017).

Covered Activities under Alternative 3 would result in permanent and temporary impacts on aquatic and upland habitat for giant garter snake. Permanent impacts would result in the loss of up to 1,491 acres of aquatic habitat (8% of a total 19,511 acres of habitat in the Plan Area) and 457 acres of upland habitat (13% of a total 3,537 acres). These losses would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects, almost entirely in the Valley portion of Plan Area A, with small losses (49 acres) in Plan Area B.

Temporary impacts of Covered Activities on giant garter snake habitat would not exceed 210 acres of aquatic habitat in the Plan Area (less than 1% of total aquatic habitat) and 21 acres of upland habitat (less than 1% of total upland habitat). These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, vegetation management, infrastructure operations and maintenance, infrastructure construction. Plan conservation actions that could temporarily affect giant garter snake habitat include
restoration and enhancement actions such as grading and contouring to restore, create, and enhance wetlands in reserves.

Indirect effects could result from construction and maintenance of infrastructure associated with urban and rural development and from changes in hydrology caused by land conversion. Additionally, in-stream activities such as installation and maintenance of utility lines, road improvements, drainage facility improvements, and flood control projects may indirectly affect giant garter snake. Restoration, enhancement, and management actions could result in inadvertent mortality; result in the release of contaminants (e.g., fuels, lubricants) into habitat, potentially affecting survival; and cause erosion that could affect habitat.

Under Alternative 3, the permanent and temporary loss of giant garter snake aquatic and upland habitat would be offset by the protection of 2,000 acres of rice lands and additional protection and restoration of aquatic and wetland natural communities, for a total protection of 2,172 acres and restoration of 476 acres of aquatic habitat and the protection of 1,668 acres and restoration of 449 acres of upland habitat for giant garter snake.

The Plan establishes a goal of protecting suitable giant garter snake habitat to facilitate the expansion of giant garter snake into the Reserve System. Conservation activities would include measures to result in a large, interconnected Reserve System supporting upland and aquatic habitat enabling the species to disperse between primary habitat areas, and facilitating genetic exchange. Creation of basking sites, control of non-native invasive plants to maintain habitat integrity, and control of non-native predators to reduce mortality of individual snakes would all contribute to survival and restoration of the species. The protection, restoration, and management of suitable habitat for giant garter snake would be supported by the following objectives, conservation measures, and conditions.

- Objective GGS-1.1, Protect and Manage Giant Garter Snake Habitat
- CM1, Establish Reserve System
- CM1 L-4, Connectivity within the Plan Area
- CM1 NC-1, Siting Restoration
- CM1 AW-1, Aquatic/Wetlands Complex Protection
- CM1 GGS-1, Giant Garter Snake Habitat Protection
- CM2, Manage and Enhance the Reserve System
- CM2 L-4, Maintenance and Enhancement of Reserve System Permeability
- CM2 VPCG-3, Ground Squirrel Population Enhancement
- CM2 AW-1, Aquatic/Wetlands Complex Vegetation Control
- CM2 AW-2, Fencing Wetlands and Ponds
- CM2 AW-4, Non-native Predator Control
- CM2 AW-5, Basking Habitat Enhancement
- CM2 AW-7, Maintenance of Water Depths and Hydrological Cycles
- CM2 AW-8, Maintenance and Enhancement of Water Quality
- CM2 RAR-1, Riparian Vegetation Management
These goals, objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of restoration actions. The acres of protection and restoration satisfy the typical mitigation that would be applied to the project-level effects, as well as mitigating the effects of the other conservation measures.

**NEPA Determination:** The permanent loss of 1,491 acres of aquatic habitat and 457 acres of upland habitat and the temporary disturbance of 210 acres of aquatic habitat and 21 acres of upland habitat associated with Alternative 3, in the absence of other conservation actions, would constitute a potentially significant impact through habitat modification and potential direct mortality of a special-status species. However, with the protection and restoration guided by the Plan’s goals, objectives, conservation measures, and conditions, the overall effects of Alternative 3 on giant garter snake would be less than significant.

**CEQA Determination:** The permanent loss of 1,491 acres of aquatic and 457 acres of upland habitat and the temporary disturbance of 210 acres of aquatic and 21 acres of upland habitat associated with Alternative 3, in the absence of other conservation actions, would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. The natural community restoration and protection activities would constitute adequate mitigation for CEQA purposes. The biological objectives, conservation measures, and conditions relevant to giant garter snake are more than sufficient to support the conclusion that the impacts of habitat loss and direct mortality on giant garter snake under Alternative 3 would be less than significant. No mitigation has been identified.
Impact BIO-19: Effects on western pond turtle (NEPA: less than significant; CEQA: less than significant)

The CNDDB lists four occurrences of western pond turtle in the Plan Area (California Department of Fish and Wildlife 2017).

Covered Activities under Alternative 3, Reduced Take/Reduced Fill, would result in permanent and temporary impacts on aquatic and upland habitat for western pond turtle. Permanent impacts would result in the loss of 735 acres of aquatic habitat (7% of a total 10,244 acres of aquatic habitat) and up to 1,366 acres of upland habitat for western pond turtle (10% of a total 14,263 acres of upland habitat) in the Plan Area. These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects, primarily in the Valley and Foothill portions of Plan Area A; small losses (20 acres) would occur in Plan Area B.

Temporary impacts of Covered Activities on western pond turtle would not exceed 245 acres of aquatic habitat (2% of total aquatic habitat) and 39 acres of upland habitat (less than 1% of total upland habitat). These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Plan conservation actions that could temporarily affect western pond turtle include grading and contouring to restore, create, and enhance wetlands in reserves.

Indirect effects are expected to result from increased vehicular traffic and the development of new roadways, causing mortalities; in-stream activities and runoff from developed areas that could degrade aquatic habitat; habitat fragmentation as a result of urban and rural development and the construction of new roads and other infrastructure; introduction, establishment, and spread of invasive plant and animal species; and increased predation rates, particularly on eggs and young, by domestic pets and invasive wildlife species. Moreover, restoration, enhancement, and management actions could result in inadvertent mortality; result in the release of contaminants (e.g., fuels, lubricants) into habitat, potentially affecting survival; and cause erosion that could affect habitat.

Under Alternative 3, the permanent and temporary loss of western pond turtle aquatic and upland habitat would be offset by the protection of 2,701 acres and restoration of 1,750 acres of aquatic habitat for western pond turtle and the protection of 3,735 acres and restoration of 1,784 acres of upland habitat.

The Plan establishes a goal of providing habitat for a sustained population of western pond turtles in the Reserve System. Conservation activities would include measures to result in a large, interconnected Reserve System supporting upland and aquatic habitat enabling the species to disperse between primary habitat areas, and facilitating genetic exchange. Increasing basking sites and cover, control of non-native invasive plants to maintain habitat integrity and access to basking sites, and control of non-native predators to reduce mortality of young turtles and eggs would all contribute to survival of the species. The protection, restoration, and management of suitable habitat for western pond turtle would be supported by the following objectives, conservation measures, and conditions.

- Objective WPT-1.1, Protect and Enhance Western Pond Turtle Habitat
- Objective WPT-1.2, Restore Western Pond Turtle Habitat
- CM1, Establish Reserve System
• CM1 L-4, Connectivity within the Plan Area
• CM1 NC-1, Siting Restoration
• CM1 WPT-1, Western Pond Turtle Habitat Protection
• CM2, Manage and Enhance the Reserve System
• CM2 L-4, Maintenance and Enhancement of Reserve System Permeability
• CM2 AW-1, Aquatic/Wetlands Complex Vegetation Control
• CM2 AW-2, Fencing Wetlands and Ponds, CM2 AW-3 Sediment Removal
• CM2 AW-4, Non-native Predator Control,
• CM2 AW-5, Basking Habitat Enhancement, CM2 RAR-4 Improvement of In-channel Features
• CM2 AW-7, Maintenance of Water Depths and Hydrological Cycles
• CM2 AW-8, Maintenance and Enhancement of Water Quality
• CM2 RAR-1, Riparian Vegetation Management
• CM2 RAR-5, Non-native Animal Species Control
• CM2 WPT-1, Western Pond Turtle Habitat Enhancement
• CM3, Restore and Create Natural Communities and Covered Species’ Habitat
• CM3, AW-1 Aquatic/Wetlands Complex Restoration/Creation
• General Condition 1, Watershed Hydrology and Water Quality
• General Condition 2, Conservation Lands: Development Interface Design Requirements
• Community Condition 2, Riverine and Riparian Avoidance and Minimization
• Stream System Condition 1, Stream System Avoidance
• Stream System Condition 2, Stream System Mitigation: Restoration
• Regional Public Projects Condition 1, Transportation and Other Infrastructure Projects Design Requirements
• Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects Construction BMPs
• Regional Public Projects Condition 3, Operations and Maintenance BMPs

These goals, objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of restoration actions. The acres of protection and restoration satisfy the typical mitigation that would be applied to the project-level effects, as well as mitigating the effects of the other conservation measures.

**NEPA Determination:** The permanent loss of 735 acres of aquatic habitat and 1,366 acres of upland habitat and the temporary disturbance of 245 acres of aquatic habitat and 39 acres of upland habitat associated with Alternative 3, in the absence of other conservation actions, would constitute a potentially significant impact through habitat modification and potential direct mortality of a special-status species. However, with habitat protection and restoration associated with the...
conservation components, guided by landscape-scale goals and objectives, the effects of Alternative 3 as a whole on western pond turtle would be less than significant.

**CEQA Determination:** The permanent loss of 735 acres of aquatic habitat and 1,366 acres of upland habitat and the temporary disturbance of 245 acres of aquatic habitat and 39 acres of upland habitat associated with Alternative 3, in the absence of other conservation actions, would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. The natural community restoration and protection activities would constitute adequate mitigation for CEQA purposes. The biological objectives, conservation measures, and conditions relevant to western pond turtle are more than sufficient to support the conclusion that the impacts of habitat loss and direct mortality on western pond under Alternative 3 would be less than significant. No mitigation has been identified.

**Impact BIO-20: Effects on coast horned lizard, a non-covered species (NEPA: less than significant with mitigation; CEQA: less than significant with mitigation)**

The CNDDB lists no occurrences of coast horned lizard in the Plan Area (California Department of Fish and Wildlife 2017).

Covered Activities under Alternative 3 would result in permanent and temporary impacts on coast horned lizard habitat. Permanent impacts would result in the loss of 13,774 acres of natural communities that contain suitable habitat elements for coast horned lizard (e.g., open areas with sandy substrates): 7,040 acres of grasslands (20% of this community in the Plan Area), 6,365 acres of oak and valley oak woodland (12%), and 369 acres of riparian woodland (5%). These losses would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. The suitable habitat elements for this species are open areas with sandy substrates; therefore, the impact acreage reported here, which is based on impacts on natural communities that may contain these elements, is likely a large overestimate.

Covered Activities would temporarily affect up to 561 acres of habitat for coast horned lizard: 244 acres of grassland (1% of this community), 205 acres of valley oak and oak woodland (<1%), and 112 acres of riparian woodland (2%) in the Plan Area. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, infrastructure construction. Plan conservation actions that could temporarily affect coast horned lizard habitat include restoration and enhancement actions such as grading and contouring to restore, create, and enhance grasslands, oak woodlands and riparian habitat in reserves.

Indirect effects are expected to result from increased vehicular traffic and the development of new roadways, causing mortalities; habitat fragmentation as a result of urban and rural development and the construction of new roads and other infrastructure; introduction, establishment, and spread of invasive plant and animal species; and increased predation rates from domestic pets and invasive wildlife species. Recurring maintenance activities within the Plan Area, such as transportation facility maintenance, utility service facilities maintenance, and vegetation management, may periodically directly and indirectly affect coast horned lizard. Moreover, restoration, enhancement, and management actions could result in inadvertent mortality; result in the release of contaminants (e.g., fuels, lubricants) into habitat, potentially affecting survival; and cause erosion that could affect habitat.
Under Alternative 3, the permanent loss of coast horned lizard habitat would be offset by the protection of 14,508 acres and restoration of 2,246 acres of grassland, oak woodland, valley oak woodland, and riparian woodland communities in the Plan Area.

The protection, restoration, and management of suitable habitat for coast horned lizard would be supported by the following objectives, conservation measures, and conditions.

- CM1, Establish Reserve System
- CM1-L-3, Connectivity and Conservation within the Region
- CM1 L-4, Connectivity within the Plan Area
- CM1 NC-1, Siting Restoration
- CM1 VPCG-3, Grassland Protection
- CM1 RAR-1, Riverine and Riparian Protection
- CM1 RAR-2, Siting Riparian Restoration
- CM1 OW-1, Oak Woodlands Protection
- CM1 OW-2, Siting Oak Woodlands Restoration
- CM2, Manage and Enhance the Reserve System
- CM2 L-4, Maintenance and Enhancement of Reserve System Permeability
- CM2 RAR-1, Riparian Vegetation Management
- CM2 RAR-5, Non-native Animal Species Control
- CM2 OW-1, Oak Woodland Vegetation Enhancement and Management
- CM3, Restore and Create Natural Communities and Covered Species’ Habitat
- CM3, VPCG-2 Grasslands Restoration
- CM3 RAR-1, Riparian Natural Community Restoration
- General Condition 2, Conservation Lands: Development Interface Design Requirements
- General Condition 4, Temporary Effects
- General Condition 5, Conduct Worker Training
- Community Condition 2, Riverine and Riparian Avoidance and Minimization
- Community Condition 3, Valley Oak Woodland
- Regional Public Projects Condition 1, Transportation and Other Infrastructure Projects Design Requirements
- Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects Construction BMPs
- Regional Public Projects Condition 3, Operations and Maintenance BMPs

Although they do not apply to non-covered special-status wildlife species, these objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. In addition, Covered Activities under Alternative 3
that affect habitat of non-covered special-status wildlife would be mitigated on a project-by-project basis for discretionary projects. Ancillary benefits for these wildlife species are also anticipated to result from Plan implementation, because it would establish a comprehensive reserve management program that would enhance habitat conditions in a variety of natural communities that may support non-covered special-status wildlife. Mitigation for impacts from projects that are not subject to discretionary review, including implementation of conservation measures to create and restore grassland, valley oak woodland, oak woodland, and riparian woodland habitat, is unlikely.

**NEPA Determination:** The permanent loss of 13,744 acres and temporary disturbance of 561 acres of potential coast horned lizard habitat associated with Alternative 3, in the absence of other conservation actions, would constitute a potentially significant impact through habitat modification and potential direct mortality of a special-status species. However, with the protection and restoration guided by the Plan’s goals, objectives, conservation measures, and conditions and the implementation of Mitigation Measure BIO-2, the overall effects of Alternative 3 on coast horned lizard would be less than significant.

**CEQA Determination:** The permanent loss of 13,744 acres and temporary disturbance of 561 acres of potential coast horned lizard habitat associated with Alternative 3 in the absence of other conservation actions, would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. The natural community restoration and protection activities would constitute adequate mitigation for CEQA purposes. The biological goals and conservation measures relevant to coast horned lizard and implementation of Mitigation Measure BIO-2 would reduce this impact to a less-than-significant level.

**Mitigation Measure BIO-2: Conduct preconstruction surveys for coast horned lizard**

**Impact BIO-21: Effects on Swainson’s hawk (NEPA: less than significant; CEQA: less than significant)**

The CNDDB lists 17 extant occurrences of Swainson’s hawks nesting in the Plan Area, all in the Valley portion (California Department of Fish and Wildlife 2017).

Covered Activities under Alternative 3, Reduced Take/Reduced Fill, would result in permanent and temporary impacts on Swainson’s hawk. Permanent impacts would not exceed 139 acres of nesting habitat (7% of nesting habitat in Plan Area A) and 15,404 acres of foraging habitat (28% of suitable habitat). These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects.

Temporary impacts on Swainson’s hawk habitat would not exceed 9 acres of nesting habitat and 570 acres of foraging habitat. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Implementation of Plan conservation actions may also temporarily disturb Swainson’s hawk habitat in locations where grading, vegetation management, or other physical change to the habitat is required.

In addition to resulting in habitat losses, Covered Activities have the potential to directly affect Swainson’s hawk through injury and mortality. Construction-related activities would not be expected to result in direct mortality of adult or fledged Swainson’s hawks if they were present in or near Covered Activities, because they would be expected to avoid contact with construction
equipment. However, if Swainson’s hawks were to nest in or near a construction area, construction-related activities, including equipment operation, noise, and visual disturbances, could affect nests or lead to their abandonment, potentially resulting in mortality of eggs and nestlings.

Swainson’s hawk nesting and foraging behavior in the vicinity of proposed construction areas could be directly affected by construction activities. Construction noise above background noise levels (i.e., greater than 50 dBA) could extend 500–5,250 feet from the edge of construction activities. However, no data are available that identify the extent to which these noise levels could affect Swainson’s hawks. Effects associated with construction include noise and visual disturbance caused by grading, contouring, and other ground-disturbing operations outside the project footprint but within 500 feet of it. Construction and subsequent maintenance-related noise and visual disturbances could mask calls and disrupt foraging and nesting behaviors. The use of mechanical equipment during Covered Activities could cause the accidental release of petroleum or other contaminants that could affect Swainson’s hawk foraging habitat.

Indirect effects are expected to result from increased vehicular traffic associated with the development of new roadways, causing mortalities; habitat fragmentation as a result of urban and rural development and the construction of new roads and other infrastructure; and the introduction, establishment, and spread of invasive plant species.

Under Alternative 3, the permanent loss of Swainson’s hawk nesting habitat would be offset by the protection and management of 1,204 acres and restoration of 664 acres of nesting habitat. The loss of foraging habitat would be offset by the protection and management of up to 16,093 acres and restoration of 3,920 acres of foraging habitat.

The Plan establishes the goal of maintaining habitat to provide for a sustained population of Swainson’s hawks in the Plan Area. The protection, restoration, and management of suitable habitat for Swainson’s hawk would be supported by the following objectives, conservation measures, and conditions.

- Objective SWHA-1.1, Protect Swainson's Hawk Nest Trees
- Objective SWHA-1.2, Protect Swainson's Hawk Foraging Habitat
- Objective SWHA-1.3, Enhance Foraging Habitat
- Objective SWHA-1.4, Protect at least 20 isolated trees with the potential to be used as nesting sites for Swainson's hawk, within the protected grasslands.
- CM1 SWHA-1, Protection of Swainson's Hawk Habitat
- CM2 SWHA-1, Swainson's Hawk Foraging Habitat Enhancement
- General Condition 1, Watershed Hydrology and Water Quality
- General Condition 2, Conservation Lands: Development Interface Design Requirements
- General Condition 4, Temporary Effects
- General Condition 5, Conduct Worker Training
- Community Condition 2.1, Riverine and Riparian Avoidance
- Community Condition 2.2, Minimize Riverine and Riparian Effects
- Community Condition 2.3, Riverine and Riparian Restoration
- Community Condition 3.1, Valley Oak Woodland Avoidance
- Community Condition 3.2, Valley Oak Woodland and Individual Valley Oak Trees
- Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects Construction BMPs
- Regional Public Projects Conditions 3, Operation and Maintenance BMPs
- Species Condition 1, Swainson's Hawk
  - Swainson's Hawk 1—requires preconstruction surveys during the nesting season
  - Swainson's Hawk 2—prohibits activity during the breeding season within a 1,320-foot buffer zone around a nest, monitoring of reduced buffers
  - Swainson's Hawk 3—requires active nest trees to not be removed during the nesting season
  - Swainson's Hawk 4—requires a construction monitor for active nests.

These objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. The conditions are described in Chapter 6 of the Plan.

**NEPA Determination:** The permanent loss of 139 acres of nesting habitat and 15,404 acres of foraging habitat and the temporary disturbance of 9 acres of nesting habitat and 570 acres of foraging habitat associated with Alternative 3, in the absence of other conservation actions, would constitute a potentially significant impact; however, with the proposed protection and restoration set forth by the Plan's goals, objectives, conservation measures, and conditions, the overall effects of Alternative 3 on Swainson’s hawk in the Plan Area would be less than significant.

**CEQA Determination:** The permanent loss of 139 acres of nesting habitat and 15,404 acres of foraging habitat and the temporary disturbance of 9 acres of nesting habitat and 570 acres of foraging habitat associated with Alternative 3, in the absence of other conservation actions, would constitute a significant impact through loss of habitat and potential mortality of a special-status species. The natural community restoration and protection together with conservation measures and conditions relevant to the long-term management of habitat for Swainson’s hawk in the Plan Area support the conclusion that the impacts on Swainson's hawk under Alternative 3 would be less than significant. No mitigation has been identified.

**Impact BIO-22: Effects on California black rail (NEPA: less than significant; CEQA: less than significant)**

The CNDDB lists two extant occurrences of California black rail in the Plan Area: one in the Valley portion of Plan Area B and one in the Foothill portion of the RAA in Plan Area A (California Department of Fish and Wildlife 2017). Research conducted by the University of California, Berkeley documented additional occurrences in the Valley portion of Plan Area A (Hall and Beissinger 2017).

Covered Activities under Alternative 3, Reduced Take/Reduced Fill, would result in permanent and temporary impacts on California black rail. Permanent impacts would not exceed 100 acres (9% of suitable habitat in Plan Area A). These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. The impacts would total 45 acres in the Valley portion of the Plan Area, 50 acres in the Foothill portion, and 5 acres in Plan Area B.
Temporary impacts on California black rail habitat are estimated at 39 acres. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Implementation of Plan conservation actions may also temporarily disturb California black rail habitat in locations where grading, vegetation management, or other physical change to the habitat is required.

In addition to habitat losses, Covered Activities have the potential to directly affect California black rails through injury and mortality. Operation of construction equipment may cause injury to or mortality of individuals. Risk would be greatest to eggs and nestlings susceptible to land-clearing activities through nest abandonment and increased exposure to the elements or to predators. Construction activities could temporarily fragment existing California black rail habitat; grading, filling, contouring, and other ground-disturbing operations could temporarily reduce the extent and functions supported by the affected habitat.

California black rail nesting behavior in the vicinity of proposed construction areas could be directly affected by construction activities. Construction noise above background noise levels (greater than 50 dBA) could extend 500–5,250 feet from the edge of construction activities. However, no data are available that identify the extent to which these noise levels could affect California black rail. Effects associated with construction include noise, dust, and visual disturbance caused by grading, filling, contouring, and other ground-disturbing operations outside the project footprint but within 500 feet of it. Construction and subsequent maintenance-related noise and visual disturbances could mask calls, disrupt foraging and nesting behaviors, and reduce the functions of suitable nesting habitat for this species. The use of mechanical equipment during Covered Activities could cause the accidental release of petroleum or other contaminants that could affect black rails in the surrounding habitat. The inadvertent discharge of sediment or excessive dust adjacent to black rail habitat could also affect the species.

Indirect effects are expected to result from increased vehicular traffic associated with the development of new roadways, causing mortalities; runoff from developed areas that could degrade habitat; habitat fragmentation as a result of urban and rural development and the construction of new roads and other infrastructure; introduction, establishment, and spread of invasive plant and animal species; and increased predation rates, particularly on eggs and young, from domestic pets and invasive wildlife species.

Under Alternative 3, the permanent loss of California black rail habitat would be offset by the protection and management of 256 acres and restoration of 167 acres of California black rail habitat.

The Plan establishes the goal of maintaining habitat to provide for a sustained population of California black rail in the Plan Area. The protection, restoration, and management of suitable habitat for California black rail would be supported by the following objectives, conservation measures, and conditions.

- Objective BLRA-1.1, Protect, Restore/Create, and Manage and Enhance California Black Rail Habitat
- CM1 BLRA-1, Siting California Black Rail Habitat Protection and Restoration
- CM2 BLRA-1, Maintenance and Enhancement of the Hydrology of California Black Rail Habitat
- CM2 BLRA-2, Protection of California Black Rail Habitat from Grazing and Other Vegetation Management Activities
- General Condition 1, Watershed Hydrology and Water Quality
- General Condition 2, Conservation Lands: Development Interface Design Requirements
- General Condition 4, Temporary Effects
- General Condition 5, Conduct Worker Training
- Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects Construction BMPs
- Regional Public Projects Conditions 3, Operation and Maintenance BMPs
- Species Condition 2, California Black Rail
  - California Black Rail 1—Requires preconstruction surveys
  - California Black Rail 2—Requires buffers and exclusion fencing around occupied habitat during construction
  - California Black Rail 3—Restricts habitat clearing where take is allowed to a period outside of the breeding season
  - California Black Rail 4—Requires mitigation for occupied or potential rail habitat to be done in-kind
  - California Black Rail 5—Requires monitoring during construction

These objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. The conditions are described in Chapter 6 of the Plan.

**NEPA Determination:** The permanent loss of 100 acres and the temporary disturbance of 39 acres of California black rail habitat associated with Alternative 3, in the absence of other conservation actions, would constitute a potentially significant impact; however, with the proposed protection and restoration set forth by the Plan’s goals, objectives, conservation measures, and conditions, the overall effects of Alternative 3 on California black rail in the Plan Area would be less than significant.

**CEQA Determination:** The permanent loss of 100 acres and the temporary disturbance of 39 acres of California black rail habitat associated with Alternative 3, in the absence of other conservation actions, would constitute a significant impact through the loss of habitat and potential mortality of a special-status species. The natural community restoration and protection together with conservation measures and conditions relevant to the long-term management of habitat for California black rail in the Plan Area support the conclusion that the impacts on California black rail under Alternative 3 would be less than significant. No mitigation has been identified.

**Impact BIO-23: Effects on burrowing owl (NEPA: less than significant; CEQA: less than significant)**

The CNDDB lists four extant occurrences of burrowing owl in the Plan Area, all in the Valley portion (California Department of Fish and Wildlife 2017).

Covered Activities under Alternative 3, Reduced Take/Reduced Fill, would result in permanent and temporary impacts on burrowing owl. Permanent impacts would not exceed 15,559 acres of habitat (28% in of suitable habitat Plan Area A). These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and
infrastructure projects. The impacts would occur almost entirely in the Valley portion of Plan Area A, with a smaller amount (200 acres) occurring in Plan Area B.

Temporary impacts on burrowing owl habitat would not exceed 576 acres. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Implementation of Plan conservation actions may also temporarily affect burrowing owl habitat in locations where grading, vegetation management, or other physical change to the habitat is required.

In addition to habitat losses, Covered Activities have the potential to directly affect individual burrowing owls through injury and mortality. Operation of construction equipment may cause injury to or mortality of burrowing owls. Risk would be greatest to eggs and nestlings susceptible to land-clearing activities through nest abandonment and increased exposure to the elements or to predators. Construction activities could temporarily fragment existing burrowing owl habitat: grading, filling, contouring, and other initial ground-disturbing operations could temporarily reduce the extent and functions supported by the affected habitat.

Burrowing owl nesting behavior in the vicinity of proposed construction areas could be directly affected by construction activities. Construction noise above background noise levels (greater than 50 dBA) could extend 500–5,250 feet from the edge of construction activities. However, no data are available that identify the extent to which these noise levels could affect burrowing owl. Effects associated with construction include noise, dust, and visual disturbance caused by grading, filling, contouring, and other ground-disturbing operations outside the project footprint but within 500 feet of it. Construction and subsequent maintenance-related noise and visual disturbances could mask calls, disrupt foraging and nesting behaviors, and reduce the functions of suitable nesting habitat for this species. The use of mechanical equipment during Covered Activities could cause the accidental release of petroleum or other contaminants that could affect burrowing owls in the surrounding habitat. The inadvertent discharge of sediment or excessive dust adjacent to burrowing owl habitat could also affect the species.

Indirect effects are expected to result from increased vehicular traffic associated with the development of new roadways, causing mortalities; runoff from developed areas that could degrade habitat; habitat fragmentation as a result of urban and rural development and the construction of new roads and other infrastructure; introduction, establishment, and spread of invasive plant and animal species; and increased predation rates, particularly on eggs and young, from domestic pets and invasive wildlife species.

Under Alternative 3, the permanent loss of burrowing owl habitat would be offset by the protection and management of 16,213 acres and restoration of 4,126 acres of burrowing owl habitat.

The Plan establishes the goal of maintaining sufficient habitat to maintain or increase the population size of overwintering western burrowing owls in the Reserve System, and to promote the expansion of a breeding population of burrowing owls into the Reserve System. The protection, restoration, and management of suitable habitat for burrowing owl would be supported by the following objectives, conservation measures, and conditions.

- Objective BUOW-1.1, Protect and Manage Ground Squirrel Colonies
- CM1 BUOW-1, Protection of Ground Squirrel Colonies
- CM1 BUOW-2, Prioritization of Occupied Areas
- CM2 BUOW-1, Installation and Maintenance of Artificial Burrows on the Reserve System.
- General Condition 1, Watershed Hydrology and Water Quality
- General Condition 2, Conservation Lands: Development Interface Design Requirements
- General Condition 4, Temporary Effects
- General Condition 5, Conduct Worker Training
- Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects Construction BMPs
- Regional Public Projects Condition 3, Operation and Maintenance BMPs
- Species Condition 3, Western Burrowing Owl
  - Burrowing Owl 1—Requires preconstruction surveys
  - Burrowing Owl 2—Establishes avoidance buffers during the breeding season
  - Burrowing Owl 3—Establishes non-breeding season avoidance buffers
  - Burrowing Owl 4—Allows for passive exclusion during the non-breeding season
  - Burrowing Owl 5—Requires monitoring during construction

These objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. The conditions are described in Chapter 6 of the Plan.

**NEPA Determination:** The permanent loss of 15,559 acres and the temporary disturbance of 576 acres of burrowing owl habitat associated with Alternative 3, in the absence of other conservation actions, would constitute a potentially significant impact; however, with the proposed protection and restoration set forth by the Plan's goals, objectives, conservation measures, and conditions, the overall effects of Alternative 3 on burrowing owl in the Plan Area would be less than significant.

**CEQA Determination:** The permanent loss of 15,559 acres and the temporary disturbance of 576 acres of burrowing owl habitat associated with Alternative 3, in the absence of other conservation actions, would constitute a significant impact through the loss of habitat and potential mortality of a special-status species. The natural community restoration and protection together with conservation measures and conditions relevant to the long-term management of habitat for burrowing owl in the Plan Area support the conclusion that the impacts on burrowing owl under Alternative 3 would be less than significant. No mitigation has been identified.

**Impact BIO-24: Effects on tricolored blackbird (NEPA: less than significant; CEQA: less than significant)**

The CNDDB lists 14 extant occurrences of tricolored blackbird in the Plan Area, all but one of which occur in the Valley portion of the Plan Area (California Department of Fish and Wildlife 2017). The occurrence in the Foothills portion is at an elevation just above 300 feet. All the occurrences are either in the RAA or on existing reserves.

Covered Activities under Alternative 3, Reduced Take/Reduced Fill, would result in permanent and temporary impacts on tricolored blackbird. Permanent impacts are estimated at 796 acres of nesting habitat (17% of total habitat in Plan Area A) and 21,265 acres of foraging habitat (20% in Plan Area
A). These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. Most of the impacts on nesting and foraging habitat (76% and 81%, respectively) would be in the Valley portion of the Plan Area.

Temporary impacts on tricolored blackbird habitat are estimated at 100 acres of nesting habitat and 794 acres of foraging habitat. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Plan conservation actions may also temporarily disturb tricolored blackbird habitat in locations where grading, vegetation management, or other physical change to the habitat is required.

In addition to habitat losses, Covered Activities have the potential to directly affect tricolored blackbirds through injury and mortality. Operation of construction equipment may cause injury to or mortality of tricolored blackbirds. Risk would be greatest to eggs and nestlings susceptible to land-clearing activities through nest abandonment or increased exposure to the elements and to predators. Injury to or mortality of adults and fledged juveniles would not be expected because individuals would be expected to avoid contact with construction equipment. Construction activities could temporarily fragment existing tricolored blackbird habitat; grading, filling, contouring, and other initial ground-disturbing operations could temporarily reduce the extent and functions supported by the affected habitat.

Tricolored blackbird nesting behavior in the vicinity of proposed construction areas could be directly affected by construction activities. Construction noise above background noise levels (greater than 50 dBA) could extend 500–5,250 feet from the edge of construction activities. However, no data are available that identify the extent to which these noise levels could affect tricolored blackbird. Effects associated with construction include noise, dust, and visual disturbance caused by grading, filling, contouring, and other ground-disturbing operations outside the project footprint but within 1,300 feet of it. Construction and subsequent maintenance-related noise and visual disturbances could mask calls, disrupt foraging and nesting behaviors, and reduce the functions of suitable nesting habitat for these species. The use of mechanical equipment during Covered Activities could cause the accidental release of petroleum or other contaminants that could affect tricolored blackbirds in the surrounding habitat. The inadvertent discharge of sediment or excessive dust adjacent to tricolored blackbird habitat could also affect the species.

Indirect effects are expected to result from increased vehicular traffic associated with the development of new roadways, causing mortalities; runoff from developed areas that could degrade habitat; habitat fragmentation as a result of urban and rural development and the construction of new roads and other infrastructure; introduction, establishment, and spread of invasive plant and animal species; and increased predation rates, particularly on eggs and young, from domestic pets and invasive wildlife species.

Under Alternative 3, the permanent loss of tricolored blackbird nesting habitat would be offset by the protection and management of an estimated 908 acres and restoration of 170 acres of suitable tricolored blackbird nesting habitats. The loss of tricolored foraging habitat would be offset by the protection and management of up to 26,750 acres and restoration of 4,000 acres of suitable tricolored blackbird foraging habitats.

The Plan establishes the goal of maintaining habitat for a sustained population of tricolored blackbird in the Plan Area. The protection, restoration, and management of grasslands, vernal pool
complex, fresh emergent marsh, and agricultural lands would be supported by the following objectives, conservation measures, and conditions.

- Objective TRBL-1-1, Protect, Manage, and Enhance Tricolored Blackbird Nesting Habitat
- Objective TRBL-1.2, Protect, Restore, Manage, and Enhance Tricolored Blackbird Foraging Habitat
- Objective TRBL-1.3, Protect Tricolored Blackbird Colony Site
- Objective TRBL-1.4, Protect, Restore, Manage, and Enhance Tricolored Blackbird Foraging Habitat near Colony Sites
- Objective TRBL-1.5, Protect and/or Restore/Create Open Water near Tricolored Blackbird Colony Sites
- Objective TRBL-1.6, Restore Tricolored Blackbird Nesting Habitat.
- CM1 TRBL-1, Reserve Design for Tricolored Blackbird
- CM2 TRBL-1, Maintenance and Enhancement of Nesting Habitat for Tricolored Blackbird
- CM2 TRBL-2, Protection of Himalayan Blackberry Supporting Tricolored Blackbird Nest Colonies
- CM2 TRBL-3, Predator Management Plan
- CM3 TRBL-1, Tricolored Blackbird Habitat Restoration.
- General Condition 1, Watershed Hydrology and Water Quality
- General Condition 2, Conservation Lands: Development Interface Design Requirement
- General Condition 4, Temporary Effects
- General Condition 5, Conduct Worker Training
- Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects Construction BMPs
- Regional Public Projects Conditions 3, Operation and Maintenance BMPs
- Species Condition 4, Tricolored Blackbird
  - Tricolored Blackbird 1—requires preconstruction surveys during the nesting season
  - Tricolored Blackbird 2—requires preconstruction survey of foraging habitat within 3 miles of known colony site prior to initiation of Covered Activities.
  - Tricolored Blackbird 3—prohibits activity during the breeding season within a 1,300-foot buffer zone around the nest colony. This buffer may be modified to a minimum of 300 feet, with written approval from the Wildlife Agencies,
  - Tricolored Blackbird 4—prohibits activity during the nesting season if the area within 1,300 feet of a project site was found to be actively used as foraging habitat. This buffer may be modified to a minimum of 300 feet, with written approval from the Wildlife Agencies
  - Tricolored Blackbird 5—requires a biological monitor to be present on-site to ensure that no Covered Activities occur within the buffer zone established around an active tricolored blackbird nest colony.
- Tricolored Blackbird 6—active foraging habitat that occurs within the no-disturbance buffer shall be monitored by the qualified biologist(s) to verify that the Covered Activity is not disrupting tricolored blackbird foraging behavior.

These objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. The conditions are described in Chapter 6 of the Plan.

**NEPA Determination:** The permanent loss of 796 acres of nesting habitat and 21,265 acres of foraging habitat and the temporary disturbance of 100 acres of nesting habitat and 794 acres of foraging habitat associated with Alternative 3, in the absence of other conservation actions, would constitute a potentially significant impact; however, with the proposed protection and restoration set forth by the Plan’s goals, objectives, conservation measures, and conditions, the overall effects of Alternative 3 on tricolored blackbird in the Plan Area would be less than significant.

**CEQA Determination:** The permanent loss of 796 acres of nesting habitat and 21,265 acres of foraging habitat and the temporary disturbance of 100 acres of nesting habitat and 794 acres of foraging habitat associated with Alternative 3, in the absence of other conservation actions, would constitute a significant impact through the loss of habitat and potential mortality of a special-status species. The natural community restoration and protection together with conservation measures and conditions relevant to the long-term management of habitat for tricolored blackbird in the Plan Area support the conclusion that the impacts on tricolored blackbird under Alternative 3 would be less than significant. No mitigation has been identified.

**Impact BIO-25: Effects on non-covered bats (NEPA: less than significant with mitigation; CEQA: less than significant with mitigation)**

The CNDDB lists three occurrences of Townsend’s big-eared bat and one occurrence of pallid bat in the Plan Area (California Department of Fish and Wildlife 2017). At least 11 special-status bats are known to or could occur in the Plan Area (Townsend’s big-eared bat, pallid bat, spotted bat, silver-haired bat, western red bat, hoary bat, fringed myotis, Yuma myotis, long-eared myotis, long-legged myotis, and small-footed myotis). These bat species employ varied roost strategies, from solitary roosting in tree foliage to colonial roosting in trees, caves, mines, and artificial structures such as tunnels, buildings, and bridges. Various roost strategies also include night roosts, maternity roosts, migration stopover, and hibernation. The natural community/land cover types considered for the assessment of effects on bat roosting habitat comprise oak woodland and valley oak woodland (all types) and riverine/riparian. Because roosting habitat is by its nature the limiting factor for habitats’ ability to support bat populations, impacts on foraging habitat were not considered for the purposes of this analysis, although foraging habitat would benefit from the conservation actions proposed under the conservation strategy.

Covered Activities under Alternative 3, Reduced Take/Reduced Fill, would result in permanent and temporary impacts on roosting habitat for special-status bat species. Permanent impacts would result in the loss of up to 6,734 acres of tree-roosting habitat for bats (11% of suitable habitat in the Plan Area): 369 acres of riparian woodland, 140 acres of valley oak woodland, and 6,225 acres of oak woodland. In addition, bridge replacement and improvements could affect bats that utilize bridge weep holes and crevices for roosting. An unknown number of roost sites in artificial structures, orchards, and urban landscaping could also be affected.
Covered Activities would temporarily affect up to 318 acres of roosting habitat in the Plan Area. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Plan conservation actions that could temporarily affect special-status bats include grading and contouring to restore, create, and enhance riparian woodland and oak woodlands in reserves.

Permanent development within 500 feet of bat roosting habitat could cause alterations in behavior through visual and noise disturbances associated with both construction and normal ongoing human activities if bats are present. Recurring, periodic maintenance activities may indirectly (through noise and visual disturbance) affect roosting bats; activities such as vegetation management and bridge maintenance could result in harm or mortality to young and adults, as well as reduced reproductive success.

Under Alternative 3, the permanent and temporary loss of bat roosting habitat would be offset by the protection of 11,712 acres and restoration of 1,624 acres of covered species habitat that also support roosting habitat for special-status bats. In addition, the conservation strategy would protect and restore up to 48,720 acres of natural communities that provide foraging habitat (grassland, vernal pool complex, aquatic/wetland complex, riverine/riparian complex, oak woodland, valley oak woodland, agriculture) for special-status bats. The protection, restoration, and management of natural communities that provide roosting habitat for special-status bats would be supported by the following objectives, conservation measures, and conditions.

- CM1, Establish Reserve System
- CM1-L-3, Connectivity and Conservation within the Region
- CM1 L-4, Connectivity within the Plan Area
- CM1 NC-1, Siting restoration
- CM1 VPCG-1, Verna Pool Complex Protection
- CM1 VPCG-2, Reserve Design for Vernal Pool Restoration/Creation
- CM1 VPCG-3, Grassland Protection
- CM1 AW-1, Aquatic/Wetlands Complex Protection
- CM1 RAR-1, Riverine and Riparian Protection
- CM1 OW-1, Oak Woodland Protection
- CM1 OW-2, Siting Oak Woodlands Restoration
- CM1 AO-1, Ag Land and other Open Space Protection
- CM2, Manage and Enhance the Reserve System
- CM2 L-4, Maintenance and Enhancement of Reserve System Permeability
- CM2 RAR-1, Riparian Vegetation Management
- CM2 OW-1, Oak Woodland Vegetation Enhancement and Management
- CM2 AO-1, Provision of Patches of native Vegetation in Rice Lands.
- CM3, Restore and Create Natural Communities and Covered Species’ Habitat
- CM3 VPCG-1, Vernal Pool Complex Restoration/Creation
- CM3 VPCG-2, Grasslands Restoration
- CM3 AW-1, Aquatic/Wetlands Complex Restoration/Creation
- CM3 RAR-1, Riparian Natural Community Restoration
- CM3 OW-1, Oak Woodland Restoration,
- General Condition 1, Watershed Hydrology and Water Quality
- General Condition 2, Conservation Lands: Development Interface Design Requirements
- General Condition 4, Temporary Effects
- General Condition 5, Conduct Worker Training
- Community Condition 1, Wetland Avoidance and Minimization (Vernal Pool and Aquatic/Wetland Complex)
- Community Condition 2, Riverine and Riparian Avoidance and Minimization
- Community Condition 3, Valley Oak Woodland
- Stream System Condition 1, Stream System Avoidance
- Stream System Condition 2, Stream System Mitigation: Restoration
- Regional Public Projects Condition 1, Transportation and Other Infrastructure Projects Design Requirements
- Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects Construction BMPs
- Regional Public Projects Condition 3, Operations and Maintenance BMPs

Although they do not apply to non-covered special-status wildlife species, these conservation measures and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. In addition, Covered Activities, which includes urban/suburban development, transportation projects, and infrastructure projects, under Alternative 3 that affect occurrences and habitat of non-covered special-status wildlife would be mitigated on a project-by-project basis for discretionary projects. Ancillary benefits are also expected to occur for these wildlife species as a result of the Plan, because it would establish a comprehensive reserve management program that would enhance habitat conditions in a variety of natural communities that may support non-covered special-status wildlife. Any potential effects on these species from fuels management, vegetation management, and infrastructure operations and maintenance, though not likely subject to additional environmental review, would be offset because the entities implementing these projects would be participating in the Plan and contributing funds for the implementation of the conservation strategy. The implementation of conservation measures to create, restore, enhance, and manage riparian woodland, valley oak woodland, and oak woodland habitat, which may affect roosting bats, may not be subject to further approvals or review that may identify effects on roosting bats.

**NEPA Determination:** The permanent loss of 6,734 acres and temporary disturbance of 318 acres of potential roosting habitat for special-status bats associated with Alternative 3, in the absence of other conservation actions, would constitute a potentially significant impact; however, with the
proposed protection and restoration set forth by the Plan's goals, objectives, conservation measures, and conditions would ensure that habitat loss from Covered Activities, which include urban/suburban development, transportation projects, infrastructure projects, fuels management, vegetation management, and infrastructure operations and maintenance, would be compensated for and preserved habitat would be managed in perpetuity and thus the effects would be reduced to a less-than-significant level.

Conservation measures to create, restore, enhance, and manage riparian, valley oak woodland, and oak woodland habitat could affect roosting bats if these actions result in the trimming, removal, or disturbance of tree roosting habitat and if there are no opportunities to identify and avoid roosting bat habitat through subsequent NEPA review; therefore, these activities could have adverse impacts on special-status bats. Implementation of Mitigation Measure BIO-3 would reduce this effect to a less-than-significant level.

**CEQA Determination:** The permanent loss of 6,734 acres and temporary disturbance of 318 acres of potential roosting habitat for special-status bats associated with Alternative 3, in the absence of other conservation actions, would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. The natural community restoration and protection activities are expected to be concluded close enough to the timing of construction impacts to constitute mitigation for CEQA purposes. The proposed protection and restoration set forth by the Plan's goals, objectives, conservation measures, and conditions would ensure that habitat loss from Covered Activities, which include urban/suburban development, transportation projects, infrastructure projects, fuels management, vegetation management, and infrastructure operations and maintenance, would be compensated for and preserved habitat would be managed in perpetuity and thus the effects would be reduced to a less-than-significant level.

Conservation measures to create, restore, enhance, and manage riparian, valley oak woodland, and oak woodland habitat could affect roosting bats if these actions result in the trimming, removal, or disturbance of tree roosting habitat and if there are no opportunities to identify and avoid roosting bat habitat through subsequent CEQA review; therefore, these activities could have adverse impacts on special-status bats. Implementation of Mitigation Measure BIO-3 would reduce this effect to a less-than-significant level.

**Mitigation Measure BIO-3: Conduct preconstruction surveys for roosting bats and implement protective measures**

**Impact BIO-26: Effects on American badger, a non-covered species (NEPA: less than significant with mitigation; CEQA: less than significant with mitigation)**

There are no CNDDB records of American badger in the Plan Area (California Department of Fish and Wildlife 2017).

Covered Activities under Alternative 3, Reduced Take/Reduced Fill, would result in permanent and temporary impacts on American badger habitat. Permanent impacts would result in the loss of up to 7,040 acres of grasslands (20% of this community in Plan Area A) that are potential habitat for American badger. The majority of potential habitat is located in Plan Area A and would be lost primarily as a result of urban/suburban development, rural residential development, transportation projects, and infrastructure projects. These effects likely overestimate the extent of effects on habitat suitable for American badger because soils in the Valley portion of the Plan Area are less suitable because of the presence of dense clay soils, which are less likely to be used by badgers.
Covered Activities would temporarily affect up to 244 acres of American badger habitat (less than 1% of grasslands) in the Plan Area. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, infrastructure construction. Plan conservation actions that could temporarily affect American badger habitat include grading and contouring to restore, create, and enhance grasslands in reserves.

Permanent development within 500 feet of American badger habitat could cause alterations in behavior through visual and noise disturbances associated with both construction and normal ongoing activities. Recurring maintenance activities, such as transportation facility maintenance, utility service facilities maintenance, and vegetation management, may periodically affect American badger both directly and indirectly. Additional indirect effects are expected to result from increased vehicular traffic and the development of new roadways, causing mortalities; habitat fragmentation as a result of urban and rural development and the construction of new roads and other infrastructure; and the introduction, establishment, and spread of invasive plant and animal species.

Under Alternative 3, the permanent and temporary loss of American badger habitat would be partially offset by protection of 2,796 acres and restoration of 1,000 acres of grassland that could provide potential habitat for the species.

The protection, restoration, and management of natural communities that provide roosting habitat for special-status bats would be supported by the following objectives, conservation measures, and conditions.

- CM1, Establish Reserve System
- CM1-L-3, Connectivity and Conservation within the Region
- CM1 L-4, Connectivity within the Plan Area
- CM1 NC-1, Siting restoration
- CM1 VPCG-3, Grassland Protection
- CM2, Manage and Enhance the Reserve System
- CM2 L-4, Maintenance and Enhancement of Reserve System Permeability
- CM3, Restore and Create Natural Communities and Covered Species' Habitat
- CM3 VPCG-2, Grasslands Restoration
- General Condition 2, Conservation Lands: Development Interface Design Requirements
- General Condition 4, Temporary Effects
- General Condition 5, Conduct Worker Training
- Regional Public Projects Condition 1, Transportation and Other Infrastructure Projects Design Requirements
- Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects Construction BMPs
- Regional Public Projects Condition 3, Operations and Maintenance BMPs
Although they do not apply to non-covered special-status wildlife species, these objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. In addition, Covered Activities under Alternative 3 that affect habitat of non-covered special-status wildlife would be mitigated on a project-by-project basis for discretionary projects. Ancillary benefits for these wildlife species are also anticipated to result from Plan implementation, because it would establish a comprehensive reserve management program that would enhance habitat conditions in a variety of natural communities that may support non-covered special-status wildlife. Mitigation for impacts from projects that are not subject to discretionary review, including implementation of conservation measures to create and restore grassland habitat, is unlikely.

**NEPA Determination:** The permanent loss of 7,040 acres and temporary disturbance of 244 acres of grassland habitat suitable to support American badger associated with Alternative 3, in the absence of other conservation actions, would constitute a potentially significant impact. However, with the protection and restoration guided by the Plan’s goals, objectives, conservation measures, and conditions and the implementation of Mitigation Measure BIO-4, the overall effects of Alternative 3 on American badger would be less than significant.

**CEQA Determination:** The permanent loss of 7,040 acres and temporary disturbance of 244 acres of grassland habitat suitable to support American badger associated with Alternative 3, in the absence of other conservation actions, would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. The natural community restoration and protection activities are expected to be concluded close enough to the timing of construction impacts to constitute mitigation for CEQA purposes. The proposed protection and restoration set forth by the Plan’s goals, objectives, conservation measures, and conditions and implementation of Mitigation Measure BIO-4 would reduce permanent and temporary loss of American badger habitat and the potential mortality of the species to a less-than-significant level.

**Mitigation Measure BIO-4:** Conduct preconstruction survey for American badger

**Other Biological Resources**

**Impact BIO-27: Effects on protected wetlands and waters (NEPA: less than significant; CEQA: less than significant)**

Covered Activities under Alternative 3, Reduced Take/Reduced Fill, would result in permanent and temporary impacts on wetlands and waters protected under state and federal laws and regulations. Alternative 3 would result in approximately 1,249 acres of permanent impacts on constituent habitats (i.e., vernal pool, vernal pool–type wetland, fresh emergent marsh, lacustrine, non–vernal pool seasonal wetland, riparian, and riverine) that could contain or be considered protected wetlands and waters. These wetlands and many of these waters are considered special aquatic sites, as defined under Section 404, Subpart E of the Clean Water Act. In the Plan Area, these special aquatic sites include wetlands; riffle/pool complexes, which can be found in both intermittent and perennial streams; and vegetated shallows, which may occur on the edge of some of the perennial streams within the Plan Area. Some agricultural lands and water conveyance facilities (e.g., rice lands, canals, ditches) may be considered protected wetlands and waters that could be affected under Alternative 3. The acreage of wetlands that may occur agricultural lands in the Plan Area is not known at this time due to ongoing irrigation practices. Exact acreages of impacts would be determined based on project-level wetland delineations. For agricultural areas, determining the
acres of wetlands in these areas will require the ceasing of irrigation long enough for its influence on vegetation to subside. These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. Effects on wetlands and waters would occur primarily in the Valley portion of the Plan Area.

Temporary impacts on protected wetlands and waters mapped as constituent habitats would not exceed 287 acres. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Implementation of Plan conservation actions that could temporarily affect protected wetlands and waters include grading and vegetation management.

Permanent impacts on protected wetlands and waters under Alternative 3 would be offset through a watershed-based approach as described in the CARP. The CARP requires compensatory mitigation for impacts on aquatic resources to be implemented at a ratio of 1.52:1 through payment into an ILF program or purchase of mitigation credits at an agency-approved mitigation bank. Most of this mitigation would be achieved through the enhancement (rehabilitation) of wetlands and waters, and creation (establishment)/restoration (reestablishment) of 2,625 acres of constituent habitats that would be considered protected wetlands and waters as described in the Plan, except for a portion of the 1,188 acres of riparian habitat that would be restored, which may not be classified as a wetland. The preservation and establishment/reestablishment of wetlands and waters would be guided by the same objectives and conservation measures described above for vernal pool complex, aquatic/wetland complex, and riverine/riparian complex. Overall, the proposed wetland mitigation in the CARP would maintain or improve the functions and services of wetlands, including special aquatic sites, within the Plan Area.

Temporarily affected wetlands and waters would be restored through implementation of General Condition 4, Temporary Effects, which requires that temporarily affected areas be restored to pre-project conditions or better based on performance standards such as percent vegetative cover, restored topography, and restored hydrology.

The Plan includes several objectives and conservation measures to ensure that there would be no net loss of functions and services within the Plan Area, as listed in Table 4.1 of the CARP. These objectives and measures would ensure that preserved, enhanced, and established/re-established wetlands and waters maintain or improve the physical, chemical, and biological processes of wetlands in these landscapes, including nutrient cycling, vegetation structure, plant and animal diversity, habitat for rare species, and habitat linkages/corridors. The services that these wetlands provide would include such benefits as flood control, groundwater recharge, and maintenance of water quality in receiving waters.

Potential effects on protected wetlands and waters during construction and operations and maintenance will be avoided and minimized through implementation of General Condition 1, Community Conditions 1.3 and 1.5, and Regional Public Project Conditions 2 and 3. These conditions are described in Chapter 6 of the Plan. The CARP provides additional specific avoidance and minimization measures, summarized in Table 4.2 of that document.

These objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. The acres of protection and restoration and the commitment to ratios established in the CARP satisfy the typical mitigation that would be applied to the project-level effects, as well as mitigating the effects of the other
conservation measures. The proposed conditions further demonstrate the intent to avoid and minimize effects and to maintain or improve wetland and water functions and services over the life of the Plan.

**NEPA Determination:** The permanent loss of approximately 1,249 acres and temporary disturbance of 287 acres of constituent habitats that could contain or be considered protected wetlands and waters associated with Alternative 3, in the absence of other conservation actions, would constitute a potentially significant impact. The effects would be offset by the Plan’s commitment to mitigate at 1.5:1 for wetlands and 1.52:1 for riverine. As described in Table 4.1 of the CARP, the proposed mitigation would maintain or improve the functions and services of wetlands, including special aquatic sites, within the Plan Area. These objectives and measures would ensure that preserved, enhanced, and established/re-established wetlands and waters maintain or improve the physical, chemical, and biological processes of wetlands in these landscapes, including nutrient cycling, vegetation structure, plant and animal diversity, habitat for rare species, and habitat linkages/corridors. The services that these wetlands provide would include such benefits as flood control, groundwater recharge, and maintenance of water quality in receiving waters. General Condition 4 would ensure that temporarily affected wetlands and waters are restored to pre-project conditions or better based on performance standards. As described in Chapter 6 of the Plan, potential effects on wetlands and waters during construction would be avoided and minimized through the implementation of General Condition 1; Community Conditions 1.3 and 1.5; and Regional Public Project Conditions 2 and 3. Table 4.2 of the CARP includes additional avoidance and minimization measures for wetlands and waters. Considering these proposed conservation actions set forth by the Plan’s goals, objectives, conservation measures, and conditions, the overall effects of Alternative 3 on wetlands and waters in the Plan Area would be less than significant.

**CEQA Determination:** The permanent loss of approximately 1,249 acres and temporary disturbance of 287 acres of constituent habitats that could contain or be considered protected wetlands and waters associated with Alternative 3, in the absence of other conservation actions, would constitute a significant impact through loss of protected wetlands and waters in the Plan Area. The natural community creation, enhancement, restoration, and protection activities and mitigation commitments under the CARP, which includes a commitment to mitigate at 1.5:1 for wetlands and 1.52:1 for riverine, are more than sufficient to support the conclusion that the impacts on protected wetlands and waters under Alternative 3 would be less than significant. No mitigation has been identified.

**Impact BIO-28: Effects on fish and wildlife corridors (NEPA: less than significant; CEQA: less than significant)**

Figure 4.3-1 shows the PFG area under the Plan relative to ECAs mapped as part of the California Essential Habitat Connectivity Project. As seen in this figure, the Valley PFG area overlaps with portions of the Curry Creek–Coon Creek ECA and the Coon Creek–Bear River ECA. Several existing reserves fall within the Curry Creek–Coon Creek ECA, which runs north–south and is dominated by vernal pool complex, annual grassland, and rice lands. The Valley PFG bisects this ECA in two areas: one is north of Nicolaus Road and west of SR 65 and if built out entirely would result in a 0.75-mile separation between an existing vernal pool reserve to the north and vernal pool complex to the south. The other area is north of Sunset Boulevard and west of Fiddyment Road and if fully developed would create a 3-mile separation between vernal complex and grasslands north and south of this area. Buildout of this portion of the ECA under Alternative 3, Reduced Take/Reduced Fill, could isolate natural lands to the south in Roseville and to the southeast in the Plan Area.
A limited amount of additional rural residential development could take place along the southern edge of the Coon Creek–Bear River ECA, in the portion of the PFG around Sheridan, and in the area south of Camp Far West Reservoir; however, large areas of the ECA would be within the RAA and would be available for conservation efforts. Connectivity of similar habitat types within this ECA would remain intact if the PFG were fully developed. This ECA is dominated by vernal pool complex and grasslands in the west and south and oak woodland to the east and north. The ECA would largely support wildlife movement both within and to areas outside the Plan Area.

The southeastern edge of the Foothill PFG overlaps the western edge of the Marble Valley–Sawtooth Ride ECA in an area between Auburn Folsom Road on the west and Folsom Lake and the North Fork American River on the east. Most of the land cover in this area, dominated by oak woodland, is already protected as part of the Folsom Lake State Recreation Area and thus will likely remain suitable for wildlife movement.

The Plan includes several objectives and conservation measures to maintain and improve connectivity for the movement of covered species and other wildlife through the Plan Area. These measures include landscape-level objectives (Objectives L-1.1, L-2.1, L-2.2, L-2.3, and L-2.4) for establishing a large interconnected Reserve System that allows native and covered species to move within and outside of the Plan Area. These objectives would be met by most of the conservation measures that address natural community protection and restoration but in particular by CM1 L-3, Connectivity and Conservation within the Region; CM1 L-4, Connectivity within the Plan Area; CM2 L-4, Maintenance and Enhancement of Reserve System Permeability; and CM2 RAR-2, Removal and/or Modification of Barriers to Fish Passage. Wildlife dispersal and corridors would also be addressed at the project level through Regional Public Projects Condition 1, which includes conditions for transportation projects to minimize the creation of barriers to wildlife dispersal.

**NEPA Determination:** Alternative 3 would result in the isolation of some natural habitats that are currently linked with similar habitats in the western half of the Plan Area; such isolation would constitute a potentially adverse effect on wildlife corridors. However, with implementation of the objectives, conservation measures, and conditions established in the Plan and the CARP, the movement of fish and wildlife within and to areas outside the Plan Area would generally be improved over the life of the Plan. Consequently, the impact on wildlife corridors would be less than significant.

**CEQA Determination:** Alternative 3 would result in the isolation of some natural habitats that are currently linked with similar habitats in the western half of the Plan Area; such isolation would constitute a significant impact. However, with implementation of the objectives, conservation measures, and conditions under the established in the Plan and the CARP, the movement of fish and wildlife within and to areas outside the Plan Area would generally be improved over the life of the Plan. Consequently, the impact on wildlife corridors would be less than significant. No mitigation has been identified.

**Impact BIO-29: Effects of invasive plant species (NEPA: less than significant; CEQA: less than significant)**

Covered Activities under Alternative 3, Reduced Take/Reduced Fill, could have adverse effects on natural communities, wildlife, and native plants as a result of the introduction and spread of invasive plant species through development, operations, maintenance, and some conservation activities throughout the Plan Area. Invasive plant species threaten the diversity or abundance of native plant species through competition for resources, predation, parasitism, hybridization with
native populations, introduction of pathogens, and physical or chemical alteration of the invaded habitat. Unlike the native plants they displace, many invasive plant species do not provide the food, shelter, or other habitat components on which many native fish and wildlife species depend. Invasive species also have the potential to harm human health and the economy by adversely affecting natural ecosystems, water delivery, flood protection systems, recreation, agricultural lands, and developed areas.

The Plan addresses the potential effects of invasive plant species through implementation of CM2 L-1, Vegetation Management and Invasive Plant Control; CM2 VPCG-1, Vernal Pool Complex and Grassland Vegetation Management; CM3 VPCG-2, Grassland Restoration; CM2 AW-1, Aquatic/Wetlands Complex Vegetation Control; CM2 RAR-1, Riparian Vegetation Management; CM2 OW-1, Oak Woodland Vegetation Enhancement and Management, and CM2 OW-2, Control of Invasive Animals that Limit Oak Regeneration, all of which include measures to identify, remove, or manage invasive plant species.

The introduction of invasive plant species would be further avoided and minimized through General Condition 1, which includes specifications for the use of native seed mixtures for erosion control; General Condition 2, which requires the use of non-invasive plants in landscaping adjacent to reserve properties; Community Condition 2.1, which includes a requirement to handle and dispose of removed invasive plants to prevent further spread; and Regional Public Projects Condition 2, which includes post-construction BMPs to help avoid and minimize the introduction of invasive plants.

**NEPA Determination:** Alternative 3 has the potential to result in the introduction and spread of invasive plant species; however, implementation of the Plan’s objectives, conservation measures, and conditions would ensure that this effect is less than significant.

**CEQA Determination:** Alternative 3 has the potential to result in the introduction and spread of invasive plant species; however, implementation of the Plan’s objectives, conservation measures, and conditions would reduce this impact to a less-than-significant. No mitigation has been identified.

### Alternative 4—Reduced Permit Term

Alternative 4 would entail implementation of the Plan as under Alternative 2, except that the permit term would be 30 years instead of 50, resulting in less urban and suburban development within the permit term. The impacts by year 30 as shown in Table 2-5, *Land Development to Accommodate Growth for the 50-year Permit Term by 10-year Period*, in the Plan were used as the estimate of impacts under Alternative 4. As shown in Table 2-1, land development at year 30 for the Valley and Foothill portions of Plan Area A and Plan Area B would be 55%, 60%, and 95%, respectively, of those estimated by year 50. The individual impacts under Alternative 4 were developed by multiplying these percentages (the fractions) by the total impacts on natural communities, agricultural lands, and covered species under Alternative 2. The impacts on natural communities, covered species, and streams and salmonid habitat under Alternative 4 are presented in Tables H-11, H-12, and H-13 in Appendix H, respectively. The conservation acreages are presented in Table H-14 and H-15 in Appendix H.
Natural Communities

Impact BIO-1: Effects on vernal pool complex (NEPA: less than significant; CEQA: less than significant)

Covered Activities under Alternative 4, Reduced Permit Term, would result in permanent and temporary impacts on vernal pool complex. Permanent impacts on vernal pool complex totaling 6,928 acres would result primarily from urban/suburban development, a limited about of rural residential development, transportation projects, and infrastructure projects. These losses would occur primarily in the Valley portion of Plan Area A, with small losses occurring in the Foothill portion (60 acres) and Plan Area B (48 acres).

Existing vernal pool complexes could be permanently altered by the restoration/creation of a portion of the 495 acres of vernal pool–type wetlands in these complexes through implementation of the conservation strategy. As described in CM3 VPCG-1, the Plan would allow vernal pool–type wetlands to be created/restored in up to 6,000 acres of existing vernal pool complex that can accommodate additional wetlands, typically in existing low- and medium-density vernal pool complexes (i.e., with less than 5% density of existing vernal pool-type wetlands), as well as in grasslands without existing vernal pools where there is evidence of vernal pools in the past and agricultural lands (e.g., field crops and rice lands). According to CM1 VPCG-1 and CM2 VPCG-2, some of this restoration and enhancement may also be undertaken in existing vernal pool–type wetlands to improve degraded conditions. If vernal pool restoration/creation is to be implemented in existing vernal pool complexes, these activities could affect upland resources and the hydrologic balance of the existing pools in these complexes.

To address these concerns, the Plan includes the following language in CM1 VPCG-2.

- Any sites identified for restoration/creation will not affect any vernal pools onsite.
- Sufficient land is available for protection to provide the necessary vernal pool complex restoration/creation, including surrounding grasslands, to ensure the local watershed is sustaining vernal pool hydrology.
- Vernal pool density is representative of intact vernal pool complex in the vicinity of the restoration site. Restoration will not result in a density of vernal pools greater than 10% density, unless it can be demonstrated by historical or other data (e.g., aerial photograph) that a higher density is appropriate. The intention is to mimic historic conditions for high value vernal pool complexes.

Furthermore, CM3 VPCG-2 states:

Creation of vernal pools within a vernal pool complex of existing pools can alter the hydrology of the existing pools and can affect ground-nesting bees and other upland plants and animals (U.S. Fish and Wildlife Service 2005). To minimize effects to existing vernal pool complexes, vernal pools will only be created in areas where they will be isolated hydrologically from existing pools and when adequate amounts of surrounding upland habitat are protected, as demonstrated in site-level restoration plans.

Temporary impacts of Covered Activities on vernal pool complex would not exceed 255 acres. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Conservation actions of Plan implementation under Alternative 4 that could temporarily affect vernal pool complex include
Placer County Conservation Program
Draft EIR/DEIS
December 2018
ICF 04406.04

Placer County Conservation Program
Public Draft
4.3-173

Placer County
Environmental Consequences
Biological Resources

restoration and enhancement actions such as grading and contouring to restore, create, and enhance vernal pool–type wetlands in reserves.

Indirect impacts on vernal pool complex could result from a variety of activities on adjoining land uses that change the hydrology of a complex as well as construction activities in the Plan Area, such as grading, trenching, and changes to topography. Indirect effects on vernal pools are generally considered to occur when ground-disturbing activities take place within 250 feet of a vernal pool—more specifically, when it can be demonstrated that the hydrology supporting a pool has been altered. Indirect effects on vernal pool complexes were estimated in the Plan at approximately 15% of direct effects (permanent and temporary combined), which would be approximately 1,077 acres under Alternative 4. These indirect effects could adversely affect the functions and services of vernal pool–type wetlands and supporting uplands in vernal pool complexes.

Permanent loss of vernal pool complex under Alternative 4 would be offset by the protection and management of 9,350 acres, improving the overall functions and services of vernal pools, and the restoration/creation of 1,650 acres of vernal pool complex in reserves within the Plan Area. The protection and restoration of vernal pool complex would be supported by the following objectives and conservation measures.

- Objective VPCG-1.1, Protect Existing Vernal Pool Complexes
- CM1 L-2, Reserve Acquisition Strategy
- CM1 L-4, Connectivity within Plan Area
- CM1 VPCG-1, Vernal Pool Complex Protection
- CM1 VPCG-2, Reserve Design for Vernal Pool Restoration/Creation
- CM2 L-1, Vegetation Management and Invasive Plant Control
- CM2 L-3, Develop and Implement Fire Management Plans
- CM2 VPCG-1, Vernal Pool Complex Enhancement and Hydrologic Conditions
- CM3 VPCG-1, Vernal Pool Complex Restoration/Creation
- CM4 L-1, Low-Impact Development Standards
- CM4 VPCG-1, Conduct Outreach to Private Landowners

Temporarily affected vernal pool complexes would be restored through implementation of General Condition 4, Temporary Effects, which requires that temporarily affected areas be restored to pre-project conditions or better based on performance standards such as percent vegetative cover, restored topography, and restored hydrology.

Potential effects on vernal pool complex during construction and operations and maintenance would be avoided and minimized through the implementation of General Conditions 1, 2, and 4; Community Conditions 1.1, 1.2, 1.3, 1.4, and 1.5; and Regional Public Project Conditions 2 and 3. These conditions are described in Chapter 6 of the Plan.

These objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. The proposed landscape-level conservation of 11,000 acres of vernal complexes, including enhancement of degraded conditions in existing complexes and long-term management of these resources, would mitigate the effects of the
proposed action. The proposed conditions further demonstrate the intent to avoid and minimize effects over the life of the Plan.

**NEPA Determination:** The permanent loss of 6,928 acres and temporary disturbance of 255 acres of vernal pool complex associated with Alternative 4, in the absence of other conservation actions, would constitute a potentially significant impact. These effects would be offset by the Plan’s commitment to conserve 11,000 acres of vernal pool complex. As described in Chapter 5 of the Plan, Objective VPCG-1.1 and Conservation Measures CM1 L-2, CM1 L-4, CM1 VPCG-1, CM1 VPCG-2, CM2 L-1, CM2 L-3, CM2 VPCG-1, CM3 VPCG-1, CM4 L-1, and CM4 VPCG-1 would guide the implementation of vernal pool complex creation, enhancement, restoration, and protection by ensuring that reserve lands are established in large, interconnected blocks that result in no net loss of wetlands and provide sufficient upland habitat to facilitate the conservation and recovery of covered vernal pool branchiopods. These measures would ensure that the reserves are managed in perpetuity for the benefit of covered and native species. As described in Chapter 6 of the Plan, potential effects on vernal pool complexes during construction would be avoided and minimized through the implementation of General Conditions 1, 2, and 4; Community Conditions 1.1, 1.2, 1.3, 1.4, and 1.5; and Regional Public Project Conditions 2 and 3. Considering these proposed conservation actions set forth by the Plan's goals, objectives, conservation measures, and conditions, the overall effects of Alternative 4 on vernal pool complex in the Plan Area would be less than significant.

**CEQA Determination:** The permanent loss of 6,928 acres and temporary disturbance of 255 acres of vernal pool complex associated with Alternative 4, in the absence of other conservation actions, would constitute a significant impact through loss of a natural community in the Plan Area. The natural community creation, enhancement, restoration, and protection together with conservation measures and conditions pertaining to the long-term management of vernal pool complex in the Plan Area support the conclusion that the impacts of Alternative 4 on vernal pool complex would be less than significant. No mitigation has been identified.

**Impact BIO-2: Effects on grassland (NEPA: less than significant; CEQA: less than significant)**

Covered Activities under Alternative 4, Reduced Permit Term, would result in both permanent and temporary impacts on the grassland natural community. Permanent impacts on grasslands would total 3,945 acres of the grassland in Plan Area A, resulting primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. These losses would be roughly split between the Valley and Foothill portions of Plan Area A (i.e., 1,870 and 1,980 acres, respectively), and approximately 95 acres would be lost in Plan Area B. An unknown amount of grassland may also be permanently converted to wetlands as part of vernal pool complex restoration, riparian restoration, marsh restoration, and oak woodland restoration. Exact amounts of grassland that would be converted to other natural communities is not known at this time, but these could comprise up to 1,650 acres if all the vernal pool complex restoration/creation were to be undertaken in the grassland community.

Temporary impacts on grasslands from Covered Activities would not exceed 142 acres. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Conservation actions through Plan implementation under Alternative 4 could also temporarily disturb grasslands at grading or vegetation management locations.
Permanent loss of grassland under Alternative 4 would be partially offset by the protection and management of 1,627 acres and the restoration of 550 acres of grasslands in reserves in the Plan Area. The protection and restoration of grasslands would be supported by the following objectives and conservation measures.

- Objective VPCG-1.3, Protect Grasslands
- Objective VPCG-1.4, Restore Grasslands
- CM2 VPCG-3, Grassland Protection
- CM3 VPCG-2, Grassland Restoration
- CM1 L-2, Reserve Acquisition Strategy
- CM2 L-1, Vegetation Management and Invasive Plant Control
- CM2 L-3, Develop and Implement Fire Management Plans

Because grasslands are a component of vernal pool complexes, the effects on grasslands would also be offset by the protection and restoration of 11,000 acres of vernal pool complex.

Temporarily affected grasslands would be restored with implementation of General Condition 4, Temporary Effects, which requires that temporarily affected areas be restored to pre-project conditions or better based on performance standards such as percent vegetative cover and restored topography.

These objectives, conservation measures, and the general condition establish performance standards for measuring the effectiveness of proposed conservation actions.

**NEPA Determination:** The permanent loss of 3,945 acres and temporary disturbance of 142 acres of grassland associated with Alternative 4, in the absence of other conservation actions, would constitute a potentially significant impact; however, with the protection and restoration guided by the Plan’s goals, objectives, conservation measures, and conditions, the overall effects of Alternative 4 on grasslands in the Plan Area would be less than significant.

**CEQA Determination:** The permanent loss of 3,945 acres and temporary disturbance of 142 acres of grassland associated with Alternative 4, in the absence of other conservation actions, would constitute a significant impact through loss a natural community in the Plan Area. The natural community restoration and protection activities would constitute adequate mitigation for CEQA purposes. The conservation measures for grasslands, in addition to those for vernal pool complexes, are more than sufficient to support the conclusion that the impacts of Alternative 4 on grassland would be less than significant. No mitigation has been identified.

**Impact BIO-3: Effects on aquatic/wetland complex (NEPA: less than significant; CEQA: less than significant)**

Covered Activities under Alternative 4, Reduced Permit Term, would result in permanent and temporary impacts on the aquatic/wetland complex natural community. Permanent impacts on aquatic/wetland complex would total 154 acres: 62 acres of fresh emergent marsh, 60 acres of lacustrine, and 31 acres of non-vernial pool seasonal wetlands. These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. These losses would be roughly split between the Valley and Foothill portions.
of Plan Area A (i.e., 66 and 78 acres, respectively), and approximately 10 acres would be lost in Plan Area B.

Temporary impacts on aquatic/wetland complex from Covered Activities would not exceed 68 acres. These impacts—comprising 32 acres of fresh emergent marsh, 18 acres of lacustrine, and 17 acres of non–vernal pool seasonal wetlands—would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Plan conservation actions may also temporarily disturb aquatic/wetland complex where grading, vegetation management, or other physical change to the natural community is required.

Permanent loss of aquatic/wetland complex under Alternative 4 would be offset by the protection and management of 340 acres, improving the overall functions and services of wetlands, and the restoration/creation of 238 acres of aquatic/wetland complex in reserves in the Plan Area. The protection and restoration of aquatic/wetland complex would be supported by the following objectives and conservation measures.

- Objective AW-1.1, Protect Aquatic/Wetlands Complex Natural Community
- CM1 L-2, Reserve Acquisition Strategy
- CM1 AW-1, Aquatic/Wetlands Protection
- CM2 L-1, Vegetation Management and Invasive Plant Control
- CM2 AW-1, Aquatic/Wetlands Complex Vegetation Control
- CM2 AW-2, Fencing Wetlands and Ponds
- CM2 AW-3, Sediment Removal
- CM2 AW-6, Provision of Vegetative Cover
- CM 2 AW-8, Maintenance and Enhancement of Water Quality
- CM3 AW-1, Aquatic/Wetlands Complex Restoration/Creation
- CM4 AW-1, Conduct Public Outreach

Temporarily affected aquatic/wetlands complex would be restored through implementation of General Condition 4, Temporary Effects, which requires that temporarily affected areas be restored to pre-project conditions or better based on performance standards, such as percent vegetative cover, restored topography, and restored hydrology within 1 year.

Potential effects on aquatic/wetlands complex during construction and operations and maintenance would be avoided and minimized through implementation of General Condition 1, Community Conditions 1.3 and 1.5, and Regional Public Project Conditions 2 and 3. These conditions are described in Chapter 6 of the Plan.

These objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. The acres of protection and restoration satisfy the typical mitigation that would be applied to the project-level effects, as well as mitigating the effects of the other conservation measures. The proposed conditions further demonstrate the intent to avoid and minimize effects over the life of the Plan.
NEPA Determination: The permanent loss of 154 acres and temporary disturbance of 68 acres of aquatic/wetland complex associated with Alternative 4, in the absence of other conservation actions, would constitute a potentially significant impact. These effects would be offset by the Plan's commitment to conserve 578 acres of aquatic/wetland complex. As described in Chapter 5 of the Plan, Objective AW-1.1 and Conservation Measures CM1 L-2, CM1 AW-1, CM2 L-1, CM2 AW-2, CM2 AW-3, CM2 AW-6, CM 2 AW-8, CM3 AW-1, and CM4 AW-1 would guide the implementation of aquatic/wetland complex creation, enhancement, restoration, and protection by ensuring that a range of aquatic and wetland types are conserved and will increase the acreage and ecological function of wetland and aquatic communities in the Plan Area. These measures would ensure that the reserves are managed in perpetuity for the benefit of covered and native species. As described in Chapter 6 of the Plan, potential effects on aquatic/wetland complexes during construction would be avoided and minimized through the implementation of General Condition 1; Community Conditions 1.3 and 1.5, and Regional Public Project Conditions 2 and 3. Considering these proposed conservation actions set forth by the Plan's goals, objectives, conservation measures, and conditions, the overall effects of Alternative 4 on aquatic/wetland complex in the Plan Area would be less than significant. 

CEQA Determination: The permanent loss of 154 acres and temporary disturbance of 68 acres of aquatic/wetland complex associated with Alternative 4, in the absence of other conservation actions, would constitute a significant impact through loss a natural community in the Plan Area. The natural community creation, enhancement, restoration, and protection activities would constitute adequate mitigation for CEQA purposes. The conservation measures and conditions relevant to aquatic/wetland complex are more than sufficient to support the conclusion that the impacts of Alternative 4 on aquatic/wetland complex would be less than significant. No mitigation has been identified.

Impact BIO-4: Effects on riverine/riparian complex (NEPA: less than significant; CEQA: less than significant)

Covered Activities under Alternative 4, Reduced Permit Term, would result in permanent and temporary impacts on the riverine/riparian complex natural community. Permanent impacts on riverine/riparian complex would total 290 acres: 67 acres of riverine and 223 acres of riparian. These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. A total of 83 acres would be lost in the Valley portion of Plan Area A, 198 acres in the Foothill portion, and 10 acres in Plan Area B. As discussed in Section 3.4.5, Riverine/Riparian Complex, if the Plan, because of limitation in mapping, not all the area mapped as riverine habitat consists of the wetted stream width but includes grasslands, valley oak woodland, fresh emergent wetland, off-channel wetlands, and seasonal wetlands. Unlike land conversion where the natural community would be converted by Covered Activities, in-stream activities would leave the stream channel intact and in some cases in an improved condition.

The descriptions of in-stream activities identified in Chapter 2, Covered Activities, and Section 4.4.1.6, In-Stream Programs Effects, of the Plan show that the actual activities within riverine habitat would be implemented along short segments, typically on the order of 100 feet, at multiple locations throughout the Plan Area. Covered Activities that would have quantifiable effects on streams consist of road crossings, pipelines not associated with road crossings (i.e., those pipelines going beneath streams and not attached to a bridge), and water supply, flood control, and fish passage
enhancement projects. Of these, road crossings would account for the majority of permanent effects on streams.

Temporary impacts on riverine/riparian complex from Covered Activities would not exceed 103 acres. These impacts, comprising 32 acres of riverine and 71 acres of riparian, would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, infrastructure construction. Conservation actions through Plan implementation may also temporarily disturb riverine/riparian complex when grading, vegetation management, or other physical change to the natural community is required.

Permanent loss of riverine/riparian complex under Alternative 4 would be offset by the protection and management of 1,240 acres, improving the overall functions and services of these waters, and the restoration/creation of 827 acres of riverine/riparian complex in reserves in the Plan Area. The protection and restoration of riverine/riparian complex would be supported by the following objectives and conservation measures.

- Objective RAR-1.1, Protect Riverine/Riparian Complex
- Objective RAR-1.3, Restore Riverine/Riparian Complex
- CM1 L-2, Reserve Acquisition Strategy
- CM1 RAR-1, Riverine and Riparian Protection
- CM1 RAR-2, Reserve Design for Riparian Restoration
- CM2 L-1, Vegetation Management and Invasive Plant Control
- CM2 RAR-1, Riparian Vegetation Management
- CM3 RAR-1, Riparian Natural Community Restoration

Temporarily affected riverine/riparian complex would be restored through implementation of General Condition 4, Temporary Effects, which requires that temporarily affected areas be restored to pre-project conditions or better based on performance standards such as percent vegetative cover, restored topography, and restored hydrology.

Potential effects on riverine/riparian complex during construction and operations and maintenance will be avoided and minimized through the implementation of General Condition 1, Community Conditions 2.1, 2.2, 2.3, and 2.4, Stream Conditions 1 and 2, and Regional Public Project Conditions 2 and 3. These conditions are described in Chapter 6 of the Plan.

These objectives, conservation measures, and conditions establish performance standards for considering the effectiveness of proposed conservation actions. The acres of protection and restoration satisfy the typical mitigation that would be applied to the project-level effects, as well as mitigating the effects of the other conservation measures. The proposed conditions further demonstrate the intent to avoid and minimize effects over the life of the Plan.

**NEPA Determination:** The permanent loss of 290 acres and temporary disturbance of 103 acres of riverine/riparian complex associated with Alternative 4, in the absence of other conservation actions, would constitute a potentially significant impact. These effects would be offset by the Plan’s commitment to conserve 2,067 acres of riverine/riparian complex. As described in Chapter 5 of the Plan, Objectives RAR-1.1 and RAR-1.3, and Conservation Measures CM1 L-2, CM1 RAR-1, CM1 RAR-
2, CM2 L-1, CM2 RAR-1, and CM3 RAR-1 would guide the implementation of riverine/riparian complex creation, enhancement, restoration, and protection by ensuring large intact riparian stands are protected, riverine habitat next to preserves are protected, invasive species are managed, in-stream habitat for fish and wildlife is enhanced, and areas are restored with native species. These measures would ensure that the reserves are managed in perpetuity for the benefit of covered and native species. As described in Chapter 6 of the Plan, potential effects on riverine/riparian complexes during construction would be avoided and minimized through the implementation of General Condition 1; Community Conditions 2.1, 2.2, 2.3, and 2.4; Stream Conditions 1 and 2; and Regional Public Project Conditions 2 and 3. Considering these proposed conservation actions set forth by the Plan's goals, objectives, conservation measures, and conditions, the overall effects of Alternative 4 on riverine/riparian complex in the Plan Area would be less than significant.

**CEQA Determination:** The permanent loss of 290 acres and temporary disturbance of 103 acres of riverine/riparian complex associated with Alternative 4, in the absence of other conservation actions, would constitute a significant impact through loss of a natural community in the Plan Area. The natural community creation, enhancement, restoration, and protection activities would constitute adequate mitigation for CEQA purposes. The conservation measures and conditions relevant to riverine/riparian complex are more than sufficient to support the conclusion that the impacts of Alternative 4 on riverine/riparian complex would be less than significant. No mitigation has been identified.

**Impact BIO-5: Effects on oak woodland (NEPA: less than significant; CEQA: less than significant)**

Covered Activities under Alternative 4, Reduced Permit Term, would result in permanent and temporary impacts on the oak woodland natural community. Permanent impacts on oak woodland would total 3,680 acres. These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. A total of 611 acres would be lost in the Valley portion of Plan Area A, 3,060 acres in the Foothill portion, and 10 acres in Plan Area B.

Temporary impacts on oak woodland from Covered Activities would not exceed 108 acres—less than 1% of the community present in Plan Area A. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Conservation actions through Plan implementation may also temporarily disturb oak woodland where grading, vegetation management, or other physical change to the natural community is required.

Permanent loss of oak woodland under Alternative 4 would be offset by the protection and management of 6,061 acres and the restoration of 58 acres of oak woodland in reserves in the Plan Area. The protection and restoration of oak woodland would be supported by the following objectives and conservation measures.

- Objective RAR-1.3, Restore Riverine/Riparian Complex
- Objective OW-1.1, Protect Oak Woodlands
- CM1 L-2, Reserve Acquisition Strategy
- CM1 OW-1, Oak Woodland Protection
- CM1 OW-2, Reserve Design for Oak Woodland Restoration
- CM2 L-1, Vegetation Management and Invasive Plant Control
- CM2 OW-1, Oak Woodland Vegetation Enhancement and Management
- CM2 OW-2, Control of Invasive Animals that Limit Oak Regeneration
- CM3 OW-1, Oak Woodland Restoration

Temporarily affected riverine/riparian complex would be restored with the implementation of General Condition 4, Temporary Effects, which requires that temporarily affected areas be restored to pre-project conditions or better based on performance standards such as percent vegetative cover and restored topography.

Potential effects on oak woodlands during construction and operations and maintenance would be avoided and minimized through implementation of General Condition 1 and Regional Public Project Conditions 2 and 3. These conditions are described in Chapter 6 of the Plan.

These objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. The acres of protection and restoration satisfy the typical mitigation that would be applied to the project-level effects, as well as mitigating the effects of the other conservation measures. The proposed conditions further demonstrate the intent to avoid and minimize effects over the life of the Plan.

**NEPA Determination:** The permanent loss of 3,680 acres and temporary disturbance of 108 acres of oak woodland associated with Alternative 4, in the absence of other conservation actions, would constitute a potentially significant impact; however, with the protection and restoration guided by the Plan's goals, objectives, conservation measures, and conditions, the overall effects of Alternative 4 on oak woodland in the Plan Area would be less than significant.

**CEQA Determination:** The permanent loss of 3,680 acres and temporary disturbance of 108 acres of oak woodland associated with Alternative 4, in the absence of other conservation actions, would constitute a significant impact through loss of a natural community in the Plan Area. The natural community restoration and protection activities would constitute adequate mitigation for CEQA purposes. The conservation measures and conditions relevant to riverine/riparian complex are more than sufficient to support the conclusion that the impacts of Alternative 4 on oak woodland would be less than significant. No mitigation has been identified.

**Impact BIO-6: Effects on valley oak woodland (NEPA: less than significant; CEQA: less than significant)**

Covered Activities under Alternative 4, Reduced Permit Term, would result in permanent and temporary impacts on the valley oak woodland natural community. Permanent impacts on valley oak woodland would total 86 acres. These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. A total of 17 acres would be lost in the Valley portion of Plan Area A, 60 acres in the Foothill portion, and 10 acres in Plan Area B.

Temporary impacts on valley oak woodland from Covered Activities would not exceed 16 acres. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Conservation actions
through Plan implementation may also temporarily disturb valley oak woodland when grading, vegetation management, or other physical change to the natural community is required.

Permanent loss of valley oak woodland under Alternative 4 would be offset by the protection and management of 110 acres and the restoration of 157 acres of valley oak woodland in reserves in the Plan Area. The protection and restoration of oak woodland would be supported by the following objectives and conservation measures.

- Objective RAR-1.3, Restore Riverine/Riparian Complex
- Objective OW-1.1, Protect Oak Woodlands
- CM1 L-2, Reserve Acquisition Strategy
- CM1 OW-1, Oak Woodland Protection
- CM1 OW-2, Reserve Design for Oak Woodland Restoration
- CM2 L-1, Vegetation Management and Invasive Plant Control
- CM2 OW-1, Oak Woodland Vegetation Enhancement and Management
- CM2 OW-2, Control of Invasive Animals that Limit Oak Regeneration
- CM3 OW-1, Oak Woodland Restoration

Temporarily affected riverine/riparian complex would be restored through implementation of General Condition 4, Temporary Effects, which requires that temporarily affected areas be restored to pre-project conditions or better based on performance standards such as percent vegetative cover and restored topography.

Potential effects on valley oak woodlands during construction and operations and maintenance would be avoided and minimized through the implementation of General Condition 1 and Regional Public Project Conditions 2 and 3. These conditions are described in Chapter 6 of the Plan.

These objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. The acres of protection and restoration satisfy the typical mitigation that would be applied to the project-level effects, as well as mitigating the effects of the other conservation measures. The proposed conditions further demonstrate the intent to avoid and minimize effects over the life of the Plan.

**NEPA Determination:** The permanent loss of 86 acres and temporary disturbance of 16 acres of valley oak woodland associated with Alternative 4, in the absence of other conservation actions, would constitute a potentially significant impact; however, with the protection and restoration guided by the Plan’s goals, objectives, conservation measures, and conditions, the overall effects of Alternative 4 on valley oak woodland in the Plan Area would be less than significant.

**CEQA Determination:** The permanent loss of 86 acres and temporary disturbance of 16 acres of valley oak woodland associated with Alternative 4, in the absence of other conservation actions, would constitute a significant impact through loss of a natural community in the Plan Area. The natural community restoration and protection activities would constitute adequate mitigation for CEQA purposes. The conservation measures and conditions relevant to valley oak woodland are more than sufficient to support the conclusion that the impacts under Alternative 4 on valley oak woodland would be less than significant. No mitigation has been identified.
**Special-Status Plants**

**Impact BIO-7: Effects on special-status plants in vernal pool habitats (NEPA: less than significant with mitigation; CEQA: less than significant with mitigation)**

Special-status plant species that grow in vernal pools and are known to occur in the Plan Area region include dwarf downingia, Boggs Lake hedge-hyssop, hogswallow starfish, Ahart’s dwarf rush, Red Bluff dwarf rush, legenere, pincushion navarretia, and adobe navarretia. There are known occurrences in the Plan Area for all these species. Table 4.3-1 shows the numbers of these recorded occurrences in each Plan Area component (California Department of Fish and Wildlife 2017; Consortium of California Herbaria 2017a; Preston pers. comm.).

Covered Activities under Alternative 4, Reduced Permit Term, would result in permanent and temporary impacts on vernal pool habitat for special-status plants. Plan Area A includes 45,065 acres of vernal pool complex that are potential habitat for these species. In the Valley portion of the Plan Area, permanent impacts would total 314 acres of vernal pool-type wetland habitat within 6,820 acres of vernal pool complex (approximately 15% of the vernal pool complex community in Plan Area A). These impacts would result primarily from urban/suburban development, transportation projects, and infrastructure projects. Known occurrences of dwarf downingia (three), and pincushion navarretia (one) could be removed as a result of such projects. In Plan Area B, permanent impacts on vernal pool-type wetlands from Covered Activities in non-participating cities would total 10 acres. Known occurrences of dwarf downingia (nine), Boggs Lake hedge-hyssop (two), and legenere (one) could be removed as a result of these Covered Activities. One occurrence of Red Bluff dwarf rush could also be affected; however, this record of the species is questionable and may be due to a misidentification of another species as Red Bluff dwarf rush. Additional undiscovered occurrences of special-status vernal pool plants could be removed in the Plan Area as a result of project construction in Plan Areas A and B.

No vernal pool complex would be permanently affected in the Foothills portion of the Plan Area, and there are no recorded occurrences of special-status vernal pool plant species in this area.

An unknown amount of vernal pool complex wetland habitat may be permanently altered by the restoration/creation of a portion of the 495 acres of vernal pool, seasonal wetland, and seasonal swale wetlands included in implementation of the Plan’s conservation strategy. If vernal pool restoration/creation is to take place in existing vernal pool complexes, these activities could affect existing wetland habitat, as well as upland resources and the hydrologic balance of the existing pools in these complexes. However, implementation of CM1 VPCG-2, Vernal Pool Complex Enhancement and Hydrologic Conditions, and CM3 VPCG-2, Grassland Restoration, would prevent restoration/creation from affecting existing vernal pools by ensuring that the local watershed is sufficient to support additional pools and that adequate upland habitat around existing pools is protected.

Temporary impacts of Covered Activities on vernal pool wetland habitat for special-status plants would not exceed 14 acres in the Valley portion of the Plan Area and 5 acres in Plan Area B. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Temporary effects associated with fuels management, vegetation management, and infrastructure operations and maintenance would occur in areas previously disturbed by similar activities (e.g., existing fire breaks, areas previously disturbed by infrastructure construction), and therefore the likelihood of...
rare plants occurring in these areas is low. Some conservation actions through Plan implementation under Alternative 4 may also temporarily disturb vernal pool wetland habitat for special-status plants where grading or vegetation management, or other physical change is required.

Indirect impacts on vernal pool communities and wetland habitat in the Plan Area that support special-status plants could result from construction activities such as grading and removal of vegetation. These activities could adversely affect habitat function for special-status plants by altering the topography and hydrology that support vernal pools and wetland habitat.

Permanent loss of vernal pool habitat for special-status plants resulting from Covered Activities under Alternative 4 would be offset by the protection and management of 9,350 acres and restoration of 1,650 acres of vernal pool complex in reserves in the Plan Area. Within these areas, 435 acres of vernal pool-type wetlands would be protected and up to 495 acres restored. Known occurrences of dwarf downingia (four) and legenere (one) are within the RAA. Known occurrences of dwarf downingia (two), Boggs Lake hedge-hyssop (one), Ahart’s dwarf rush (one), and adobe navarretia (two) are already protected on existing reserves in the Plan Area. The protection and restoration of vernal pool habitat for special-status plants would be supported by the following conservation measures.

- CM1 L-2, Reserve Acquisition Strategy
- CM1 VPCG-1, Vernal Pool Complex Protection
- CM1 VPCG-2, Reserve Design for Vernal Pool Restoration/Creation
- CM1 AW-1, Aquatic/Wetlands Complex Protection
- CM2 L-1, Vegetation Management and Invasive Plant Control
- CM2 L-3, Develop and Implement Fire Management Plans
- CM2 VPCG-1, Vernal Pool complex and Grassland Vegetation Management
- CM2 AW-1, Aquatic/Wetlands Complex Vegetation Control
- CM2 AW-3, Sediment Removal
- CM3 VPCG-1, Vernal Pool Complex Restoration/Creation

Temporarily affected vernal pool habitat for special-status plants would be restored through implementation of General Condition 4, Temporary Effects, which requires that temporarily affected areas be restored to pre-project conditions or better, based on performance standards such as percent vegetative cover, restored hydrology, and restored topography.

Implementation of Community Condition 1, Wetland Avoidance and Minimization (Vernal Pool and Aquatic/Wetland Complex), and the specific measures contained in the condition would protect the hydrology and habitat quality of vernal pool habitat for special-status plants. Community Condition 1.4 would potentially offset loss of special-status plants through the salvaging of seed from affected pools for creation and restoration elsewhere.

Although they do not apply to non-covered special-status plant species, these conservation measures and conditions establish performance standards for considering the effectiveness of proposed conservation actions. In addition, the impacts of Covered Activities, which include urban/suburban development, transportation projects, and infrastructure projects, under Alternative 4 on occurrences of and habitat for non-covered special-status plants would be
mitigated on a project-by-project basis through the local land use approval process, including CEQA review, for discretionary projects. Substantial ancillary benefits for these plant species are also expected to result from Plan implementation, because it would establish a comprehensive reserve management program that would enhance habitat conditions in a variety of natural communities that may support non-covered special-status plants. Any potential effects on these plants from fuels management, vegetation management, and infrastructure operations and maintenance, though not likely subject to additional environmental review, would be offset because the entities implementing these projects would be participating in the Plan and contributing funds for the implementation of the conservation strategy; furthermore the likelihood of rare plants occurring in these areas is low because these areas were likely previously disturbed by similar activities (e.g., existing fire breaks, areas previously disturbed by infrastructure construction). The implementation of conservation measures to create and restore vernal pool habitat which may affect these plant populations, may not be subject to further approvals or review that may identify effects on these plants.

**NEPA Determination:** Implementation of Alternative 4 could result in the loss of extant occurrences of special-status plants, including up to 12 occurrences of dwarf downingia, 2 occurrences of Boggs Lake hedge-hyssop, 1 potential occurrence of Red Bluff dwarf rush, 1 occurrence of legenere, and 1 occurrence of pincushion navarretia. Alternative 4 would also permanently remove up to 323 acres of vernal pool-type wetland habitat for special status-plants in the Plan Area. However, the protection and restoration guided by the Plan’s goals, objectives, conservation measures, and conditions would ensure that habitat loss from Covered Activities, which include urban/suburban development, transportation projects, infrastructure projects, fuels management, vegetation management, and infrastructure operations and maintenance, would be compensated for and preserved habitat would be managed in perpetuity and thus the effects would be reduced to a less-than-significant level.

Conservation measures to create, restore, enhance, and manage vernal pool habitat could remove existing populations of special-status plants if these actions take place in previously undisturbed vernal pool complexes and if there are no opportunities to identify and avoid these populations through subsequent NEPA review; therefore these activities could have significant impacts on special-status plants. Implementation of Mitigation Measure BIO-1 would reduce this effect to a less-than-significant level.

**CEQA Determination:** Implementation of Alternative 4 could result in the loss of extant occurrences of special-status plants, including up to 12 extant occurrences of dwarf downingia, 2 extant occurrences of Boggs Lake hedge-hyssop, 1 potential occurrence of Red Bluff dwarf rush, 1 extant occurrence of legenere, and 1 occurrence of pincushion navarretia. Alternative 4 would also permanently remove up to 323 acres of vernal pool-type wetland habitat for special-status plants in the Plan Area. However, the protection and restoration guided by the Plan’s goals, objectives, conservation measures, and conditions would ensure that habitat loss from Covered Activities, which include urban/suburban development, transportation projects, infrastructure projects, fuels management, vegetation management, and infrastructure operations and maintenance, would be compensated for, and preserved habitat would be managed in perpetuity and thus would reduce these effects to a less-than-significant level.

Conservation measures to create, restore, enhance, and manage vernal pool habitat, which could remove existing populations of special-status plants if these actions take place in previously undisturbed vernal pool complexes and if there are no opportunities to identify and avoid these populations through subsequent CEQA review; therefore, restoration, enhancement, and
management activities could have significant impacts on special-status plants. Implementation of Mitigation Measure BIO-1 would reduce this potential impact to a less-than-significant level.

Mitigation Measure BIO-1: Conduct surveys for and avoid special-status plants in proposed restoration and enhancement areas

Impact BIO-8: Effects on special-status plants in oak woodland habitats (NEPA: less than significant with mitigation; CEQA: less than significant with mitigation)

Oak woodland habitats, as discussed here, include the oak–foot hill pine and chaparral land cover types included in the oak woodland natural community, as well as valley oak woodland. Several special-status plant species grow in oak woodland habitats and are known to occur in the Plan Area region: big-scale balsamroot, Brandegee’s clarkia, stinkbells, Butte County fritillary, Red Bluff dwarf rush, dubious pea, hoary navarretia, streambank spring beauty, and sylvan microseris. There are recorded occurrences in the Plan Area for all these species except streambank spring beauty and sylvan microseris. Occurrences of streambank spring beauty occur near but outside of the PCWA operations and maintenance component of the Plan Area. Table 4.3-2 shows the numbers of these recorded occurrences in each Plan Area component (California Department of Fish and Wildlife 2017; Consortium of California Herbaria 2017b, 2017c, 2017d).

Covered Activities under Alternative 4, Reduced Permit Term, would result in permanent and temporary impacts on oak woodland habitat for special-status plants. Plan Area A includes 52,234 acres of oak woodland habitats that are potential habitat for these species. In the Valley portion of the Plan Area, permanent impacts would total 628 acres of oak woodland habitats (approximately 1% of total oak woodland in Plan Area A). Known occurrences of big-scale balsamroot (one) and Brandegee’s clarkia (four) in the Valley portion could be removed as a result of individual projects. In the Foothill portion, permanent impacts would total 3,120 acres of oak woodland habitats (approximately 6% of total oak woodland in Plan Area A); however, no extant occurrences of special-status plants are recorded in the Foothill portion. Impacts in Plan Area A would result primarily from urban/suburban development, transportation projects, and infrastructure projects. In Plan Area B, Covered Activities in non-participating cities would result in impacts on a total of 20 acres of oak woodland habitats. Known occurrences of big-scale balsamroot, Brandegee’s clarkia, and dubious pea (one occurrence each) could be removed as a result of these Covered Activities. One occurrence of Red Bluff dwarf rush could also be affected; however, this record of the species is questionable and may be due to a misidentification of another species as Red Bluff dwarf rush. Additional undiscovered occurrences of special-status plants could be removed in the Plan Area as a result of project construction in Plan Areas A and B.

Temporary impacts of Covered Activities on oak woodland habitats for special-status plants would not exceed 31 acres in the Valley portion of the Plan Area, 84 acres in the Foothill portion, and 10 acres in Plan Area B. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Temporary effects associated with fuels management, vegetation management, and infrastructure operations and maintenance would occur in areas previously disturbed by similar activities (e.g., existing fire breaks, areas previously disturbed by infrastructure construction) and therefore the likelihood of rare plants occurring in these areas is low. Some conservation actions through Plan implementation may also temporarily affect oak woodland habitats for special-status plants where grading, vegetation management, or other physical change to the habitat is required.
Indirect impacts on oak woodland habitats that support special-status plants could result from construction activities in the Plan Area, such as grading and removal of vegetation. These activities could adversely affect habitat function for special-status plants by altering the topography and hydrology in these habitats.

Permanent loss of oak woodland habitats for special-status plants from Covered Activities under Alternative 4 would be offset by the protection and management of 6,061 acres of oak woodland and 110 acres of valley oak woodland, as well as restoration of 58 acres of oak woodland and 157 acres of valley oak woodland in reserves in the Plan Area. One known occurrence of Brandegee’s clarkia is already protected in an existing reserve in the Foothill RAA. The protection and restoration of oak woodland habitats for special-status plants would be supported by the following conservation measures.

- CM1 L-2, Reserve Acquisition Strategy
- CM1 OW-1, Oak Woodland Protection
- CM1 OW-2, Reserve Design for Oak Woodland Restoration
- CM2 L-1, Vegetation Management and Invasive Plant Control
- CM2 L-3, Develop and Implement Fire Management Plans
- CM2 OW-1, Oak Woodland Vegetation Enhancement and Management
- CM2 OW-2, Control of Invasive Animals that Limit Oak Regeneration
- CM3 OW-1, Oak Woodland Restoration

Temporarily affected oak woodland habitats for special-status plants would be restored through implementation of General Condition 4, Temporary Effects, which requires that temporarily affected areas be restored to pre-project conditions or better, based on performance standards such as percent vegetative cover, restored hydrology, and restored topography.

Implementation of Community Conditions 3.1, Valley Oak Woodland Alliance, and 3.2, Valley oak Woodland and Individual Valley Oak Trees, would protect valley oak woodlands larger than 1 acre and the hydrology of the woodlands, as well as valley oak woodlands smaller than 1 acre and individual valley oak trees.

Although they do not apply to non-covered special-status plant species, these conservation measures and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. In addition, the impacts of Covered Activities, which include urban/suburban development, transportation projects, and infrastructure projects, under Alternative 4 on occurrences of and habitat for non-covered special-status plants would be mitigated on a project-by-project basis for discretionary projects. Substantial ancillary benefits for these plant species are expected to result from Plan implementation, because it would establish a comprehensive reserve management program that would enhance habitat conditions in a variety of natural communities that may support special-status plants. Any potential effects on these plants from fuels management, vegetation management, and infrastructure operations and maintenance, though not likely subject to additional environmental review, would be offset because the entities implementing these projects would be participating in the Plan and contributing funds for the implementation of the conservation strategy; furthermore the likelihood of rare plants occurring in these areas is low because these areas were likely previously disturbed by similar activities (e.g., existing fire breaks, areas previously disturbed by infrastructure construction). The implementation
of conservation measures to create and restore oak woodland habitat, which may affect these plant populations, may not be subject to further approvals or review that may identify effects on these plants.

**NEPA Determination:** Implementation of Alternative 4 could result in the loss of up to two occurrences of big-scale balsamroot, five occurrences of Brandegee’s clarkia, one potential occurrence of Red Bluff dwarf rush, and one occurrence of dubious pea. Alternative 4 would also result in the permanent removal of up to 3,766 acres of oak woodland habitats for special-status plants in the Plan Area. However, the protection and restoration guided by the Plan’s goals, objectives, conservation measures, and conditions would ensure that habitat loss from Covered Activities, which include urban/suburban development, transportation projects, infrastructure projects, fuels management, vegetation management, and infrastructure operations and maintenance would be compensated for and preserved habitat would be managed in perpetuity and thus the effects would be reduced to a less-than-significant level.

Conservation measures to create, restore, enhance, and manage oak woodland habitat could remove existing populations of special-status plants if these actions take place in previously undisturbed oak woodlands and if there are no opportunities to identify and avoid these populations through subsequent NEPA review; therefore, these activities could have significant impacts on special-status plants. Implementation of Mitigation Measure BIO-1 would reduce this impact to a less-than-significant level.

**CEQA Determination:** Implementation of Alternative 4 could result in the loss of up to two occurrences of big-scale balsamroot, five occurrences of Brandegee’s clarkia, one potential occurrence of Red Bluff dwarf rush, and one occurrence of dubious pea. Alternative 4 would also permanently remove up to 3,766 acres of oak woodland habitats for special-status plants in the Plan Area. However, the protection and restoration guided by the Plan’s goals, objectives, conservation measures, and conditions would ensure that habitat loss from Covered Activities, which include urban/suburban development, transportation projects, infrastructure projects, fuels management, vegetation management, and infrastructure operations and maintenance, would be compensated for and preserved habitat would be managed in perpetuity and thus the effects would be reduced to a less-than-significant level.

Conservation measures to create, restore, enhance, and manage oak woodland habitat could remove existing populations of special-status plants if these actions take place in previously undisturbed oak woodlands and if there are no opportunities to identify and avoid these populations through subsequent CEQA review; therefore, restoration and enhancement activities could have significant impacts on special-status plants. Implementation of Mitigation Measure BIO-1 would reduce this potential impact to a less-than-significant level.

**Mitigation Measure BIO-1: Conduct surveys for and avoid special-status plants in proposed restoration and enhancement areas**

**Impact BIO-9: Effects on special-status plants in grassland habitats (NEPA: less than significant with mitigation; CEQA: less than significant with mitigation)**

Several special-status plant species that occur in annual grasslands and vernal pool complex uplands are known to occur in the Plan Area region: big-scale balsamroot, hispid bird’s-beak, stinkbells, Red Bluff dwarf rush, sylvan microseris, and hoary navarretia. With the exception of hispid bird’s-beak, which would only occur in grassland or vernal pool upland habitat in the Plan Area, all these species
also occur in oak woodland and chaparral habitats, as discussed in Impact BIO-8. There are recorded CNDDB occurrences or herbarium records in the Plan Area for all of these species. Table 4.3-2 shows the numbers of these recorded occurrences in each Plan Area component; a single occurrence of hispid bird's-beak is recorded in an existing preserve in Plan Area B (California Department of Fish and Wildlife 2017; Consortium of California Herbaria 2017c, 2017d).

Covered Activities under Alternative 4, Reduced Permit Term, would result in permanent and temporary impacts on grassland habitats for special-status plants. Plan Area A includes 21,887 acres mapped as grassland, as well as the upland portion of 45,065 acres mapped as vernal pool complex. Pasture is not included in this analysis as potential special-status plant habitat, because it is a managed habitat with almost no native plant species. Permanent impacts in the Valley portion of the Plan Area would total 1,870 acres of grassland habitat (approximately 8% of this community in Plan Area A) and 6,506 acres of vernal pool complex upland (approximately 14% of total vernal pool complex in Plan Area A). A known occurrence of big-scale balsamroot in the Valley portion of the Plan Area could be removed by anticipated projects. Permanent impacts in the Foothill portion would total 1,980 acres of grassland habitat (approximately 9% of the community in Plan Area A) and 60 acres of vernal pool complex upland (approximately 0.2% of total vernal pool complex in Plan Area A); however, no extant occurrences of special-status plants are recorded in the Foothill portion. Impacts in Plan Area A would result primarily from urban/suburban development, transportation projects, and infrastructure projects. In Plan Area B, permanent impacts from Covered Activities in non-participating cities would affect 95 acres of grassland habitat and 38 acres of vernal pool complex upland. One known occurrence of big-scale balsamroot could be removed as a result of these Covered Activities. One occurrence of Red Bluff dwarf rush could also be affected; however, this record of the species is questionable and may be due to a misidentification of another species as Red Bluff dwarf rush. Additional undiscovered occurrences of special-status plants could be removed in the Plan Area as a result of project construction in Plan Areas A and B.

An unknown amount of vernal pool complex wetland habitat may be permanently altered by the restoration/creation of a portion of the 495 acres of vernal pool, seasonal wetland, and seasonal swale wetlands included in implementation of the Plan’s conservation strategy. If vernal pool restoration/creation is to take place in existing vernal pool complexes, these activities could affect upland resources and the hydrologic balance of the existing pools in these complexes. However, implementation of CMI VPCG-2, Vernal Pool Complex Enhancement and Hydrologic Conditions, and CM3 VPCG-2, Grassland Restoration, would ensure that restoration/creation activities retain sufficient local watershed uplands to support additional pools and to protect adequate upland habitat around existing pools.

Temporary impacts of Covered Activities on grassland habitat for special-status plants would not exceed 69 acres in the Valley portion of the Plan Area, 54 acres in the Foothill portion, and 19 acres in Plan Area B. Temporary impacts of Covered Activities on vernal pool complex upland would not exceed 225 acres in the Valley Portion of the Plan Area, 6 acres in the Foothill portion, and 5 acres in Plan Area B. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Temporary effects associated with fuels management, vegetation management, and infrastructure operations and maintenance would occur in areas previously disturbed by similar activities (e.g., existing fire breaks, areas previously disturbed by infrastructure construction), and therefore the likelihood of rare plants occurring in these areas is low. Some conservation actions through Plan
implementation may also temporarily affect grassland habitat for special-status plants in locations where grading, vegetation management, or other physical change to grassland habitat is required.

Indirect impacts on grassland and vernal pool complex upland habitats that support special-status plants could result from construction activities such as grading and removal of vegetation. These activities could adversely affect habitat function for special-status plants by altering the topography and hydrology in grasslands and uplands surrounding vernal pools.

Permanent loss of grassland habitat for special-status plants from Covered Activities under Alternative 4 would be offset by the protection and management of 1,627 acres of grassland and up to 8,916 acres of vernal pool complex uplands (estimated flexible conservation acreage), as well as restoration of 550 acres of grassland and up to 1,155 acres of vernal pool complex uplands in Plan Area reserves. The protection and restoration of grassland and vernal pool complex upland habitat for special-status plants would be supported by the following conservation measures.

- CM1 L-2, Reserve Acquisition Strategy
- CM2 L-1, Vegetation Management and Invasive Plant Control
- CM2 L-3, Develop and Implement Fire Management Plans
- CM3, VPCG-1, Vernal Pool Complex Restoration/Creation
- CM3 VPCG-2, Grassland Restoration

Temporarily affected grassland and vernal pool complex upland habitats for special-status plants would be restored through implementation of General Condition 4, Temporary Effects, which requires that temporarily affected areas be restored to pre-project conditions or better, based on performance standards such as percent vegetative cover, restored hydrology, and restored topography.

Although they do not apply to special-status plant species, these conservation measures and conditions establish performance standards for considering the effectiveness of proposed conservation actions. In addition, the impacts of Covered Activities, which includes urban/suburban development, transportation projects, and infrastructure projects, under Alternative 4 on occurrences of and habitat for non-covered special-status plants would be mitigated on a project-by-project basis for discretionary projects. Ancillary benefits for these plant species are also expected to result from Plan implementation, because it would establish a comprehensive reserve management program that would enhance habitat conditions in a variety of natural communities that may support non-covered special-status plants. Any potential effects on these plants from fuels management, vegetation management, infrastructure operations and maintenance, though not likely subject to additional environmental review, would be offset because the entities implementing these projects would be participating in the Plan and contributing funds for the implementation of the conservation strategy; furthermore the likelihood of rare plants occurring in these areas is low because these areas were likely previously disturbed by similar activities (e.g., existing fire breaks, areas previously disturbed by infrastructure construction). The implementation of conservation measures to create, restore, enhance, and manage grassland and upland vernal pool complex habitat, which may affect these plant populations, may not be subject to further approvals or review that may identify effects on these plants.

**NEPA Determination:** Implementation of the Plan under Alternative 4 could result in the loss of up to two occurrences of big-scale balsamroot and one potential occurrence of Red Bluff dwarf rush.
Covered Activities under Alternative 4 would also result in the permanent removal of up to 3,945 acres of grassland and the upland portion of the 6,928 acres of vernal pool complex that supports habitat for special-status plants in the Plan Area. However, the protection and restoration guided by the Plan's goals, objectives, conservation measures, and conditions would ensure that habitat loss from Covered Activities, which include urban/suburban development, transportation projects, infrastructure projects, fuels management, vegetation management, infrastructure operations and maintenance, would be compensated for, and preserved habitat would be managed in perpetuity and thus the effects would be reduced to a less-than-significant level.

Conservation measures to create, restore, enhance, and manage grassland habitat could remove existing populations of special-status plants if these actions take place in previously undisturbed grassland and if there are no opportunities to identify and avoid these populations through subsequent NEPA review; therefore, these activities could have significant impacts on special-status plants. Implementation of Mitigation Measure BIO-1 would reduce this effect to a less-than-significant level.

**CEQA Determination:** Implementation of the Plan under Alternative 4 could result in the loss of up to two occurrences of big-scale balsamroot and one potential occurrence of Red Bluff dwarf rush. Covered Activities under Alternative 4 would also permanently remove up to 3,945 acres of grassland and the upland portion of the 6,928 acres of vernal pool complex that supports habitat for special-status plants in the Plan Area. However, the protection and restoration guided by the Plan’s goals, objectives, conservation measures, and conditions would ensure that habitat loss from Covered Activities, which include urban/suburban development, transportation projects, infrastructure projects, fuels management, vegetation management, and infrastructure operations and maintenance, would be compensated for, and preserved habitat would be managed in perpetuity and thus the effects would be reduced to a less-than-significant level.

Conservation measures to create, restore, enhance, and manage grassland habitat could remove existing populations of special-status plants if these actions take place in previously undisturbed grassland and if there are no opportunities to identify and avoid these populations through subsequent CEQA review; therefore, these activities could have significant impacts on special-status plants. Implementation of Mitigation Measure BIO-1 would reduce this potential impact to a less-than-significant level.

**Mitigation Measure BIO-1:** Conduct surveys for and avoid special-status plants in proposed restoration and enhancement areas

**Impact BIO-10:** Effects on special-status plants in fresh emergent marsh and riverine habitats (NEPA: less than significant with mitigation; CEQA: less than significant with mitigation)

One special-status plant species that grows in fresh emergent marsh and slow-moving riverine habitats (Sanford's sagittaria) has potential to occur in the Plan Area region. The Plan Area is within the range of Sanford's sagittaria and supports suitable habitat for the species. There are no CNDDB-documented occurrences in the Plan Area, although one CNDDB occurrence is in Sacramento County adjacent to the Plan Area (California Department of Fish and Wildlife 2017). There are a total of 93 occurrences in California, 8 of which are extirpated or possibly extirpated. In addition, there is inoculation of this species in the Silvergate Mitigation Bank that is not included in the CNDDB (Wildlands 2003). No impacts on the mitigation bank would result from implementation of the Plan.
Covered Activities under Alternative 4, Reduced Permit Term, would result in permanent and temporary impacts on marsh and riverine habitat for special-status plants. Potential habitats for these species in Plan Area A include 1,112 acres of marsh and 868 acres of riverine, a portion of which would be suitable habitat for Sanford’s sagittaria. Permanent impacts in the Valley portion of the Plan Area would total 28 acres of fresh emergent marsh habitat (approximately 2% of this community in Plan Area A) and 44 acres of riverine habitat (approximately 5% of this community in Plan Area A). Permanent impacts in the Foothill portion would total 30 acres of fresh emergent marsh habitat (approximately 3% of this community in Plan Area A) and 18 acres of riverine habitat (approximately 2% of this community in Plan Area A). Impacts in Plan Area A would result primarily from urban/suburban development, transportation projects, and infrastructure projects. In Plan Area B, permanent impacts of Covered Activities in non-participating cities would total 5 acres of fresh emergent marsh habitat and 5 acres of riverine habitat. No known occurrences of special-status plants associated with marsh or riverine habitats would be removed as a result of the projects; however, currently undiscovered occurrences of special-status plants could be removed in the Plan Area as a result of project construction in Plan Areas A and B.

Temporary impacts of Covered Activities on fresh emergent marsh habitat for special-status plants would not exceed 14 acres in the Valley portion of the Plan Area, 9 acres in the Foothill portion, and 10 acres in Plan Area B. Temporary impacts on riverine habitat for special-status plants would not exceed 28 acres in the Valley portion of the Plan Area, 10 acres in the Foothill portion, and 10 acres in Plan Area B. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Temporary effects associated with fuels management, vegetation management, and infrastructure operations and maintenance would occur in areas previously disturbed by similar activities (e.g., existing fire breaks, areas previously disturbed by infrastructure construction), and therefore the likelihood of rare plants occurring in these areas is low. Some conservation actions through Plan implementation may also temporarily affect fresh emergent marsh habitat for special-status plants in locations where grading, vegetation management, or other physical change is required.

Indirect impacts on fresh emergent marsh and riverine habitats that are suitable for special-status plants could result from construction activities such as grading and removal of vegetation. These activities could adversely affect habitat function for special-status plants by altering the topography and hydrology that support these habitats.

Permanent loss of fresh emergent marsh and riverine habitats for special-status plants from Covered Activities under Alternative 4 would be offset by the protection and management of 144 acres of fresh emergent marsh and up to 172 acres of riverine in Plan Area reserves. In addition, there would be restoration of up to 114 acres of fresh emergent marsh and up to 100 acres of riverine in Plan Area reserves. The protection of fresh emergent marsh and riverine habitats for special-status plants would be supported by the following conservation measures.

- CM1 L-2, Reserve Acquisition Strategy
- CM1 AW-1, Aquatic/Wetlands Complex Protection
- CM2 L-1, Vegetation Management and Invasive Plant Control
- CM2 L-3, Develop and Implement Fire Management Plans
- CM2 RAR-1, Riparian Vegetation Management
• CM2 AW-1, Aquatic/Wetlands Complex Vegetation Control
• CM2 AW-2, Fencing Wetlands and Ponds
• CM2 AW-3, Sediment Removal
• CM2 AW-7, Maintenance of Water Depths and Hydrological Cycles
• CM2 AW-9, Maintenance and Enhancement of Water Quality
• CM3 AW-1, Aquatic/Wetlands Complex Restoration/Creation

Temporarily affected fresh emergent marsh and riverine habitats for special-status plants would be restored through implementation of General Condition 4, Temporary Effects, which requires that temporarily affected areas be restored to pre-project conditions or better, based on performance standards such as percent vegetative cover, restored hydrology, and restored topography.

Implementation of Community Condition 2, Riverine and Riparian Avoidance and Minimization, and the specific measures contained in the condition would protect the hydrology and habitat quality of riverine habitat for special-status plants. Community Condition 1.2, Avoidance of Aquatic/Wetland Complex Constituent Habitat, would encourage avoidance of impacts on fresh emergent marsh habitat.

Although they do not apply to special-status plant species, these conservation measures and conditions establish performance standards for considering the effectiveness of proposed conservation actions. In addition, the impacts of Covered Activities, which include urban/suburban development, transportation projects, and infrastructure projects, under Alternative 4 on occurrences of and habitat for non-covered special-status plants would be mitigated on a project-by-project basis for discretionary projects. Ancillary benefits for these plant species are also expected to result from Plan implementation, because it would establish a comprehensive reserve management program that would enhance habitat conditions in a variety of natural communities that may support non-covered special-status plants. Any potential effects on these plants from fuels management, vegetation management, and infrastructure operations and maintenance, though not likely subject to additional environmental review, would be offset because the entities implementing these projects would be participating in the Plan and contributing funds for the implementation of the conservation strategy; furthermore the likelihood of rare plants occurring in these areas is low because these areas were likely previously disturbed by similar activities (e.g., existing fire breaks, areas previously disturbed by infrastructure construction). The implementation of conservation measures to create, restore, enhance, and manage fresh emergent marsh and riverine habitats, which may affect these plant populations, may not be subject to further approvals or review that may identify effects on these plants.

**NEPA Determination:** Implementation of Alternative 4 could affect currently undiscovered occurrences of special-status plants in freshwater emergent marsh and riverine habitats. Alternative 4 would also permanently remove up to 62 acres of fresh emergent marsh and 67 acres of riverine habitats for special-status plants in the Plan Area. However, habitat loss from Covered Activities, which include urban/suburban development, transportation projects, infrastructure projects, fuels management, vegetation management, and infrastructure operations and maintenance, would be compensated for, and preserved habitat would be managed in perpetuity and thus the effects would be reduced to a less-than-significant level.
Conservation measures to create, restore, enhance, and manage emergent marsh and riverine habitat could remove existing populations of special-status plants if these actions take place in previously undisturbed habitat and if there are no opportunities to identify and avoid these populations through subsequent NEPA review; therefore, these activities could have adverse impacts on special-status plants. Implementation of Mitigation Measure BIO-1 would reduce this affect such that it would not be adverse.

**CEQA Determination:** Implementation of Alternative 4 could affect currently undiscovered occurrences of special-status plants in freshwater emergent marsh and riverine habitats. Alternative 4 would also permanently remove up to 62 acres of fresh emergent marsh and 67 acres of riverine habitats for special-status plants in the Plan Area. However, habitat loss from Covered Activities, which include urban/suburban development, transportation projects, infrastructure projects, fuels management, vegetation management, and infrastructure operations and maintenance, would be compensated for, and preserved habitat would be managed in perpetuity and thus would reduce these effects to a less-than-significant level.

Conservation measures to create, restore, enhance, and manage emergent marsh and riverine habitats could remove existing populations of special-status plants if these actions take place in previously undisturbed habitat and if there are no opportunities to identify and avoid these populations through subsequent CEQA review; therefore, restoration could have significant impacts on special-status plants. Implementation of Mitigation Measure BIO-1 would reduce this potential impact to a less-than-significant level.

**Mitigation Measure BIO-1: Conduct surveys for and avoid special-status plants in proposed restoration and enhancement areas**

**Special-Status Fish and Wildlife**

**Impact BIO-11: Potential for construction and operation effects on Chinook salmon (fall-/late fall–run) and Central Valley steelhead (NEPA: less than significant; CEQA: less than significant)**

Implementation of the Plan Covered Activities under Alternative 4, Reduced Permit Term, would result in permanent and temporary direct effects on Central Valley steelhead and Chinook salmon habitat. Permanent direct effects on riparian woodland/riverine habitat would total 290 acres: 281 acres in Plan Area A and 9 acres in Plan Area B. Implementation of the Plan and Covered Activities under Alternative 4 would result in temporary direct effects on 103 acres: 84 acres in Plan Area A and 19 acres in Plan Area B. These direct impacts would result from road crossings (i.e., bridge work and culverts); water supply, flood control, and stormwater management activities; and activities of individual landowners typically in rural residential settings. In addition, implementation of Plan riparian/riverine protection, conservation, and enhancement activities under Alternative 4 could affect Central Valley steelhead and Chinook salmon habitat.

These activities could cause a permanent change in substrate composition and channel morphology in aquatic habitat; create a permanent loss of shallow-water habitat, riparian vegetation, and instream woody material; and change instream flows if water is diverted from streams and if woody material, including beaver dams, is removed from creeks that could benefit habitat for fish. Implementation of the Plan and Covered Activities could also have direct effects on fish during construction; heavy equipment use in the active channel and impact pile driving could kill or injure
fish. Finally, these activities could result in localized alterations in channel form and patterns of erosion and sedimentation that over time could alter aquatic habitat structure and function from existing conditions.

Implementation of conservation measures addressing riverine and riparian communities and covered salmonids would have a beneficial permanent direct effect on steelhead and Chinook salmon. Aquatic habitat improvement activities include floodplain restoration/reconnection projects in the Dry Creek, Auburn Ravine, and Coon Creek watersheds; bridge and culvert improvement projects; channel improvements to natural channels; fish passage enhancements including removal of fish barriers, low-flow crossings, and development of fish screens; and placement of spawning gravels. These activities would benefit steelhead and Chinook salmon spawning, migratory, and rearing habitat, contributing to higher survival of these covered species in the Plan Area.

Temporary effects on salmonid streams are expected to result from road crossings, water supply projects, flood control projects, and instream restoration activities. Impact mechanisms associated with these activities include accidental introduction of contaminants and sediment into flowing water and noise at individual project construction sites. Removing or altering existing riparian habitat for habitat improvement activities under the Plan could temporarily affect water temperature and habitat complexity. Recurring maintenance activities within and outside the Plan Area, such as transportation facility maintenance, flood control and stormwater facility maintenance, and vegetation management, may have temporary direct effects on Chinook salmon and steelhead through the release of sediment and contaminants and the removal of in-channel woody material.

Permanent indirect effects resulting from transportation projects and urban and rural residential development include noise, visual disturbance, and ground vibrations that could cause Chinook salmon and steelhead to avoid suitable aquatic habitat. Vehicles on bridges can increase noise levels and the release of petroleum-based chemicals into waterways, in turn causing decreased spawning, migratory, and rearing success. An increase in the input of contaminants (e.g., petroleum-based chemicals, pesticides, heavy metals) to waterways could result from residential development, presence of new impervious surfaces associated with residential development, transportation projects, and other facilities if runoff enters waterways. Contaminants can adversely affect fish directly through exposure or indirectly through adverse effects on food organisms (e.g., macroinvertebrates), including the bioaccumulation of toxic compounds in these organisms.

Designated critical habitat for Central Valley steelhead is present in the Plan Area. Critical habitat for steelhead occurs in Coon Creek, Doty Creek, Auburn Ravine, Secret Ravine, Miners Ravine, and Dry Creek. Approximately 0.71 mile (0.8% of total designated critical habitat in the Plan Area: 0.58 mile spawning/rearing habitat and 0.13 mile migration/rearing habitat) could be permanently affected by bridge construction, flood control and stormwater management activities, natural resource protection activities, and the conservation strategy. The conservation strategy and the conditions listed below are expected to have a beneficial effect on critical habitat for Central Valley steelhead.

EFH for Chinook salmon also occurs in the Plan Area. Construction and operation of the activities listed above and the conservation strategy (restoration, enhancement, and management actions) would result in permanent effects on EFH. The conservation activities and Conditions discussed below will increase EFH value for Pacific salmonids and have a beneficial impact on EFH.
The Plan seeks to conserve and protect the stream systems throughout western Placer County and to increase spawning, rearing, and migratory success of covered salmonids in the Auburn Ravine, Coon Creek, and Dry Creek watersheds. The following landscape-, natural community–, and species-level objectives and conservation measures would provide fish movement, protect watershed health, and protect habitat for covered salmonids in support of goal FISH-1.

- Objective L-1.1, Establish a Large, Interconnected Reserve System
- Objective L-2.1, Protect Habitat Linkages
- Objective L-2.3, Establish East–West Corridors
- Objective L-3.1, Implement Low Impact Development Standards
- Objective L-3.2, Reduce Invasive Non-native Species and Increase Native Species
- Objective VPCG-1.1, Protect Existing Vernal Pool Complexes
- Objective VPCG-1.2, Restore/Create Vernal Pool Complexes
- Objective VPCG-1.3, Protect Grasslands
- Objective VPCG-1.4, Restore/Create Vernal Pool Complexes
- Objective RAR-1.1, Protect Riverine/Riparian Complex
- Objective RAR-1.2, Protect Riverine Habitat Constituent
- Objective RAR-1.3, Restore Riverine/Riparian Complex
- Objective RAR-1.5, Remove or Modify Fish Barriers;
- Objective RAR-1.7, Enhance Streams.
- Objective OW-1.1, Protect Oak Woodlands
- Objective OW-1.2, Restore Oak Woodlands
- Objective FISH-1.1, Protect Salmonid Spawning and Migrating Habitat
- Objective FISH-1.2, Protect Riparian Habitat for Fish
- Objective FISH-1.3, Protect Oak Woodlands for Fish
- CM1 RAR-1, Riverine and Riparian Protection
- CM1 RAR-2, Reserve Design for Riparian Restoration
- CM2 RAR-1, Riparian Vegetation Management
- CM2 RAR-2, Removal and/or Modification of Barriers to Fish Passage
- CM2 RAR-3, Modify Unscreened Water Diversion
- CM2 RAR-4, Improvement of In-channel Features
- CM2 RAR-7, Non-native Animals Species Control
- CM3 RAR-1, Riparian Natural Community Restoration

These objectives and conservation measures are intended to protect 48 stream miles in the Reserve System, including 14 stream miles of salmonid spawning habitat and 6 miles of salmonid migrating habitat, primarily on stream reaches along Coon Creek, Doty Ravine (a major tributary of Coon
Creek), and Auburn Ravine, in keeping with the *Central Valley Chinook and Steelhead Recovery Plan* (National Marine Fisheries Service 2014). In addition, 307 acres of riparian habitat along salmonid spawning stream reaches and 188 acres of riparian habitat along salmonid migrating reaches—primarily along Coon Creek, Doty Ravine, and Auburn Ravine—would also be protected.

In addition to the biological objectives listed above, the following general, community, and stream system conditions would benefit covered salmonids.

- General Condition 1, Watershed Hydrology and Water Quality
- General Condition 2, Conservation Lands: Development Interface Design Requirements
- General Condition 3, Land Conversion
- General Condition 4, Temporary Effects
- General Condition 5, Conduct Worker Training
- Community Condition 2, Riverine and Riparian Avoidance and Minimization
- Community Condition 2.1, Riverine and Riparian Avoidance
- Community Condition 2.2, Minimize Riverine and Riparian Effects, Community Condition 2.3, Riverine and Riparian Restoration
- Community Condition 2.4, Placer County Water Agency Operations and Maintenance Best Management Practice
- Stream System Condition 1, Stream System Avoidance
- Species Condition 7, Central Valley Steelhead and Central Valley Fall-/Late Fall-Run Chinook Salmon (Salmonids)
- In-Stream and Stream System BMPs

The application of Low-Impact Development Standards would improve water quality for covered fish species. The restoration of riparian natural community would further benefit these species by providing cover and shade for thermoregulation and by providing vegetation that is a source of invertebrates upon which covered salmonids feed.

These goals, objectives, general conditions, and conservation measures establish performance standards for measuring the effectiveness of restoration actions. The acres of protection and restoration satisfy the typical mitigation that would be applied to the project-level effects, as well as mitigating the effects of the other conservation measures.

**NEPA Determination:** The permanent loss of 290 acres and temporary disturbance of 103 acres of riparian woodland/riverine habitat associated with Alternative 4, in the absence of other conservation actions, would constitute a potentially significant impact through habitat modification and potential direct mortality of a special-status species. However, with habitat protection and restoration associated with the conservation components, guided by landscape-scale goals and objectives, the overall effects of Alternative 4 on covered salmonids would be less than significant.

**CEQA Determination:** The permanent loss of 290 acres and temporary disturbance of 103 acres of riparian woodland/riverine habitat associated with Alternative 4, in the absence of other conservation actions, would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. The natural community restoration and
protection activities would constitute adequate mitigation for CEQA purposes. The biological goals and conservation measures relevant to covered salmonids are more than sufficient to support the conclusion that the impacts of Alternative 4 on covered salmonids would be less than significant. No mitigation has been identified.

**Impact BIO-12: Potential for construction and operation effects on non-covered species (hardhead and Pacific lamprey) (NEPA: less than significant; CEQA: less than significant)**

Implementation of the Plan and Covered Activities under Alternative 4, Reduced Permit Term, would result in permanent and temporary direct effects on hardhead and Pacific lamprey habitat. Permanent direct effects on riparian woodland/riverine habitat would total 290 acres: 281 acres in Plan Area A and 9 acres in Plan Area B. Implementation of the Plan and Covered Activities under Alternative 4 would result in temporary direct effects on 103 acres: 84 acres in Plan Area A and 19 acres in Plan Area B. These direct impacts would result from road crossings (i.e., bridge work and culverts) and water supply, flood control, and stormwater management activities. In addition, implementation of Plan riparian/riverine protection, conservation, and enhancement activities under Alternative 4 could affect hardhead and Pacific lamprey habitat.

These activities could cause a permanent change in substrate composition and channel morphology in aquatic habitat; create a permanent loss of shallow-water habitat, riparian vegetation, and instream woody material; and change instream flows if water is diverted from streams and if woody material, including beaver dams, is removed from creeks that could benefit habitat for fish. Implementation of the Plan and Covered Activities could also have direct effects on fish during construction; heavy equipment use in the active channel could kill or injure fish. Finally, these activities could result in localized alterations in channel form and patterns of erosion and sedimentation that over time could alter aquatic habitat structure and function from existing conditions.

Temporary effects on streams are expected to result from road crossings, water supply projects, flood control projects, and instream restoration activities. Impact mechanisms associated with these activities include accidental introduction of contaminants and sediment into flowing water and noise at project construction sites. Removing or altering existing riparian habitat in order to initiate habitat improvement activities under the Plan could temporarily affect water temperature and habitat complexity. Recurring maintenance activities within and outside the Plan Area, such as transportation facility maintenance, utility service facilities maintenance, flood control and stormwater facility maintenance, and vegetation management, may have temporary direct effects on hardhead and Pacific lamprey through the release of sediment and contaminants and the removal of in-channel woody material.

Permanent indirect effects resulting from transportation projects and urban and rural residential development include noise, visual disturbance, and ground vibrations that could cause hardhead and Pacific Lamprey to avoid suitable aquatic habitat. Vehicles on bridges can increase noise levels and the release of petroleum-based chemicals into waterways, in turn causing decreased spawning, migratory, and rearing success. An increase in the input of contaminants (e.g., petroleum-based chemicals) to waterways could result from the presence of new impervious surfaces associated with residential development, transportation projects, and other facilities if runoff enters waterways. Contaminants can adversely affect fish directly through exposure or indirectly through adverse effects on food organisms (e.g., macroinvertebrates), including the bioaccumulation of toxic compounds in these organisms.
Implementation of conservation measures addressing riverine and riparian communities and covered salmonids would have a beneficial permanent direct effect on hardhead and Pacific lamprey through the protection and restoration of up to 1,784 acres of riverine/riparian habitat and 48 linear miles of open water habitat. Aquatic habitat improvement activities include floodplain restoration/reconnection projects in the Auburn Ravine, Coon Creek, and Dry Creek watersheds; bridge and culvert improvement projects; channel improvements to natural channels; fish passage enhancements including removal of fish barriers, low-flow crossings, and development of fish screens; and placement of spawning gravels (lamprey would benefit from spawning gravel placement). These activities would benefit hardhead and lamprey spawning, migratory, and rearing habitat, contributing to higher survival of non-covered species in the Plan Area.

As disclosed in the discussion of Impact BIO-11, the goals, objectives, general conditions, and conservation measures establish performance standards for measuring the effectiveness of restoration actions. The acres of protection and restoration satisfy the typical mitigation that would be applied to the project-level effects, as well as mitigating the effects of the other conservation measures.

**NEPA Determination:** The permanent loss of 290 acres and temporary disturbance of 103 acres of riparian woodland/riverine habitat associated with Alternative 4, in the absence of other conservation actions, would constitute a potentially significant impact through habitat modification and potential direct mortality of a special-status species. However, with habitat protection and restoration associated with the conservation components, guided by landscape-scale goals and objectives, the overall effects of Alternative 4 on hardhead and Pacific lamprey would be less than significant.

**CEQA Determination:** The permanent loss of 290 acres and temporary disturbance of 103 acres of riparian woodland/riverine habitat associated with Alternative 4, in the absence of other conservation actions, would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. The natural community restoration and protection activities would constitute adequate mitigation for CEQA purposes. The biological goals and conservation measures relevant to covered salmonids are more than sufficient to support the conclusion that the impacts of Alternative 4 on hardhead and Pacific lamprey would be less than significant. No mitigation has been identified.

**Impact BIO-13: Effects on valley elderberry longhorn beetle (NEPA: less than significant; CEQA: less than significant)**

The CNDDB lists 12 occurrences of valley elderberry longhorn beetle in the Plan Area (California Department of Fish and Wildlife 2017). Appendix D, *Species Accounts*, of the Plan provides more detail on the status and distribution of the species throughout its range.

Covered Activities under Alternative 4, Reduced Permit Term, would result in permanent and temporary impacts on valley elderberry longhorn beetle habitat. Permanent impacts would result in the loss of up to 376 acres of habitat (5% of 8,153 acres of habitat in the Plan Area), primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. These losses would almost entirely occur within the Valley portion of Plan Area A, with small losses (19 acres) in Plan Area B.

Temporary impacts of Covered Activities on valley elderberry longhorn beetle habitat would not exceed 103 acres (1%) of habitat in the Plan Area. These temporary impacts would be associated
with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Plan restoration and enhancement activities under Alternative 4 that could temporarily affect valley elderberry longhorn beetle habitat include grading and contouring to restore, create, and enhance wetlands in reserves.

Indirect effects on valley elderberry longhorn beetle habitat include accumulation of dust on shrubs resulting from up-wind disturbances, flood control practices that could fragment habitat used by valley elderberry longhorn beetle, increased risk of wildfire, and the spread of invasive plants and animals that could affect the species.

The permanent and temporary loss of valley elderberry longhorn habitat would be offset by the protection and management of 1,386 acres and restoration of 957 acres of valley elderberry longhorn beetle habitat. The protection and restoration of valley elderberry longhorn beetle habitat would be supported by the following goals, objectives, conservation measures, and conditions.

- GOAL VELB-1, Habitat to support a sustained population of valley elderberry longhorn beetle within the Reserve System
- Objective RAR-1.1, Protect Riverine/Riparian Complex
- Objective RAR-1.3, Restore Riverine/Riparian Complex
- Objective RAR-1.4, Enhance Riparian Vegetation
- Objective OW-1.4, Protect Oak Woodlands
- Objective VELB-1.1, Restore Valley Elderberry Longhorn Beetle Habitat
- CM1, Establish Reserve System
- CM2, Manage and Enhance the Reserve System
- CM3, Restore and Create Natural Communities and Covered Species’ Habitat.
- CM3 VELB-1, Valley Elderberry Longhorn Habitat Restoration
- CM1 RAR-1, Riverine and Riparian Protection
- CM2 RAR-1 Riparian Vegetation Management
- CM3 RAR-1, Riparian Natural Community Restoration
- CM1 OW-1, Oak Woodland Protection
- General Condition 2, Conservation Lands: Development Interface Design Requirements
- General Condition 4, Temporary Effects
- General Condition 5, Conduct Worker Training
- Community Condition 2, Riverine and Riparian Avoidance and Minimization
- Stream System Condition 1, Stream System Avoidance
- Stream System Condition 2, Stream System Mitigation: Restoration
- Regional Public Projects Condition 1, Transportation and Other Infrastructure Projects Design Requirements
• Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects Construction BMPs

• Regional Public Projects Condition 3, Operations and Maintenance BMPs

• Species Condition 8, Valley Elderberry Longhorn Beetle

The Plan’s model for valley elderberry longhorn beetle only considers modeled habitat up to an elevation of 650 feet; accordingly Species Condition 8 only requires surveys up to this elevation. As noted in Section 3.3, Affected Environment, the species is known to occur up to 1,875 feet in Placer County and is considered to occur up to 3,000 feet across the species’ range. There is a chance that elderberry shrubs, including occupied shrubs, could be missed if surveys are not conducted above 650 feet. Despite this limitation, the Plan’s protection, management, and restoration (which includes planting elderberry shrubs) of 4,040 acres of riparian habitat and valley oak woodland contrasted with 630 acres of impact (a ratio greater than 6:1) would more than compensate for the potential effects on the species.

These goals, objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. The acres of protection and restoration satisfy the typical mitigation that would be applied to the project-level effects, as well as mitigating the effects of the other conservation measures. The proposed conditions further demonstrate the intent to avoid and minimize effects over the life of the Plan.

**NEPA Determination:** The permanent loss of 376 acres and temporary disturbance of 103 acres of valley elderberry longhorn beetle habitat associated with Alternative 4, in the absence of other conservation actions, would constitute a potentially significant impact through habitat modification and potential direct mortality of a special-status species. However, with the protection and restoration guided by the Plan's goals, objectives, conservation measures, and conditions, the overall effects of Alternative 4 on valley elderberry longhorn beetle would be less than significant.

**CEQA Determination:** The permanent loss of 376 acres and temporary disturbance to 103 acres of valley elderberry longhorn beetle habitat associated with Alternative 4, in the absence of other conservation actions, would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. The natural community restoration and protection activities would constitute adequate mitigation for CEQA purposes. The biological goals and conservation measures for valley elderberry longhorn beetle are more than sufficient to support the conclusion that the impacts of Alternative 4 on valley elderberry longhorn beetle would be less than significant. No mitigation has been identified.

**Impact BIO-14: Effects on vernal pool branchiopods (NEPA: less than significant; CEQA: less than significant)**

The CNDDB lists 1 occurrence of Conservancy fairy shrimp, 63 occurrences of vernal pool fairy shrimp, and 3 occurrences of vernal pool tadpole shrimp in the Plan Area (California Department of Fish and Wildlife 2017).

Covered Activities under Alternative 4, Reduced Permit Term, would result in permanent and temporary impacts on vernal pool complex and wetland habitat for vernal pool branchiopods. Permanent impacts would result in the loss of up to 6,928 acres of vernal pool complex supporting 328 acres of vernal pool–type wetlands (16% and 15% of these habitats in the Plan Area, respectively). These impacts would result primarily from urban/suburban development, rural
residential development, transportation projects, and infrastructure projects. These losses would be primarily in the Valley portion of Plan Area A, with small losses occurring in Plan Area B (15 acres).

Temporary impacts of Covered Activities on vernal pool branchiopod habitat would not exceed 16 acres of vernal pool–type wetlands (less than 1% of this habitat type in the Plan Area) and 251 acres of vernal pool complex (less than 1%). These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Conservation actions of Plan implementation under Alternative 4 that could temporarily affect vernal pool complex include restoration and enhancement actions such as grading and contouring to restore, create, and enhance vernal pool–type wetlands in reserves.

Indirect impacts on vernal pool complex could result from construction activities in the Plan Area, such as grading, trenching, changes to hydrology, and changes to topography. Indirect effects on vernal pools are generally considered to occur when ground-disturbing activities take place within 250 feet of a vernal pool—more specifically, when it can be demonstrated that the hydrology supporting a pool has been altered. Indirect effects on vernal pool complexes were estimated in the Plan at 1,979 acres, which is approximately 15% of direct effects (permanent and temporary combined). Under Alternative 4, assuming the indirect effects would also be 15% of direct, the indirect effects would be approximately 1,077 acres. These indirect effects could adversely affect the functions and services of vernal pool–type wetlands and supporting uplands in vernal pool complexes. These effects could result from construction and maintenance of infrastructure associated with urban and rural development, installation and maintenance of utility lines, road improvements, drainage facility improvements, and flood control projects.

Goal VPB-1 as set forth in the Plan seeks to sustain populations of vernal pool branchiopods within the Reserve System. Permanent loss of vernal pool complex under Alternative 4 would be offset by the protection and management of 9,785 acres and the restoration of 2,145 acres of vernal pool complex in reserves within the Plan Area. The protection and restoration of vernal pool complex would be supported by the following biological objectives, conservation measures, and conditions.

- Objective VPCG-1.1, Protect Existing Vernal Pool Complexes
- Objective VPB-1.1, Maintain Vernal Pool Fairy Shrimp Occupancy in the Reserve System
- Objective VPB-1.2, Maintain Vernal Pool Tadpole Shrimp Occupancy in the Reserve System
- Objective VPB-2.1, Protect Conservancy Fairy Shrimp Occurrences
- CM1, Establish Reserve System
- CM1 L-2, Reserve Acquisition Strategy
- CM1 L-4, Connectivity within Plan Area
- CM1 VPCG-1, Vernal Pool Complex Protection
- CM1 VPCG-2, Reserve Design for Vernal Pool Restoration/Creation
- CM1 VPB-1, Protection and Restoration of Occupied Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp Habitat
- CM2, Manage and Enhance the Reserve System
- CM2 L-1, Vegetation Management and Invasive Plant Control
- CM2 L-3, Develop and Implement Fire Management Plans
- CM2 VPCG-1, Vernal Pool Complex Enhancement and Hydrologic Conditions
- CM3, Restore and Create Natural Communities and Covered Species’ Habitat
- CM3 VPCG-1, Vernal Pool Complex Restoration/Creation
- CM3 VPB-1, Translocation of Vernal Pool Branchiopod Cysts
- CM4 L-1, Low-Impact Development Standards
- CM4 VPCG-1, Conduct Outreach to Private Landowners
- General Condition 1, Watershed Hydrology and Water Quality
- General Condition 2, Conservation Lands: Development Interface Design Requirements
- General Condition 4, Temporary Effects
- General Condition 5, Conduct Worker Training
- Community Condition 1, Wetland Avoidance and Minimization (Vernal Pool and Aquatic/Wetland Complex)
- Regional Public Projects Condition 1, Transportation and Other Infrastructure Projects Design Requirements
- Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects Construction BMPs
- Regional Public Projects Condition 3, Operations and Maintenance BMPs
- Species Condition 9, Conservancy Fairy Shrimp
- Species Condition 10, Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp

Objectives VPB-1.1 and VPB-1.2 would seek to maintain an occupancy rate equal to or greater than the rate lost as a result of Covered Activities within the 11,930 acres of protected, restored, and created vernal pool habitat described above. Objective VPB-2.1 would protect two occurrences of Conservancy fairy shrimp for the first occurrence lost and three occurrences for each additional occurrence lost. CM1 VPB-1 would ensure an occupancy rate that is equal to or greater than the occupancy rate of vernal pools lost as a result of Covered Activities. CM3 VPB-1 would be implemented primarily in sites that do not support populations of branchiopods and in restored or created wetlands.

These goals, objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of restoration actions. The acres of protection and restoration satisfy the typical mitigation that would be applied to the project-level effects, as well as mitigating the effects of the other conservation measures. The proposed conditions further demonstrate the intent to avoid and minimize effects over the life of the Plan.

**NEPA Determination:** The permanent loss of up to 6,928 acres of vernal pool complex supporting 328 acres of vernal pool–type wetlands and temporary disturbance of 251 acres of vernal pool complex supporting 16 acres of vernal pool–type wetlands associated with Alternative 4, in the absence of other conservation actions, would constitute a potentially significant impact through habitat modification and potential direct mortality of a special-status species. However, with the protection and restoration guided by the Plan’s goals, objectives, conservation measures, and
conditions, the overall effects of Alternative 4 on aquatic/wetland complex in the Plan Area would be less than significant.

**CEQA Determination:** The permanent loss of up to 6,928 acres of vernal pool complex supporting 328 acres of vernal pool–type wetlands and temporary disturbance of 251 acres of vernal pool complex supporting 16 acres of vernal pool–type wetlands associated with Alternative 4, in the absence of other conservation actions, would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. The natural community restoration and protection activities would constitute adequate mitigation for CEQA purposes. The biological objectives, conservation measures, and conditions for vernal pool branchiopods are more than sufficient to support the conclusion that the impacts of habitat loss and direct mortality on vernal pool branchiopods under Alternative 4 would be less than significant. No mitigation has been identified.

**Impact BIO-15: Effects on California red-legged frog (NEPA: less than significant; CEQA: less than significant)**

The CNDDB lists three occurrences of California red-legged frog in one population in the Plan Area, near the town site of Michigan Bluff near Foresthill (California Department of Fish and Wildlife 2017). All these occurrences are limited to a conservation bank site (Big Gun Conservation Bank) that is being managed for California red-legged frog (Plan Area B5). There are no known occurrences in Plan Area A, B1, B2, B3, nor B4.

Covered Activities under Alternative 4, Reduced Permit Term, would result in permanent and temporary impacts on habitat that is presumed to be currently unoccupied by California red-legged frog. Permanent development projects would result in the loss of up to 672 acres of currently unoccupied aquatic breeding and foraging habitat (8% of a total 8,532 acres of aquatic habitat) and up to 8,551 acres of currently unoccupied upland movement and refugia habitat (7% of 75,306 acres of modeled upland habitat) in the Foothill portion of Plan Area A. These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. Moreover, restoration, enhancement, and management actions of Plan implementation under Alternative 4 could result in inadvertent mortality; result in the release of contaminants (e.g., fuels, lubricants) into habitat, potentially affecting survival; and cause erosion that could affect habitat.

Covered Activities would temporarily affect up to 101 acres of currently unoccupied aquatic habitat and 214 acres of currently unoccupied upland habitat in the Foothill portion of Plan Area A. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Conservation actions of Plan implementation under Alternative 4 that could temporarily affect California red-legged frog include grading and contouring to restore, create, and enhance wetlands and riparian habitat in reserves.

Short-term construction-related effects on California red-legged frog if individuals were to become established in portions of Plan Areas A, B1, B2, B3, and B4 include the generation of dust, which has the potential to interfere with the oxygen diffusion process and can transport toxic compounds that may affect frogs. Runoff from urban development and other Covered Activities could degrade the aquatic habitats that support this species. Additional indirect effects are expected to result from in-stream activities that could degrade aquatic habitat; habitat fragmentation as a result of urban and
rural development and the construction of new roads and other infrastructure; and the introduction, establishment, and spread of invasive plants and predators (e.g., domestic pets, raccoons, coyotes, skunks, bullfrogs) that thrive in human-dominated environments. Because California red-legged frogs are not expected to occur in Plan Areas A, B1, B2, B3, or B4, indirect effects on the species are expected to be negligible, if any.

Under Alternative 4, the permanent and temporary loss of California red-legged frog aquatic and upland habitat would be offset by the protection of 701 acres and restoration of 745 acres of aquatic habitat and the protection of 7,490 acres and restoration of 96 acres of upland habitat. The protection of streams and riparian habitat in the Plan Area would facilitate dispersal for this species.

The protection and restoration of occupied and suitable habitat for California red-legged frog would be supported by the following objectives, conservation measures, and conditions.

- Objective AW-1.1, Protect Aquatic/Wetland Complex Natural Community
- Objective AW-1.2, Restore/Create Aquatic/Wetland Complex Natural Community
- Objective RAR-1.1, Protect Riverine/Riparian Complex
- Objective RAR-1.3, Restore Riverine/Riparian Complex
- Objective CRLF-1.1, Protect Occupied California Red-legged Frog Habitat
- Objective CRLF-2.1, Protect Suitable California Red-Legged Frog Habitat in the Plan Area
- Objective CRLF-2.2, Restore Suitable California Red-Legged Frog Habitat
- CM1, Establish Reserve System
- CM1 L-4, Connectivity within Plan Area
- CM1 NC-1, Siting Restoration
- CM1 CRLF-1, Purchase of California Red-legged Frog Conservation Credits at the Big Gun Conservation Bank
- CM1 CRLF-2, California Red-legged Frog Habitat Protection
- CM2, Manage and Enhance the Reserve System
- CM2 L-4, Maintenance and Enhancement of Reserve System Permeability
- CM2 AW-5, Basking Habitat Enhancement
- CM2 RAR-1, Riparian Vegetation Management
- CM2 RAR-4, Improvement of In-channel Features
- CM2 RAR-7, Non-native Animal Species Control
- CM3, Restore and Create Natural Communities and Covered Species’ Habitat
- CM3 AW-1, Aquatic/Wetlands Complex Restoration and Creation
- CM3 RAR-1, Riparian Natural Community Natural Community Restoration
- General Condition 1, Watershed Hydrology and Water Quality
- General Condition 2, Conservation Lands: Development Interface Design Requirements
- General Condition 4, Temporary Effects
- General Condition 5, Conduct Worker Training
- Community Condition 2, Riverine and Riparian Avoidance and Minimization
- Stream System Condition 1, Stream System Avoidance
- Stream System Condition 2, Stream System Mitigation: Restoration
- Regional Public Projects Condition 1, Transportation and Other Infrastructure Projects Design Requirements
- Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects Construction BMPs
- Regional Public Projects Condition 3, Operations and Maintenance BMPs

Achievement of Objective CRLF-1.1 would protect at least 2 acres of occupied California red-legged frog habitat in Plan Area B5 by Year 2 and an additional 2 acres by Year 5. Implementation of CM1 NC-1, CM1 CRLF-1, CM1 CRLF-2, CM2 AW-5, and CM3 AW-1 would result in a large interconnected Reserve System that provides aquatic and upland habitat for California red-legged frog, minimizes edge effects of development, and potentially facilitates movement and genetic exchange between populations if California red-legged frogs expand into the Plan Area. Implementation of CM1 L-4 and CM2 L-4 would facilitate California red-legged frog movement through the Reserve System. Implementation of CM2 RAR-1, CM2 RAR-4, CM2 RAR-7, and CM3 RAR-1 would reduce the spread of invasive non-native plant species, minimizing the degradation of California red-legged frog habitat (e.g., controlling plants that invade stream channels) and increasing habitat for the species within the stream system. These measures would also aim to control non-native invasive animal species, minimizing predation of California red-legged frogs by invasive predators.

These goals, objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of restoration actions. The acres of protection and restoration satisfy the typical mitigation that would be applied to the project-level effects, as well as mitigating the effects of the other conservation measures.

**NEPA Determination:** The permanent loss of 403 acres of aquatic habitat and 5,131 acres of upland habitat and the temporary loss of 101 acres of aquatic habitat and 128 acres of upland for California red-legged frog associated with Alternative 4, in the absence of other conservation actions, would constitute a potentially significant impact through habitat modification and potential direct mortality of a special-status species. However, with the protection and restoration guided by the Plan's goals, objectives, conservation measures, and conditions, the overall effects of Alternative 4 on California red-legged frog would be less than significant.

**CEQA Determination:** The permanent loss of 403 acres of aquatic habitat and 5,131 acres of upland habitat and the temporary loss of 101 acres of aquatic habitat and 128 acres of upland for California red-legged frog associated with Alternative 4, in the absence of other conservation actions, would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. The natural community restoration and protection activities would constitute adequate mitigation for CEQA purposes. The biological objectives, conservation measures, and conditions relevant to California red-legged frog are more than sufficient to support the conclusion that the impacts of habitat loss and direct mortality on California red-legged frog under Alternative 4 would be less than significant. No mitigation has been identified.
Impact BIO-16: Effects on foothill yellow-legged frog (NEPA: less than significant; CEQA: less than significant)

Although foothill yellow-legged frog is widely scattered in suitable riverine and riparian habitat throughout the foothills of Placer County, the CNDDB lists no occurrences of this species in the Plan Area (California Department of Fish and Wildlife 2017). The nearest record slightly more than 3 miles from the eastern border of the Plan Area. Appendix D, Species Accounts, of the Plan provides more detail on the status and distribution of yellow-legged frog throughout its range and in Placer County.

Covered Activities under Alternative 4, Reduced Permit Term, would result in permanent and temporary impacts on foothill yellow-legged frog habitat. Permanent impacts would result in the loss of up to 93 acres of foothill yellow-legged frog year-round habitat (8% of a total 1,837 acres of suitable habitat) in in the Foothill portion of the Plan Area (i.e., streams above 500 feet). These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. Other Covered Activities that could also affect habitat include in-stream activities, which include flood control and stormwater management projects, fish passage projects, and bank stabilization activities. Moreover, implementation of Plan restoration, enhancement, and management actions could result in inadvertent mortality; result in the release of contaminants (e.g., fuels, lubricants) into habitat, potentially affecting survival; and cause erosion that could affect habitat.

Covered Activities would temporarily affect up to 23 acres of year-round foothill yellow-legged frog habitat in the Plan Area (2% of a total 1,837 acres). These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Conservation actions of Plan implementation under Alternative 4 that could temporarily affect foothill yellow-legged frog include grading and contouring to restore, create, and enhance wetlands and riparian habitat in reserves.

Short-term construction-related effects on foothill yellow-legged frog include the generation of dust, which has the potential to interfere with the oxygen diffusion process and can transport toxic compounds that may affect frogs. Runoff from urban development and other Covered Activities could degrade the aquatic habitats that support this species. Additional indirect effects are expected to result from in-stream activities that could degrade aquatic habitat; habitat fragmentation as a result of urban and rural development and the construction of new roads and other infrastructure; and the introduction, establishment, and spread of invasive plants and predators (e.g., domestic pets, raccoons, coyotes, skunks, bullfrogs) that thrive in human-dominated environments.

Under Alternative 4, the permanent and temporary loss of foothill yellow-legged frog habitat would be offset by the protection of 50 acres and restoration of 50 acres of foothill yellow-legged frog habitat in the Plan Area.

The protection and restoration of suitable habitat for foothill yellow-legged frog would be supported by the following objectives, conservation measures, and conditions.

- Objective RAR 1.1, Protect Riverine/Riparian Complex
- Objective RAR-1.2, Protect Riverine Habitat Constituent
- Objective RAR-1.3, Restore Riverine/Riparian Complex
• Objective FYLF-1.1, Protect Foothill Yellow-legged Frog Riverine Habitat
• Objective FYLF-1.2, Protect Foothill Yellow-legged Frog Riparian Habitat
• Objective FYLF-1.3, Restore Riparian Habitat for Foothill Yellow-legged Frog
• CM1, Establish Reserve System
• CM1 L-4, Connectivity within Plan Area
• CM1 FYLF-1, Foothill Yellow-legged Frog Habitat Protection
• CM1 NC-1, Siting Restoration
• CM2, Manage and Enhance the Reserve System
• CM2 L-4, Maintenance and Enhancement of Reserve System Permeability
• CM2 RAR-1, Riparian Vegetation Management
• CM2 RAR-4, Improvement of In-channel Features
• CM2 RAR-5, Non-native Animal Species Control
• CM3, Restore and Create Natural Communities and Covered Species’ Habitat
• CM3 RAR-1, Riparian Natural Community Restoration
• General Condition 1, Watershed Hydrology and Water Quality
• General Condition 2, Conservation Lands: Development Interface Design Requirements
• General Condition 4, Temporary Effects
• General Condition 5, Conduct Worker Training
• Community Condition 2, Riverine and Riparian Avoidance and Minimization
• Stream System Condition 1, Stream System Avoidance
• Stream System Condition 2, Stream System Mitigation: Restoration
• Regional Public Projects Condition 1, Transportation and Other Infrastructure Projects Design Requirements
• Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects Construction BMPs
• Regional Public Projects Condition 3, Operations and Maintenance BMPs

Implementation of CM1 FYLF-1, CM1 NC-1, and CM3 RAR-1 would result in a large interconnected Reserve System that provides riverine and riparian habitat for foothill yellow-legged frog, minimizes edge effects of development, and potentially facilitates movement and genetic exchange between populations if foothill yellow-legged frogs expand into the Plan Area. Implementation of CM2 RAR-1, CM2 RAR-4, CM2 RAR-5, and CM3 RAR-1 would reduce the spread of invasive non-native plant species, minimizing the degradation of foothill yellow-legged frog habitat (e.g., controlling plants that invade stream channels) and increasing habitat for the species within the stream system. These measures would also aim to control non-native invasive animal species, minimizing predation of California red-legged frogs by invasive predators.
These goals, objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of restoration actions. The acres of protection and restoration satisfy the typical mitigation that would be applied to the project-level effects, as well as mitigating the effects of the other conservation measures.

**NEPA Determination:** The permanent loss of up to 93 acres and temporary loss of up to 23 acres of habitat for foothill yellow-legged frogs associated with Alternative 4, in the absence of other conservation actions, would constitute a potentially significant impact through habitat modification and potential direct mortality of a special-status species. However, with the protection and restoration guided by the Plan's goals, objectives, conservation measures, and conditions, the overall effects of Alternative 4 on foothill yellow-legged frog would be less than significant.

**CEQA Determination:** The permanent loss of up to 93 acres and temporary loss of up to 23 acres of habitat for foothill yellow-legged frogs associated with Alternative 4, in the absence of other conservation actions, would constitute a potentially adverse effect through habitat modification and potential direct mortality of a special-status species. The natural community restoration and protection activities would constitute adequate mitigation for CEQA purposes. The biological objectives, conservation measures, and conditions relevant to foothill yellow-legged frog are more than sufficient to support the conclusion that the impacts of habitat loss and direct mortality on foothill yellow-legged frog under Alternative 4 would be less than significant. No mitigation has been identified.

**Impact BIO-17: Effects on western spadefoot, a non-covered species (NEPA: less than significant; CEQA: less than significant)**

The CNDDB lists five occurrences of western spadefoot in western Placer County but within the incorporated boundaries of Roseville, a non-participating city (California Department of Fish and Wildlife 2017).

Covered Activities under Alternative 4, Reduced Permit Term, including infrastructure and other Permittee Covered Activities within Roseville, could result in permanent and temporary impacts on western spadefoot habitat. Permanent impacts would result in the loss of up to 11,317 acres of potential western spadefoot habitat in the Plan Area; this amount includes 323 acres of vernal pool–type wetlands within 6,928 acres of vernal pool complex, 3,945 acres of grassland, 154 acres of aquatic/wetland, and 290 acres of riverine/riparian. The majority of potential habitat is located in Plan Area A, and losses would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. This analysis may overestimate effects on spadefoot because the analysis is based on habitat types that may not be suitable in their entirety for spadefoot.

Covered Activities would temporarily affect up to 568 acres of potential western spadefoot habitat, including 19 acres of vernal pool type wetlands within 255 acres of vernal pool complex, 142 acres of grassland, 68 acres of aquatic/wetland, and 103 acres of riverine/riparian. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Conservation actions of Plan implementation under Alternative 4 that could temporarily affect foothill yellow-legged frog include grading and contouring to restore, create, and enhance wetlands in reserves.
Recurring maintenance activities in the Plan Area may directly (through inadvertent mortality) and indirectly (through noise, visual disturbance, and ground vibrations) affect western spadefoot. Outside the wet season, western spadefoots spend much of their time in underground burrows and crevices, making them vulnerable to ground-disturbing activities in upland areas they occupy. Moreover, restoration, enhancement, and management actions could result in inadvertent mortality; result in the release of contaminants (e.g., fuels, lubricants) into habitat, potentially affecting survival; and cause erosion that could affect habitat.

Permanent development within 500 feet of western spadefoot habitat could indirectly affect the species through increased vehicular traffic and the development of new roadways, causing mortalities; in-stream activities and runoff from developed areas that could degrade aquatic habitat; habitat fragmentation as a result of urban and rural development and the construction of new roads and other infrastructure; introduction, establishment, and spread of invasive plant and animal species; and increased predation rates from domestic pets, use of mosquitofish for mosquito abatement, and invasive wildlife species (e.g., bullfrogs).

Under Alternative 4, the permanent and temporary loss of western spadefoot habitat would be offset by implementation of the conservation strategy for vernal pool branchiopods, resulting in the protection and management of 9,350 acres and the restoration of 1,650 acres of wetland habitat and vernal pool complex. In addition, the protection of 1,627 acres and restoration of 550 acres of grassland; the protection of 340 acres and restoration of 238 acres of aquatic/wetlands; and the protection of 1,240 acres and restoration of 809 acres of riverine/riparian could provide potential habitat for western spadefoot.

The protection, restoration, and management of suitable habitat for western spadefoot would be supported by the following objectives, conservation measures, and conditions.

- Objective VPCG-1.1, Protect Existing Vernal Pool Complexes
- Objective VPCG 1.2, Restore/Create Vernal Pool Complexes
- Objective VPCG-1.3, Protect Grasslands
- Objective VPCG-1.4, Restore Grasslands
- Objective AW-1.1, Protect Aquatic/Wetland Complex Natural Community
- Objective AW-1.2, Restore/Create Aquatic/Wetland Complex Natural Community
- Objective AW-1.3, Maintain and Enhance Wetlands and Ponds
- Objective RAR-1.1, Protect Riverine/Riparian Complex
- Objective RAR-1-2, Protect Riverine Constituent Habitat
- Objective RAR-1.3, Restore Riverine/Riparian Complex
- Objective RAR-1.4, Enhance Riparian Vegetation
- CM1, Establish Reserve System
- CM1 L-2, Reserve Acquisition Strategy
- CM1-L-3, Connectivity and Conservation within the Region
- CM1 L-4 Connectivity within the Plan Area
- CM1 VPCG-1, Vernal Pool Complex Protection
- CM1 VPCG-2, Reserve Design for Vernal Pool Restoration/Creation
- CM1 VPCG-3, Grassland Protection
- CM1 AW-1, Aquatic/Wetlands Complex Protection
- CM1 RAR-1, Riverine and Riparian Protection
- CM1 RAR-2, Siting Riparian Restoration
- CM2, Manage and Enhance the Reserve System
- CM2 L-1, Vegetation Management and Invasive Plant Control
- CM2 L-3, Develop and Implement Fire Management Plans
- CM2 L-4, Maintenance and Enhancement of Reserve System Permeability
- CM2 VPCG-1, Vernal Pool Complex Enhancement and Hydrologic Conditions
- CM2 AW-1, Aquatic/Wetlands Complex Vegetation Control
- CM2 AW-2, Fencing Wetlands and Ponds
- CM2 AW-4, Non-native Predator Control
- CM2 AW-7, Maintenance of Water Depths and Hydrological Cycles
- CM2 AW-8, Maintenance and Enhancement of Water Quality
- CM2 RAR-1, Riparian Vegetation Management
- CM2 RAR-4, Improvement of In-channel Features
- CM2 RAR-5, Non-native Animal Species Control
- CM3, Restore and Create Natural Communities and Covered Species' Habitat
- CM3 AW-1, Aquatic/Wetlands Complex Restoration/Creation
- CM3 VPCG-1, Vernal Pool Complex Restoration/Creation
- CM3 VPCG-2 Grasslands Restoration
- CM3 RAR-1, Riparian Natural Community Restoration
- CM4 L-1, Low-Impact Development Standards
- CM4 VPCG-1, Conduct Outreach to Private Landowners.
- General Condition 1, Watershed Hydrology and Water Quality
- General Condition 2, Conservation Lands: Development Interface Design Requirements
- General Condition 4, Temporary Effects
- General Condition 5, Conduct Worker Training
- Community Condition 1, Wetland Avoidance and Minimization (Vernal Pool and Aquatic/Wetland Complex)
- Regional Public Projects Condition 1, Transportation and Other Infrastructure Projects Design Requirements
Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects Construction BMPs

Regional Public Projects Condition 3, Operations and Maintenance BMPs

Species Condition 8, Conservancy Fairy Shrimp

Implementation of CM1-L-3, CM1 L-4, CM1 VPCG-3, CM3 VPCG-2, CM1 RAR-1, CM1 RAR-2, CM2 L-4, CM2 RAR-1, CM3 RAR-1, CM1 AW-1, and CM3 AW-1 would result in a large, interconnected Reserve System supporting upland and aquatic habitat for western spadefoot, enabling the species to disperse between primary habitat areas, and facilitating genetic exchange. Implementation of CM2 AW-2, CM2 RAR-4, and CM2 AW-7 would increase aquatic habitat for western spadefoot in the stream system.

Although they do not apply to non-covered special-status wildlife species, these objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. In addition, Covered Activities under Alternative 4 that affect habitat of non-covered special-status wildlife would be mitigated on a project-by-project basis for discretionary projects. Ancillary benefits for these wildlife species are also anticipated to result from Plan implementation, because it would establish a comprehensive reserve management program that would enhance habitat conditions in a variety of natural communities that may support non-covered special-status wildlife. Mitigation for impacts from projects that are not subject to discretionary review, including implementation of conservation measures to create and restore vernal pool complex, vernal pool-type wetlands, grassland, aquatic/wetland, and riverine/riparian habitat, is unlikely.

NEPA Determination: The permanent loss of up to 11,317 acres and temporary disturbance of up to 568 acres of potential western spadefoot habitat associated with Alternative 4, although likely an overestimate of effects, in the absence of other conservation actions, would constitute a potentially significant impact through habitat modification and potential direct mortality of a special-status species. However, with the protection and restoration guided by the Plan’s goals, objectives, conservation measures, and conditions, the overall effects of Alternative 4 on western spadefoot would be less than significant.

CEQA Determination: The permanent loss of up to 11,317 acres and temporary disturbance of up to 568 acres of potential western spadefoot habitat associated with Alternative 4, although likely an overestimate of effects, in the absence of other conservation actions, would constitute a potentially significant impact through habitat modification and potential direct mortality of a special-status species. The natural community restoration and protection activities would constitute adequate mitigation for CEQA purposes. The biological goals and conservation measures relevant to western spadefoot are more than sufficient to support the conclusion that the impacts of Alternative 4 on western spadefoot would be less than significant. No mitigation has been identified.

Impact BIO-18: Effects on giant garter snake (NEPA: less than significant; CEQA: less than significant)

A population of giant garter snake has been documented approximately 1.5–5 miles west and south of the Placer County line in the Sutter and Natomas Basins of Sutter and Sacramento Counties; the closest occurrence is recorded in the Natomas Basin of Sacramento County, approximately 1.5 miles southwest of the Placer County line in Plan Area A (Figure 5-3 in the Plan). There are also multiple giant garter snake CNDDB records immediately north and south of Cross Canal. These records do
not mention snakes occurring in the canal itself (California Department of Fish and Wildlife 2017). Cross Canal is part of Plan Area B4, which is slated for fish passage improvements. Appendix D, *Species Accounts*, of the Plan provides more detail on the status and distribution of the species throughout its range. The far western portion of the Plan Area adjacent to Sutter and Sacramento Counties is within the American Basin Recovery Unit identified in the *Recovery Plan for Giant Garter Snake* (*Thamnophis gigas*) (U.S. Fish and Wildlife Service 2017).

Covered Activities under Alternative 4, Reduced Permit Term, would result in permanent and temporary impacts on aquatic and upland habitat for giant garter snake. Permanent impacts would result in the loss of up to 809 acres of aquatic habitat (4% of a total 19,511 acres of habitat in the Plan Area) and 268 acres of upland habitat (8% of a total 3,537 acres). These losses would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects, almost entirely in the Valley portion of Plan Area A, with small losses (47 acres) in Plan Area B.

Temporary impacts of Covered Activities on giant garter snake habitat would not exceed 126 acres of aquatic habitat in the Plan Area (less than 1% of total aquatic habitat) and 14 acres of upland habitat (less than 1% of total upland habitat). These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Conservation actions of Plan implementation under Alternative 4 that could temporarily affect giant garter snake habitat include restoration and enhancement actions such as grading and contouring to restore, create, and enhance wetlands in reserves.

Indirect effects could result from construction and maintenance of infrastructure associated with urban and rural development and from changes in hydrology caused by land conversion. Additionally, in-stream activities such as installation and maintenance of utility lines, road improvements, drainage facility improvements, and flood control projects may indirectly affect giant garter snake. Restoration, enhancement, and management actions could result in inadvertent mortality; result in the release of contaminants (e.g., fuels, lubricants) into habitat, potentially affecting survival; and cause erosion that could affect habitat.

Under Alternative 4, the permanent and temporary loss of giant garter snake aquatic and upland habitat would be offset by the protection of 1,100 acres of rice lands and additional protection and restoration of aquatic and wetland natural communities, for a total protection of 1,486 acres and restoration of 291 acres of aquatic habitat and the protection of 970 acres and restoration of 247 acres of upland habitat for giant garter snake.

The Plan establishes a goal of protecting suitable giant garter snake habitat to facilitate the expansion of giant garter snake into the Reserve System. Conservation activities would include measures to result in a large, interconnected Reserve System supporting upland and aquatic habitat enabling the species to disperse between primary habitat areas, and facilitating genetic exchange. Creation of basking sites, control of non-native invasive plants to maintain habitat integrity, and control of non-native predators to reduce mortality of individual snakes would all contribute to survival and restoration of the species. The protection, restoration, and management of suitable habitat for giant garter snake would be supported by the following objectives, conservation measures, and conditions.

- Objective GGS-1.1, Protect and Manage Giant Garter Snake Habitat
- CM1, Establish Reserve System
• CM1 L-4, Connectivity within the Plan Area
• CM1 NC-1, Siting Restoration
• CM1 AW-1, Aquatic/Wetlands Complex Protection
• CM1 GGS-1, Giant Garter Snake Habitat Protection
• CM2, Manage and Enhance the Reserve System
• CM2 L-4, Maintenance and Enhancement of Reserve System Permeability
• CM2 VPCG-3, Ground Squirrel Population Enhancement
• CM2 AW-1, Aquatic/Wetlands Complex Vegetation Control
• CM2 AW-2, Fencing Wetlands and Ponds
• CM2 AW-4, Non-native Predator Control
• CM2 AW-5, Basking Habitat Enhancement
• CM2 AW-7, Maintenance of Water Depths and Hydrological Cycles
• CM2 AW-8, Maintenance and Enhancement of Water Quality
• CM2 RAR-1, Riparian Vegetation Management
• CM2 RAR-4, Improvement of In-channel Features
• CM2 RAR-5, Non-native Animal Species Control
• CM2 AO-1, Provision of Patches of Native Vegetation in Rice Lands
• CM2 AO-2 Development and Water Implementation of a Water Management Plan
• CM3, Restore and Create Natural Communities and Covered Species’ Habitat.
• CM3 AW-1, Aquatic/Wetlands Complex Restoration/Creation
• General Condition 1, Watershed Hydrology and Water Quality
• General Condition 2, Conservation Lands: Development Interface Design Requirements
• General Condition 4, Temporary Effects
• General Condition 5, Conduct Worker Training
• Community Condition 2, Riverine and Riparian Avoidance and Minimization
• Stream System Condition 1, Stream System Avoidance
• Stream System Condition 2, Stream System Mitigation: Restoration
• Regional Public Projects Condition 1, Transportation and Other Infrastructure Projects Design Requirements
• Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects Construction BMPs
• Regional Public Projects Condition 3, Operations and Maintenance BMPs
• Species Condition 5, Giant Garter Snake
These goals, objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of restoration actions. The acres of protection and restoration satisfy the typical mitigation that would be applied to the project-level effects, as well as mitigating the effects of the other conservation measures.

**NEPA Determination:** The permanent loss of 809 acres of aquatic habitat and 268 acres of upland habitat and the temporary disturbance of 126 acres of aquatic habitat and 14 acres of upland habitat associated with Alternative 4, in the absence of other conservation actions, would constitute a potentially significant impact through habitat modification and potential direct mortality of a special-status species. However, with the protection and restoration guided by the Plan’s goals, objectives, conservation measures, and conditions, the overall effects of Alternative 4 on giant garter snake would be less than significant.

**CEQA Determination:** The permanent loss of 809 acres of aquatic and 268 acres of upland habitat and the temporary disturbance of 126 acres of aquatic and 14 acres of upland habitat associated with Alternative 4, in the absence of other conservation actions, would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. The natural community restoration and protection activities would constitute adequate mitigation for CEQA purposes. The biological objectives, conservation measures, and conditions relevant to giant garter snake are more than sufficient to support the conclusion that the impacts of habitat loss and direct mortality on giant garter snake under Alternative 4 would be less than significant. No mitigation has been identified.

**Impact BIO-19: Effects on western pond turtle (NEPA: less than significant; CEQA: less than significant)**

The CNDDB lists four occurrences of western pond turtle in the Plan Area (California Department of Fish and Wildlife 2017).

Covered Activities under Alternative 4, Reduced Permit Term, would result in permanent and temporary impacts on aquatic and upland habitat for western pond turtle. Permanent impacts would result in the loss of 444 acres of aquatic habitat (4% of a total 10,244 acres of aquatic habitat) and up to 818 acres of upland habitat for western pond turtle (6% of a total 14,263 acres of upland habitat) in the Plan Area. These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects, primarily in the Valley and Foothill portions of Plan Area A; small losses (19 acres) would occur in Plan Area B.

Temporary impacts of Covered Activities on western pond turtle would not exceed 159 acres of aquatic habitat (2% of total aquatic habitat) and 24 acres of upland habitat (less than 1% of total upland habitat). These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction.

Conservation actions of Plan implementation under Alternative 4 that could temporarily affect western pond turtle include grading and contouring to restore, create, and enhance wetlands in reserves.

Indirect effects are expected to result from increased vehicular traffic and the development of new roadways, causing mortalities; in-stream activities and runoff from developed areas that could degrade aquatic habitat; habitat fragmentation as a result of urban and rural development and the construction of new roads and other infrastructure; introduction, establishment, and spread of
invasive plant and animal species; and increased predation rates, particularly on eggs and young, by
domestic pets and invasive wildlife species. Moreover, restoration, enhancement, and management
actions could result in inadvertent mortality; result in the release of contaminants (e.g., fuels,
lubricants) into habitat, potentially affecting survival; and cause erosion that could affect habitat.

Under Alternative 4, the permanent and temporary loss of western pond turtle aquatic and upland
habitat would be offset by the protection of 1,624 acres and restoration of 1,073 acres of aquatic
habitat for western pond turtle and the protection of 2,238 acres and restoration of 1,119 acres of
upland habitat.

The Plan establishes a goal of providing habitat for a sustained population of western pond turtles in
the Reserve System. Conservation activities would include measures to result in a large,
interconnected Reserve System supporting upland and aquatic habitat enabling the species to
disperse between primary habitat areas, and facilitating genetic exchange. Increasing basking sites
and cover, control of non-native invasive plants to maintain habitat integrity and access to basking
sites, and control of non-native predators to reduce mortality of young turtles and eggs would all
contribute to survival of the species. The protection, restoration, and management of suitable
habitat for western pond turtle would be supported by the following objectives, conservation
measures, and conditions.

- Objective WPT-1.1, Protect and Enhance Western Pond Turtle Habitat
- Objective WPT-1.2, Restore Western Pond Turtle Habitat
- CM1, Establish Reserve System
- CM1 L-4, Connectivity within the Plan Area
- CM1 NC-1, Siting Restoration
- CM1 WPT-1, Western Pond Turtle Habitat Protection
- CM2, Manage and Enhance the Reserve System
- CM2 L-4, Maintenance and Enhancement of Reserve System Permeability
- CM2 AW-1, Aquatic/Wetlands Complex Vegetation Control
- CM2 AW-2, Fencing Wetlands and Ponds, CM2 AW-3 Sediment Removal
- CM2 AW-4, Non-native Predator Control
- CM2 AW-5, Basking Habitat Enhancement, CM2 RAR-4 Improvement of In-channel Features
- CM2 AW-7, Maintenance of Water Depths and Hydrological Cycles
- CM2 AW-8, Maintenance and Enhancement of Water Quality
- CM2 RAR-1, Riparian Vegetation Management
- CM2 RAR-5, Non-native Animal Species Control
- CM2 WPT-1, Western Pond Turtle Habitat Enhancement
- CM3, Restore and Create Natural Communities and Covered Species’ Habitat
- CM3, AW-1 Aquatic/Wetlands Complex Restoration/Creation
- General Condition 1, Watershed Hydrology and Water Quality
General Condition 2, Conservation Lands: Development Interface Design Requirements
Community Condition 2, Riverine and Riparian Avoidance and Minimization
Stream System Condition 1, Stream System Avoidance
Stream System Condition 2, Stream System Mitigation: Restoration
Regional Public Projects Condition 1, Transportation and Other Infrastructure Projects Design Requirements
Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects Construction BMPs
Regional Public Projects Condition 3, Operations and Maintenance BMPs

These goals, objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of restoration actions. The acres of protection and restoration satisfy the typical mitigation that would be applied to the project-level effects, as well as mitigating the effects of the other conservation measures.

**NEPA Determination:** The permanent loss of 444 acres of aquatic habitat and 818 acres of upland habitat and the temporary disturbance of 159 acres of aquatic habitat and 24 acres of upland habitat associated with Alternative 4, in the absence of other conservation actions, would constitute a potentially significant impact through habitat modification and potential direct mortality of a special-status species. However, with habitat protection and restoration associated with the conservation components, guided by landscape-scale goals and objectives, the effects of Alternative 4 as a whole on western pond turtle would be less than significant.

**CEQA Determination:** The permanent loss of 444 acres of aquatic habitat and 818 acres of upland habitat and the temporary disturbance of 159 acres of aquatic habitat and 24 acres of upland habitat associated with Alternative 4, in the absence of other conservation actions, would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. The natural community restoration and protection activities would constitute adequate mitigation for CEQA purposes. The biological objectives, conservation measures, and conditions relevant to western pond turtle are more than sufficient to support the conclusion that the impacts of habitat loss and direct mortality on western pond under Alternative 4 would be less than significant. No mitigation has been identified.

**Impact BIO-20: Effects on coast horned lizard, a non-covered species (NEPA: less than significant with mitigation; CEQA: less than significant with mitigation)**

The CNDDB lists no occurrences of coast horned lizard in the Plan Area (California Department of Fish and Wildlife 2017).

Covered Activities under Alternative 4 would result in permanent and temporary impacts on coast horned lizard habitat. Permanent impacts would result in loss of 7,925 acres of natural communities that contain suitable habitat elements for coast horned lizard (e.g., open areas with sandy substrates): 3,945 acres of grasslands (18% of this community in the Plan Area), 3,766 acres of oak and valley oak woodland (7%), and 223 acres of riparian woodland (3%). These losses would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. The suitable habitat elements for this species are open areas...
with sandy substrates; consequently, the impact acreage reported here, which is based on impacts on natural communities that may contain these elements, is likely a large overestimate.

Covered Activities would temporarily affect up to 337 acres of habitat for coast horned lizard: 142 acres of grassland (less than 1% of this community), 124 acres of valley oak and oak woodland (less than 1%), and 71 acres of riparian woodland (1%) in the Plan Area. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Conservation actions of Plan implementation under Alternative 4 that could temporarily affect coast horned lizard habitat include restoration and enhancement actions such as grading and contouring to restore, create, and enhance grasslands, oak woodlands and riparian habitat in reserves.

Indirect effects are expected to result from increased vehicular traffic and the development of new roadways, causing mortalities; habitat fragmentation as a result of urban and rural development and the construction of new roads and other infrastructure; introduction, establishment, and spread of invasive plant and animal species; and increased predation rates from domestic pets and invasive wildlife species. Recurring maintenance activities within the Plan Area, such as transportation facility maintenance, utility service facilities maintenance, and vegetation management, may periodically directly and indirectly affect coast horned lizard. Moreover, restoration, enhancement, and management actions could result in inadvertent mortality; result in the release of contaminants (e.g., fuels, lubricants) into habitat, potentially affecting survival; and cause erosion that could affect habitat.

Under Alternative 4, the permanent loss of coast horned lizard habitat would be offset by the protection of 8,867 acres and restoration of 1,492 acres of grassland, oak woodland, valley oak woodland, and riparian woodland communities in the Plan Area.

The protection, restoration, and management of suitable habitat for coast horned lizard would be supported by the following objectives, conservation measures, and conditions.

- CM1, Establish Reserve System
- CM1-L-3, Connectivity and Conservation within the Region
- CM1 L-4, Connectivity within the Plan Area
- CM1 NC-1, Siting Restoration
- CM1 VPCG-3, Grassland Protection
- CM1 RAR-1, Riverine and Riparian Protection
- CM1 RAR-2, Siting Riparian Restoration
- CM1 OW-1, Oak Woodlands Protection
- CM1 OW-2, Siting Oak Woodlands Restoration
- CM2, Manage and Enhance the Reserve System
- CM2 L-4, Maintenance and Enhancement of Reserve System Permeability
- CM2 RAR-1, Riparian Vegetation Management
- CM2 RAR-5, Non-native Animal Species Control
• CM2 OW-1, Oak Woodland Vegetation Enhancement and Management
• CM3, Restore and Create Natural Communities and Covered Species’ Habitat
• CM3, VPCG-2 Grasslands Restoration
• CM3 RAR-1, Riparian Natural Community Restoration
• General Condition 2, Conservation Lands: Development Interface Design Requirements
• General Condition 4, Temporary Effects
• General Condition 5, Conduct Worker Training
• Community Condition 2, Riverine and Riparian Avoidance and Minimization
• Community Condition 3, Valley Oak Woodland
• Regional Public Projects Condition 1, Transportation and Other Infrastructure Projects Design Requirements
• Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects Construction BMPs
• Regional Public Projects Condition 3, Operations and Maintenance BMPs

Although they do not apply to non-covered special-status wildlife species, these objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. In addition, Covered Activities under Alternative 4 that affect habitat of non-covered special-status wildlife would be mitigated on a project-by-project basis for discretionary projects. Ancillary benefits for these wildlife species are also anticipated to result from Plan implementation, because it would establish a comprehensive reserve management program that would enhance habitat conditions in a variety of natural communities that may support non-covered special-status wildlife. Mitigation for impacts from projects that are not subject to discretionary review, including implementation of conservation measures to create and restore grassland, valley oak woodland, oak woodland, and riparian woodland habitat, is unlikely.

**NEPA Determination:** The permanent loss of 7,925 acres and temporary disturbance of 337 acres of potential coast horned lizard habitat associated with Alternative 4, in the absence of other conservation actions, would constitute a potentially significant impact through habitat modification and potential direct mortality of a special-status species. However, with the protection and restoration guided by the Plan's goals, objectives, conservation measures, and conditions and the implementation of Mitigation Measure BIO-2, the overall effects of Alternative 4 on coast horned lizard would be less than significant.

**CEQA Determination:** The permanent loss of 7,925 acres and temporary disturbance of 337 acres of potential coast horned lizard habitat associated with Alternative 4 in the absence of other conservation actions, would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. The natural community restoration and protection activities would constitute adequate mitigation for CEQA purposes. The biological goals and conservation measures relevant to coast horned lizard and implementation of Mitigation Measure BIO-2 would reduce this impact to a less-than-significant level.
Mitigation Measure BIO-2: Conduct preconstruction surveys for coast horned lizard

Impact BIO-21: Effects on Swainson’s hawk (NEPA: less than significant; CEQA: less than significant)

The CNDDB lists 17 extant occurrences of Swainson’s hawks nesting in the Plan Area, all in the Valley portion (California Department of Fish and Wildlife 2017).

Covered Activities under Alternative 4, Reduced Permit Term, would result in permanent and temporary impacts on Swainson’s hawk. Permanent impacts would not exceed 86 acres of nesting habitat (4% of nesting habitat in Plan Area A) and 9,027 acres of foraging habitat (17% of suitable habitat). These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects.

Temporary impacts on Swainson’s hawk habitat would not exceed 8 acres of nesting habitat and 347 acres of foraging habitat. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Implementation of Plan conservation actions under Alternative 4 may also temporarily disturb Swainson’s hawk habitat in locations where grading, vegetation management, or other physical change to the habitat is required.

In addition to resulting in habitat losses, Covered Activities have the potential to directly affect Swainson’s hawk through injury and mortality. Construction-related activities would not be expected to result in direct mortality of adult or fledged Swainson’s hawks if they were present in or near Covered Activities, because they would be expected to avoid contact with construction equipment. However, if Swainson’s hawks were to nest in or near a construction area, construction-related activities, including equipment operation, noise, and visual disturbances, could affect nests or lead to their abandonment, potentially resulting in mortality of eggs and nestlings.

Swainson’s hawk nesting and foraging behavior in the vicinity of proposed construction areas could be directly affected by construction activities. Construction noise above background noise levels (i.e., greater than 50 dBA) could extend 500–5,250 feet from the edge of construction activities. However, no data are available that identify the extent to which these noise levels could affect Swainson’s hawks. Effects associated with construction include noise and visual disturbance caused by grading, contouring, and other ground-disturbing operations outside the project footprint but within 500 feet of it. Construction and subsequent maintenance-related noise and visual disturbances could mask calls and disrupt foraging and nesting behaviors. The use of mechanical equipment during Covered Activities could cause the accidental release of petroleum or other contaminants that could affect Swainson’s hawk foraging habitat.

Indirect effects are expected to result from increased vehicular traffic associated with the development of new roadways, causing mortalities; habitat fragmentation as a result of urban and rural development and the construction of new roads and other infrastructure; and the introduction, establishment, and spread of invasive plant species.

Under Alternative 4, the permanent loss of Swainson’s hawk nesting habitat would be offset by the protection and management of 697 acres and restoration of 396 acres of nesting habitat. The loss of foraging habitat would be offset by the protection and management of up to 9,352 acres and restoration of 2,156 acres of foraging habitat.
The Plan establishes the goal of maintaining habitat to provide for a sustained population of Swainson's hawks in the Plan Area. The protection, restoration, and management of suitable habitat for Swainson's hawk would be supported by the following objectives, conservation measures, and conditions.

- **Objective SWHA-1.1, Protect Swainson's Hawk Nest Trees**
- **Objective SWHA-1.2, Protect Swainson's Hawk Foraging Habitat**
- **Objective SWHA-1.3, Enhance Foraging Habitat**
- **Objective SWHA-1.4, Protect at least 20 isolated trees with the potential to be used as nesting sites for Swainson's hawk, within the protected grasslands.**
- **CM1 SWHA-1, Protection of Swainson's Hawk Habitat**
- **CM2 SWHA-1, Swainson's Hawk Foraging Habitat Enhancement**
- **General Condition 1, Watershed Hydrology and Water Quality**
- **General Condition 2, Conservation Lands: Development Interface Design Requirements**
- **General Condition 4, Temporary Effects**
- **General Condition 5, Conduct Worker Training**
- **Community Condition 2.1, Riverine and Riparian Avoidance**
- **Community Condition 2.2, Minimize Riverine and Riparian Effects**
- **Community Condition 2.3, Riverine and Riparian Restoration**
- **Community Condition 3.1, Valley Oak Woodland Avoidance**
- **Community Condition 3.2, Valley Oak Woodland and Individual Valley Oak Trees**
- **Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects Construction BMPs**
- **Regional Public Projects Conditions 3, Operation and Maintenance BMPs**
- **Species Condition 1, Swainson's Hawk**
  - Swainson's Hawk 1—requires preconstruction surveys during the nesting season
  - Swainson's Hawk 2—prohibits activity during the breeding season within a 1,320-foot buffer zone around a nest, monitoring of reduced buffers
  - Swainson's Hawk 3—requires active nest trees to not be removed during the nesting season
  - Swainson's Hawk 4—requires a construction monitor for active nests.

These objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. The conditions are described in Chapter 6 of the Plan.

**NEPA Determination:** The permanent loss of 86 acres of nesting habitat and 9,027 acres of foraging habitat and the temporary disturbance of 8 acres of nesting habitat and 347 acres of foraging habitat associated with Alternative 4, in the absence of other conservation actions, would constitute a potentially significant impact; however, with the proposed protection and restoration set forth by
the Plan’s goals, objectives, conservation measures, and conditions, the overall effects of Alternative 4 on Swainson’s hawk in the Plan Area would be less than significant.

**CEQA Determination:** The permanent loss of 86 acres of nesting habitat and 9,027 acres of foraging habitat and the temporary disturbance of 8 acres of nesting habitat and 347 acres of foraging habitat associated with Alternative 4, in the absence of other conservation actions, would constitute a significant impact through loss of habitat and potential mortality of a special-status species. The natural community restoration and protection together with conservation measures and conditions relevant to the long-term management of habitat for Swainson’s hawk in the Plan Area support the conclusion that the impacts on Swainson’s hawk under Alternative 4 would be less than significant. No mitigation has been identified.

**Impact BIO-22: Effects on California black rail (NEPA: less than significant; CEQA: less than significant)**

The CNDDB lists two extant occurrences of California black rail in the Plan Area: one in the Valley portion of Plan Area B and one in the Foothill portion of the RAA in Plan Area A (California Department of Fish and Wildlife 2017). Research conducted by the University of California, Berkeley documented additional occurrences in the Valley portion of Plan Area A (Hall and Beissinger 2017).

Covered Activities under Alternative 4, Reduced Permit Term, would result in permanent and temporary impacts on California black rail. Permanent impacts would not exceed 62 acres (6% of suitable habitat in Plan Area A). These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. The impacts would total 28 acres in the Valley portion of the Plan Area, 30 acres in the Foothill portion, and 5 acres in Plan Area B.

Temporary impacts on California black rail habitat are estimated at 27 acres. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Implementation of Plan conservation actions under Alternative 4 may also temporarily affect California black rail habitat in locations where grading, vegetation management, or other physical change to the habitat is required.

In addition to habitat losses, Covered Activities have the potential to directly affect California black rails through injury and mortality. Operation of construction equipment may cause injury to or mortality of individuals. Risk would be greatest to eggs and nestlings susceptible to land-clearing activities through nest abandonment and increased exposure to the elements or to predators. Construction activities could temporarily fragment existing California black rail habitat; grading, filling, contouring, and other ground-disturbing operations could temporarily reduce the extent and functions supported by the affected habitat.

California black rail nesting behavior in the vicinity of proposed construction areas could be directly affected by construction activities. Construction noise above background noise levels (greater than 50 dBA) could extend 500–5,250 feet from the edge of construction activities. However, no data are available that identify the extent to which these noise levels could affect California black rail. Effects associated with construction include noise, dust, and visual disturbance caused by grading, filling, contouring, and other ground-disturbing operations outside the project footprint but within 500 feet of it. Construction and subsequent maintenance-related noise and visual disturbances could mask calls, disrupt foraging and nesting behaviors, and reduce the functions of suitable nesting
habitat for this species. The use of mechanical equipment during Covered Activities could cause the accidental release of petroleum or other contaminants that could affect black rails in the surrounding habitat. The inadvertent discharge of sediment or excessive dust adjacent to black rail habitat could also affect the species.

Indirect effects are expected to result from increased vehicular traffic associated with the development of new roadways, causing mortalities; runoff from developed areas that could degrade habitat; habitat fragmentation as a result of urban and rural development and the construction of new roads and other infrastructure; introduction, establishment, and spread of invasive plant and animal species; and increased predation rates, particularly on eggs and young, from domestic pets and invasive wildlife species.

Under Alternative 4, the permanent loss of California black rail habitat would be offset by the protection and management of 154 acres and restoration of 105 acres of California black rail habitat.

The Plan establishes the goal of maintaining habitat to provide for a sustained population of California black rail in the Plan Area. The protection, restoration, and management of suitable habitat for California black rail would be supported by the following objectives, conservation measures, and conditions.

- Objective BLRA-1.1, Protect, Restore/Create, and Manage and Enhance California Black Rail Habitat
- CM1 BLRA-1, Siting California Black Rail Habitat Protection and Restoration
- CM2 BLRA-1, Maintenance and Enhancement of the Hydrology of California Black Rail Habitat
- CM2 BLRA-2, Protection of California Black Rail Habitat from Grazing and Other Vegetation Management Activities
- General Condition 1, Watershed Hydrology and Water Quality
- General Condition 2, Conservation Lands: Development Interface Design Requirements
- General Condition 4, Temporary Effects
- General Condition 5, Conduct Worker Training
- Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects Construction BMPs
- Regional Public Projects Conditions 3, Operation and Maintenance BMPs
- Species Condition 2, California Black Rail
  - California Black Rail 1—Requires preconstruction surveys
  - California Black Rail 2—Requires buffers and exclusion fencing around occupied habitat during construction
  - California Black Rail 3—Restricts habitat clearing where take is allowed to a period outside of the breeding season
  - California Black Rail 4—Requires mitigation for occupied or potential rail habitat to be done in-kind
  - California Black Rail 5—Requires monitoring during construction
These objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. The conditions are described in Chapter 6 of the Plan.

**NEPA Determination:** The permanent loss of 62 acres and the temporary disturbance of 27 acres of California black rail habitat associated with Alternative 4, in the absence of other conservation actions, would constitute a potentially significant impact; however, with the proposed protection and restoration set forth by the Plan's goals, objectives, conservation measures, and conditions, the overall effects of Alternative 4 on California black rail in the Plan Area would be less than significant.

**CEQA Determination:** The permanent loss of 62 acres and the temporary disturbance of 27 acres of California black rail habitat associated with Alternative 4, in the absence of other conservation actions, would constitute a significant impact through the loss of habitat and potential mortality of a special-status species. The natural community restoration and protection together with conservation measures and conditions relevant to the long-term management of habitat for California black rail in the Plan Area support the conclusion that the impacts on California black rail under Alternative 4 would be less than significant. No mitigation has been identified.

**Impact BIO-23: Effects on burrowing owl (NEPA: less than significant; CEQA: less than significant)**

The CNDDB lists four extant occurrences of burrowing owl in the Plan Area, all in the Valley portion (California Department of Fish and Wildlife 2017).

Covered Activities under Alternative 4, Reduced Permit Term, would result in permanent and temporary impacts on burrowing owl. Permanent impacts would not exceed 9,124 acres of habitat (16% in of suitable habitat Plan Area A). These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. The impacts would occur almost entirely in the Valley portion of Plan Area A, with a smaller amount (190 acres) occurring in Plan Area B.

Temporary impacts on burrowing owl habitat would not exceed 351 acres. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Implementation of Plan conservation actions under Alternative 4 may also temporarily affect burrowing owl habitat in locations where grading, vegetation management, or other physical change to the habitat is required.

In addition to habitat losses, Covered Activities have the potential to directly affect individual burrowing owls through injury and mortality. Operation of construction equipment may cause injury to or mortality of burrowing owls. Risk would be greatest to eggs and nestlings susceptible to land-clearing activities through nest abandonment and increased exposure to the elements or to predators. Construction activities could temporarily fragment existing burrowing owl habitat: grading, filling, contouring, and other initial ground-disturbing operations could temporarily reduce the extent and functions supported by the affected habitat.

Burrowing owl nesting behavior in the vicinity of proposed construction areas could be directly affected by construction activities. Construction noise above background noise levels (greater than 50 dBA) could extend 500–5,250 feet from the edge of construction activities. However, no data are available that identify the extent to which these noise levels could affect burrowing owl. Effects
Associated with construction include noise, dust, and visual disturbance caused by grading, filling, contouring, and other ground-disturbing operations outside the project footprint but within 500 feet of it. Construction and subsequent maintenance-related noise and visual disturbances could mask calls, disrupt foraging and nesting behaviors, and reduce the functions of suitable nesting habitat for this species. The use of mechanical equipment during Covered Activities could cause the accidental release of petroleum or other contaminants that could affect burrowing owls in the surrounding habitat. The inadvertent discharge of sediment or excessive dust adjacent to burrowing owl habitat could also affect the species.

Indirect effects are expected to result from increased vehicular traffic associated with the development of new roadways, causing mortalities; runoff from developed areas that could degrade habitat; habitat fragmentation as a result of urban and rural development and the construction of new roads and other infrastructure; introduction, establishment, and spread of invasive plant and animal species; and increased predation rates, particularly on eggs and young, from domestic pets and invasive wildlife species.

Under Alternative 4, the permanent loss of burrowing owl habitat would be offset by the protection and management of 9,421 acres and restoration of 2,269 acres of burrowing owl habitat.

The Plan establishes the goal of maintaining sufficient habitat to maintain or increase the population size of overwintering western burrowing owls in the Reserve System, and to promote the expansion of a breeding population of burrowing owls into the Reserve System. The protection, restoration, and management of suitable habitat for burrowing owl would be supported by the following objectives, conservation measures, and conditions.

- Objective BUOW-1.1, Protect and Manage Ground Squirrel Colonies
- CM1 BUOW-1, Protection of Ground Squirrel Colonies
- CM1 BUOW-2, Prioritization of Occupied Areas
- CM2 BUOW-1, Installation and Maintenance of Artificial Burrows on the Reserve System.
- General Condition 1, Watershed Hydrology and Water Quality
- General Condition 2, Conservation Lands: Development Interface Design Requirements
- General Condition 4, Temporary Effects
- General Condition 5, Conduct Worker Training
- Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects Construction BMPs
- Regional Public Projects Condition 3, Operation and Maintenance BMPs
- Species Condition 3, Western Burrowing Owl
  - Burrowing Owl 1—Requires preconstruction surveys
  - Burrowing Owl 2—Establishes avoidance buffers during the breeding season
  - Burrowing Owl 3—Establishes non-breeding season avoidance buffers
  - Burrowing Owl 4—Allows for passive exclusion during the non-breeding season
  - Burrowing Owl 5—Requires monitoring during construction
These objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. The conditions are described in Chapter 6 of the Plan.

**NEPA Determination:** The permanent loss of 9,124 acres and the temporary disturbance of 351 acres of burrowing owl habitat associated with Alternative 4, in the absence of other conservation actions, would constitute a potentially significant impact; however, with the proposed protection and restoration set forth by the Plan's goals, objectives, conservation measures, and conditions, the overall effects of Alternative 4 on burrowing owl in the Plan Area would be less than significant.

**CEQA Determination:** The permanent loss of 9,124 acres and the temporary disturbance of 351 acres of burrowing owl habitat associated with Alternative 4, in the absence of other conservation actions, would constitute a significant impact through the loss of habitat and potential mortality of a special-status species. The natural community restoration and protection together with conservation measures and conditions relevant to the long-term management of habitat for burrowing owl in the Plan Area support the conclusion that the impacts on burrowing owl under Alternative 4 would be less than significant. No mitigation has been identified.

**Impact BIO-24: Effects on tricolored blackbird (NEPA: less than significant; CEQA: less than significant)**

The CNDDDB lists 14 extant occurrences of tricolored blackbird in the Plan Area, all but one of which occur in the Valley portion of the Plan Area (California Department of Fish and Wildlife 2017). The occurrence in the Foothills portion is at an elevation just above 300 feet. All the occurrences are either in the RAA or on existing reserves.

**Covered Activities under Alternative 4, Reduced Permit Term, would result in permanent and temporary impacts on tricolored blackbird.** Permanent impacts are estimated at 442 acres of nesting habitat (10% of total habitat in Plan Area A) and 12,470 acres of foraging habitat (12% in Plan Area A). These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. Most of the impacts on nesting and foraging habitat (75% and 80%, respectively) would be in the Valley portion of the Plan Area.

Temporary impacts on tricolored blackbird habitat are estimated at 62 acres of nesting habitat and 484 acres of foraging habitat. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Implementation of Plan conservation actions under Alternative 4 may also temporarily affect tricolored blackbird habitat in locations where grading, vegetation management, or other physical change to the habitat is required.

In addition to habitat losses, Covered Activities have the potential to directly affect tricolored blackbirds through injury and mortality. Operation of construction equipment may cause injury to or mortality of tricolored blackbirds. Risk would be greatest to eggs and nestlings susceptible to land-clearing activities through nest abandonment or increased exposure to the elements and to predators. Injury to or mortality of adults and fledged juveniles would not be expected because individuals would be expected to avoid contact with construction equipment. Construction activities could temporarily fragment existing tricolored blackbird habitat: grading, filling, contouring, and other initial ground-disturbing operations could temporarily reduce the extent and functions supported by the affected habitat.
Tricolored blackbird nesting behavior in the vicinity of proposed construction areas could be directly affected by construction activities. Construction noise above background noise levels (greater than 50 dBA) could extend 500–5,250 feet from the edge of construction activities. However, no data are available that identify the extent to which these noise levels could affect tricolored blackbird. Effects associated with construction include noise, dust, and visual disturbance caused by grading, filling, contouring, and other ground-disturbing operations outside the project footprint but within 1,300 feet of it. Construction and subsequent maintenance-related noise and visual disturbances could mask calls, disrupt foraging and nesting behaviors, and reduce the functions of suitable nesting habitat for these species. The use of mechanical equipment during Covered Activities could cause the accidental release of petroleum or other contaminants that could affect tricolored blackbirds in the surrounding habitat. The inadvertent discharge of sediment or excessive dust adjacent to tricolored blackbird habitat could also affect the species.

Indirect effects are expected to result from increased vehicular traffic associated with the development of new roadways, causing mortalities; runoff from developed areas that could degrade habitat; habitat fragmentation as a result of urban and rural development and the construction of new roads and other infrastructure; introduction, establishment, and spread of invasive plant and animal species; and increased predation rates, particularly on eggs and young, from domestic pets and invasive wildlife species.

Under Alternative 4, the permanent loss of tricolored blackbird nesting habitat would be offset by the protection and management of an estimated 525 acres and restoration of 114 acres of suitable tricolored blackbird nesting habitats. The loss of tricolored foraging habitat would be offset by the protection and management of up to 15,839 acres and restoration of 2,320 acres of suitable tricolored blackbird foraging habitats.

The Plan establishes the goal of maintaining habitat for a sustained population of tricolored blackbird in the Plan Area. The protection, restoration, and management of grasslands, vernal pool complex, fresh emergent marsh, and agricultural lands would be supported by the following objectives, conservation measures, and conditions.

- Objective TRBL-1.1, Protect, Manage, and Enhance Tricolored Blackbird Nesting Habitat
- Objective TRBL-1.2, Protect, Restore, Manage, and Enhance Tricolored Blackbird Foraging Habitat
- Objective TRBL-1.3, Protect Tricolored Blackbird Colony Site
- Objective TRBL-1.4, Protect, Restore, Manage, and Enhance Tricolored Blackbird Foraging Habitat near Colony Sites
- Objective TRBL-1.5, Protect and/or Restore/Create Open Water near Tricolored Blackbird Colony Sites
- Objective TRBL-1.6, Restore Tricolored Blackbird Nesting Habitat.
- CM1 TRBL-1, Reserve Design for Tricolored Blackbird
- CM2 TRBL-1, Maintenance and Enhancement of Nesting Habitat for Tricolored Blackbird
- CM2 TRBL-2, Protection of Himalayan Blackberry Supporting Tricolored Blackbird Nest Colonies
- CM2 TRBL-3, Predator Management Plan
- CM3 TRBL-1, Tricolored Blackbird Habitat Restoration.
- General Condition 1, Watershed Hydrology and Water Quality
- General Condition 2, Conservation Lands: Development Interface Design Requirement
- General Condition 4, Temporary Effects
- General Condition 5, Conduct Worker Training
- Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects Construction BMPs
- Regional Public Projects Conditions 3, Operation and Maintenance BMPs
- Species Condition 4, Tricolored Blackbird
  - Tricolored Blackbird 1—requires preconstruction surveys during the nesting season
  - Tricolored Blackbird 2—requires preconstruction survey of foraging habitat within 3 miles of known colony site prior to initiation of Covered Activities
  - Tricolored Blackbird 3—prohibits activity during the breeding season within a 1,300-foot buffer zone around the nest colony. This buffer may be modified to a minimum of 300 feet, with written approval from the Wildlife Agencies
  - Tricolored Blackbird 4—prohibits activity during the nesting season if the area within 1,300 feet of a project site was found to be actively used as foraging habitat. This buffer may be modified to a minimum of 300 feet, with written approval from the Wildlife Agencies
  - Tricolored Blackbird 5—requires a biological monitor to be present on-site to ensure that no Covered Activities occur within the buffer zone established around an active tricolored blackbird nest colony.
  - Tricolored Blackbird 6—active foraging habitat that occurs within the no-disturbance buffer shall be monitored by the qualified biologist(s) to verify that the Covered Activity is not disrupting tricolored blackbird foraging behavior.

These objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. The conditions are described in Chapter 6 of the Plan.

**NEPA Determination:** The permanent loss of 442 acres of nesting habitat and 12,470 acres of foraging habitat and the temporary disturbance of 62 acres of nesting habitat and 484 acres of foraging habitat associated with Alternative 4, in the absence of other conservation actions, would constitute a potentially significant impact; however, with the proposed protection and restoration set forth by the Plan’s goals, objectives, conservation measures, and conditions, the overall effects of Alternative 4 on tricolored blackbird in the Plan Area would be less than significant.

**CEQA Determination:** The permanent loss of 442 acres of nesting habitat and 12,470 acres of foraging habitat and the temporary disturbance of 62 acres of nesting habitat and 484 acres of foraging habitat associated with Alternative 4, in the absence of other conservation actions, would constitute a significant impact through the loss of habitat and potential mortality of a special-status species. The natural community restoration and protection together with conservation measures and conditions relevant to the long-term management of habitat for tricolored blackbird in the Plan.
Area support the conclusion that the impacts on tricolored blackbird under Alternative 4 would be less than significant. No mitigation has been identified.

**Impact BIO-25: Effects on non-covered bats (NEPA: less than significant with mitigation; CEQA: less than significant with mitigation)**

The CNDDB lists three occurrences of Townsend's big-eared bat and one occurrence of pallid bat in the Plan Area (California Department of Fish and Wildlife 2017). At least 11 special-status bats are known to or could occur in the Plan Area (Townsend’s big-eared bat, pallid bat, spotted bat, silver-haired bat, western red bat, hoary bat, fringed myotis, Yuma myotis, long-eared myotis, long-legged myotis, and small-footed myotis). These bat species employ varied roost strategies, from solitary roosting in tree foliage to colonial roosting in caves, mines, and artificial structures such as tunnels, buildings, and bridges. Various roost strategies also include night roosts, maternity roosts, migration stopover, and hibernation. The natural community/land cover types considered for the assessment of effects on bat roosting habitat comprise oak woodland and valley oak woodland (all types) and riverine/riparian. Because roosting habitat is by its nature the limiting factor for habitats’ ability to support bat populations, impacts on foraging habitat were not considered for the purposes of this analysis, although foraging habitat would benefit from the conservation actions proposed under the conservation strategy.

Covered Activities under Alternative 4, Reduced Permit Term, would result in permanent and temporary impacts on roosting habitat for special-status bat species. Permanent impacts would result in the loss of up to 3,989 acres of tree-roosting habitat for bats (7% of suitable habitat in the Plan Area): 223 acres of riparian woodland, 86 acres of valley oak woodland, and 3,680 acres of oak woodland. In addition, bridge replacement and improvements could affect bats that utilize bridge weep holes and crevices for roosting. An unknown number of roost sites in artificial structures, orchards, and urban landscaping could also be affected.

Covered Activities would temporarily affect up to 195 acres of roosting habitat in the Plan Area. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Plan conservation actions under Alternative 4 that could temporarily affect special-status bats include grading and contouring to restore, create, and enhance riparian woodland and oak woodlands in reserves.

Permanent development within 500 feet of bat roosting habitat could cause alterations in behavior through visual and noise disturbances associated with both construction and normal ongoing human activities if bats are present. Recurring, periodic maintenance activities may indirectly (through noise and visual disturbance) affect roosting bats; activities such as vegetation management and bridge maintenance could result in harm or mortality to young and adults, as well as reduced reproductive success.

Under Alternative 4, the permanent and temporary loss of bat roosting habitat would be offset by the protection of 6,970 acres and restoration of 929 acres of covered species habitat that also support roosting habitat for special-status bats. In addition, the conservation strategy would protect and restore up to 26,739 acres of natural communities that provide foraging habitat (grassland, vernal pool complex, aquatic/wetland complex, riverine/riparian complex, oak woodland, valley oak woodland, agriculture) for special-status bats. The protection, restoration, and management of natural communities that provide roosting habitat for special-status bats would be supported by the following objectives, conservation measures, and conditions.
- CM1, Establish Reserve System
- CM1-L-3, Connectivity and Conservation within the Region
- CM1 L-4, Connectivity within the Plan Area
- CM1 NC-1, Siting restoration
- CM1 VPCG-1, Verna Pool Complex Protection
- CM1 VPCG-2, Reserve Design for Vernal Pool Restoration/Creation
- CM1 VPCG-3, Grassland Protection
- CM1 AW-1, Aquatic/Wetlands Complex Protection
- CM1 RAR-1, Riverine and Riparian Protection
- CM1 OW-1, Oak Woodland Protection
- CM1 OW-2, Siting Oak Woodlands Restoration
- CM1 AO-1, Ag Land and other Open Space Protection
- CM2, Manage and Enhance the Reserve System
- CM2 L-4, Maintenance and Enhancement of Reserve System Permeability
- CM2 RAR-1, Riparian Vegetation Management
- CM2 OW-1, Oak Woodland Vegetation Enhancement and Management
- CM2 AO-1, Provision of Patches of native Vegetation in Rice Lands.
- CM3, Restore and Create Natural Communities and Covered Species’ Habitat
- CM3 VPCG-1, Vernal Pool Complex Restoration/Creation
- CM3 VPCG-2, Grasslands Restoration
- CM3 AW-1, Aquatic/Wetlands Complex Restoration/Creation
- CM3 RAR-1, Riparian Natural Community Restoration
- CM3 OW-1, Oak Woodland Restoration,
- General Condition 1, Watershed Hydrology and Water Quality
- General Condition 2, Conservation Lands: Development Interface Design Requirements
- General Condition 4, Temporary Effects
- General Condition 5, Conduct Worker Training
- Community Condition 1, Wetland Avoidance and Minimization (Vernal Pool and Aquatic/Wetland Complex)
- Community Condition 2, Riverine and Riparian Avoidance and Minimization
- Community Condition 3, Valley Oak Woodland
- Stream System Condition 1, Stream System Avoidance
- Stream System Condition 2, Stream System Mitigation: Restoration
- Regional Public Projects Condition 1, Transportation and Other Infrastructure Projects Design Requirements
- Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects Construction BMPs
- Regional Public Projects Condition 3, Operations and Maintenance BMPs

Although they do not apply to non-covered special-status wildlife species, these conservation measures and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. In addition, Covered Activities, which include urban/suburban development, transportation projects, and infrastructure projects, under Alternative 4 that affect occurrences and habitat of non-covered special-status wildlife would be mitigated on a project-by-project basis for discretionary projects. Ancillary benefits are also expected to occur for these wildlife species as a result of the Plan, because it would establish a comprehensive reserve management program that would enhance habitat conditions in a variety of natural communities that may support non-covered special-status wildlife. Any potential effects on these species from fuels management, vegetation management, and infrastructure operations and maintenance, though not likely subject to additional environmental review, would be offset because the entities implementing these projects would be participating in the Plan and contributing funds for the implementation of the conservation strategy. The implementation of conservation measures to create, restore, enhance, and manage riparian woodland, valley oak woodland, and oak woodland habitat, which may affect roosting bats, may not be subject to further approvals or review that may identify effects on roosting bats.

**NEPA Determination:** The permanent loss of 3,989 acres and temporary disturbance of 195 acres of potential roosting habitat for special-status bats associated with Alternative 4, in the absence of other conservation actions, would constitute a potentially significant impact; however, with the proposed protection and restoration set forth by the Plan’s goals, objectives, conservation measures, and conditions would ensure that habitat loss from Covered Activities, which include urban/suburban development, transportation projects, infrastructure projects, fuels management, vegetation management, and infrastructure operations and maintenance, would be compensated for and preserved habitat would be managed in perpetuity and thus the effects would be reduced to a less-than-significant level.

Conservation measures to create, restore, enhance, and manage riparian, valley oak woodland, and oak woodland habitat could affect roosting bats if these actions result in the trimming, removal, or disturbance of tree roosting habitat and if there are no opportunities to identify and avoid roosting bat habitat through subsequent NEPA review; therefore, these activities could have adverse impacts on special-status bats. Implementation of Mitigation Measure BIO-3 would reduce this effect to a less-than-significant level.

**CEQA Determination:** The permanent loss of 3,989 acres and temporary disturbance of 195 acres of potential roosting habitat for special-status bats associated with Alternative 4, in the absence of other conservation actions, would constitute a significant impact through habitat modification and potential direct mortality of a special-status species. The natural community restoration and protection activities are expected to be concluded close enough to the timing of construction impacts to constitute mitigation for CEQA purposes. The proposed protection and restoration set forth by the Plan’s goals, objectives, conservation measures, and conditions would ensure that habitat loss from Covered Activities, which include urban/suburban development, transportation...
projects, infrastructure projects, fuels management, vegetation management, and infrastructure operations and maintenance, would be compensated for and preserved habitat would be managed in perpetuity and thus the effects would be reduced to a less-than-significant level.

Conservation measures to create, restore, enhance, and manage riparian, valley oak woodland, and oak woodland habitat could affect roosting bats if these actions result in the trimming, removal, or disturbance of tree roosting habitat and if there are no opportunities to identify and avoid roosting bat habitat through subsequent CEQA review; therefore, these activities could have adverse impacts on special-status bats. Implementation of Mitigation Measure BIO-3 would reduce this effect to a less-than-significant level.

Mitigation Measure BIO-3: Conduct preconstruction surveys for roosting bats and implement protective measures

Impact BIO-26: Effects on American badger, a non-covered species (NEPA: less than significant with mitigation; CEQA: less than significant with mitigation)

There are no CNDDB records of American badger in the Plan Area (California Department of Fish and Wildlife 2017).

Covered Activities under Alternative 4, Reduced Permit Term, would result in permanent and temporary impacts on American badger habitat. Permanent impacts would result in the loss of up to 3,945 acres of grasslands (11% of this community in Plan Area A) that are potential habitat for American badger. The majority of potential habitat is located in Plan Area A and would be lost primarily as a result of urban/suburban development, rural residential development, transportation projects, and infrastructure projects. These effects likely overestimate the extent of effects on habitat suitable for American badger because soils in the valley portion of the Plan Area are less suitable because of the presence of dense clay soils, which are less likely to be used by badgers.

Covered Activities would temporarily affect up to 142 acres of American badger habitat (less than 1% of grasslands) in the Plan Area. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Plan conservation actions under Alternative 4 that could temporarily affect American badger habitat include grading and contouring to restore, create, and enhance grasslands in reserves.

Permanent development within 500 feet of American badger habitat could cause alterations in behavior through visual and noise disturbances associated with both construction and normal ongoing activities. Recurring maintenance activities, such as transportation facility maintenance, utility service facilities maintenance, and vegetation management, may periodically affect American badger both directly and indirectly. Additional indirect effects are expected to result from increased vehicular traffic and the development of new roadways, causing mortalities; habitat fragmentation as a result of urban and rural development and the construction of new roads and other infrastructure; and the introduction, establishment, and spread of invasive plant and animal species.

Under Alternative 4, the permanent and temporary loss of American badger habitat would be partially offset by protection of 1,627 acres and restoration of 550 acres of grassland that could provide potential habitat for the species.
The protection, restoration, and management of natural communities that provide roosting habitat for special-status bats would be supported by the following objectives, conservation measures, and conditions.

- CM1, Establish Reserve System
- CM1 L-3, Connectivity and Conservation within the Region
- CM1 L-4, Connectivity within the Plan Area
- CM1 NC-1, Siting restoration
- CM1 VPCG-3, Grassland Protection
- CM2, Manage and Enhance the Reserve System
- CM2 L-4, Maintenance and Enhancement of Reserve System Permeability
- CM3, Restore and Create Natural Communities and Covered Species' Habitat
- CM3 VPCG-2, Grasslands Restoration
- General Condition 2, Conservation Lands: Development Interface Design Requirements
- General Condition 4, Temporary Effects
- General Condition 5, Conduct Worker Training
- Regional Public Projects Condition 1, Transportation and Other Infrastructure Projects Design Requirements
- Regional Public Projects Condition 2, Transportation and Other Infrastructure Projects Construction BMPs
- Regional Public Projects Condition 3, Operations and Maintenance BMPs

Although they do not apply to non-covered special-status wildlife species, these objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. In addition, Covered Activities under Alternative 4 that affect habitat of non-covered special-status wildlife would be mitigated on a project-by-project basis for discretionary projects. Ancillary benefits for these wildlife species are also anticipated to result from Plan implementation, because it would establish a comprehensive reserve management program that would enhance habitat conditions in a variety of natural communities that may support non-covered special-status wildlife. Mitigation for impacts from projects that are not subject to discretionary review, including implementation of conservation measures to create and restore grassland habitat, is unlikely.

**NEPA Determination:** The permanent loss of 3,945 acres and temporary disturbance of 142 acres of grassland habitat suitable to support American badger associated with Alternative 4, in the absence of other conservation actions, would constitute a potentially significant impact. However, with the protection and restoration guided by the Plan’s goals, objectives, conservation measures, and conditions and the implementation of Mitigation Measure BIO-4, the overall effects of Alternative 4 on American badger would be less than significant.

**CEQA Determination:** The permanent loss of 3,945 acres and temporary disturbance of 142 acres of grassland habitat suitable to support American badger associated with Alternative 4, in the absence of other conservation actions, would constitute a significant impact through habitat
modification and potential direct mortality of a special-status species. The natural community restoration and protection activities are expected to be concluded close enough to the timing of construction impacts to constitute mitigation for CEQA purposes. The proposed protection and restoration set forth by the Plan’s goals, objectives, conservation measures, and conditions and implementation of Mitigation Measure BIO-4 would reduce permanent and temporary loss of American badger habitat and the potential mortality of the species to a less-than-significant level.

**Mitigation Measure BIO-4: Conduct preconstruction survey for American badger**

**Other Biological Resources**

**Impact BIO-27: Effects on protected wetlands and waters (NEPA: less than significant; CEQA: less than significant)**

Covered Activities under Alternative 4, Reduced Permit Term, would result in permanent and temporary impacts on wetlands and waters protected under state and federal laws and regulations. Alternative 4 would result in approximately 767 acres of permanent impacts on constituent habitats (i.e., vernal pool, vernal pool-type wetland, fresh emergent marsh, lacustrine, non-vernual pool seasonal wetland, riparian, and riverine) that could contain or be considered protected wetlands and waters. These wetlands and many of these waters are considered special aquatic sites, as defined under Section 404, Subpart E of the Clean Water Act. In the Plan Area, these special aquatic sites include wetlands; riffle/pool complexes, which can be found in both intermittent and perennial streams; and vegetated shallows, which may occur on the edge of some of the perennial streams within the Plan Area. Some agricultural lands and water conveyance facilities (e.g., rice lands, canals, ditches) may also be considered protected wetlands and waters that could be affected under Alternative 4. The acreage of wetlands that may occur agricultural lands in the Plan Area is not known at this time due to ongoing irrigation practices. Exact acreages of impacts would be determined based on project-level wetland delineations. For agricultural areas, determining the acres of wetlands in these areas will require the ceasing of irrigation long enough for its influence on vegetation to subside. These impacts would result primarily from urban/suburban development, rural residential development, transportation projects, and infrastructure projects. Effects on wetlands and waters would occur primarily in the Valley portion of the Plan Area.

Temporary impacts on protected wetlands and waters mapped as constituent habitats would not exceed 290 acres. These temporary impacts would be associated with urban/suburban development, rural residential development, transportation construction, fuels management, vegetation management, infrastructure operations and maintenance, and infrastructure construction. Implementation of Plan conservation actions under Alternative 4 may also temporarily affect protected wetlands and waters in locations where grading, vegetation management, or other physical change is required.

Permanent impacts on protected wetlands and waters under Alternative 4 would be offset through a watershed-based approach as described in the CARP. The CARP requires compensatory mitigation for impacts on wetlands to be implemented at 1.5:1 and riverine habitat at 1.52:1 through payment into an ILF program or purchase of mitigation credits at an agency-approved mitigation bank. Most of this mitigation would be achieved through the enhancement (rehabilitation) of wetlands and waters, and creation (establishment)/restoration (reestablishment) of 1,548 acres of constituent habitats that would contain or be considered protected wetlands and waters as described in the Plan, except for a portion of the 714 acres of riparian habitat that would be restored, which may not
be classified as a wetland. The preservation and establishment/reestablishment of wetlands and waters would be guided by the same objectives and conservation measures described above for vernal pool complex, aquatic/wetland complex, and riverine/riparian complex. Overall, the proposed wetland mitigation in the CARP would maintain or improve the functions and services of wetlands, including special aquatic sites, within the Plan Area.

Temporarily affected wetlands and waters would be restored through implementation of General Condition 4, Temporary Effects, which requires that temporarily affected areas be restored to pre-project conditions or better based on performance standards such as percent vegetative cover, restored topography, and restored hydrology.

The Plan includes several objectives and conservation measures to ensure that there would be no net loss of functions and services within the Plan Area, as listed in Table 4.1 of the CARP. These objectives and measures would ensure that preserved, enhanced, and established/re-established wetlands and waters maintain or improve the physical, chemical, and biological processes of wetlands in these landscapes, including nutrient cycling, vegetation structure, plant and animal diversity, habitat for rare species, and habitat linkages/corridors. The services that these wetlands provide would include such benefits as flood control, groundwater recharge, and maintenance of water quality in receiving waters.

Potential effects on protected wetlands and waters during construction and operations and maintenance will be avoided and minimized through implementation of General Condition 1, Community Conditions 1.3 and 1.5, and Regional Public Project Conditions 2 and 3. These conditions are described in Chapter 6 of the Plan. The CARP provides additional specific avoidance and minimization measures, summarized in Table 4.2 of that document.

These objectives, conservation measures, and conditions establish performance standards for measuring the effectiveness of proposed conservation actions. The acres of protection and restoration and the commitment to ratios established in the CARP satisfy the typical mitigation that would be applied to the project-level effects, as well as mitigating the effects of the other conservation measures. The proposed conditions further demonstrate the intent to avoid and minimize effects and to maintain or improve wetland and water functions and services over the life of the Plan.

**NEPA Determination:** The permanent loss of approximately 767 acres and temporary disturbance of 190 acres of constituent habitats that could contain or be considered protected wetlands and waters associated with Alternative 4, in the absence of other conservation actions, would constitute a potentially significant impact. The effects would be offset by the Plan's commitment to mitigate at 1.5:1 for wetlands and 1.52:1 for riverine. As described in Table 4.1 of the CARP, the proposed mitigation would maintain or improve the functions and services of wetlands, including special aquatic sites, within the Plan Area. These objectives and measures would ensure that preserved, enhanced, and established/re-established wetlands and waters maintain or improve the physical, chemical, and biological processes of wetlands in these landscapes, including nutrient cycling, vegetation structure, plant and animal diversity, habitat for rare species, and habitat linkages/corridors. The services that these wetlands provide would include such benefits as flood control, groundwater recharge, and maintenance of water quality in receiving waters. General Condition 4 would ensure that temporarily affected wetlands and waters are restored to pre-project conditions or better based on performance standards. As described in Chapter 6 of the Plan, potential effects on wetlands and waters during construction would be avoided and minimized.
through the implementation of General Condition 1; Community Conditions 1.3 and 1.5; and Regional Public Project Conditions 2 and 3. Table 4.2 of the CARP includes additional avoidance and minimization measures for wetlands and waters. Considering these proposed conservation actions set forth by the Plan’s goals, objectives, conservation measures, and conditions, the overall effects of Alternative 4 on wetlands and waters in the Plan Area would be less than significant.

**CEQA Determination:** The permanent loss of approximately 767 acres and temporary disturbance of 190 acres of constituent habitats that could contain or be considered protected wetlands and waters associated with Alternative 4, in the absence of other conservation actions, would constitute a significant impact through loss of protected wetlands and waters in the Plan Area. The natural community creation, enhancement, restoration, and protection activities and mitigation commitments under the CARP, which includes a commitment to mitigate at 1.5:1 for wetlands and 1.52:1 for riverine, are more than sufficient to support the conclusion that the impacts on protected wetlands and waters under Alternative 4 would be less than significant. No mitigation has been identified.

**Impact BIO-28: Effects on fish and wildlife corridors (NEPA: less than significant; CEQA: less than significant)**

Figure 4.3-1 shows the PFG area under the Plan relative to ECAs mapped as part of the California Essential Habitat Connectivity Project. As seen in this figure, the Valley PFG area overlaps with portions of the Curry Creek–Coon Creek ECA and the Coon Creek–Bear River ECA. Several existing reserves fall within the Curry Creek–Coon Creek ECA, which runs north–south and is dominated by vernal pool complex, annual grassland, and rice lands. The Valley PFG bisects this ECA in two areas: one is north of Nicolaus Road and west of SR 65 and if built out entirely would result in a 0.75-mile separation between an existing vernal pool reserve to the north and vernal pool complex to the south. The other area is north of Sunset Boulevard and west of Fiddyment Road and if fully developed would create a 3-mile separation between vernal complex and grasslands north and south of this area. Buildout of this portion of the ECA could isolate natural lands to the south in Roseville and to the southeast in the Plan Area.

A limited amount of rural residential development could take place along the southern edge of the Coon Creek–Bear River ECA, in the portion of the PFG around Sheridan, and in the area south of Camp Far West Reservoir; however, large areas of the ECA would be within the RAA and would be available for conservation efforts. Connectivity of similar habitat types within this ECA would remain intact if the PFG were fully developed. This ECA is dominated by vernal pool complex and grasslands in the west and south and oak woodland to the east and north. The ECA would largely support wildlife movement both within and to areas outside the Plan Area.

The southeastern edge of the Foothill PFG overlaps the western edge of the Marble Valley–Sawtooth Ride ECA in an area between Auburn Folsom Road on the west and Folsom Lake and the North Fork American River on the east. The most of the land cover in this area, dominated by oak woodland, is already protected as part of the Folsom Lake State Recreation Area and thus will likely remain suitable for wildlife movement.

The Plan includes several objectives and conservation measures to maintain and improve connectivity for the movement of covered species and other wildlife through the Plan Area. These measures include landscape-level objectives (Objectives L-1.1, L-2.1, L-2.2, L-2.3, and L-2.4) for establishing a large interconnected Reserve System that allows native and covered species to move within and outside of the Plan Area. These objectives would be met by most of the conservation
measures that address natural community protection and restoration but in particular by CM1 L-3, Connectivity and Conservation within the Region; CM1 L-4, Connectivity within the Plan Area; CM2 L-4, Maintenance and Enhancement of Reserve System Permeability; and CM2 RAR-2, Removal and/or Modification of Barriers to Fish Passage. Wildlife dispersal and corridors would also be addressed at the project level through Regional Public Projects Condition 1, which includes conditions for transportation projects to minimize the creation of barriers to wildlife dispersal.

**NEPA Determination:** Alternative 4 would result in the isolation of some natural habitats that are currently linked with similar habitats in the western half of the Plan Area; such isolation would constitute a potentially adverse effect on wildlife corridors. However, with implementation of the objectives, conservation measures, and conditions established in the Plan and the CARP, the movement of fish and wildlife within and to areas outside the Plan Area would generally be improved over the life of the Plan. Consequently, the impact on wildlife corridors would be less than significant.

**CEQA Determination:** Alternative 4 would result in the isolation of some natural habitats that are currently linked with similar habitats in the western half of the Plan Area; such isolation would constitute a significant impact. However, with implementation of the objectives, conservation measures, and conditions under the established in the Plan and the CARP, the movement of fish and wildlife within and to areas outside the Plan Area would generally be improved over the life of the Plan. Consequently, the impact on wildlife corridors would be less than significant. No mitigation has been identified.

**Impact BIO-29: Effects of invasive plant species (NEPA: less than significant; CEQA: less than significant)**

Covered Activities under Alternative 4, Reduced Permit Term, could have adverse effects on natural communities, wildlife, and native plants as a result of the introduction and spread of invasive plant species through development, operations, maintenance, and some conservation activities throughout the Plan Area. Invasive plant species threaten the diversity or abundance of native plant species through competition for resources, predation, parasitism, hybridization with native populations, introduction of pathogens, and physical or chemical alteration of the invaded habitat. Unlike the native plants they displace, many invasive plant species do not provide the food, shelter, or other habitat components on which many native fish and wildlife species depend. Invasive species also have the potential to harm human health and the economy by adversely affecting natural ecosystems, water delivery, flood protection systems, recreation, agricultural lands, and developed areas.

The Plan addresses the potential effects of invasive plant species through implementation of CM2 L-1, Vegetation Management and Invasive Plant Control; CM2 VPCG-1, Vernal Pool Complex and Grassland Vegetation Management; CM3 VPCG-2, Grassland Restoration; CM2 AW-1, Aquatic/Wetlands Complex Vegetation Control; CM2 RAR-1, Riparian Vegetation Management; CM2 OW-1, Oak Woodland Vegetation Enhancement and Management, and CM2 OW-2, Control of Invasive Animals that Limit Oak Regeneration, all of which include measures to identify, remove, or manage invasive plant species.

The introduction of invasive plant species would be further avoided and minimized through General Condition 1, which includes specifications for the use of native seed mixtures for erosion control; General Condition 2, which requires the use of non-invasive plants in landscaping adjacent to reserve properties; Community Condition 2.1, which includes a requirement to handle and dispose
of removed invasive plants to prevent further spread; and Regional Public Projects Condition 2, which includes post-construction BMPs to help avoid and minimize the introduction of invasive plants.

**NEPA Determination:** Alternative 4 has the potential to result in the introduction and spread of invasive plant species; however, implementation of the Plan’s objectives, conservation measures, and conditions would ensure that this effect is less than significant.

**CEQA Determination:** Alternative 4 has the potential to result in the introduction and spread of invasive plant species; however, implementation of the Plan’s objectives, conservation measures, and conditions would reduce this impact to a less-than-significant. No mitigation has been identified.

### 4.3.3 Cumulative Analysis

The cumulative analysis of effects on biological resources is a qualitative evaluation using the past, present, and reasonably foreseeable future projects listed in *Cumulative Impacts* in the introductory portion of this chapter; Placer County and City of Lincoln general plan EIR impact determinations for cumulative impacts, where applicable; and the impact determinations identified in Section 4.3.2, *Impacts and Mitigation Measures*, for the various alternatives.

This analysis assesses whether implementation of the Plan the Covered Activities would result in a cumulatively considerable incremental contribution that, when combined with past, present, and reasonably foreseeable future projects, would result in a cumulatively significant impact.

**Alternative 1—No Action**

Placer County and the City of Lincoln determined in their respective general plans that loss of natural communities and habitat for special-status species from development associated with implementation of those general plans would constitute a cumulatively considerable contribution to a cumulative impact on biological resources in the region. Under Alternative 1, individual projects would be expected to mitigate direct and indirect effects on biological resources. However, those projects would have limited or no ability to mitigate cumulative effects on those resources because the Plan’s conservation strategy would not be in place to coordinate mitigation and conservation throughout the Plan Area. Accordingly, the cumulative impacts on biological resources would remain significant.

**Alternative 2—Proposed Action**

Past losses of natural communities and impacts on other biological resources in the Plan Area caused by urban development and conversion to agricultural lands have resulted in the loss of substantial amounts of grasslands, vernal pool complex, and oak woodlands in the Plan Area. The proposed development under the proposed action would further contribute to these losses and impacts in the Plan Area. In addition, future development in Auburn, Rocklin, Loomis, and Roseville—which are in Plan Area B-1 and have some infrastructure projects covered by the Plan but are non-participating cities in the context of urban development covered by the Plan, would further contribute to the cumulative impacts on biological resources within the region.

Across the Central Valley, the conversion of vernal pool complex to cropland has continued with a reported loss of 47,306 acres between 2005 and 2012, with conversion to agricultural uses accounting for most of this loss (95%). In Placer County during this period, an estimated 2,126 acres
of vernal pool complex was converted—68% of which was for agriculture-related uses (Witham et al. 2014). The majority of this conversion was classified as “bare plowed ag.” Crop data available from the Placer County Agricultural Department show an overall decrease in cropland between 2000 and 2016 (Placer County Agriculture Department n.d.; Placer County Agriculture Weights and Measures n.d.). Most of the cropland loss is likely due to urban growth, but it appears that for at least part of this period, cropland expanded into vernal pool complex. This trend could potentially continue over the permit term. Any conversion of vernal pool complex or other natural communities to cropland would not be covered under the Plan.

The Plan’s long-term mitigation for all planned development during the 50-year permit term—habitat protection, management, and restoration of natural communities and habitat for species guided by its goals, objectives, conservation measures, and conditions—would reduce the magnitude of these impacts on these resources in the Plan Area. Over the 50-year life of the Plan, the effects on the biological resources addressed in this EIS/EIR would not be cumulatively considerable.

**Alternative 3—Reduced Take/Reduced Fill**

The contribution of Alternative 3 to cumulative effects on biological resources in the Plan Area and region would be similar to that under Alternative 2. Alternative 3 would generally result in fewer impacts on covered species’ habitats and natural communities and would implement the same conservation as that proposed under Alternative 2. Alternative 3 would not result in a cumulatively considerable contribution to cumulative effects on biological resources.

**Alternative 4—Reduced Permit Term**

The contribution of Alternative 4 to cumulative effects on biological resources in the Plan Area and region would be similar to that under Alternative 2. Alternative 4 would generally result in fewer impacts on covered species’ habitats and natural communities and though it would entail less conservation, the conservation actions would be proportional to the impacts. Because of its comprehensive approach to mitigation, conservation, and covered species recovery, Alternative 4 would not result in a cumulatively considerable contribution to cumulative effects on biological resources.

### 4.3.4 References Cited

**Printed References**


**Personal Communications**

Preston, Robert. Botanist/Wetlands Ecologist. ICF, Sacramento, CA. March 15, 2018—email to Lisa Webber, ICF.