



ADVANCE MITIGATION PROGRAM
Honey-Eagle Lakes and Feather Sub-basins
Regional Advance Mitigation
Needs Assessment

Version 1.0 – FINAL

**Establishing Caltrans' Need for Advance Mitigation
for the Honey-Eagle Lakes and Feather Sub-basins
forecast fiscal years 2023/24 to 2032/33**

California Department of Transportation – District 2

August 2026

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LIST OF ACRONYMS

Acronym	Definition
ACE	Areas of Conservation Emphasis
AMA	Advance Mitigation Account
AMP	Advance Mitigation Program
AMP Guidelines	<i>Advance Mitigation Program Final Formal Guidelines</i>
Basin Plan	Water Quality Control Plan
BEI	Bank Enabling Instrument
BLM	Bureau of Land Management
Cal-IPC	California Invasive Plant Council
Caltrans	California Department of Transportation
CDFW	California Department of Fish and Wildlife
CEHC	California Essential Habitat Connectivity Project
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CNRA	California Natural Resources Agency
CO ₂	carbon dioxide
Corps	U.S. Army Corps of Engineers
CWA	Clean Water Act
CWHR	California Wildlife Habitat Relationships
DPS	distinct population segment
EFH	essential fish habitat
EPA	U.S. Environmental Protection Agency
ESU	evolutionarily significant unit
FESA	federal Endangered Species Act
FGC	California Fish and Game Code
FHWA	Federal Highway Administration
FishPAC	Fish Passage Advisory Committee
FWS	U.S. Fish and Wildlife Service
GAI	geographic area of interest
GAP	Gap Analysis Program
GIS	geographic information system
HCP	habitat conservation plan
HU	hydrologic unit
HUC	hydrologic unit code
HUC-8	eight-digit hydrologic unit code

Master Process Agreement	<i>Master Process Agreement for Planning and Developing Advance Mitigation throughout California for the California Department of Transportation Advance Mitigation Program</i>
MCA	mitigation credit agreement
MPO	metropolitan planning organization
NCCP	natural community conservation plan
NEPA	National Environmental Policy Act
NFWF	National Fish and Wildlife Foundation
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
RAMNA	Regional Advance Mitigation Needs Assessment
RCIS	regional conservation investment strategy
RipZET	Riparian Zone Estimator Tool
RTPA	regional transportation planning agency
RWQCB	Regional Water Quality Control Board
SAMNA	Statewide Advance Mitigation Needs Assessment
SAMNA Reporting Tool	Statewide Advance Mitigation Needs Assessment Reporting Tool
SFEI	San Francisco Estuary Institute
SHC	Streets and Highways Code
SHOPP	State Highway Operation and Protection Program
SHOPP Ten-Year Book	<i>State Highway Operation & Protection Program Ten-Year Project Book 2023/24—2032/33</i>
SHS	State Highway System
SWRCB	State Water Resources Control Board
STIP	State Transportation Improvement Program
SWAP	State Wildlife Action Plan
TMDL	total maximum daily load
TRPA	Tahoe Regional Planning Agency
USC	U.S. Code
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USGS	U.S. Geological Survey
Water Boards	SWRCB and RWQCBs
WOTUS	waters of the U.S.

EXECUTIVE SUMMARY

This *Honey-Eagle Lakes and Feather Sub-basins Regional Advance Mitigation Needs Assessment* (“RAMNA”) was developed with the goal of realizing the benefits of long-range planning to help manage the risks and priorities of the California Department of Transportation (“Caltrans”) Advance Mitigation Program (“AMP”). It was developed in accordance with the AMP Final Formal Guidelines (“AMP Guidelines”)¹ and incorporates information and feedback received from outreach to the natural resource regulatory agencies,² the Federal Highway Administration, other transportation agencies, Native American tribes, interested parties, and the public. Caltrans District 2 is the lead district for this planning-level effort.

Background. In 2017, the California Streets and Highways Code (“SHC”) § 800 et seq. was amended to create the AMP within Caltrans and to provide the seed capital for an Advance Mitigation Account (“AMA”), to be operated by Caltrans as a revolving account. The stated intent of the legislation was for Caltrans, through the AMP, to realize the potential of advance mitigation to “accelerate transportation project delivery” and to “protect natural resources through transportation project [compensatory] mitigation” [SHC § 800(a)]. To this end, SHC § 800.6(a) identifies 11 specific activities as authorized allowable expenditures under the AMA and provides for the AMA to be replenished under specific conditions. The 11 activities authorized by SHC § 800 et seq. consist of purchasing or establishing compensatory mitigation credits^{3,4} developed through an authorized regulatory mechanism.⁵ Upon delivery, the credits are expected to be both available and at hand for Caltrans and natural resource regulatory agencies to use as offsets to transportation project impacts. The actual finding, however, of a specific credit’s adequacy and/or suitability to offset an impact, as well as the placement of natural resource regulatory agency compensatory mitigation conditions on transportation

¹ <https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/amp-final-formal-guidelines-a11y.pdf>

² For the AMP, “natural resource regulatory agencies” refers specifically to the signatories to the 2020 *Master Process Agreement for Planning and Developing Advance Mitigation throughout California for the California Department of Transportation Advance Mitigation Program*. The signatories are California Department of Fish and Wildlife (“CDFW”); State Water Resources Control Board; U.S. Army Corps of Engineers Los Angeles, Sacramento, and San Francisco districts; U.S. Environmental Protection Agency; U.S. Fish and Wildlife Service; National Marine Fisheries Service; and California Coastal Commission.

³ Compensatory mitigation is a mitigation strategy that is preferentially applied only after it has been determined that there will be unavoidable adverse impacts on natural resources and other efforts to minimize, rectify, and reduce the impact have been incorporated into a transportation project’s design. Traditionally, this determination occurs late in a transportation project’s development process, at which time the compensatory mitigation action is both funded and implemented concurrently with the transportation project.

⁴ Credits are the usual currency of mitigation established through an advance mitigation project; however, other values may also be established.

⁵ Authorized regulatory mechanisms include the regulatory processes to establish mitigation banks and in-lieu fee programs.

projects, is conducted in the future through each transportation project's environmental studies and permits.

Purpose. Described in the AMP Guidelines, advance mitigation planning is the AMP's process for justifying, proposing, scoping, and securing internal Caltrans AMA funding approval for advance mitigation projects. Advance mitigation planning consists of five steps. Steps 1 and 2 serve to focus the assessment (see Section ES.1, below). Step 3 is this RAMNA. Steps 4 and 5 of the AMP's advance mitigation planning process further narrow down the suite of potential advance mitigation projects to a few that have a high probability of meeting the AMP's goals (see Section ES.9, below).

A RAMNA is a desktop study that consists of the best readily available information for Caltrans Districts to refer to when scoping and proposing advance mitigation projects to be funded by the AMA. The information was sensibility checked by other Caltrans functional units, natural resource regulatory agencies, and others before it was finalized. When the Caltrans AMP invests in advance mitigation projects to purchase compensatory mitigation credits, Caltrans assumes that the credits are aligned with existing natural resource regulatory agency goals and objectives. When the Caltrans AMP invests in advance mitigation projects to establish compensatory mitigation, it will aim to establish credits approved by multiple natural resource regulatory agencies. Whether purchased or established, Caltrans intends for credits to be delivered on a schedule that will revolve the AMA.

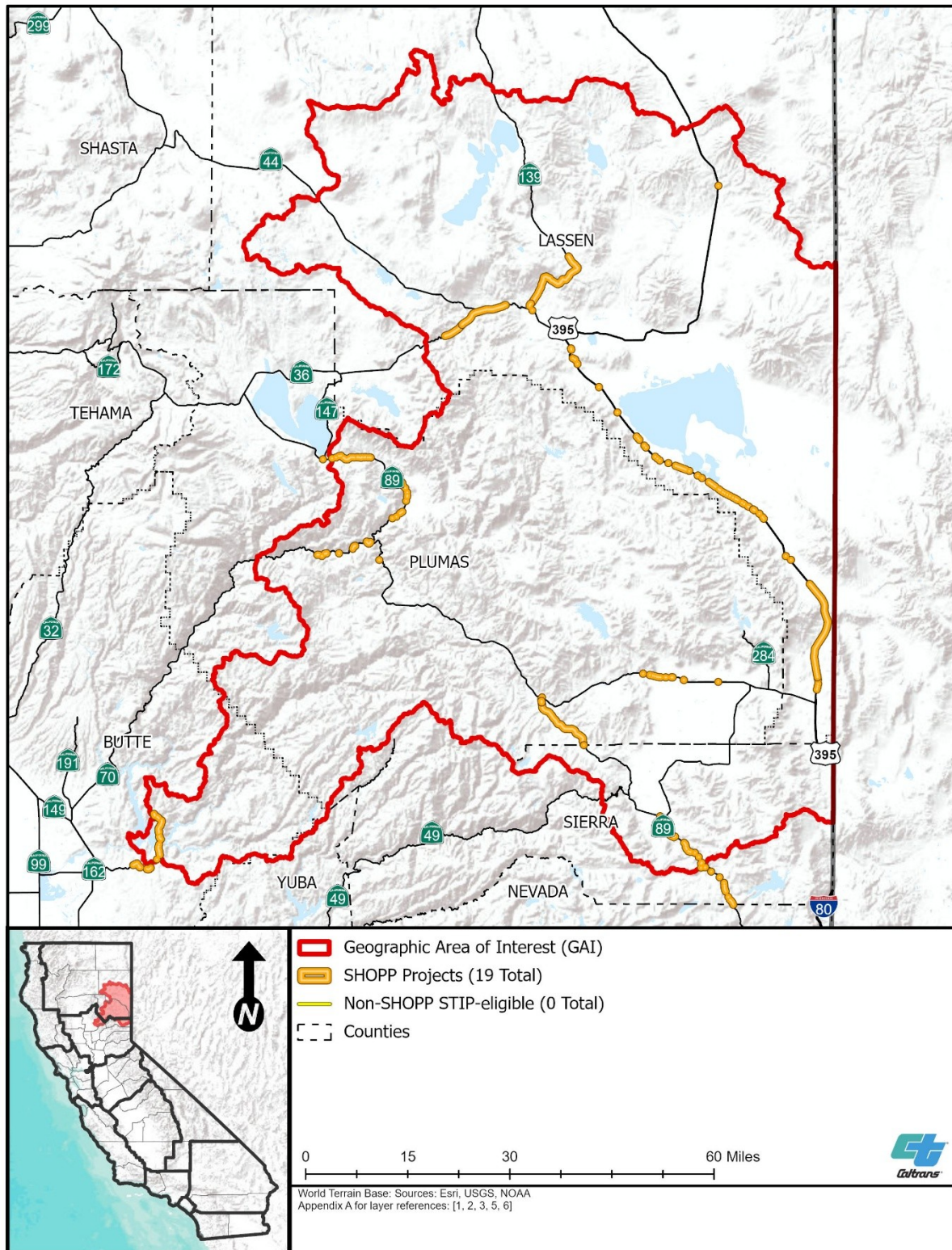
Through the RAMNA's review process, the conservation goals and objectives provided in the RAMNA were vetted with the natural resource regulatory agencies. Caltrans thinks incorporating natural resource regulatory agency goals and objectives into advance mitigation project scopes improves the chances that the compensatory mitigation credits will be (1) usable as transportation project impact offsets and (2) "protect natural resources through transportation project [compensatory] mitigation" [SHC § 800(a)]. Each chapter is briefly summarized below.

Figure ES-1 shows the geographic area of interest ("GAI") road infrastructure.

ES.1 Geographic Area of Interest and Resource Focus

Focusing this assessment improves the probability that advance mitigation projects undertaken by Caltrans will yield credits (or similar) that will be usable and comply with an appropriate established regulatory framework. Focusing the assessment also improves the chances that resultant credits will be available on a timeframe that will revolve the AMA. Hence, for advance mitigation planning, Caltrans focused the RAMNA on a specific time period, a specific area, and typical compensatory mitigation needs.

Figure ES-1. GAI Road Infrastructure



The time period assessed in this RAMNA is for fiscal years 2023/24 through 2032/33, a planning period consistent with Caltrans:

- Long-term transportation plans conceptualized in the *State Highway Operation and Protection Program Ten-Year Project Book Fiscal Years 2023/24—2032/33* (“SHOPP Ten-Year Book”; Caltrans 2024). Transportation projects in the SHOPP Ten-Year Book have not undergone the environmental and permitting process.
- Modeled compensatory mitigation needs published in the *Statewide Advance Mitigation Needs Assessment⁶ Report Fourth Quarter 2024/25 Fiscal Year* (“SAMNA Report”; Caltrans 2025a). Compensatory mitigation needs in the SAMNA Report are modeled and do not reflect an environmental and permitting process.

The GAI assessed in this RAMNA consists of the Honey-Eagle Lakes (eight-digit hydrological unit code [“HUC-8”] 18080003), East Branch North Fork Feather (HUC-8 18020122), and Middle Fork Feather (HUC-8 18020123) sub-basins. GAIs are established at an ecoregion or HUC-8 scale to define appropriate planning areas for mitigation implementation and anticipated use areas that align with natural resource regulatory agency practices (Caltrans 2019). Caltrans District 2 selected the GAI because implementing landscape-scale mitigation in the sub-basins is likely to maximize State Highway Operation and Protection Program (“SHOPP”) and State Transportation Improvement Program (“STIP”) funded transportation project acceleration while maximizing environmental benefits.

Because the SAMNA model forecast impacts on hundreds of species’ habitats, to further focus the planning effort, Caltrans District 2 identified species for which natural resource regulatory agencies condition transportation projects and those transportation projects that would most likely benefit if compensatory mitigation credits were available. These “species of mitigation need” are the state candidate endangered and species of special concern Cascades frog (*Rana cascadae*), the Northern California-Southern Oregon distinct population segment (DPS) Fisher (*Pekania pennanti*), federal threatened and state threatened foothill yellow-legged frog (*Rana boylei*), the state fully protected Golden eagle (*Aquila chrysaetos*), the federal proposed threatened and species of special concern northwestern pond turtle (*Actinemys marmorata*), and federal endangered and state threatened Sierra Nevada yellow-legged frog (*Rana sierrae*).

Compensatory mitigation for wetlands, non-wetland waters, and riparian habitat within the GAI was also identified as both a historical transportation project compensatory mitigation need and an anticipated future transportation project compensatory mitigation need within the GAI.

⁶ The SAMNA Reporting Tool is a geographic information system (“GIS”) overlay model developed by Caltrans to support advance mitigation planning (Caltrans 2019a).

ES.2 Environmental Setting

Information on the GAI's environmental setting is provided in Chapter 2, Environmental Setting, and its associated appendices. To develop an understanding of the GAI that is consistent with natural resource regulatory agency tools and references, geospatial data from the SAMNA Reporting Tool, CDFW's BIOS, and other readily available information are summarized and presented. Climate change resiliency, wildlife connectivity, biodiversity, and conserved lands are among the information presented. A critical habitat map is provided.

The GAI consists of approximately 2.9 million acres within California's Middle Fork Feather, East Branch North Fork Feather, and Honey-Eagle Lakes sub-basins, which are overlapped by portions of the Modoc Plateau, Mono, Northwestern Basin and Range, Sierra Nevada, Sierra Nevada Foothills, and Southern Cascades ecoregion sections.

ES.3 Relevant Plans, Policies, and Regulations

Compensatory mitigation is informed by regulatory requirements, regulatory mechanisms for credit establishment, and conservation. Laws, regulations, comprehensive plans, conservation plans, and land management plans that are applicable and relevant to the GAI will be consulted by Caltrans to inform both regional understanding and advance mitigation project scoping.

Caltrans identified 117 documents that may be relevant to advance mitigation planning and advance mitigation project delivery: 34 state and federal laws, guidelines, and regulations; 20 statewide and regional resource management plans; 26 plans and permits and other documents focused on species of mitigation need; 19 state agency, federal agency, Native American tribal, and local government land management plans; 9 water resources plans and documents; 7 county, city, and local government general plans; and 2 nongovernmental organization conservation and management documents. A summary and links to these documents can be found in Chapter 3, Relevant Plans, Policies, and Regulations.

ES.4 Existing Mitigation Opportunities

For the purposes of the RAMNA, existing mitigation opportunities are potential opportunities for Caltrans to use AMA funds to purchase compensatory mitigation that was previously approved by one or more natural resource regulatory agencies. In accordance with SHC § 800.6(a), the approved credits or values eligible for purchase may have been established through a conservation bank, mitigation bank, natural community conservation plan ("NCCP"), habitat conservation plan ("HCP"), in-lieu fee program, or mitigation credit agreement ("MCA") developed in accordance with a CDFW-approved regional conservation investment strategy ("RCIS").

Chapter 4, Existing Mitigation Opportunities, presents readily available information regarding existing mitigation opportunities for the GAI. In brief, Caltrans identified no HCPs/NCCPs where Caltrans may be eligible to participate, 8 pending or active

conservation and/or mitigation banks, 1 active in-lieu fee programs, no approved RCISs, and no MCAs.

Existing mitigation opportunities can also inform both regional understanding and advance mitigation project scoping because they may be expressions of resource agency conservation goals and objectives⁷ and may be suitable for concurrent transportation project mitigation.

ES.5 Estimated Impacts

Prior to developing a focused advance mitigation project scope to purchase or establish mitigation credits or values, as authorized by SHC § 800.6(a), Caltrans must determine whether it needs advance mitigation credits. Since environmental and permitting processes have not yet taken place, Caltrans must rely on estimating future SHOPP transportation project⁸ impacts through the SAMNA model, as well as qualitative assessments of STIP-eligible transportation project needs,⁹ to define the range of its potential advance mitigation needs.

Chapter 5, Modeled Estimated Impacts, provides transportation project impact estimates for fiscal years 2023/24 to 2032/33. In the GAI, 19 SHOPP transportation projects and no non-SHOPP STIP-eligible transportation projects are in their conceptualization phase for the planning period. Many of these planned transportation improvements are not forecast to affect terrestrial or aquatic resources and many forecast impacts may be avoided during transportation project delivery. Nevertheless, the compensatory mitigation estimates presented reflect the best available information about compensatory mitigation needs at this time.

Impact estimates for wetlands, non-wetland waters, and riparian habitat from SHOPP transportation projects included in the SAMNA are summarized in Tables ES-1 through ES-3. Since natural resource regulatory agencies routinely place wetland, non-wetland water, and riparian habitat conditions on transportation projects, it is likely that Caltrans transportation project schedules would benefit from available credits for these resources. Similarly, impact estimates for terrestrial species of mitigation need are summarized in Table ES-4.

⁷ For the purposes of this RAMNA, conservation goals and objectives are a broad set of regional natural resource sustainability goals and objectives that are consistent with both regulatory requirements and conservation science.

⁸ Caltrans undertakes SHOPP transportation projects to address maintenance, safety, operation, and rehabilitation of the SHS; such projects do not add new capacity to the system.
<https://catc.ca.gov/programs/state-highway-operation-and-protection-program>

⁹ Metropolitan planning organizations, regional transportation planning agencies, and other public agencies also undertake transportation projects to address non-SHOPP STIP-funded transportation improvements.

Table ES-1. Summary of Estimated SHOPP Impacts on Wetlands in the GAI (acres)^a

Sub-basin (HUC-8)	Sub-basin Number	Number of Transportation Projects ^b	Total Estimated Wetlands Impacts ^c
East Branch North Fork Feather	18020122	0	0.0
Honey-Eagle Lakes	18080003	4	0.2
Middle Fork Feather	18020123	2	1.0
Total^{c, d}	Not applicable	6	1.2

Source: Caltrans 2025c

^a The SAMNA forecasts impacts for two of the three HUC-8s within the GAI.

^b Transportation projects are listed in Appendix B.

^c Totals may be different due to rounding.

^d Totals may not reflect numbers presented in the rows above. Some SHOPP transportation projects cross more than one sub-basin; many are not forecast to affect wetlands.

Table ES-2. Summary of Estimated SHOPP Impacts on Non-wetland Waters in the GAI (acres)^a

Sub-basin (HUC-8)	Sub-basin Number	Number of Transportation Projects ^b	Estimated Non-Wetland Waters Impact (acres)
East Branch North Fork Feather	18020122	2	0.1
Honey-Eagle Lakes	18080003	6	0.7
Middle Fork Feather	18020123	4	0.7
Total	Not applicable	12	1.4

Source: Caltrans 2025c

^a The SAMNA forecasts impacts for all HUC-8s within the GAI.

^b Transportation projects are listed in Appendix B.

Table ES-3. Summary of Estimated SHOPP Impacts on Riparian Function in the GAI (acres)^a

Sub-basin (HUC-8)	Sub-basin Number	Number of Transportation Projects ^b	Estimated Riparian Function Impact (acres)
East Branch North Fork Feather	18020122	3	1.5
Honey-Eagle Lakes	18080003	2	1.1
Middle Fork Feather	18020123	4	6.7
Total	Not applicable	9	9.3

Source: Caltrans 2025c

^a The SAMNA forecasts impacts for all HUC-8s within the GAI.

^b Transportation projects are listed in Appendix B.

Table ES-4. Summary of Estimated SHOPP Impacts on Terrestrial Species of Mitigation Need within the GAI (acres)

Ecoregion Section	Cascades Frog Habitat: Number of Caltrans SHOPP Projects ^a	Cascades Frog: Estimated Habitat Impact (acres)	Fisher Habitat: Number of Caltrans SHOPP Projects ^a	Fisher: Estimated Habitat Impact (acres)	Foothill Yellow- legged Frog North Feather DPS Habitat: Number of Caltrans SHOPP Projects ^a	Foothill Yellow- legged Frog North Feather DPS: Estimated Habitat Impact (acres)
Modoc Plateau	0	0.0	0	0.0	0	0.0
Mono	0	0.0	0	0.0	0	0.0
Northwestern Basin and Range	0	0.0	0	0.0	0	0.0
Sierra Nevada	0	0.0	6	7.8	5	7.5
Sierra Nevada Foothills	0	0.0	0	0.0	1	4.0
Southern Cascades	0	0.0	1	0.8	0	0.0
Total^b	0	0.0	6	8.6	6	11.5

Ecoregion Section	Golden Eagle Habitat: Number of Caltrans SHOPP Projects ^a	Golden Eagle: Estimated Habitat Impact (acres)	Northwestern Pond Turtle Habitat: Number of Caltrans SHOPP Projects ^a	Northwestern Pond Turtle: Estimated Habitat Impact (acres)	Sierra Nevada Yellow-legged Frog Habitat: Number of Caltrans SHOPP Projects ^a	Sierra Nevada Yellow-legged Frog: Estimated Habitat Impact (acres)
Modoc Plateau	0	0.0	0	0.0	0	0.0
Mono	2	3.4	1	<0.1	0	0.0
Northwestern Basin and Range	5	5.5	4	3.0	0	0.0
Sierra Nevada	8	20.7	6	8.5	4	2.1
Sierra Nevada Foothills	1	4.1	1	4.1	0	0.0
Southern Cascades	1	4.3	0	0.0	0	0.0
Total^b	14	37.9	10	15.6	4	2.1

Source: Caltrans 2025b, 2025c

^a Transportation projects are listed in Appendix B.

^b Totals may not reflect numbers presented in rows above. Some SHOPP transportation projects cross more than one ecoregion section.

ES.6 Benefiting Transportation Project Considerations

One intent of the AMP's founding legislation is for Caltrans to realize the potential of advance mitigation to accelerate transportation project delivery. At this time (August of fiscal year 2026/27), Caltrans is 3 years into the SHOPP Ten-Year Book planning period. Hence, for the time period under consideration, fiscal years 2023/24 to 2032/33, Caltrans District 2 intends to prioritize purchasing or developing mitigation credits or values that are planned for the middle to the end of the 10-year planning period.

Organized by aquatic resources, riparian habitat, and species of mitigation need, a temporal analysis of Caltrans needs is provided in Chapter 6, Benefiting Transportation Project Considerations. Prior to proposing advance mitigation projects, Caltrans District 2 will consult the most recent SHS Management Plan to obtain an up-to-date estimate of the timing of transportation projects that may need credits established or purchased through the AMA.

It should be noted that at this time, several transportation projects have been delayed or eliminated and the timing of Caltrans needs may change. Caltrans will consider the updated transportation schedule when scoping and funding advance mitigation projects. The feasibility of addressing the needs through the SHC § 800.6(a) authorized activities is discussed in Chapter 9, Assessment of Authorized Activities.

ES.7 Conservation Goals and Objectives

To increase the probability that advance mitigation project scopes promoted within and/or undertaken by Caltrans will successfully meet natural resource regulatory agency goals and objectives, this RAMNA was reviewed by these agencies and their comments and suggestions were incorporated.

Wildlife Resources Goals and Objectives

When establishing wildlife resources compensatory mitigation credits in accordance with SHC § 800.6(a), Caltrans will seek to align advance mitigation project scopes with the conservation goals and objectives of the multiple natural resource regulatory agencies with the authority to approve wildlife resource-related credit establishment and with the authority to approve their application to offset transportation project-related impacts. At a broad scale, Caltrans' understanding of the wildlife resources goals and objectives presented in this RAMNA encompasses protecting, preserving, and enhancing large-scale ecological processes, environmental gradients, biological diversity, and regional linkages.

Informed by relevant plans, policies, and regulations, the goals and objectives presented summarize how state and federal natural resource regulatory agencies, land managers, and other interested parties have prioritized regional conservation that preserves intact habitat and provides habitat linkages and connectivity. In recognition of transportation project acceleration needs, wildlife goals and objectives place an emphasis on species of mitigation need habitats in the GAI; however, advance mitigation for the benefit of species of mitigation need is anticipated to have broader benefits for multiple special-status

species that rely on the same habitats. Caltrans' understanding of natural resource regulatory agency wildlife goals gathered for this RAMNA include:

- Conserving and expanding habitat for species of mitigation need in the GAI to support ecosystem functions that are essential to recovery of the species.
- Preserving, enhancing, and increasing connectivity between blocks of habitat supporting species of mitigation need to allow for dispersal that will maintain resilience and variability of populations.
- Supporting resiliency of the landscape to climate change.
- Decreasing mortality and competition, and protecting population health for species of mitigation need.
- Providing multi-species and multi-resource benefits.

Objectives and sub-objectives are provided under each of the above goals in Chapter 7, Wildlife Resources Conservation Goals and Objectives, to guide Caltrans advance mitigation project scoping toward those actions that would create the greatest functional lift for wildlife resources in the GAI. Sub-objectives capture more specific measures from conservation and land management plans that address threats to the aforementioned resources.

Aquatic Resources Goals and Objectives

When establishing aquatic resources compensatory mitigation credits in accordance with SHC § 800.6(a), Caltrans will seek to align advance mitigation project scopes with the conservation goals and objectives of the multiple natural resource regulatory agencies that have the authority to approve aquatic resource-related credit establishment and have the authority to approve their application to satisfy conditions on transportation projects. At a broad scale, Caltrans' understanding of aquatic resources goals and objectives presented in the RAMNA encompasses restoring, maintaining, and enhancing large-scale ecological processes, environmental gradients, biological diversity, and regional linkages. Aquatic resources goals developed for this RAMNA prioritize:

- Providing for no net loss to area, functions, values, and condition of wetland and non-wetland water resources.
- Restoring and/or enhancing the chemical, physical, and biological integrity of wetlands and non-wetland waters.
- Supporting resiliency of aquatic resources to climate change.
- Providing multi-resource benefits.

Sub-objectives are included for each goal in Chapter 8, Aquatic Resources Conservation Goals and Objectives, to guide Caltrans project scoping toward those actions that would create the greatest functional lift for aquatic resources in the GAI. Sub-objectives also capture more specific measures from conservation and land management plans that address threats to the aforementioned resources.

ES.8 Authorized Activity Summary

A summary of Caltrans' need for compensatory mitigation credits in the GAI and the feasibility of each SHC § 800.6(a) authorized activity to address is provided in Chapter 9, Assessment of Authorized Activities. As pointed out in Chapter 6, Benefiting Transportation Project Considerations, given the expected timing of mitigation need, at this time (August of fiscal year 2026/27) mitigation that can be purchased or established by 2027/28 (within the next 2 years) could potentially address mitigation for impacts on aquatic resources on approximately:

- 0.1 acre of non-wetland waters and 1.5 acres of riparian habitat in the East Branch North Fork Feather sub-basin within the GAI, potentially contributing to the acceleration of 2 and 3 transportation projects, respectively (Table 6-1).
- 0.2 acre of wetlands, 0.7 acre of non-wetland waters, and 1.1 acre of riparian habitat in the Honey-Eagle Lakes sub-basin within the GAI, potentially contributing to the acceleration of 3, 6, and 1 transportation projects, respectively (Table 6-2).
- 0.2 acre of non-wetland waters, and 1.6 acres of riparian habitat in the Middle Fork Feather sub-basin within the GAI, potentially contributing to the acceleration of 2, and 2 transportation projects, respectively (Table 6-3).
- No species of mitigation need habitat in the Mono Ecoregion Section (Table 6-4).
- 2.2 acres of northwestern pond turtle habitat and 4.2 acres of golden eagle habitat impacts in the Northwestern Basin and Range Ecoregion Section, potentially contributing to 3 and 4 transportation projects, respectively (Table 6-5).
- 1.7 acres of foothill yellow-legged frog North Feather DPS habitat, 1.8 acres of Sierra Nevada yellow-legged frog habitat, 1.8 acres of northwestern pond turtle habitat, 11.3 acres of golden eagle habitat, and 4.2 acres of fisher habitat in the Sierra Nevada Ecoregion Section, potentially contributing to 3, 3, 3, 5, and 4 transportation projects, respectively (Table 6-6).
- 4.0 acres of foothill yellow-legged frog North Feather DPS habitat, 4.1 acres of northwestern pond turtle habitat, and 4.1 acres of golden eagle habitat in the Sierra Nevada Foothills Ecoregion Section, potentially contributing to 1, 1, and 1 transportation projects, respectively (Table 6-7).
- 4.3 acres of golden eagle habitat and 0.8 acre of fisher habitat in the Southern Cascades Ecoregion Section, potentially contributing to 1 and 1 transportation projects, respectively (Table 6-8).

All or some of these needs could form the basis for Caltrans District 2 to develop an advance mitigation project scope.

Broadly speaking, SHC § 800.6(a) authorized activities can be divided into two groups: (1) purchasing compensatory mitigation that has been previously established and approved by the natural resource regulatory agencies through a conservation/mitigation bank, HCP/NCCP, in-lieu fee program, or MCA; or (2) establishing and receiving approval of compensatory mitigation credits, such as establishing a mitigation bank in accordance with existing laws, policies, procedures, templates, and guidance. The time it takes to

perform each authorized activity varies; however, purchasing or paying fees for compensatory mitigation credits would likely take less time than establishing compensatory mitigation credits.

Caltrans Districts will consider all feasible options when developing advance mitigation project scopes. At this time (August of fiscal year 2026/27), purchasing credits approved through a bank or establishing new credits through a bank or in-lieu fee instrument is likely feasible. The feasibility of each authorized activity to meet the forecast mitigation need in time to accelerate transportation projects will depend on the availability of a regulatory and administrative pathway and other conditions.

As pointed out above, when Caltrans scopes advance mitigation projects to establish mitigation, Caltrans intends to center the advance mitigation projects on the species of mitigation need and aquatic resources, as well as address conservation benefits and values for other special-status terrestrial species and resources. Caltrans also intends to scope credit establishment projects that align with conservation goals and objectives, address multi-resource benefits, and address overlapping jurisdictions.

ES.9 Next Steps

Caltrans Districts will use the advance mitigation options identified in the RAMNA to inform advance mitigation project scoping, which will consider needs; conservation data and plans; input received from natural resource regulatory agencies, the Federal Highway Administration, metropolitan planning organizations, regional transportation planning agencies, other public agencies that implement transportation improvements, Native American tribes, interested parties, and the public; feasibility in consideration of mitigation need and timing; and other information presented here and that is publicly available to develop a high-level advance mitigation project scope to be included in an advance mitigation project's nomination materials. Once a nominated advance mitigation project is approved by the Caltrans Director, the Caltrans District will begin advance mitigation project delivery, which includes stakeholder engagement, project alternative analysis, coordination with natural resource regulatory agencies with the authority to approve compensatory mitigation, contracting with third parties and/or credit sponsors, and developing an agency-approved instrument and/or one or more advance mitigation project-specific interagency agreement.

As with all compensatory mitigation established through any advance mitigation process, the mitigation's suitability to address a specific transportation project's impact is determined in the future, on a case-by-case basis, when transportation project mitigation requirements are known.

1. INTRODUCTION

California's State Highway System ("SHS") relies on long-range planning documents to guide its operation and maintenance. In this *Honey-Eagle Lakes and Feather Sub-basins Regional Advance Mitigation Needs Assessment* ("RAMNA"), the California Department of Transportation ("Caltrans") District 2 presents its forecast of natural resource compensatory mitigation¹ needs for the Honey-Eagle Lakes and Feather sub-basins for a 10-year planning horizon. Sources used for this RAMNA are cited throughout this document, and links to geographic information system ("GIS") sources are provided in Appendix A, *GIS Sources*.

The RAMNA was developed with the goal of realizing the benefits of advance mitigation, which:

- anticipates that unavoidable impacts will be identified in the future; and
- consists of having compensatory mitigation available that has already been vetted and agreed upon by natural resource regulatory agencies as representing mitigation actions before transportation projects are completely designed and funded.

When compensatory mitigation actions are independent of transportation project delivery timelines, there is an opportunity to (1) improve the schedule and cost predictability of complying with natural resource regulatory agency compensatory mitigation conditions on transportation projects, and (2) consolidate the anticipated compensatory mitigation from multiple transportation projects into fewer and larger mitigation actions, establishing mitigation credits that provide a greater ecological value than implementing multiple small project-by-project actions. Credits are the usual currency of advance mitigation actions.

This document is intended to be both an internal communication tool between Caltrans' functional units² and an external communication tool for Caltrans to communicate with the Federal Highway Administration ("FHWA"), natural resource regulatory agencies, other transportation agencies (that is, metropolitan planning organizations ["MPOs"], regional transportation planning agencies ["RTPAs"], and other public agencies that implement transportation improvements), Native American tribes, interested parties, and the public. It will be posted on the Advance Mitigation Program ("AMP") website: <https://dot.ca.gov/programs/environmental-analysis/biology/advancemitigation>.

¹ Compensatory mitigation is a mitigation strategy that is preferentially applied only after it has been determined that there will be unavoidable adverse impacts on natural resources and other efforts to minimize, rectify, and reduce the impact have been incorporated into a transportation project's design. Traditionally, this determination occurs late in a transportation project's development process, at which time, the compensatory mitigation action is both funded and implemented concurrently with the transportation project.

² "Functional unit" is a general term used by Caltrans to describe its organizational structure. Caltrans functional units include, but are not limited to, transportation planning, environmental, surveys, right-of-way, real property asset management, materials, traffic, structure design, hydraulics, construction, maintenance, landscape architecture, utilities, and engineering.

1.1 AMP Overview

In 2017, the California Streets and Highways Code (“SHC”) § 800 et seq. was amended to create the AMP within Caltrans and to provide the seed capital for an Advance Mitigation Account (“AMA”), to be operated by Caltrans as a revolving account. The stated intent of the legislation is for Caltrans, through the AMP, to realize the potential of advance mitigation to both “accelerate transportation project delivery” and “protect natural resources through transportation project [compensatory] mitigation” [SHC § 800(a)]. To this end, the legislation identifies specific activities as authorized allowable expenditures under the AMA and provides for the AMA to be replenished under specific conditions. Generally speaking, the 11 activities authorized in SHC § 800.6(a) consist of purchasing or establishing compensatory mitigation credits developed through an appropriate regulatory mechanism, which are then available for use by transportation projects to offset adverse impacts (Table 1-1). Natural resource regulatory agencies and Caltrans will determine the appropriateness of a credit’s use on a case-by-case basis, when Caltrans proposes use of the credit to satisfy a specific condition placed on a transportation project.

Table 1-1. Advance Mitigation Project Types^a

Advance Mitigation Project Type	Authorization
Caltrans pays mitigation fees or other costs or payments associated with coverage of transportation projects under an approved natural community conservation plan (“NCCP”) ^b and/or an approved habitat conservation plan (“HCP”).	SHC § 800.6(a)(2)
Caltrans purchases credits from an existing conservation bank.	SHC § 800.6(a)(1)
Caltrans purchases credits from an existing mitigation bank.	SHC § 800.6(a)(1)
Caltrans purchases credits from an existing in-lieu fee program.	SHC § 800.6(a)(1)
Caltrans purchases credits developed through a mitigation credit agreement (“MCA”), established under a California Department of Fish and Wildlife (“CDFW”)-approved regional conservation investment strategy (“RCIS”). ^c	SHC § 800.6(a)(3)(A)
Caltrans funds the establishment of a Caltrans or third-party sponsored and operated conservation bank, in accordance with applicable state and federal standards.	SHC § 800.6(a)(1)
Caltrans funds the establishment of a Caltrans or third-party sponsored and operated mitigation bank in accordance with applicable state and federal standards.	SHC § 800.6(a)(1)
Caltrans funds the establishment of a Caltrans or third-party sponsored and operated in-lieu fee program in accordance with applicable state and federal standards.	SHC § 800.6(a)(1)
Caltrans funds the implementation of conservation actions and habitat enhancement actions ^{c,d} to generate mitigation credits pursuant to an MCA ^b established under a CDFW-approved RCIS. ^c The scope may include Caltrans first entering into or funding the preparation of an MCA. ^c The scope may also include Caltrans first entering into or funding the preparation of an RCIS. ^c	SHC § 800.6(a)(3) SHC § 800.6(a)(3)(A)

Advance Mitigation Project Type	Authorization
Caltrans acquires, restores, manages, monitors, enhances, and preserves lands, waterways, aquatic resources, or fisheries, or funds the acquisition, restoration, management, monitoring, enhancement, and preservation ^e of lands, waterways, aquatic resources, or fisheries, that would measurably advance a conservation objective specified in an RCIS if the department concludes that the action or actions could conserve or create environmental values that are appropriate to mitigate the anticipated potential impacts of planned transportation improvements.	SHC § 800.6(a)(3)(B)
When the other mitigation options (above) are not practicable, Caltrans may perform mitigation in accordance with a programmatic mitigation plan ^f pursuant to SHC § 800.9. The programmatic mitigation plan shall include, to the maximum extent practicable, the information required for an RCIS. ^c	SHC § 800.6(a)(4) SHC § 800.9

^a Caltrans intends to contract or subcontract implementation tasks when appropriate and as required.

^b When Caltrans is a permittee under the NCCP, or if Caltrans qualifies as a Participating Special Entity and the project is a covered activity in the NCCP

^c See: <https://www.wildlife.ca.gov/Conservation/Planning/Regional-Conservation>

^d Under specific conditions, fish passage and wildlife crossing structures may qualify as enhancement actions under an RCIS in accordance with California Fish and Game Code ("FGC") § 1850–1861.

^e The State Water Resources Control Board (SWRCB) and Regional Water Boards typically do not approve the establishment of, or accept, preservation credits as the sole or primary type of mitigation.

^f Programmatic mitigation plans are defined in 23 U.S. Code ("USC") § 169(a) (SHC § 800.9). No more than 25 percent of the funds in the AMA may be allocated for this purpose over a 4-year period [SHC § 800.6(a)(4)].

1.1.1. AMP Guidelines

Approved at the end of 2019, the *Advance Mitigation Program Final Formal Guidelines* ("AMP Guidelines") describe how—through advance mitigation planning and advance mitigation project delivery—the Caltrans AMP will fulfill its intended purpose (Caltrans 2019a). As shown on Figures 1-1 and 1-2, the AMP Guidelines present a 10-step process, the first 5 of which are the advance mitigation planning phase and the next 5 of which are the advance mitigation project delivery phase. Implementation of each step of the planning phase improves the probability that advance mitigation projects undertaken by Caltrans in the project delivery phase will yield credits (or similar) that will be usable and comply with an appropriate established regulatory framework. The AMP Guidelines also describe how State Highway Operation and Protection Program ("SHOPP") and State Transportation Improvement Program ("STIP")³ transportation projects will reimburse the AMA for advance mitigation project investments, thereby making the funds available to undertake the next advance mitigation project.

³ Only SHOPP- and STIP-funded transportation projects are eligible to use the AMA-funded pre-transfer credits (SHC § 800.7).

Figure 1-1. Advance Mitigation Planning Phase



Source: Caltrans (2019a)

Figure 1-2. Advance Mitigation Project Delivery Phase



Source: Caltrans (2019a)

1.1.2. Advance Mitigation Planning Phase

Caltrans advance mitigation planning starts with modeled estimates of potential impacts on more than 600 wildlife and aquatic resources and, through successive steps, focuses and refines Caltrans' need for advance mitigation to inform advance mitigation project scopes that will be approved by the Caltrans Director. At this time, Steps 1 and 2 of the AMP's 5-step advance mitigation planning phase are complete.

This RAMNA satisfies Step 3 (Figure 1-1; Caltrans 2019a) and provides the results of a regional assessment of Caltrans' advance mitigation needs in the Honey-Eagle Lakes and Feather sub-basins.⁴

Caltrans District 2 will first use the information and analysis presented in this RAMNA to inform Step 4 of the advance mitigation planning phase. Step 4 is the point when Caltrans justifies, proposes, and scopes an advance mitigation project based on its needs (Figure 1-1; Caltrans 2019a). Advance mitigation project scopes informed by this RAMNA

⁴ Pursuant to SHC § 800.9, to the maximum extent practicable, the information required for an RCIS is presented in this RAMNA. During CDFW's review of an RCIS, CDFW determines whether the goals and objectives presented in the RCIS are consistent with FGC § 1852, subdivision (c)(8).

will provide enough information, at the appropriate level of detail, for an advance mitigation project to be nominated to the Caltrans Director for funding approval. The advance mitigation planning phase will conclude when the Caltrans Director approves a specific nominated Caltrans District 2 advance mitigation project for funding (Step 5; Figure 1-1; Caltrans 2019a). Thereafter, Caltrans District 2 will use the RAMNA as a reference (Caltrans 2019a).

1.1.3. Advance Mitigation Project Delivery Phase

Steps 6 through 10 consist of the AMP's advance mitigation project delivery phase (Figure 1-2; Caltrans 2019a). Advance mitigation project delivery is undertaken after an advance mitigation project has been approved by the Caltrans Director and programmed⁵ (Figure 1-2; Caltrans 2019a). This phase consists of implementing one or more of the 11 authorized advance mitigation activities (Table 1-1).

1.1.4. Program Constraints

Implicit to the AMP, the AMP Guidelines, advance mitigation planning, and advance mitigation project delivery are a number of established laws, policies, and processes including, but not limited to, the following:

- Gas tax-derived funds may be used to develop only those mitigation credits or values anticipated to be needed to fulfill the mitigation requirements of transportation improvements [California Constitution, Article XIX § 2(a)].
- AMA funds are likely not sufficient to address all of Caltrans' anticipated compensatory mitigation needs.
- Long-term transportation planning is dynamic, and compensatory mitigation needs may change over a 10-year planning horizon as funding sources and transportation project lists are refined and updated.
- Advance mitigation planning does not imply an endorsement of a transportation project alternative.
- Establishing compensatory mitigation in advance of transportation project impacts does not create any presumption or guarantee that a future transportation project impact will be authorized by a natural resource regulatory agency. Avoidance and minimization considerations continue to be required.
- Establishing compensatory mitigation in advance of transportation project impacts does not create any presumption or guarantee that the advance compensatory mitigation will be considered adequate and/or suitable by a natural resource regulatory agency for a specific transportation project's impact. Appropriateness of use of advance mitigation credits developed will be assessed on a case-by-case basis. For example, using mitigation credits from a conservation bank where only

⁵ Programming refers to the process Caltrans employs to set priorities for funding advance mitigation projects at the Caltrans District and project level. Through programming, Caltrans commits revenues over a multiyear period to a specific advance mitigation project.

preservation exists would not qualify for wetland or riparian impacts for some regulatory agencies.

- Natural resource regulatory agency approvals are discretionary and often conditional; well-executed advance mitigation does not necessarily increase the likelihood of obtaining agency approval for any particular transportation project.
- The 2008 Mitigation Rule, U.S. Fish and Wildlife Service (“FWS”) Mitigation Policy, FWS Endangered Species Act Compensatory Mitigation Policy, and 2022 National Oceanic and Atmospheric Administration (“NOAA”) Mitigation Policy for Trust Resources express a preference for advance mitigation (in several forms) but also provide flexibility for off-site and out-of-kind mitigation where important aquatic resources within a watershed area have been identified as priority areas because of the importance of such resources, widespread loss of such resources, and/or the likelihood of successful execution of mitigation at priority sites.
- Advance mitigation projects should optimize their conservation benefit in such a way that the number and types of mitigation credits (or similar) are maximized.
- Advance mitigation projects, like transportation projects and conservation projects, have financial, technical, and strategic risks and require a scope, schedule, and budget.
- Advance mitigation projects to establish credits should allow for longer timelines for plant establishment, which is crucial to success.
- Transportation projects must include mitigation costs in the scoping and programming of their budgets because they are required by law to reimburse the AMA for use of mitigation produced by the AMP [SHC § 800.6(b)].
- The AMA is a revolving account. With a revolving account, reimbursed funds are reinvested into new advance mitigation projects.

The above list is not presented in any order or priority.

1.2 Caltrans District 2 Transportation Infrastructure⁶

Headquartered in Redding, Caltrans District 2 manages the SHS infrastructure and transportation planning for 1,750 centerline miles in Lassen, Modoc, Plumas, Shasta, Siskiyou, Tehama, and Trinity counties. District 2 also services portions of Butte and Sierra counties. U.S. Highway (U.S.) 395 and State Routes (SR) 49, 89, and 139 are north-to-south routes. SR 36, 44, 70, 162, and 284 are east-to-west routes that traverse District 2. Within the geographic area of interest (“GAI”), U.S. 395 runs north to south through the GAI. SR 36 and 44 are two east-to-west routes connecting U.S. 395 with the western portion of the state.

Other transportation agencies that implement transportation improvements within Caltrans District 2’s boundaries (MPOs, RTPAs, and other public agencies) are the Butte County Association of Governments, Lassen County Transportation Commission,

⁶ Adapted from: <https://dot.ca.gov/caltrans-near-me/district-2/d2-popular-links/d2-about>

Plumas County Transportation Commission, and Sierra County Local Transportation Commission. The aforementioned transportation agencies are eligible for STIP funding.

Figure 1-3 shows the road infrastructure within the GAI for this RAMNA.

1.3 Regulatory Framework Summary

Unavoidable adverse natural resource impacts that could result from transportation projects are defined under environmental policies, laws, and regulations including, but not limited to:

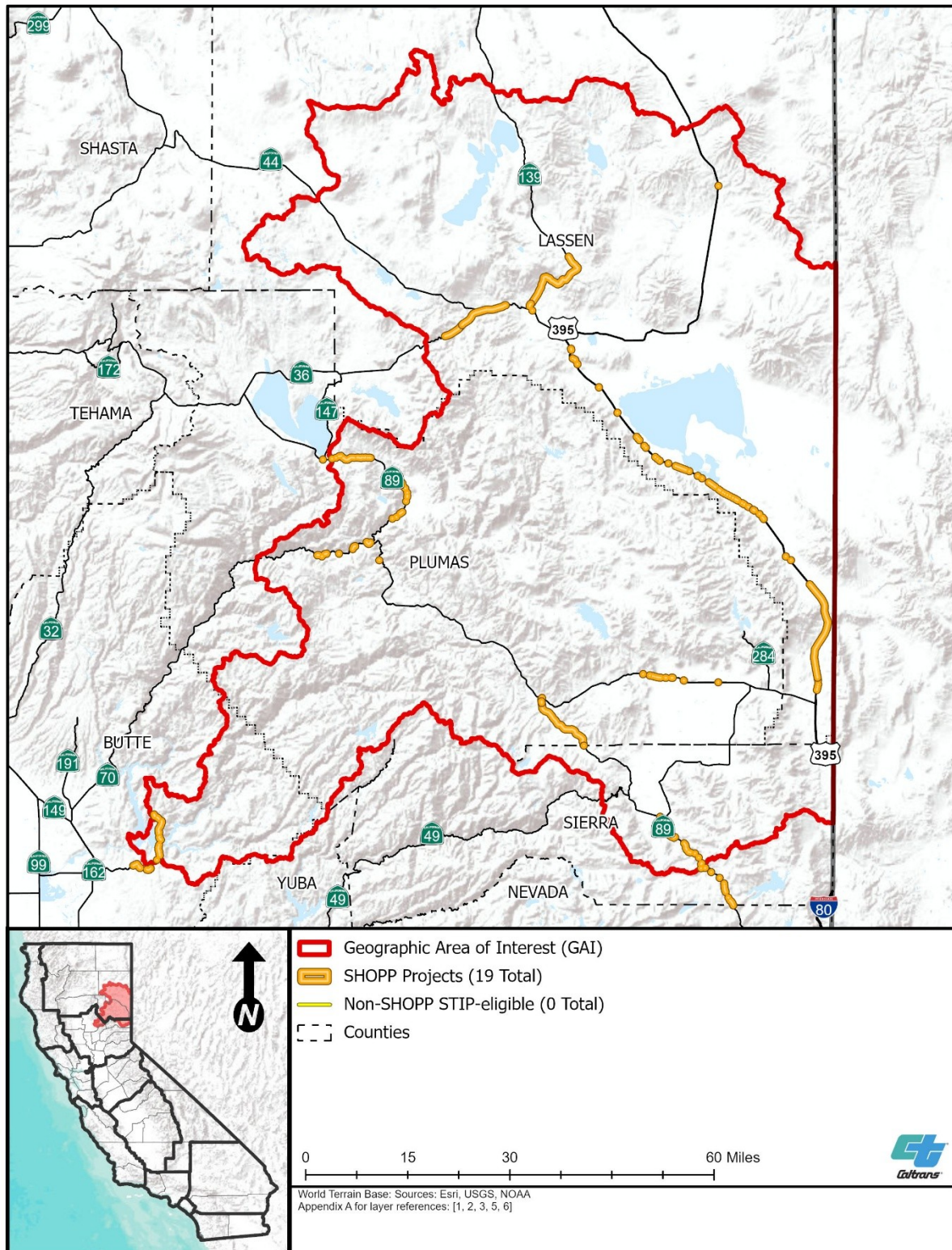
- California Endangered Species Act (“CESA”) (FGC § 2050 et seq.)
- California Environmental Quality Act (“CEQA”) (PRC § 21000 et seq.)
- Clean Water Act (“CWA”), Sections 401 and 404 (33 USC § 1251–1376)
- Endangered Species Act of 1973 (“FESA”) (16 USC § 1531–1543), as amended.
- Lake and Streambed Alteration Program (FGC § 1600 et seq.)
- National Environmental Policy Act (“NEPA”) (42 USC § 4321 et seq.)
- Porter-Cologne Water Quality Control Act (California Water Code § 13000 et seq.)
- Rivers and Harbors Act of 1800, Section 10 (33 USC § 403)

Natural resource regulatory agencies that may need to be engaged for transportation projects that may adversely impact natural resources within the GAI are listed in Table 1-2.

Table 1-2. Natural Resource Regulatory Agencies with Oversight over Natural Resources within the GAI

Partner	Web Address
CDFW, Northern Region	https://wildlife.ca.gov/Regions/1
CDFW, North Central Region	https://wildlife.ca.gov/regions/2
State Water Resources Control Board (“SWRCB”)	https://www.waterboards.ca.gov/
California Regional Water Quality Control Board (“RWQCB”), Lahontan Region	https://www.waterboards.ca.gov/lahontan/
RWQCB, Central Valley Region	http://www.waterboards.ca.gov/centralvalley/
Corps, South Pacific Division, Sacramento District	https://www.spk.usace.army.mil/
EPA, Region 9	http://www.epa.gov/region9/
FWS, Reno Fish and Wildlife Office	https://www.fws.gov/office/reno-fish-and-wildlife
FWS, Sacramento Fish and Wildlife Office	https://www.fws.gov/office/sacramento-fish-and-wildlife

Figure 1-3. GAI Road Infrastructure



Each of the natural resource regulatory agencies listed in Table 1-2 may include compensatory mitigation as a transportation project condition after it has been determined that there will be unavoidable permanent, adverse impacts and that other efforts to minimize, rectify, and reduce the impact have been incorporated in the transportation project's design and delivery. These natural resource regulatory agencies may also recognize the use or application of a compensatory mitigation credit that was established through an instrument⁷ or other formal interagency agreement as satisfying a transportation project's compensatory mitigation conditions. As a lead agency under CEQA and NEPA, Caltrans may also determine compensatory mitigation is required.

Some natural resource regulatory agencies also have established regulatory frameworks for establishing compensatory mitigation. These are defined under environmental laws, regulations, policies, and guidelines including, but not limited to:

- *Memorandum of Understanding Concerning Mitigation and Conservation Banking and In-Lieu Fee Programs in California* (California Natural Resources Agency ["CNRA"] et al. 2011)
- *Conservation Bank and Mitigation Bank Applications and Fees* (FGC § 1797 et seq.)
- *Compensatory Mitigation for Losses of Aquatic Resources, Final Rule* (33 Code of Federal Regulations ["CFR"] Parts 230, 325, and 332 and 40 CFR Part 230)
- *Advance Mitigation and Regional Conservation Investment Strategies*, mitigation credit agreements (FGC § 1856)
- *Final Regional Compensatory Mitigation and Monitoring Guidelines for South Pacific Division USACE* (Corps 2015)

As discussed previously, credits are the usual currency of mitigation established through an advance mitigation project; however, other values may also be established. Establishing conservation banks, mitigation banks,⁸ and in-lieu fee programs requires an instrument. Existing policies and regulations prescribe what an instrument must contain and address, as well as the terms of use for the credits generated by the mitigation bank, conservation bank, or in-lieu fee program. Similarly, establishing habitat conservation plans (HCPs) and natural community conservation plans (NCCPs) requires an agreement.

1.4 SAMNA

Predicting likely future transportation project effects on natural resources takes place at the intersection of transportation planning and conservation planning. Consistent with

⁷ A mitigation bank instrument is the formal, legally binding agreement between a bank sponsor and regulatory agencies that describes in detail the physical and legal characteristics of the bank, and how the bank will be established and operated (EPA 1995).

⁸ The goal of conservation banks is, typically, to offset adverse impacts on a species, while the goal of mitigation banking is to replace the functions and values of specific wetland and other aquatic habitats that will be adversely affected.

Step 1 of the advance mitigation planning process (Figure 1-1), the AMP forecast Caltrans' statewide compensatory mitigation needs for the transportation improvements conceptualized in the State Highway Operation and Protection Program Ten-Year Project Book Fiscal Years 2023/24–2032/33 ("SHOPP Ten-Year Book", Caltrans 2024) for fiscal years 2023 to 2033 (Caltrans 2025a).

Previous RAMNA documents were prepared with the Caltrans Statewide Advance Mitigation Needs Assessment Reporting Tool ("SAMNA Reporting Tool") 1.0 model, a geographic information system ("GIS") overlay model developed by Caltrans to support advance mitigation planning. Potential impacts for all 12 Caltrans Districts were estimated. Statewide, almost 1,000 transportation projects and over 600 wildlife and aquatic resources were evaluated through the SAMNA Reporting Tool, yielding thousands of results. A forthcoming report from Caltrans AMP introduces the SAMNA 2.0 model. SAMNA 2.0 includes updated sources for terrestrial and aquatic resource inputs, including a statewide riparian dataset prepared for Caltrans by the San Francisco Estuary Institute. Aquatic resources have been reclassified based on spatial verification, and, in collaboration with CDFW, the model has been programmed to rapidly incorporate new species and sub-species naming and ranges. Finally, the list of transportation project activity details and their associated buffer assignments has been modified. SAMNA 2.0 results have been compiled into two datasets: vegetation and aquatic resources (wetland, non-wetland waters, and riparian). The unit of measurement for impacts is acres.

The SAMNA 2.0 transportation project activity details and buffer assignments were not finalized in time to prepare fiscal year 2025/2026 RAMNA documents. So, the forecast for this RAMNA document was performed using "SAMNA 1.5", a hybrid of the SAMNA 1.0 and 2.0 models. The SAMNA 1.5 model implements the SAMNA 2.0 terrestrial and aquatic inputs but maintains the SAMNA 1.0 activity details and buffer assignments. The subset of the Caltrans District 2 transportation projects that are planned within the GAI during the planning period covered by this RAMNA, as well as the eight-digit hydrologic unit code ("HUC" or "HUC-8"), ecoregion section, advertised year, and planned activities for each planned transportation project, are included in Appendix B, Transportation Projects Planned for the GAI during the Planning Period, of this RAMNA. For consistency and as appropriate, tables, figures, and information presented throughout this document, including in Chapter 2, *Environmental Setting*, are consistent with the geospatial data within the SAMNA Reporting Tool.

SAMNA Caveats: The Statewide Advance Mitigation Needs Assessment ("SAMNA") is strictly and specifically intended to be used by Caltrans to justify, propose, and scope advance mitigation projects. The SAMNA results:

- are not to be used to substitute for or preempt any requirements to conduct detailed transportation project-level environmental scoping and analysis to inform the programming of individual transportation projects;
- do not relieve Caltrans project planners from first avoiding and then minimizing impacts;

- do not preclude the requirements under CEQA and NEPA for environmental analysis of and permitting for individual transportation projects; and
- do not constitute a commitment on the part of an individual transportation project to implement the estimated compensatory mitigation. A transportation project's actual impacts and compensatory mitigation commitments will be determined during its environmental and permitting processes.

Use of the SAMNA methods shall not support the endorsement of or any other conclusion concerning any transportation project or transportation project alternative. Use or misuse of these methods and results for any purpose other than that which is intended shall be the sole responsibility of the individuals or entities conducting or supporting that use or misuse, who shall be fully liable, therefore.

1.5 GAI and Resource Focus

Given the quantity of resources evaluated through the SAMNA, limited AMA funding, and the need for the AMP to revolve the account, Caltrans focused this analysis on a geographic area with wildlife habitats and aquatic resources where planned transportation project schedules would likely benefit from (1) having compensatory mitigation credit purchase transactions completed and/or (2) having compensatory mitigation credit supplies increased.

Focusing this analysis improves the probability that advance mitigation projects undertaken by Caltrans will yield credits (or similar) that will be usable and comply with an appropriate established regulatory framework. Caltrans intends for any mitigation-related measures to support these environmental resources within the GAI to also benefit other environmental resources.

1.5.1. GAI

As pointed out in Section 1.4, the RAMNA is consistent with SAMNA Reporting Tool geospatial data and model assumptions. In consultation with the natural resource regulatory agencies, it was determined that presenting SAMNA results by HUC-8 sub-basin and ecoregion section, and not political boundaries, would steer advance mitigation planning toward better ecological outcomes. The 2008 Mitigation Rule specifies the HUC-8 as the basis of service areas for mitigation banks, and CDFW's State Wildlife Action Plan ("SWAP") is organized by ecoregion section. To identify a focus area, consistent with Step 2 of the advance mitigation planning process (Figure 1-1), in 2025, Caltrans District 2 subject matter specialists:

- reviewed the entirety of Caltrans District 2's SAMNA results by HUC-8 sub-basin and ecoregion section (Caltrans 2025a; available on: www.dot.ca.gov/programs/environmental-analysis/biology/advancemitigation);
- reviewed the SAMNA results' associated future transportation project locations and activities anticipated for the SHOPP (Caltrans 2024);
- reviewed non-SHOPP STIP-eligible transportation improvement plans for the next 10 years;

- noted that advance mitigation for the Klamath Mountains Ecoregion Section Overlapping Caltrans District 2 (Caltrans 2023a) and Southern Cascades Ecoregion Section Within Caltrans District 2 were previously performed in 2023 (Caltrans 2023b);
- observed that the portions of Caltrans District 2 located within the Honey-Eagle Lakes and Feather sub-basins have forecasted compensatory mitigation needs during the planning period; and
- identified the Honey-Eagle Lakes and Feather sub-basins as locations where Caltrans District 2 and other public agencies that implement transportation improvements could benefit from advance mitigation planning—hereafter called the “GAI” (Figure 1-3).

Because the Honey-Eagle Lakes and Feather sub-basins form an ecological boundary and not a political boundary, a portion of the GAI overlaps Caltrans District 3. In addition to Caltrans District 2, Caltrans District 3 may choose to take the lead on an advance mitigation project that would address its needs within the GAI.

1.5.2. Terrestrial Species of Mitigation Need

Compensatory mitigation for species within the GAI was identified as both a historical and anticipated future transportation project compensatory mitigation need within Caltrans District 2. SHOPP transportation projects have historically been conditioned by natural resource regulatory agencies for some species more routinely than others and have benefited from mitigation credits, when available.

Caltrans does not typically need compensatory mitigation credits for species where impacts can be avoided or minimized. Therefore, to further focus the planning effort, Caltrans District 2 identified species that, if compensatory mitigation credits were available, transportation project schedules could potentially benefit. This terrestrial “species of mitigation need” include the following:

- Cascades frog (*Rana cascadae*) – state candidate endangered, and species of special concern.
- Fisher (*Pekania pennanti*) –Fishers that occur within the GAI are part of the Northern California-Southern Oregon distinct population segment (DPS), which does not currently have any special-status designation in California or on the federal level.
- Foothill yellow-legged frog (*Rana boylei*) North Feather DPS– federal threatened, state threatened.
- Golden eagle (*Aquila chrysaetos*) – state fully protected.
- Northwestern pond turtle (*Actinemys marmorata*) – federal proposed threatened, species of special concern.
- Sierra Nevada yellow-legged frog (*Rana sierrae*) – federal endangered, state threatened.

These species inform the analysis of estimated impacts provided in Chapter 5, *Modeled Estimated Impacts*, and Chapter 6, *Benefiting Transportation Project Considerations*, as well as the discussion in Chapter 7, *Wildlife Resources Conservation Goals and Objectives*. Sierra Nevada yellow-legged frog is also touched on in Chapter 8, *Aquatic Resources Conservation Goals and Objectives*.

1.5.3. Aquatic Resources and Riparian Habitat

For the purposes of this document, aquatic resources include all wetlands and non-wetland waters that may be subject to Corps, EPA, SWRCB and RWQCB (or “Water Boards”), and/or CDFW regulations, as well as threatened and endangered fish that may be subject to CDFW, and/or FWS regulations. No fish species of mitigation need were identified for this RAMNA. Riparian habitat is described in Section 2.16.

Compensatory mitigation needs for aquatic resources and riparian habitat within the GAI were identified as both historical transportation project compensatory mitigation needs and anticipated future transportation project compensatory mitigation needs within Caltrans District 2. SHOPP transportation projects have historically been conditioned by natural resource regulatory agencies for these resources and have benefited from mitigation credits, when available.

The Honey-Eagle Lakes (HUC-8 18080003), East Branch North Fork Feather (HUC-8 18020122), and Middle Fork Feather (HUC-8 18020123) sub-basins inform the analysis of estimated aquatic resources and riparian habitat impacts provided in Chapter 5, *Modeled Estimated Impacts*, and Chapter 6, *Benefiting Transportation Project Considerations*, as well as the discussion in Chapter 8, *Aquatic Resources Conservation Goals and Objectives*.

1.6 RAMNA

This RAMNA is a planning-level document that:

- provides a desktop analysis of relevant available information pertaining to the Honey-Eagle Lakes and Feather sub-basins, referred to as the GAI;
- Applies to fiscal years 2023/24 to 2032/33 (planning period) based on Fiscal Year 2024/25 Q1 Project Book data, as none of the projects with an advertised year of 2033/34 that have been included in the SHOPP Ten-Year Book (Caltrans 2024) occur within the GAI;
- discusses potential compensatory mitigation conditions that may be placed on future transportation projects by the seven resource and regulatory agency signatories⁹ to the *Master Process Agreement for Planning and Developing Advance Mitigation throughout California for the California Department of*

⁹ Natural resource regulatory signatories are CDFW; Water Boards; Corps Los Angeles, Sacramento, and San Francisco Districts; EPA; FWS; National Marine Fisheries Service; and California Coastal Commission.

Transportation Advance Mitigation Program (“Master Process Agreement”; Caltrans et al. 2020);

- focuses on wildlife habitats and aquatic resources that have a high probability of requiring transportation project-related compensatory mitigation in the GAI and planning period;
- documents Caltrans’ forecast of potential wildlife and aquatic resource¹⁰ compensatory mitigation needs for the GAI and planning period, as reported by the SAMNA (Caltrans 2025b, 2025c);
- identifies information that will be important to Caltrans when scoping any of the AMP’s authorized activities in the GAI, in accordance with SHC § 800.6(a), including documenting the existing compensatory mitigation supply;
- incorporates information and feedback received from outreach to the natural resource regulatory agencies, FHWA, MPOs, RTPAs, other public agencies that implement transportation projects, Native American tribes, interested parties, and the public; and
- analyzes Caltrans’ options to meet its compensatory mitigation needs in the GAI through the AMP’s authorized activities.

Because early technical assistance and communication may increase the probability that advance mitigation projects promoted within and/or undertaken by Caltrans will successfully meet the AMP’s purpose, in accordance with the AMP Guidelines, Caltrans has requested that this RAMNA be reviewed by FHWA, natural resource regulatory agencies, other transportation agencies (MPOs, RTPAs, and other public agencies that implement transportation improvements), Native American tribes, interested parties, and the public. Their reviews and any information they provide will also be consulted by Caltrans when it promotes and approves specific advance mitigation projects for development and funding (Caltrans 2019a).

1.7 Coordination History

With respect to external communications, the AMP Guidelines describe three communication milestones within the advance mitigation project planning process (Caltrans 2019a). Each is summarized in the following sections.

1.7.1. MPOs, RTPAs, and Other Transportation Agencies that Implement Transportation Improvements

Caltrans is authorized to provide AMA-funded mitigation credits to MPOs, RTPAs, and other public agencies that implement transportation projects, upon reimbursement, for their use to satisfy STIP-funded transportation project mitigation. Transportation projects eligible for STIP funding may increase the potential demand for compensatory mitigation in an area. Caltrans District 2 Transportation Planning has regularly scheduled meetings with the Regional Transportation Planning Agencies (RTPA) located in each of the seven

¹⁰ *Aquatic resources* are defined in Section 1.5.3.

counties in District 2. At this time (August 2026), no STIP transportation projects in their planning phase and located within the GAI were identified for the planning period.

1.7.2. RAMNA Review

The AMP Guidelines (Caltrans 2019a) state:

Before the RAMNA will be used to support advance mitigation project planning, Caltrans will, per 23 USC 169(a): consult with each natural resource regulatory agency with jurisdiction over the environmental resources considered in the RAMNA; make a draft of the RAMNA available for review and comment by applicable natural resource regulatory agencies, FHWA, Native American Tribes, local transportation agencies, local advance mitigation programs, local interested parties, and the public; request that, along with their review, natural resource regulatory agencies, Native American Tribes, FHWA, local transportation agencies, local advance mitigation programs, interested parties, and the public provide Caltrans any additional information relevant to and appropriate for the RAMNA; consider any comments and information received from natural resource regulatory agencies, FHWA, Native American Tribes, local transportation agencies, local advance mitigation programs, local interested parties, and the public on the draft RAMNA; and incorporate information and address such comments in the final RAMNA as appropriate.

In April 2026, Caltrans distributed this RAMNA for review by FHWA, natural resource regulatory agencies, other transportation agencies (MPOs, RTPAs, and other public agencies that implement transportation improvements), Native American tribes, interested parties, and the public. Table 1-3 lists the commenters and the date of their communication. All comments received were considered, addressed, and incorporated into the document, as appropriate.

Table 1-3. Comments Received by Caltrans on the RAMNA

Commenter	Date of Comment(s)
CDFW ^a	June 16, 2026
FWS	June 17, 2026
SWB	June 19, 2026

^a SHC § 800 et seq. specifically directs Caltrans to consult with CDFW on all activities pursuant to the AMP.

1.7.3. Interagency Meeting and Coordination

The Master Process Agreement states that prior to finalizing the RAMNA, “Caltrans will arrange and facilitate at least one ... meeting [with natural resource regulatory agencies] to discuss the RAMNA, conservation goals and objectives, overlapping agency statutory and regulatory requirements, and other relevant topics” (Section IV, Subsection A, Provision 6). In accordance with the Master Process Agreement, a meeting between Caltrans and the natural resource regulatory agencies was held within 60 days of

distribution of the RAMNA. The meeting participants and meeting dates are presented in Table 1-4. The discussion has informed this document.

Table 1-4. Interagency Meetings

Meeting Participants	Meeting Date
Caltrans AMP, Caltrans D2, HDR	May 27, 2026
CDFW, Caltrans, SWB, Corps (Sacramento District), USFWS, HDR	June 16, 2026

1.8 Document Organization

This document is organized as shown in Table 1-5.

Table 1-5. Document Organization

Chapter	Title	Content
Chapter 1	Introduction	This chapter introduces the RAMNA, placing it in context of the AMP Guidelines, transportation network, and regulatory framework.
Chapter 2	Environmental Setting	This chapter describes the GAI analyzed in the RAMNA. It relies on geospatial data from the SAMNA Reporting Tool and other readily available information.
Chapter 3	Relevant Plans, Policies, and Regulations	This chapter briefly describes laws, regulations, comprehensive plans, conservation plans, and land management plans that are applicable and relevant to the GAI that can inform both regional understanding and advance mitigation scoping.
Chapter 4	Existing Mitigation Opportunities	This chapter summarizes the mitigation credits (or similar) currently available to Caltrans and/or pending that are applicable to the environmental resources discussed in the RAMNA and located within or in the vicinity of the GAI.
Chapter 5	Modeled Estimated Impacts	This chapter summarizes the SAMNA forecast and regional estimates of compensatory mitigation need for the GAI.
Chapter 6	Benefiting Transportation Project Considerations	This chapter summarizes relevant information about potentially benefiting transportation projects, including scheduling considerations and constraints. A time frame for the need for forecast mitigation is provided and analyzed. The potentially benefiting transportation projects' acceleration priorities are documented in this chapter.
Chapter 7	Wildlife Resources Conservation Goals and Objectives	This chapter presents Caltrans' understanding of the GAI's wildlife conservation goals and objectives, with which Caltrans seeks to align its advance mitigation projects.
Chapter 8	Aquatic Resources Conservation Goals and Objectives	This chapter presents Caltrans' understanding of the GAI's aquatic, wetland, and water resources conservation goals and objectives, with which Caltrans seeks to align its advance mitigation projects.

Chapter	Title	Content
Chapter 9	Assessment of Authorized Activities	This chapter describes options and analyzes the feasibility of purchasing and/or establishing mitigation credits (or similar) in the GAI that have a high probability of successfully accelerating transportation project delivery and protect natural resources through transportation project mitigation.
Chapter 10	References	This chapter lists references cited in the RAMNA.
Appendices	Various	Appendices supporting this document: Appendix A – GIS Sources Appendix B – Transportation Projects Planned for the GAI during the Planning Period Appendix C – Land Cover Types Appendix D – Complete SAMNA Species Results Appendix E – Aquatic Resource Locations

2. ENVIRONMENTAL SETTING

In this chapter, Caltrans describes the GAI in terms of ecoregion sections, land ownership, topography, climate, land cover types, invasive species, special-status species, critical habitat, connectivity, sub-basins, hydrology, flood hazard areas, water quality, wild and scenic rivers, aquatic resources¹, riparian habitat, and fire hazard severity zones. Intended to inform advance mitigation project scoping, this assessment relied on readily available literature and GIS sources, including the vegetation and other geospatial data layers developed for the SAMNA Reporting Tool (Caltrans 2025a). Sources used for this assessment are cited throughout the chapter, and links to GIS sources are provided in Appendix A, *GIS Sources*.

On each figure, Caltrans has provided the general location of planned SHOPP transportation projects that, during the 10-year planning period addressed by this document, natural resource regulatory agencies may condition with compensatory mitigation.² The GAI's road infrastructure is described in Chapter 1, *Introduction*, and additional information about planned transportation projects is provided in Chapter 5, *Modeled Estimated Impacts*, and Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*.

2.1 Ecoregion Sections

The GAI consists of approximately 2.9 million acres within California's Middle Fork Feather, East Branch North Fork Feather, and Honey-Eagle Lakes sub-basins (HUC-8s), which are overlapped by portions of the Modoc Plateau, Mono, Northwestern Basin and Range, Sierra Nevada, Sierra Nevada Foothills, and Southern Cascades ecoregion sections (Table 2-1, Figure 2-1). Ecoregion sections are defined as the largest ecological unit of the U.S. Department of Agriculture ("USDA"), U.S. Forest Service ("USFS") National Hierarchical Framework of Ecological Units, which are nested within larger provinces (Cleland et al. 1997). Each ecoregion section is part of a larger province (McNab et al. 2007; Table 2-1).

¹ For the purposes of advance mitigation planning, aquatic resources consist of wetlands and non-wetland waters that may be subject to Corps, EPA, Water Boards, and/or CDFW regulations, and special-status fish that may be subject to management by CDFW or FWS regulations.

² Since no STIP-eligible transportation projects are anticipated, no STIP-eligible transportation projects are mapped.

Figure 2-1. Ecoregion Sections in the GAI

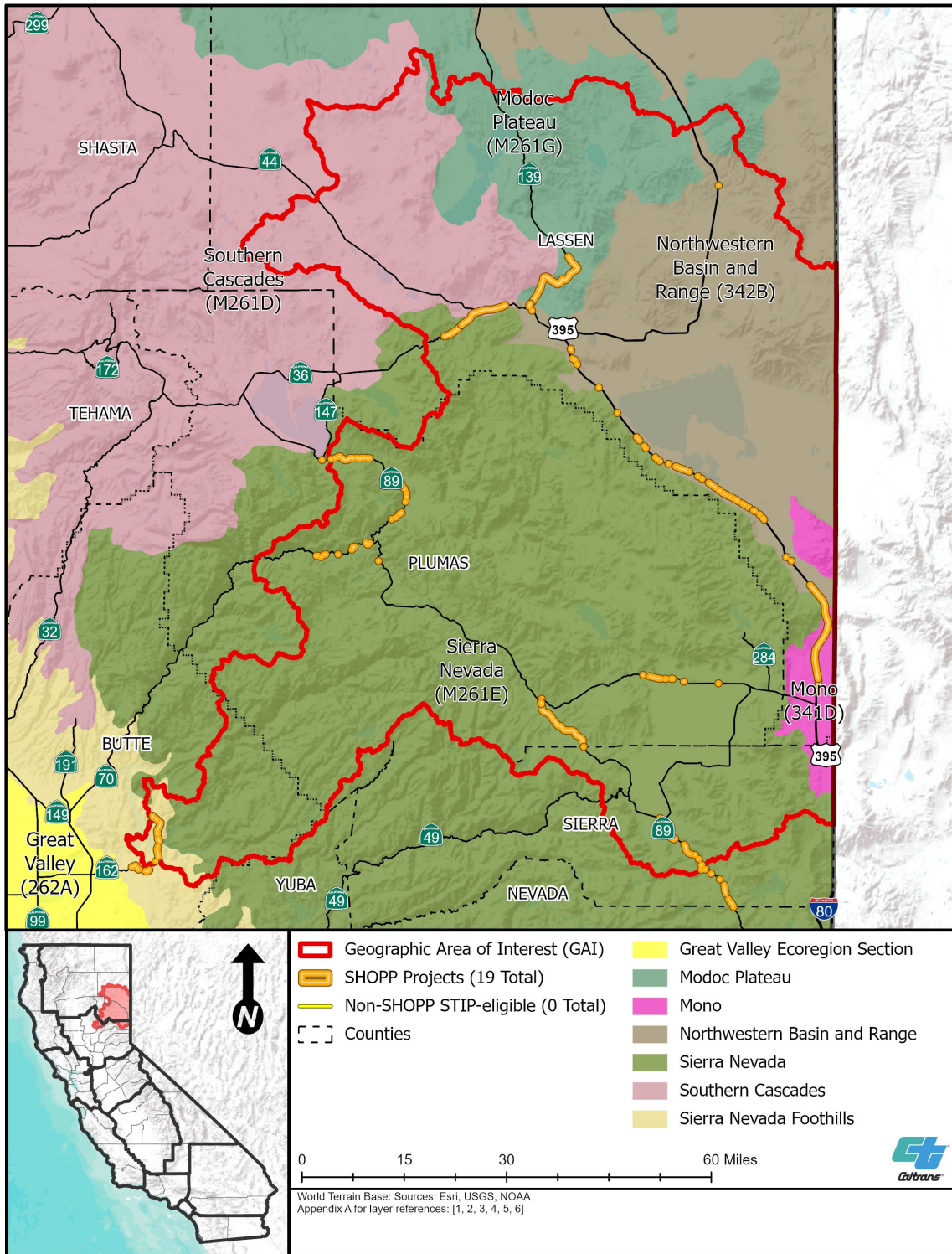


Table 2-1. Ecoregion Sections within the GAI

Ecoregion Section	Province ^a	Acreage ^b	Ecoregion Section as Percentage of GAI
Sierra Nevada	Central Valley and Sierra Nevada	1,672,619	56.6
Northwestern Basin and Range	Cascades and Modoc Plateau	595,970	20.2
Sierra Nevada Foothills	Central Valley and Sierra Nevada	21,138	0.7
Southern Cascades	Cascades and Modoc Plateau	304,111	10.3
Modoc Plateau	Cascades and Modoc Plateau	289,319	9.8
Mono	Deserts	71,845	2.4
Total		2,955,001	100%

Source: Caltrans 2025a

^a McNab et al. 2007

^b Numbers were rounded to the nearest whole number.

2.2 Land Ownership

The GAI spans parts of Butte, Lassen, Plumas, and Sierra counties (Figure 1-3). Federal lands account for most of the land in the GAI (60.9 percent) and are administered and managed by the U.S. Forest Service (“USFS”), U.S. Department of the Interior’s Bureau of Land Management (“BLM”), and National Park Service (“NPS”), and include U.S. military bases (Table 2-2, Figure 2-2). USFS land includes the Lassen National Forest, Plumas National Forest, Tahoe National Forest and Humboldt-Toiyabe National Forest. Privately owned and managed lands account for 32.6 percent of land within the GAI. State lands, which account for 3.3 percent of land within the GAI, include land owned and managed by the California Department of Parks and Recreation, CDFW, California State Lands Commission, and the Department of Water Resources. Land managed by nonprofit conservancies and land trusts account for 2.1 percent of the GAI. Counties, cities, and special districts own or govern less than 1 percent of land within the GAI. Native American tribes own or manage less than 1 percent of land within the GAI (Table 2-2, Figure 2-2).

Figure 2-2. Land Ownership in the GAI

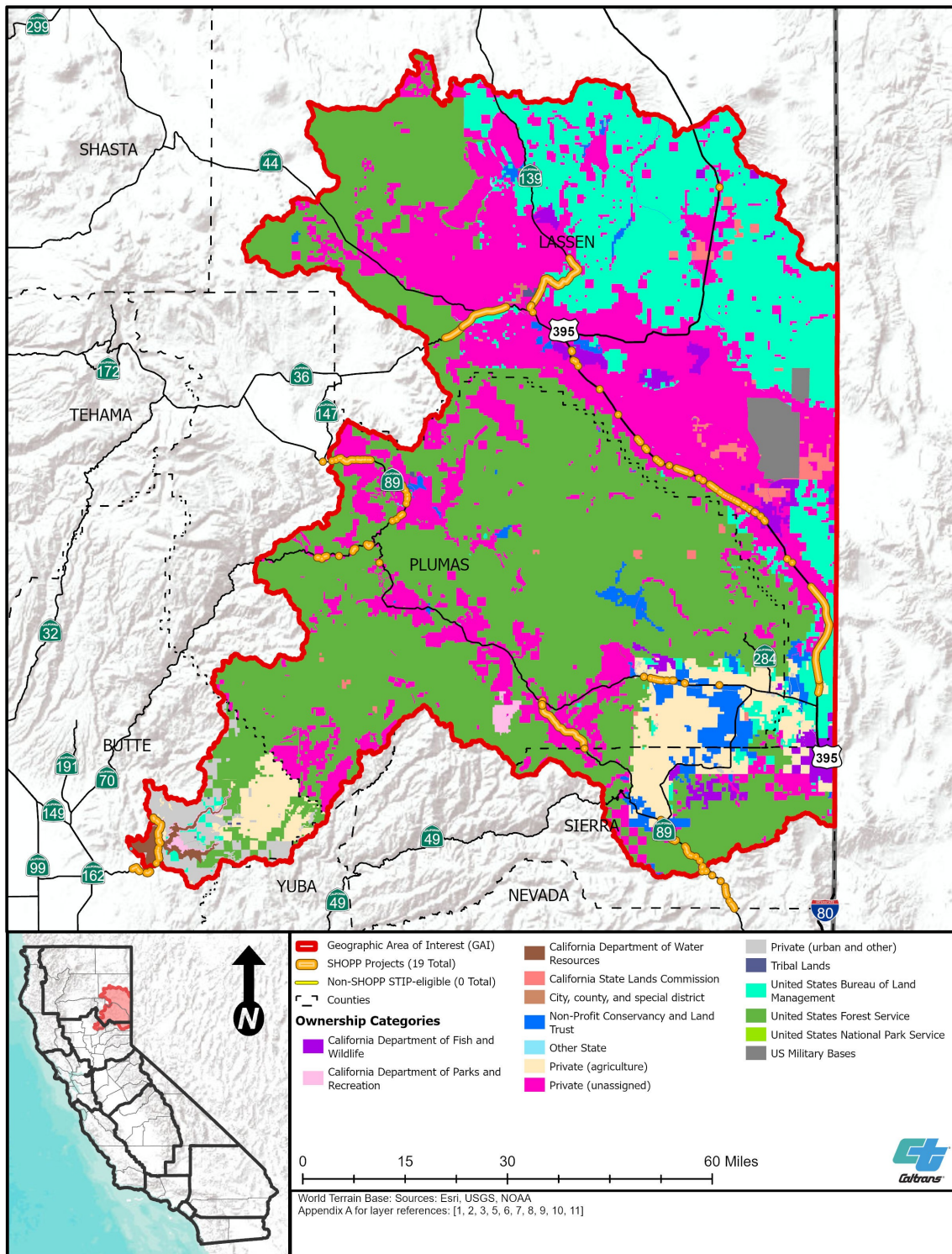


Table 2-2. Land Ownership in the GAI

Land Owner or Land Use	Number of Parcels	Total Acreage per Agency/Owner ^a	Ownership as Percentage of GAI ^b
USFS	567	2,230,760	44.1
Private (unassigned)	1	1,339,015	26.5
BLM	207	852,348	16.8
Private (agriculture)	379	228,406	4.5
Nonprofit conservancy and land trust	221	107,762	2.1
CDFW	138	88,682	1.8
Private (urban and other)	86	80,491	1.6
U.S. military bases	1	56,154	1.1
California State Lands Commission	60	39,390	0.8
California Department of Water Resources	10	18,782	0.4
California Department of Parks and Recreation	8	14,284	0.3
Native American tribe	5	2,732	<0.1
City, county, and special district	38	2,074	<0.1
Other state land	1	257	<0.1
National Park Service	3	447	<0.1
Total^c	1,725	5,061,583	100%

Sources: Bureau of Indian Affairs; California Protected Lands Database; California Conservation Easement Database; Caltrans 2025; U.S. Census Bureau; USDA; and California Department of Technology for land parcels

^a Numbers were rounded to the nearest whole number.

^b Totals may be different due to rounding.

^c The GAI total includes the water areas, whereas the ecoregion section GAI total does not.

2.2.1. Protected Lands

The California Protected Areas Database, developed by GreenInfo Network, provides an inventory of lands that are owned in fee or protected for open space purposes throughout California by more 1,000 public agencies and nonprofit organizations. These protected lands are managed for the preservation of biological diversity and other natural, recreational, and cultural uses. It is important to note, however, that these data are based on best available public information at the time of development and, as such, may not represent all protected lands in California.

In the California Protected Areas Database, lands are assigned U.S. Geological Survey (“USGS”) Gap Analysis Program (“GAP”) status ranks that define the degree of protection for biodiversity conservation using a 1 to 4 coding system. Areas with a GAP status of 1 are managed for biodiversity; areas with a GAP status of 2 are managed for biodiversity with disturbance events suppressed; areas with a GAP status of 3 are managed for

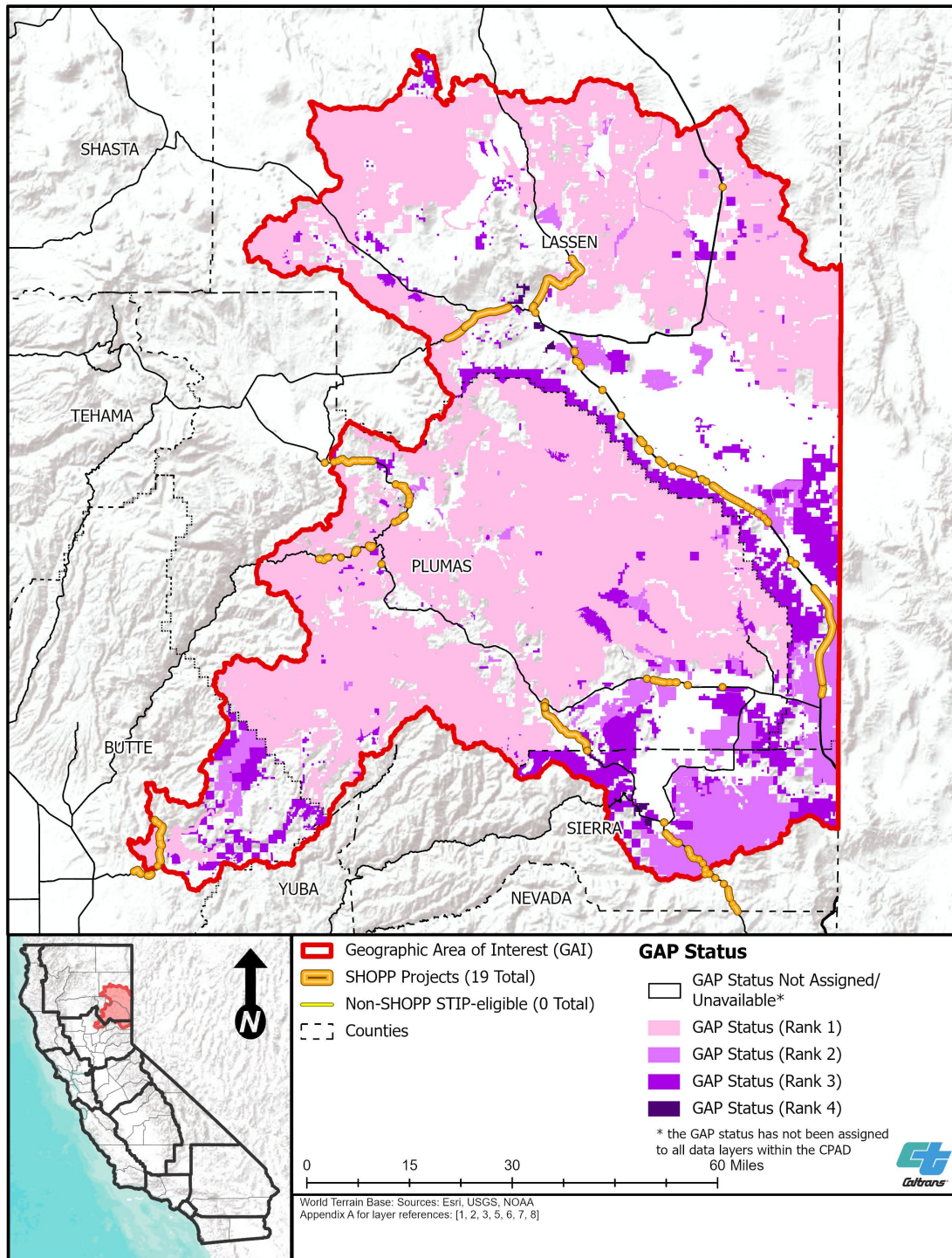
multiple uses, potentially including mining or off-road vehicle use; and areas with a GAP status of 4 have no known mandate for biodiversity protection. The method of applying these California Protected Areas Database ranks is done in collaboration with the USGS's Protected Areas Database of the U.S.

Not all California Protected Areas Database lands have GAP status ranks, and some may be out of date. Nevertheless, available protected lands and their associated GAP status ranks are indicated on Figure 2-3. As Figure 2-3 shows, most of the planned SHOPP transportation projects are in areas with no GAP status or a GAP status of 1 or 2.

2.3 Topography

The GAI is located along the California – Nevada border and is bound by the Madeline Plains to the north, Cascades mountain range to the west, Nevada border to the east, and the Sierra Nevada Mountains to the south. The portion of the Honey Lake Valley located in California runs along the northeastern portion of the GAI to the Nevada border. Honey Lake and Eagle Lake are completely within the GAI, and a portion of Lake Oroville is within the southwestern corner. Elevations in the GAI range from 868 to 8,741 feet above mean sea level (Figure 2-4).

Figure 2-3. Protected Lands



2.4 Climate

Areas of the GAI below 6,500 feet, such as the northeastern corner of the GAI, are characterized by a Mediterranean climate with cool, wet winters and hot, dry summers, with slightly warmer summers and cooler winters to the east. Areas above 6,500 feet, such as the southern border of the GAI, have a boreal climate, consisting of long, cold winters and short, warm to cool summers. Within the Lahontan Region, most of the precipitation falls as snow and the region can receive 70 inches of precipitation annually. Within the Sierra Nevada, areas of higher elevation receive more precipitation as storm systems move west to east. The eastern slope of the Sierra Nevada range is affected by a rainshadow, creating a drier climate (Raumann and Soulard 2012). The eastern portion of the Sierra Nevada is influenced by the climate of the Great Basin, which has colder winters and more summer rainfall. The southern portion of the Sierra Nevada is at the highest elevation and receives more snow. However, due to the effects of global climate change, more precipitation has fallen as rain rather than snow in recent years (Halofsky 2021).

In the next 30 years, the climate is expected to change. Results of Caltrans' climate vulnerability assessment are summarized in Section 2.4.1. The predicted resilience of the GAI to effects resulting from climate change are summarized in Section 2.4.2.

2.4.1. Climate Vulnerability Assessment

From 2017 through 2019, Caltrans performed a statewide climate change vulnerability assessment for the SHS (Caltrans 2019b). The analysis provided in the *Caltrans Climate Change Vulnerability Assessments: District 2 Technical Report* (Caltrans 2019b) is based on global climate change data compiled by the Intergovernmental Panel on Climate Change. Caltrans applies three future emissions scenarios for greenhouse gas emission concentrations in the technical report—(1) representative concentration pathway 2.6, which assumes global annual greenhouse gas emissions will peak in the next few years, then begin to decline substantially; (2) representative concentration pathway 4.5, which assumes emissions will peak around 2040 and then begin to decline; and (3) representative concentration pathway 8.5, which assumes that high emission trends continue to the end of the century—for three future 30-year periods centered on the years 2025 (2010 to 2039), 2055 (2040 to 2069), and 2085 (2070 to 2099).

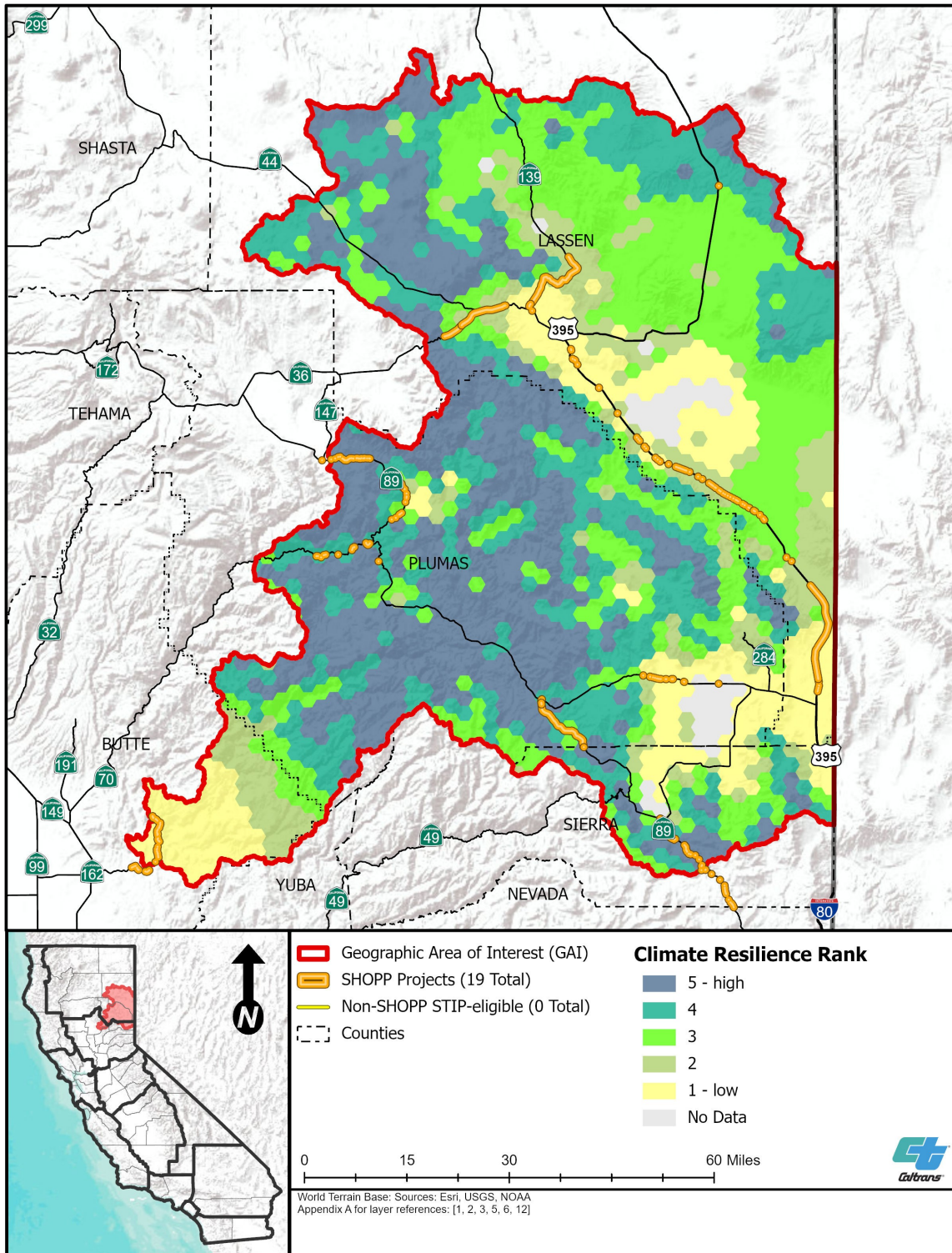
The effects of climate change within the GAI pose risks for transportation infrastructure, reliability, and capacity. Transportation systems were designed for historical climate conditions; changing climatic conditions, including an increased frequency of extreme weather events, are expected to disrupt and damage the SHS. Predicted climate change effects consist of projected extended periods of higher temperatures in the summer; large fluctuations in precipitation, with dry years becoming drier and wet years becoming wetter, and an increased risk of drought, wildfires, and landslides over the three time periods analyzed in the technical report (Caltrans 2019b).

2.4.1. Climate Resiliency

A climate change-resilient natural community area is a terrestrial location expected to remain stable in the face of climate change (CDFW 2018a). The predicted resilience of the GAI to effects resulting from climate change was acquired from CDFW's Areas of Conservation Emphasis ("ACE," version 3) terrestrial climate change resilience dataset. This dataset consists of the modeled probability that a given terrestrial location may function as a plant or wildlife refugium from climate change, meaning that it would be relatively buffered from the effects of climate change, conditions would likely remain suitable for plants and wildlife currently residing in the area, and ecological functions would be more likely to remain intact. The ACE dataset combines climate refugia model results from eight future climate scenarios based on different combinations of global climate models, emissions scenarios, and time horizons. The eight scenarios assessed included (1) two potential future climates—a hotter and drier future, and a warmer and wetter future; (2) two future carbon dioxide ("CO₂") scenarios—one with no reductions in CO₂ emissions and one with a peak in 2040 followed by a significant decline in CO₂ emissions; and (3) two 29-year time intervals—2040 to 2069 and 2070 to 2099. Terrestrial locations were assigned climate resilience ranks ranging from 1 (low resilience, or low probability that the terrestrial location will contain climate refugia) to 5 (high resilience, or high probability that the terrestrial location will contain climate refugia) (CDFW 2018a).

Resiliency is an important consideration when establishing compensatory mitigation. The terrestrial climate change resilience rank from the ACE dataset (CDFW 2018a) is presented on Figure 2-5. Resilience in the GAI is associated with elevation. Areas with higher elevations are more resilient while lower lying areas, especially those around lakes, are less resilient. Resilience at high elevations ranges from 4 to 5. Resilience near the eastern edges of the GAI is lower, ranging from 1 to 3.

Figure 2-5. Terrestrial Climate Resilience Rankings



2.5 Land Cover Types

General land cover types are depicted on the maps provided in Appendix C, *Land Cover Types*. Land cover types within the GAI were extracted from the SAMNA, which developed its vegetation data layer by merging CDFW's California Wildlife Habitat Relationships ("CWHR") Vegetation Classification and Mapping Program GIS database, the USFS Classification and Assessment with Landsat of Visible Ecological Groupings, and the California Department of Forestry and Fire Protection vegetation layer (Caltrans 2025b). Based on these data, tree-dominated habitats account for the largest habitat type, encompassing 53.3 percent of the GAI, with Sierran mixed conifer the most common. Shrub-dominated habitats account for 28.5 percent of the GAI, with sagebrush the most common. Herbaceous-dominated habitats account for 10.9 percent of the GAI, with perennial grassland and annual grassland the most common. Aquatic habitats account for 3.7 percent of the GAI, with lacustrine being the most common. Developed, undescribed, and non-vegetated habitat types (barren areas) combined account for 3.6 percent of the GAI, with irrigated hayfield being the most common (Table 2-3, Appendix C). Land cover is generally shown on Figure 2-6.

Table 2-3. Land Cover Types within the GAI

CWHR Habitat Type	Acres ^a	Cover as Percentage of GAI ^b
Tree-dominated Habitats	1,573,518	53.25
Aspen	3,671	0.12
Blue Oak Woodland	2,387	0.08
Blue Oak-Foothill Pine	2,072	0.07
Blue Oak-Foothill Pine; Blue Oak Woodland	5,845	0.20
Closed-Cone Pine-Cypress	36	<0.01
Douglas Fir	128	<0.01
Eastside Pine	227,250	7.69
Jeffrey Pine	183,107	6.20
Juniper	97,471	3.30
Lodgepole Pine	16,175	0.55
Montane Hardwood	71,128	2.41
Montane Hardwood-Conifer	45,638	1.54
Montane Riparian	14,048	0.48
Ponderosa Pine	56,106	1.90
Red Fir	50,375	1.70
Sierran Mixed Conifer	629,245	21.29

CWHR Habitat Type	Acres ^a	Cover as Percentage of GAI ^b
Subalpine Conifer	3,385	0.11
Valley Foothill Riparian	326	0.01
Valley Oak Woodland	11	<0.01
White Fir	165,114	5.59
Shrub-dominated Habitats	840,228	28.53
Alkali Desert Scrub	90,261	3.16
Alpine Dwarf-Shrub	131	<0.01
Bitterbrush	120,032	4.06
Desert Scrub	658	0.02
Low Sage	75,691	2.56
Mixed Chaparral	6,583	0.22
Montane Chaparral	150,125	5.08
Sagebrush	396,747	13.43
Herbaceous-dominated Habitats	322,876	10.93
Annual Grassland	104,782	3.55
Fresh Emergent Wetland	14,637	0.50
Pasture	37,819	1.28
Perennial Grassland	108,214	3.66
Saline Emergent Wetland	209	<0.01
Wet Meadow	57,215	1.94
Aquatic Habitats	107,953	3.65
Lacustrine	103,687	3.51
Riverine	922	0.03
Riverine; Lacustrine	3,344	0.11
Developed Habitats	74,027	2.51
Cropland	9,349	0.32
Evergreen Orchard	9	<0.01
Irrigated Hayfield	37,659	1.27
Irrigated Row and Field Crops	947	0.03
Urban	26,063	0.88
Non-vegetated Habitats	33,402	1.13

CWHR Habitat Type	Acres ^a	Cover as Percentage of GAI ^b
Barren	27,528	0.93
Undescribed	5,874	0.20
Total^c	2,955,002	100%

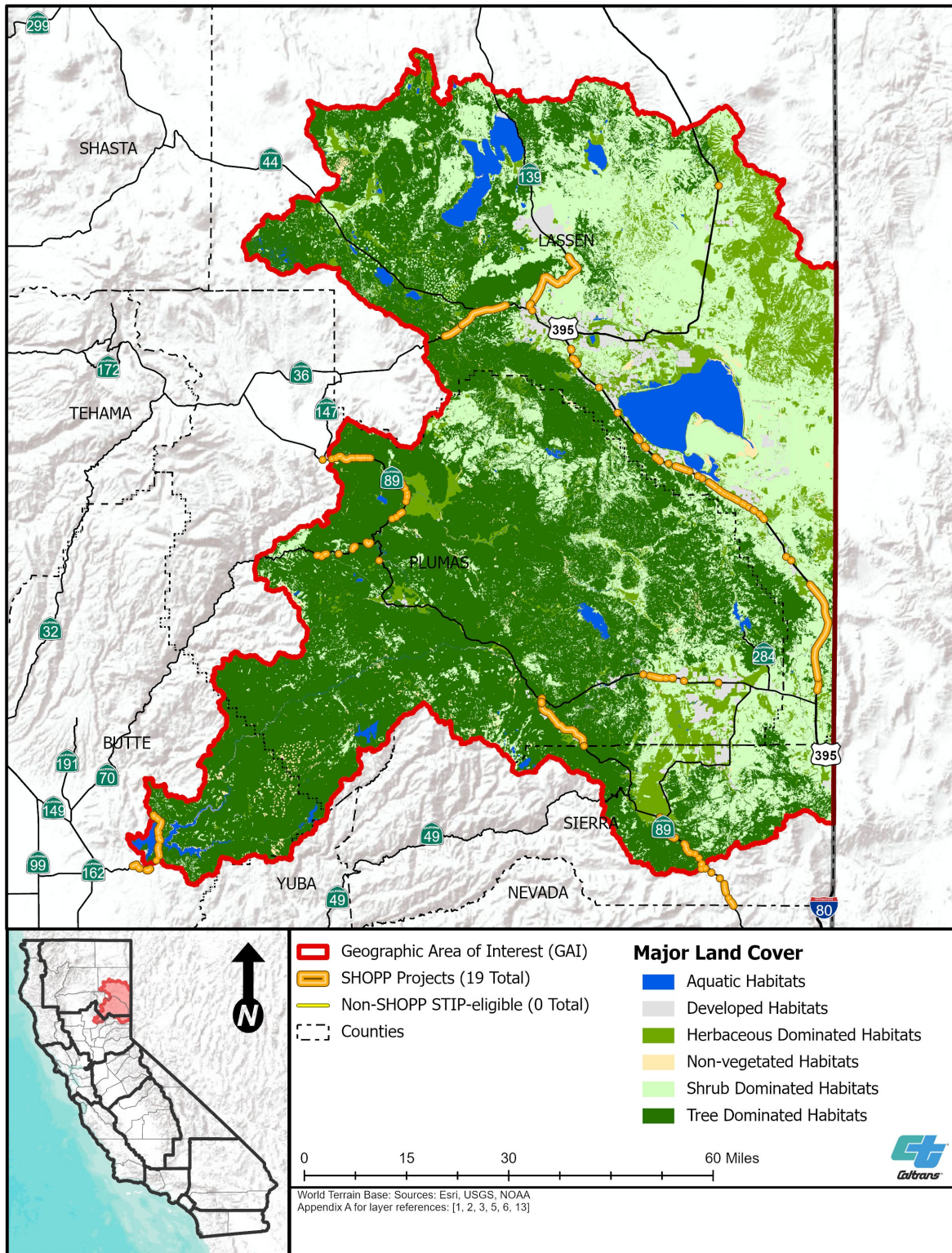
Source: Caltrans 2025b

^a Numbers were rounded to the nearest whole number.

^b Numbers were rounded to the hundredths.

^c Totals may be different due to rounding.

Figure 2-6. Major Land Cover^a



^a For greater detail, see Appendix C, *Land Cover Types*.

2.6 Invasive Species

Both invasive plant and animal species are known to occur within the GAI. Invasive species include plants and animals that are not native to an area, typically have high growth and reproductive rates, and are able to outcompete native plants and animals, often because of a lack of natural predators or controls (National Wildlife Federation n.d.). Invasive species may affect native species, including special-status species, by directly competing for resources, preying on native species, introducing or spreading diseases, reducing the complexity and biodiversity of ecosystems, altering soil chemistry and water availability, and increasing wildfire potential (CDFW 2024b; FWS 2022a).

Three organizations maintain invasive species databases for California. The Invasive Species Council of California maintains a list of invasive plant and animal species throughout the state of California (California Invasive Species Advisory Committee 2010). The California Department of Food and Agriculture also maintains a list of noxious weeds for California (California Department of Food and Agriculture 2021). The California Invasive Plant Council (“Cal-IPC”) maintains a California invasive plant inventory that categorizes nonnative plant species based on the severity of their potential ecological impacts (Cal-IPC 2026).

Within the GAI, invasive plant species have been specifically identified as threats or stressors to terrestrial and aquatic biological resources (CDFW 2025). Nonnative, invasive plant species with a high ranking by Cal-IPC are those that have the most severe ecological effects and are the most widely distributed geographically, although species with a moderate or limited ranking can also have negative local ecological effects.

Invasive plant species within the GAI that are identified as problematic in the California SWAP or the Cal-IPC inventory include, but are not limited to, barb goatgrass (*Aegilops triuncialis*), tree of heaven (*Ailanthus altissima*), alligator weed (*Alternanthera philoxeroides*), giant reed (*Arundo donax*), ripgut brome (*Bromus diandrus*), cheatgrass (*Bromus tectorum*), yellow star-thistle (*Centaurea solstitialis*), spotted knapweed (*Centaurea stoebe* ssp. *australis*), jubatagrass (*Cortaderia jubata*), pampas grass (*Cortaderia selloana*), Scotch broom (*Cytisus scoparius*), water hyacinth (*Eichhornia crassipes*), Brazilian egeria (*Egeria densa*), medusa head (*Elymus caput-medusae*), leafy spurge (*Euphorbia virgata*), French broom (*Genista monspessulana*), English ivy (*Hedera helix*), perennial pepperweed (*Lepidium latifolium*), creeping water-primrose (*Ludwigia hexapetala*), purple loosestrife (*Lythrum salicaria*), Eurasian water-milfoil (*Myriophyllum spicatum*), Scotch thistle (*Onopordum acanthium* ssp. *acanthium*), Himalayan blackberry (*Rubus armeniacus*), red sesbania (*Sesbania punicea*), smallflower tamarisk (*Tamarix parviflora*), French tamarisk (*Tamarix gallica*), saltcedar (*Tamarix ramosissima*), Spanish broom (*Spartium junceum*), and gorse (*Ulex europaeus*) (Cal-IPC 2026; CDFW 2025).

Nonnative animals that are/may be present within the GAI and can negatively affect aquatic species include white catfish (*Ameriurus catus*), channel catfish (*Ictalurus punctatus*), American shad (*Alosa sapidissima*), American bullfrog (*Lithobates*

catesbiana), quagga mussels (*Dreissena bugensis*), zebra mussels (*Dreissena polymorpha*), New Zealand mud snail (*Potamopyrgus antipodarum*), red-eared slider (*Trachemys scripta elegans*), Chinese mitten crab (*Eriocheir sinensis*), largemouth bass (*Micropterus salmoides*), yellow perch (*Perca flavimanus*), fathead minnow (*Pimephales promelas*), striped bass (*Morone saxatilis*), black crappie (*Pomoxis nigromaculatus*), bluegill (*Lepomis macrochirus*), brook trout (*Salvelinus fontinalis*), and brown trout (*Salmo trutta*) (CDFW 2025).

Nonnative animals that are/may be present within the GAI and can negatively affect terrestrial wildlife through competition, predation, or parasitism include barred owl (*Stryx varia*) and feral pigs (*Sus scrofa*). Invasive animal species that are/may be associated with urban areas include domestic dogs (*Canis lupus familiaris*), domestic cats (*Felis catus*), raccoons (*Procyon lotor*), and European starling (*Sturnus vulgaris*) (CDFW 2025).

2.7 Special-status Terrestrial Species

Special-status terrestrial species are discussed below, with additional detail provided in Appendix D, *Complete SAMNA Species Results*. Threatened and endangered fish species with the potential to occur within the GAI are discussed in Section 2.15.4.

Special-status terrestrial species with the potential to occur within the GAI were extracted from the SAMNA Reporting Tool's species-attributed vegetation data layer, which was developed using the CWHR (CDFW 2019a), the Jepson Herbarium's floristic province layer, CDFW's RareFind 5 database (CDFW 2026), and other information (Caltrans 2026 *[report in progress]*). Special-status terrestrial species included in the SAMNA are those that are considered federally and/or state threatened or endangered species, state candidate threatened or endangered species, state fully protected species, state species of concern, state rare species, and federal sensitive species (which includes species that are USFS sensitive and/or Bureau of Land Management ["BLM"] sensitive). Based on a search of the SAMNA Reporting Tool's species-attributed vegetation layer, 56 non-fish special-status species have the potential to occur within the GAI.

Although it is the best information currently available, the SAMNA Reporting Tool's species list is uncertain. The species-attributed list developed for the SAMNA Reporting Tool depends on a species having a defined geographic range within the CWHR or having occurrences documented in the California Natural Diversity Database (2026 *[report in progress]*). When CWHR home range and/or California Natural Diversity Database occurrence information is incorrect or out-of-date, the probability that a species will be misidentified as potentially present increases. Therefore, SAMNA results go through a sensibility evaluation prior to being used to inform advance mitigation scoping (Caltrans SAMNA 2.0 report is forthcoming). Further, although SAMNA data layers and results are suitable to assist with advance mitigation project scoping, establishing compensatory mitigation credits approved by one or more natural resource regulatory agencies requires additional analysis and site-specific studies.

2.8 Critical Habitat

FWS regulates impacts on critical habitat under the FESA. The FESA (16 USC § 1531–1544) defines critical habitat for a threatened or endangered species as (i) “specific areas within the geographical area occupied by the species at the time it is listed ... on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection;” and (ii) “specific areas outside the geographical area occupied by the species at the time it is listed ... upon a determination by the Secretary that such areas are essential for the conservation of the species.” Further, the FESA clarifies that critical habitat “shall not include the entire geographical area which can be occupied by the threatened or endangered species.” Critical habitat designations reflect a rigorous process. Before publishing the rule finalizing the critical habitat designation, FWS publishes proposals to designate critical habitat in the *Federal Register* and considers information received during the public comment period (FWS 2017).

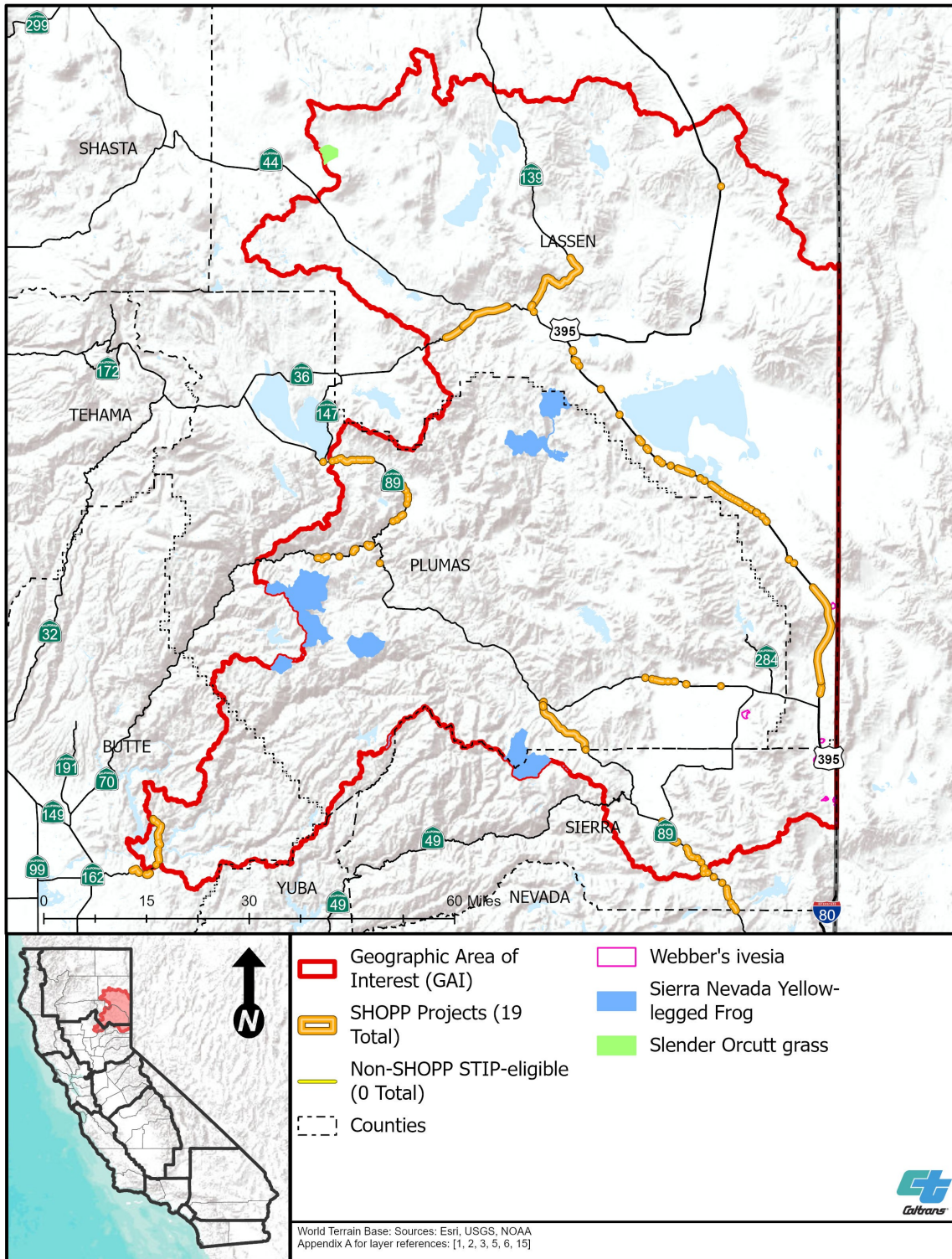
The GAI includes federally designated final critical habitat for three species (FWS 2025a):

- Sierra Nevada yellow-legged frog (*Rana sierrae*)
- Slender Orcutt grass (*Orcuttia tenuis*)
- Webber’s ivesia (*Ivesia webberi*)

The GAI also includes proposed critical habitat for foothill yellow-legged frog North Feather DPS (*Rana boylei*) (FWS 2025b).

Critical habitat is an important consideration when establishing compensatory mitigation. Designated critical habitat for these species is indicated on Figure 2-7.

Figure 2-7. Federally Designated Critical Habitat



2.9 Connectivity

Roads can be barriers to special-status wildlife species movement, and block migration and access to and from suitable upstream habitat for special-status fish species. Improving habitat connectivity and permeability of the SHS may provide a mechanism for maintaining biodiversity in the face of California's human population growth and climate change (CDFW 2022).

2.9.1. Wildlife Movement

Caltrans identified three connectivity assessments applicable and relevant to the GAI: the California Essential Habitat Connectivity ("CEHC") Project, ACE, and CDFW's *Restoring California's Wildlife Connectivity 2022* report. Each is briefly summarized below.

California Essential Habitat Connectivity

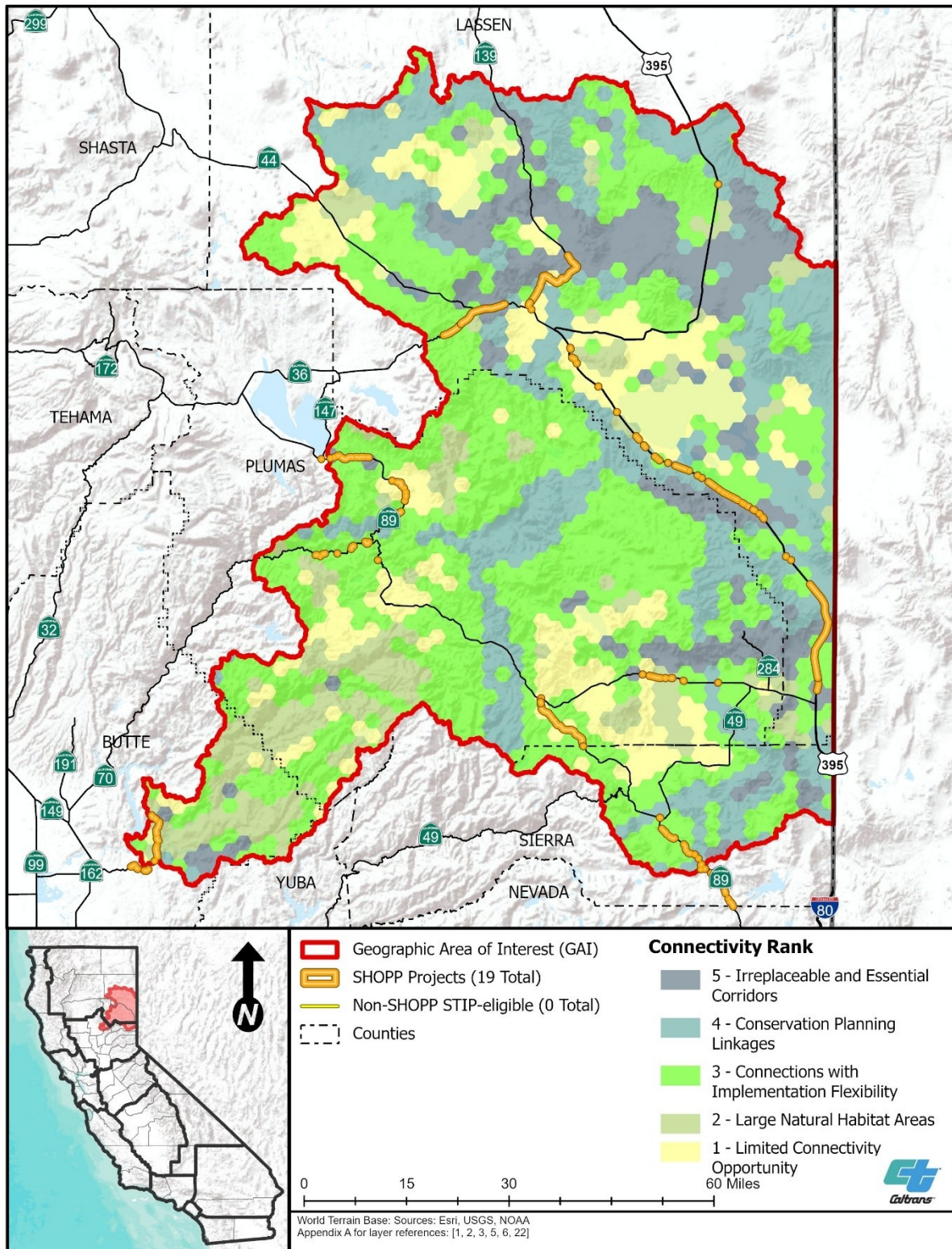
The CEHC Project, a statewide assessment commissioned by CDFW and Caltrans, identified large remaining blocks of intact habitat or natural landscape that support native biodiversity and modeled linkages or essential connectivity areas between them that need to be maintained, particularly as corridors for wildlife (CDFW 2024a; Spencer et al. 2010). These connectivity areas were broadly defined, focusing on ecological integrity rather than species-specific habitat needs, and included potential riparian connections between landscape blocks. For instance, connectivity areas were selected to connect existing reserves across land that has been highly altered and fragmented by agriculture, urbanization, and roads, which typically constrain wildlife movement (Spencer et al. 2010).

CDFW's Areas of Conservation Emphasis

CDFW's ACE version 3 terrestrial connectivity dataset builds on the CEHC Project and includes mapped corridors or linkages and where they occur in relation to large, contiguous natural areas (Figure 2-8). It also incorporates species-specific, fine-scale linkage information developed at a regional scale, where available, and includes areas that were not evaluated by the CEHC Project. Connectivity ranks in the terrestrial connectivity dataset were assigned as follows:

- Rank 5 (irreplaceable and essential corridors) – includes channelized areas and priority species movement corridors
- Rank 4 (conservation planning linkages) – habitat connectivity linkages mapped in the CEHC and fine-scale regional connectivity studies that are based on species-specific models and represent the best connections between core natural areas
- Rank 3 (connections with implementation flexibility) – areas with connectivity importance, including core habitat areas and areas on the periphery of mapped habitat linkages

Figure 2-8. Terrestrial Connectivity



- Rank 2 (large natural habitat areas) – large blocks of natural habitat (greater than 2,000 acres) with relatively intact connectivity
- Rank 1 (limited connectivity opportunity) – areas where land use limits connectivity, including some lakes

Connectivity is an important consideration when establishing compensatory mitigation. Most of the planned SHOPP transportation projects occur within areas with a connectivity rank of 3 or 1, followed by areas with a connectivity rank of 5, with fewer planned transportation projects occurring within areas with a connectivity rank of 2 and none with a connectivity rank of 4 (Figure 2-8).

CDFW's Restoring California's Wildlife Connectivity 2022 Report

CDFW's *Restoring California's Wildlife Connectivity 2022* report identified priority wildlife connectivity project locations based on barriers created by linear infrastructure across the state, including the SHS, railroads, canals, high-speed rail alignments, and local roads, to help focus financial resources on improving wildlife movement (CDFW 2022). In addition to impeding wildlife movement, these barriers act as sources of mortality and affect population demographics, gene flow, resilience, and persistence of California's wildlife. Barriers were identified using existing connectivity and road crossing studies, collared-animal movement data, roadkill observations, and professional expertise. This report is an update to the 2020 priority barrier dataset; it includes an updated list of priority wildlife barriers within each region, identifies additional wildlife barriers across the state, and identifies two top priority barriers in each region. A total of 150 segments of linear infrastructure were identified as having wildlife barriers, with 62 identified as priority wildlife barriers and 12 on the statewide top-priority list (CDFW 2022).

Three priority wildlife movement barriers on the SHS were identified within the GAI. The barriers and target species for movement include: Highway 395 east of Janesville [mule deer (*Odocoileus hemionus*) and mountain lion (*Puma concolor*)], Highway 395 through Doyle (mule deer and mountain lion), and Interstate 80 through Truckee River Canyon bisecting Sierra Nevada [(mule deer, black bear (*Ursus americanus*), mountain lion (*Puma concolor*), wolf (*Canis lupus*), and elk (*Cervus canadensis*)] (CDFW 2022).

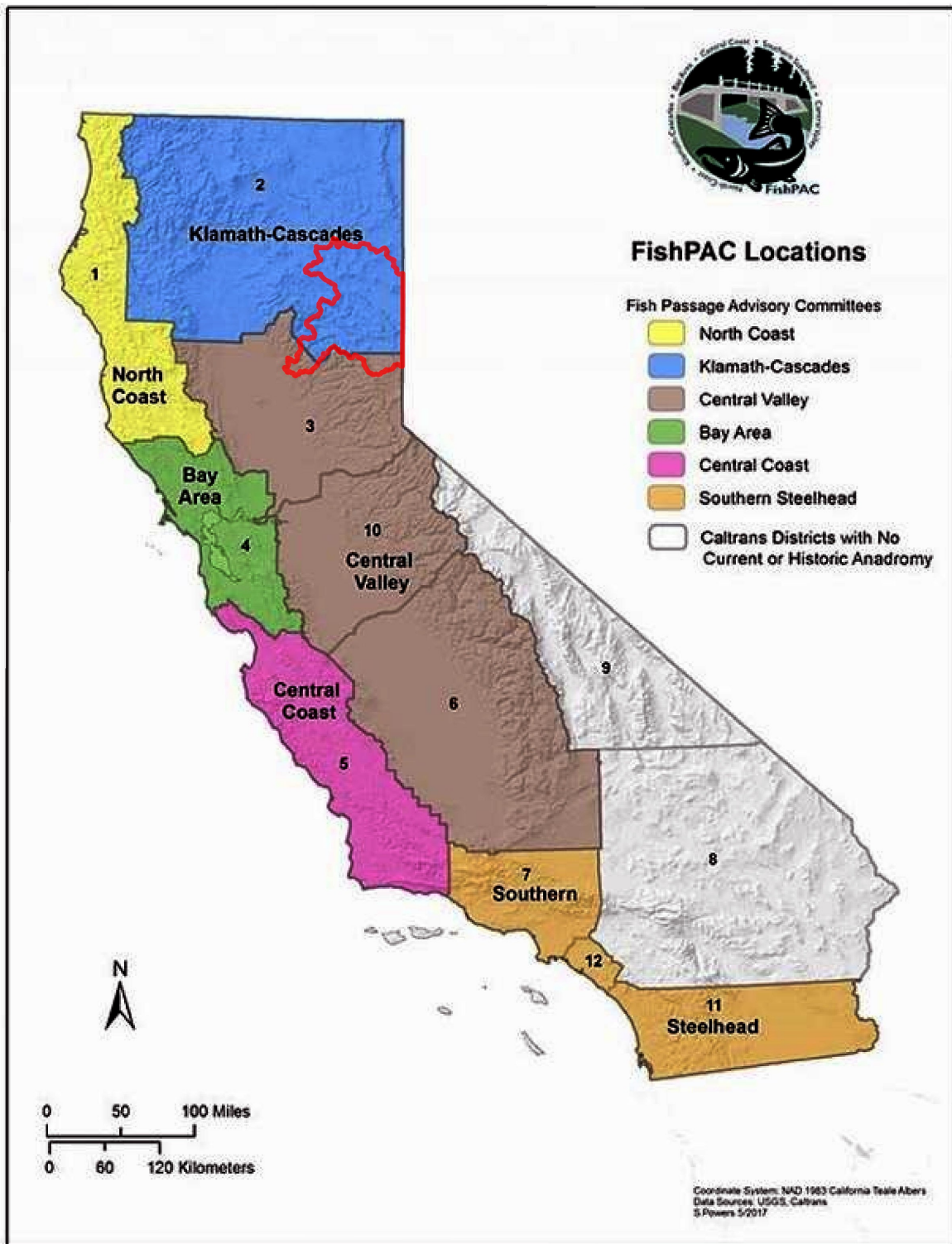
2.9.2. Fish Passage

Article 3.5 of Chapter 1 of Division 1 of the SHC, also known as "Senate Bill 857" (Kuehl, Chapter 589 and Statute of 2005), prohibits the new construction or continued maintenance upgrades of SHS facilities that prevent or impede the passage of salmon and steelhead (*Oncorhynchus mykiss*). Most salmon and steelhead in California are listed as either threatened or endangered, and barriers on the SHS further block fish from gaining access to upstream habitat.

Figure 2-14 depicts the six California Fish Passage Advisory Committee ("FishPAC") locations throughout the state. The FishPAC is a partnership between Caltrans, CalTrout, CCC, CDFW, FWS, NMFS, Pacific States Marine Fisheries Commission, and other local fish passage advocates. The FishPACs share science and data related to known fish barriers and prioritize SHS locations based on high-value habitat recovery. Neither

salmon nor steelhead were identified as having the potential to occur in the GAI (refer to Section 2.15.4, Threatened and Endangered Fish Species). The most recently available list of fish passage priorities are available on the Caltrans Legislative Affairs website, with the most recent report at: <https://dot.ca.gov/programs/legislative-affairs/reports>

Figure 2-9. California Fish Passage Advisory Committee Locations



2.10 Sub-basins

The Watershed Boundary Dataset maps the areal extent of surface water drainage in the U.S. It consists of a hierarchical system of nesting hydrologic units of various scales, each with an assigned HUC that is georeferenced to USGS topographic maps (USGS 2023). Each HUC classification consists of 2 to 12 digits. For example, 6-digit HUCs, or “HUC-6s,” map to the basin level; 8-digit HUCs, or “HUC-8s,” map to the sub-basin level; and 12-digit HUCs, or “HUC-12s,” map to the sub-watershed level.

The SAMNA Reporting Tool expresses the landscape in terms of USGS HUC-8 sub-basins; therefore, information in this RAMNA is also presented by HUC-8 (Caltrans 2025a; USGS 2023). However, the California Department of Water Resources and State Water Boards do not necessarily use HUC-8 codes (California Department of Water Resources 2019). The Water Boards also use the Calwater system (that is, HUs) for state-level purposes, such as assigning beneficial uses to waters. The Calwater system is a hierarchical system similar to USGS HUCs. Calwater levels begin with the division of the state into 10 hydrologic regions. Each hydrologic region is progressively subdivided into five smaller, nested levels: HUs, hydrologic areas, hydrologic sub-areas, super planning watersheds, and planning watersheds.

Table 2-4 provides a crosswalk between the HUC-8 and HU classification systems for each HUC-8 within the GAI. The GAI overlaps the East Branch North Fork Feather, Honey-Eagle Lakes, and Middle Fork Feather sub-basins, which loosely correspond to the Feather River, Little Truckee River, Madeline Plains, Pit River, Smoke Creek, Susanville, Truckee River, and Yuba River HUs. Figure 2-10 shows the overlap between sub-basins and state-level HUs in the GAI.

Table 2-4. Crosswalk Table of HUC-8 Sub-basins with HUs within the GAI

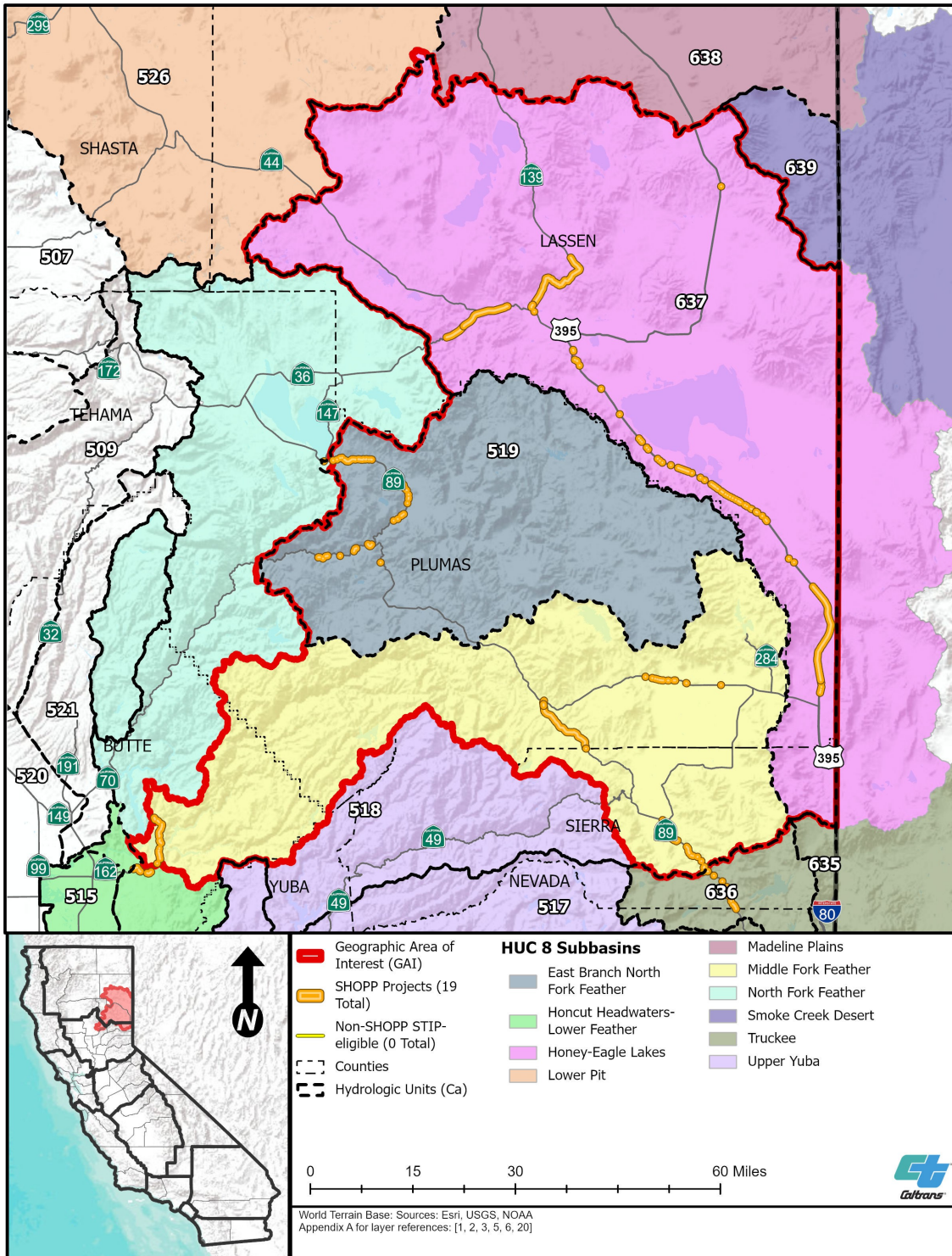
HUC-8 Number	HUC-8 Name	HUC-8 Acreage ^a	HU Number	HU Name ^a	HU Acreage ^b
18080003	Honey-Eagle Lakes	1,794,233	518	Feather River	327
18080003	Honey-Eagle Lakes	1,794,233	519	Feather River	150
18080003	Honey-Eagle Lakes	1,794,233	636	Little Truckee River	>0.1
18080003	Honey-Eagle Lakes	1,794,233	638	Madeline Plains	471
18080003	Honey-Eagle Lakes	1,794,233	526	Pit River	1,516
18080003	Honey-Eagle Lakes	1,794,233	639	Smoke Creek	127
18080003	Honey-Eagle Lakes	1,794,233	637	Susanville	1,419,898
18080003	Honey-Eagle Lakes	1,794,233	635	Truckee River	21
18020122	East Branch North Fork Feather	657,680	518	Feather River	1,717
18020122	East Branch North Fork Feather	657,680	519	Feather River	655,810

HUC-8 Number	HUC-8 Name	HUC-8 Acreage ^a	HU Number	HU Name ^a	HU Acreage ^b
18020122	East Branch North Fork Feather	657,680	637	Susanville	152
18020123	Middle Fork Feather	873,438	518	Feather River	872,464
18020123	Middle Fork Feather	873,438	519	Feather River	324
18020123	Middle Fork Feather	873,438	636	Little Truckee River	149
18020123	Middle Fork Feather	873,438	637	Susanville	168
18020123	Middle Fork Feather	873,438	517	Yuba River	34
18020123	Middle Fork Feather	873,438	518	Yuba River	299

^a HU names were extracted from RWQCB data layers; some HUs have the same names.

^b Numbers were rounded to the nearest whole number and include the area within each sub-basin outside the GAI.

Figure 2-10. HUC-8 Sub-basins and HUs



2.11 Hydrology

The East Branch North Fork Feather, Honey-Eagle Lakes, and Middle Fork Feather sub-basins of the GAI drain an area of 3,325,351 acres (5,196 square miles) (Table 2-5). Described individually below, these sub-basins include 4,181 rivers and streams that traverse 4,885 miles in the Lahontan and Central Valley RWQCB boundaries (Table 2-5, Figure 2-10).

Table 2-5. Sub-basins

Sub-basin Name	Sub-basin Code (HUC-8)	Drainage Area (acres) ^a	Rivers and Streams (count)	Total Reach Length (miles) ^a
East Branch North Fork Feather	18020122	657,680	1,255	1,337
Honey-Eagle Lakes	18080003	1,794,233	1,200	1,748
Middle Fork Feather	18020123	873,438	1,726	1,800
Total		3,325,351	4,181	4,885

The SAMNA Reporting Tool expresses the landscape in terms of USGS HUC-8 sub-basins (Caltrans 2025; USGS 2014). However, the Water Boards consider beneficial uses in terms of HUs (California Department of Water Resources 2016). Table 2-4 provides a crosswalk between the HUC-8 and HU classification systems for the GAI.

2.11.1. East Branch North Fork Sub-basin

Within the GAI, the East Branch North Fork Feather sub-basin drains an area of 657,680 acres (1,028 square miles) and includes 1,255 rivers and streams that traverse 1,337 miles. As noted in Table 2-4, the East Branch North Fork sub-basin includes portions of the Feather River and Susanville HUs. Descriptions of these HUs are provided below and may include features that occur outside of the GAI.

Feather River HU. The Feather River HU is associated with the Feather River watershed. The headwaters of the Feather River are located within the Sierra Nevada Mountains, in the northern part of Plumas County. The river empties into Lake Oroville in the southwestern portion of the GAI. There are four tributary forks, the South Fork, Middle Fork, North Fork, and West Branch. All forks ultimately drain into the Sacramento River.

Susanville HU. The Susanville HU is associated with the Susan River. The headwaters of the river are located east of Lassen Volcanic National Park. The river empties into Honey Lake. The main tributaries to the Susan River include Paiute Creek, Gold Run Creek, Lassen Creek, and Willow Creek.

2.11.2. Honey-Eagle Lakes Sub-basin

Within the GAI, the Honey-Eagle Lakes sub-basin drains an area of approximately 1,794,233 acres (2,803 square miles). As noted in Table 2-4, the Honey-Eagle Lakes sub-basin includes portions of the Feather River, Little Truckee River, Madeline Plains, Pit River, Smoke Creek, Susanville, and Truckee River HUs. Descriptions of the Feather River and Susanville River HUs are provided in Section 2.11.1.

Little Truckee River HU. The Little Truckee River HU is associated with the largest tributary to the Truckee River, the Little Truckee River. This river has significant hydrologic, sediment, and nutrient contributions to the main river. Headwaters are located north of Perazzo Creek and flow east and southeast to Stampede Reservoir and Boca Reservoir before feeding into the larger Truckee River (Sacramento River Watershed Program 2021).

Madeline Plains HU. The Madeline Plains HU is associated with the Pit River. The Madeline Plains watershed is an arid region (Honey Lake Valley Resource Conservation District 2019).

Pit River HU. The Pit River HU is associated with the Pit River watershed. The headwaters of the Pit River are located in northeastern California near the border with Oregon and Nevada and flow to the confluence with the Sacramento River. Tributaries to the Pit River include Fall River, Hat Creek, and Burney Creek.

Smoke Creek HU. The Smoke Creek HU is associated with Smoke Creek, which lies along the western edge of the Smoke Creek basin near the California-Nevada border.

Truckee River HU. The Truckee River HU is associated with the Truckee River watershed. The Truckee River emerges from the northwest periphery of Lake Tahoe, flows northeasterly for 121 miles, drains part of the high Sierra Nevada, and empties into Pyramid Lake in the Great Basin (Lahontan RWQCB 2021). Tributaries to the Truckee River include the Little Truckee River, Prosser Creek, Donner Creek, Martis Creek, Hunter Creek, Alum Creek, Dog Creek, Steamboat Creek, Dry Creek, the North Truckee Drain, and Long Valley Creek (Bureau of Reclamation 2022; Truckee 2006).

2.11.3. Middle Fork Feather Sub-basin

Within the GAI, the Middle Fork Feather sub-basin drains an area of approximately 873,438 acres (1,365 square miles). As noted in Table 2-4, the Middle Fork Feather sub-basin includes portions of the Feather River, Little Truckee River, Susanville, and Yuba River HUs. Descriptions of the Feather River and Susanville River HUs are provided in Section 2.11.1 and the Little Truckee River HU description is provided in the Section 2.11.2.

Yuba River HU. The Yuba River HU is associated with the Yuba River watershed, which originates on the western slopes of the Sierra Nevada and flows near Donner Pass to the Feather River near Yuba City. Streams include Canyon and Slate Creeks on the North Fork Yuba River, Kanaka and Grizzly Creeks on the Middle Fork Yuba River, and Canyon and Poorman Creeks on the South Fork Yuba River (Sacramento River Watershed Program 2021).

2.12 Flood Hazard Areas

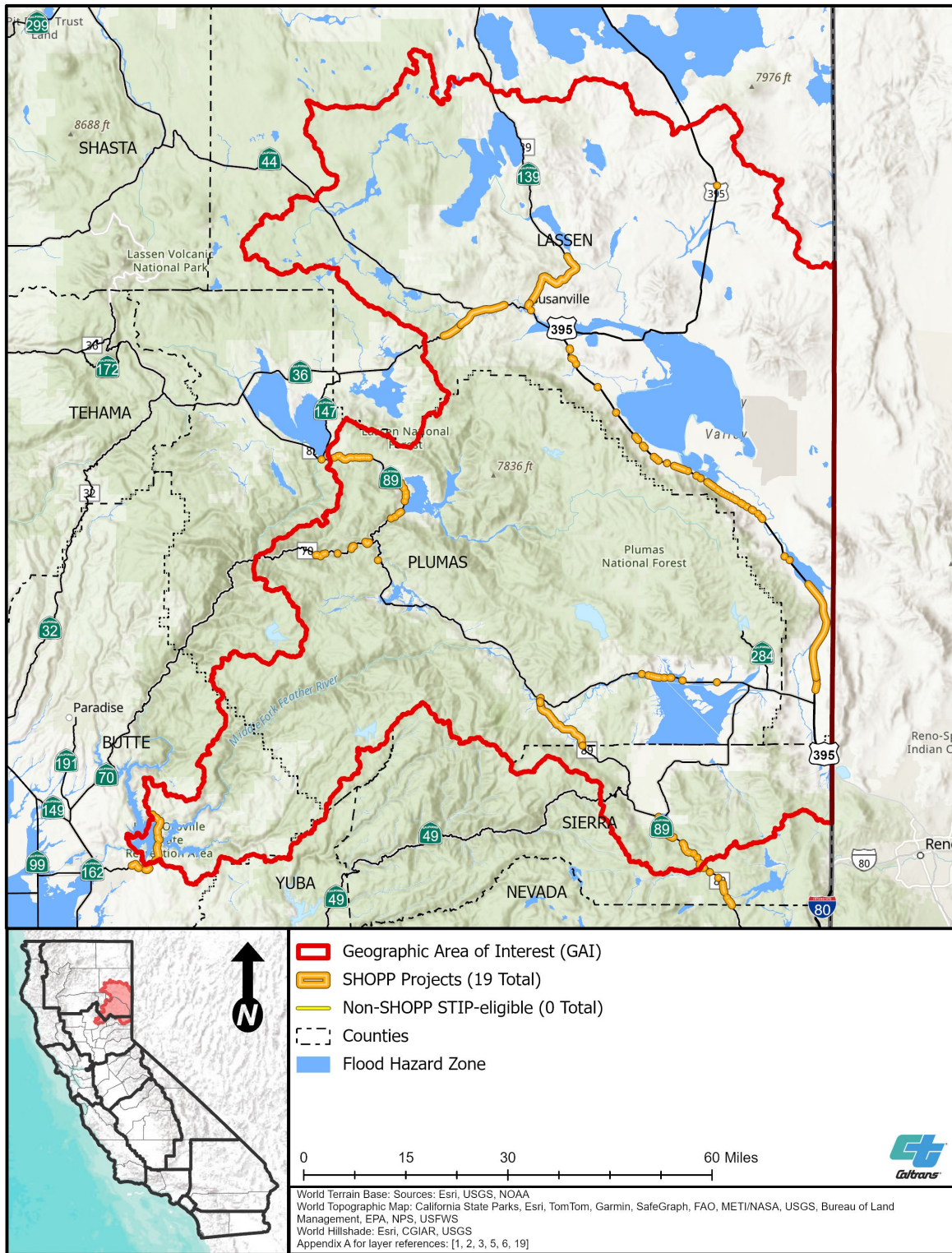
As designated by the Federal Emergency Management Agency, a Special Flood Hazard Area is the land area that is covered by the floodwaters of a 100-year base flood (Federal

Emergency Management Agency 2020). In accordance with Executive Order 11988, all federally approved projects that encroach into a 100-year base floodplain must try to:

- Avoid support of incompatible floodplain development,
- Minimize the impact of highway actions that adversely affect the base floodplain,
- Restore and preserve natural and beneficial floodplain values, and
- Be consistent with the standards/criteria of the National Flood Insurance Program of the Federal Emergency Management Agency (Caltrans 2015).

Flood hazard areas within the GAI are shown on Figure 2-11. Waterbodies associated with the majority of flood hazard risk in the GAI include Pine Creek, Honey Lake, Eagle Lake, Smoke Creek, Bear Valley Lake, Lights Creek, and Long Valley Creek. This information is important for scoping advance mitigation projects and transportation projects undertaken within the GAI, which will need to comply with Executive Order 11988.

Figure 2-11. Flood Hazard Areas



2.13 Water Quality

Water quality objectives for surface waters and groundwater within the GAI are provided in the *Water Quality Control Plan for the Lahontan Region* and the *Water Quality Control Plan for the Sacramento River Basins* (“Basin Plans”; Lahontan RWQCB 2021, Central Valley RWQCB 2019). Water quality objectives identified in the Basin Plans can be numerical or narrative. For example, the “chemical constituents” water quality objective for the protection of aquatic life and human health consists of federal water quality criteria for toxic “priority pollutants” under the California Toxics Rule (40 CFR § 131.38) and National Toxics Rule (40 CFR § 131.36). In contrast, the water quality objective for taste and odor is narrative. Undesirable tastes and odors in water are an aesthetic nuisance and can indicate the presence of other pollutants.

Beneficial uses³ for surface waters and groundwater are also identified in the Basin Plans (Lahontan RWQCB 2021, Central Valley RWQCB 2019). If it cannot be avoided, a waterbody’s beneficial uses may be affected by the construction, operation, and maintenance of highways and bridges. Impacts on wildlife and aquatic resources can be adverse or beneficial. An example of an adverse impact would be the introduction of a variety of pollutants, including sediments, heavy metals, hydrocarbons, and toxic substances (EPA 2005). An example of a beneficial impact would be repairs or retrofits that improve permeability or flow. Therefore, this RAMNA considers beneficial uses identified for waterbodies located within the GAI relevant to the RAMNA when they support the preservation and enhancement of wildlife habitat and aquatic resources and are consistent with the AMP’s objective to protect natural resources through transportation project mitigation (Table 2-5).

Table 2-6. Beneficial Uses

Beneficial Use	Lahontan Basin Plan	Sacramento River Basin Plan	Relevant to RAMNA? ^a
Agricultural supply	Applicable	Applicable	No
Aquaculture	Applicable	Not Applicable	No
Canoeing and rafting	Applicable	Applicable	No
Cold freshwater habitat	Applicable	Applicable	Yes
Commercial and sport fishing	Applicable	Not applicable	No
Flood peak attenuation/flood water storage	Applicable	Not applicable	Yes
Freshwater replenishment	Applicable	Not applicable	Yes
Groundwater recharge	Applicable	Not applicable	Yes

³ RWQCBs may have region-specific definitions of beneficial uses or beneficial uses with no statewide equivalent. These definitions can be consulted in the latest document version, entitled “bu_definitions,” at: https://www.waterboards.ca.gov/about_us/performance_report_1314/plan_assess/docs/.

Beneficial Use	Lahontan Basin Plan	Sacramento River Basin Plan	Relevant to RAMNA? ^a
Industrial service supply	Applicable	Applicable	No
Industrial process	Applicable	Applicable	No
Industrial power	Applicable	Applicable	No
Inland saline water habitat	Applicable	Not Applicable	Yes
Migration of aquatic organisms	Applicable	Applicable	Yes
Municipal and domestic supply	Applicable	Applicable	No
Navigation	Applicable	Applicable	No
Non-contact water recreation	Applicable	Applicable	No
Spawning, reproduction, and/or early development	Applicable	Applicable	Yes
Warm freshwater habitat	Applicable	Applicable	Yes
Water contact recreation	Applicable	Applicable	No
Water quality enhancement	Applicable	Not Applicable	Yes
Wildlife habitat	Applicable	Applicable	Yes

Sources: Lahontan RWQCB 2021; Central Valley RWQCB 2019

^a Beneficial uses are relevant to the RAMNA when they support the preservation and enhancement of wildlife habitat and aquatic resources and are consistent with the AMP's objective to protect natural resources through transportation project mitigation.

Through habitat and other improvements, advance mitigation projects have the potential to contribute to compliance with the CWA Section 303(d) List of Total Maximum Daily Load Priority Schedule. For example, fish passage projects in impaired watersheds that increase road/stream crossing capacity; improve the alignment of the crossing; or implement weirs, baffles, or other grade/velocity control devices at undersized road/stream crossings will improve sediment transport and reduce scour, thereby improving water quality. Similarly, culvert replacement projects that increase flow and capacity would also reduce scour and improve sediment transport, resulting in improved channel function and flow and improved water quality.

Section 303(d) of the CWA requires that every 2 years, each state submits to EPA a list of rivers, lakes, and reservoirs in the state for which pollution control or requirements have failed to meet water quality standards. The CWA Section 303(d) list of impaired waters includes 20 waterbodies within the GAI (SWRCB 2021). This RAMNA considers a waterbody's CWA Section 303(d) impairment designation as relevant to the RAMNA when it is indicative of a waterbody's loss of a relevant aquatic resource-related beneficial use (Table 2-5). Waterbodies, their impairments, and whether total maximum daily loads have been established, are provided in Table 2-6. The Water Boards may need to consult

with CDFW or other natural resource regulatory agencies to determine whether a beneficial use may be affected by a water quality-related decision.

Table 2-7. Impaired Waters in the GAI

Sub-basin	Impaired Water	Impairment	TMDL Status	Relevant to RAMNA? ^a
Middle Fork Feather	Oroville Lake	PCBs (Polychlorinated biphenyls)	TMDL still required	Yes
Honey-Eagle Lakes	Honey Lake	Salinity/TDS/Chlorides	TMDL still required	Yes
Honey-Eagle Lakes	Honey Lake Wildfowl Management Ponds	Metals	TMDL still required	Yes
Honey-Eagle Lakes	Eagle Lake (Lassen County)	Nitrogen	TMDL still required	Yes
Honey-Eagle Lakes	Honey Lake Area Wetlands	Metals	TMDL still required	Yes
Middle Fork Feather	Feather River, South Fork (from Little Grass Valley Reservoir to Lake Oroville, Butte and Plumas counties)	PCBs (Polychlorinated biphenyls)	TMDL still required	Yes
Middle Fork Feather	Sucker Run (Butte County)	Toxicity	TMDL still required	Yes
Middle Fork Feather	Fall River, tributary to Feather River, Middle Fork (Butte and Plumas counties)	Toxicity	TMDL still required	Yes
Middle Fork Feather	Feather River, Middle Fork (Sierra Valley to Lake Oroville, Butte and Plumas counties)	Toxicity	TMDL still required	Yes
East Branch North Fork Feather	Spanish Creek (Plumas County)	Indicator Bacteria	TMDL still required	Yes
East Branch North Fork Feather	Dolly Creek	Zinc	TMDL still required	Yes
East Branch North Fork Feather	Little Grizzly Creek	Copper	TMDL still required	Yes
Honey-Eagle Lakes	Long Valley Creek	Indicator Bacteria	TMDL still required	Yes

Sub-basin	Impaired Water	Impairment	TMDL Status	Relevant to RAMNA? ^a
Honey-Eagle Lakes	Susan River (Headwaters to Willard Creek)	Chloride	TMDL still required	Yes
Honey-Eagle Lakes	Susan River (Susanville to Honey Lake)	Toxicity	TMDL still required	Yes
Honey-Eagle Lakes	Susan River (Willard Creek to Susanville)	Indicator Bacteria	TMDL still required	Yes
Honey-Eagle Lakes	Jensen Slough	Indicator Bacteria	TMDL still required	Yes
East Branch North Fork Feather	Indian Creek (from Antelope Lake to East Branch of North Fork Feather River, Plumas County)	Oxygen, Dissolved	TMDL still required	Yes

Source: SWRCB 2024

^a TMDLs relevant to the RAMNA reflect impaired aquatic resource-related beneficial uses.

^b Refers to toxicity to aquatic organisms

2.14 Wild and Scenic Rivers

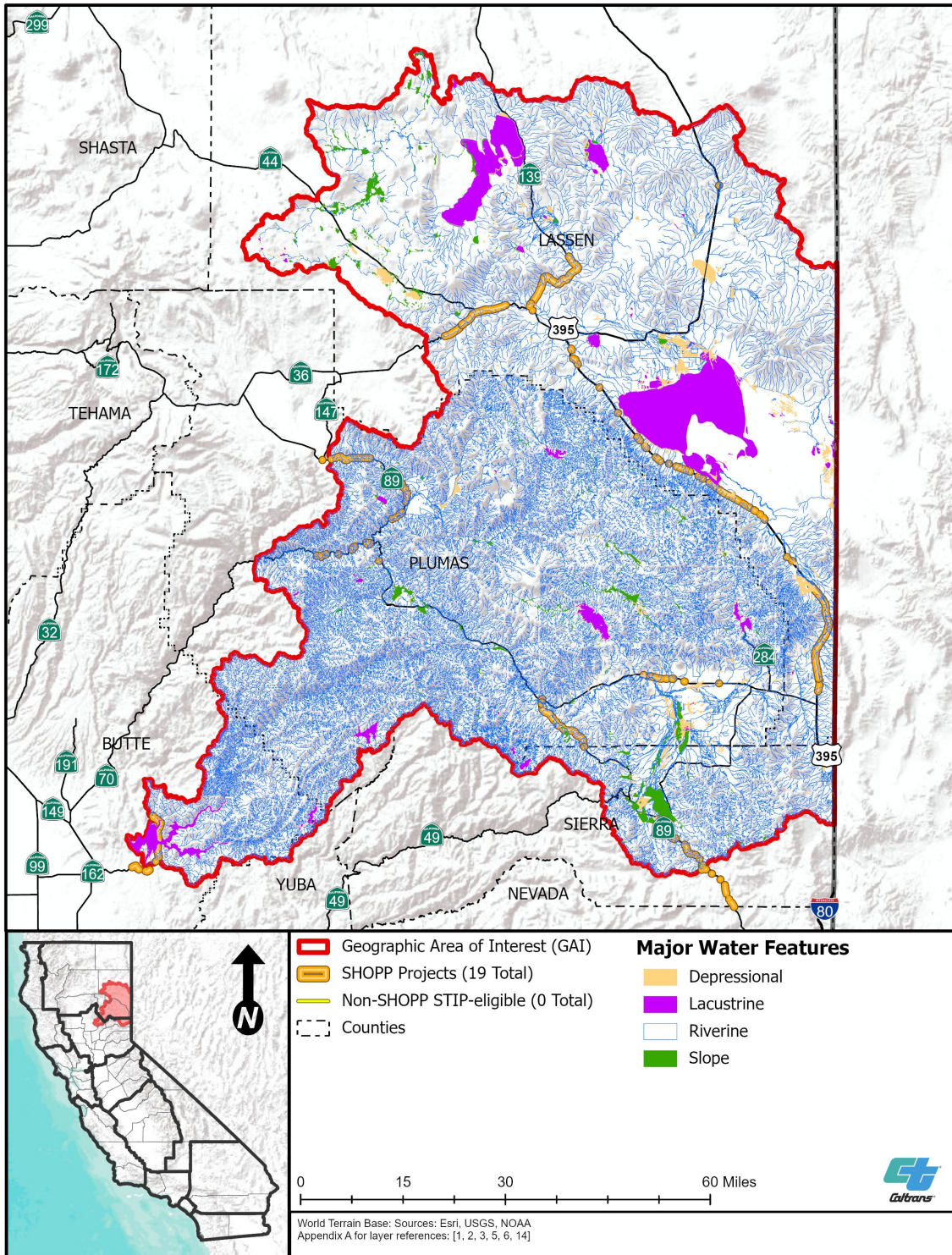
The purpose of the federal Wild and Scenic Rivers Act of 1968 (16 USC Chapter 28) and the state Wild and Scenic Rivers Act of 1972 (Public Resources Code § 5093.50) is to protect and enhance the wild, scenic, and recreational values of designated rivers (National Wild and Scenic Rivers System n.d.; Water Education Foundation 2026). Rivers designated under the Wild and Scenic Rivers Act are classified as wild, scenic, or recreational. Wild river areas include rivers or sections of rivers that are free of impoundments, inaccessible except by trail, and have unpolluted waters. Scenic river areas include rivers or sections of rivers that are free of impoundments, have relatively undeveloped shorelines, and are accessible in some places by roads. Recreational river areas include rivers or sections of rivers that are readily accessible by road or railroad, have some development along shorelines, and may have impoundments or diversions.

The only a designated wild and scenic rivers found in the GAI is the Middle Fork Feather River (National Wild and Scenic Rivers System n.d.; Omnibus Public Land Management Act of 2009).

2.15 Aquatic Resources

A high-level view of major aquatic resources within the GAI is provided in Figure 2-12, and detailed maps of aquatic resources are provided in Appendix E, *Aquatic Resource Locations*. For the purposes of advance mitigation planning, aquatic resources within the GAI include wetlands and non-wetland waters that may be subject to Corps, EPA, Water Boards, and/or CDFW regulations, as well as threatened and endangered fish that may be managed by CDFW and/or FWS. Riparian habitat is discussed separately in Section 2.16.

Figure 2-12. Aquatic Resource Features and Major Stream Systems^a



^a For greater detail, see Appendix E, *Aquatic Resource Locations*.

Corps and EPA jurisdiction under Section 404 of the CWA includes any activity that may cause a discharge of dredged or fill material into waters of the U.S. (“WOTUS”), including wetlands. Corps jurisdiction also includes any work or structure affecting navigable WOTUS, pursuant to Section 10 of the Rivers and Harbors Act and 33 CFR § 329, respectively. The Water Boards’ jurisdiction includes any activity that may cause a discharge of waste to waters of the state (as defined under the Porter-Cologne Water Quality Control Act), including WOTUS, rivers, streams, and lakes, as well as ephemeral, intermittent, and perennial watercourses, and wetlands, seeps, and springs. CDFW regulates any activity that may divert or obstruct the natural flow of a river, stream, or lake; change the bed, channel, or bank of any river, stream, or lake⁴; use material from any river, stream, or lake; and deposit or dispose of material into any river, stream, or lake.

2.15.1. Historical Context

Historically, the GAI was characterized by abundant streams throughout the Sierra Nevada range. Gold mining impacted streams when damming, water diversion, dewatering, excavating, and settlement development resulted in the pollution of waterways in the region. Surface water runoff from the Sierra Nevada region flowed into the Central Valley and Nevada, meeting needs for hydropower, agriculture, and drinking water in California and Nevada. Water that flowed from the Sierra Nevada region was often stored in reservoirs and conveyed by aqueducts throughout the state. On the eastern side of the Sierra Nevada region, rivers and streams, such as the Truckee River, the Feather River, and the American River, flowed into the Great Basin through the Lahontan, Mono, and Owens drainages.

The pressures of human development have created challenges for native species and natural ecosystems. Agricultural practices such as grazing, stocking waterbodies with non-native fish, as well as the timber and mining industries, have degraded streams and aquatic habitats, disrupted natural river flow regimes, increased the frequency and severity of wildfires, and compromised old-growth forests that provide critical habitat. According to the SWAP (CDFW 2025b), aquatic and riparian systems are believed to be two of the most altered and impaired habitats of the Sierra Nevada. Among other critical findings, the Sierra Nevada Ecosystem Project found that key causes of the decline of mammals, birds, and other vertebrates in the Sierra, Cascades, and Modoc regions include the loss and degradation of riparian areas, foothill woodlands, and diverse old forest habitats (including large trees, snags, fallen logs, and layered vegetative structure) (CDFW 2025b).

2.15.2. Wetlands

Wetland resources information for the GAI was extracted from the SAMNA Reporting Tool. The SAMNA Aquatic/Riparian Geospatial Data is comprised of data from two

⁴ Rivers, streams, and lakes include ephemeral, intermittent, and perennial watercourses.

special San Francisco Estuary Institute projects, the Caltrans-CARI v2.0 and Caltrans CARlv2.0 RipZET – Statewide Riparian Estimate, which were released in April 2025.

Aquatic resource types outlined here follow the *Classification of Wetlands and Deepwater Habitats of the United States* (Federal Geographic Data Committee 2013). The SAMNA Reporting Tool wetlands data layer is separate from the land cover types discussed previously in Section 2.5; therefore, total acreages of wetland land cover types presented in Table 2-3 may not align with those presented in Table 2-8 (Caltrans 2025a).

Table 2-8. Wetland and Non-wetland Types within the GAI

Type	Middle Fork Feather (acres) ^a	East Branch North Fork (acres) ^a	Honey-Eagle Lakes (acres) ^a	Total (acres) ^b
Depressional Natural	1.49	Not mapped	Not mapped	1.5
Depressional Natural Non-vegetated	19.32	2.90	18.05	40.3
Depressional Natural Seasonal Emergent	9,437.10	4,142.68	18,213.68	31,793.5
Depressional Natural Seasonal Non-vegetated	1.68	0.17	3,030.80	3,032.7
Depressional Natural Shrub-Scrub	Not mapped	Not mapped	12.52	12.5
Depressional Perennial Natural Emergent	2,109.92	71.36	412.23	2,593.5
Depressional Perennial Natural Non-vegetated	531.64	168.23	435.84	1,135.7
Depressional Perennial Natural Shrub-Scrub	Not mapped	29.36	161.70	201.1
Depressional Perennial Natural Vegetated	161.09	15.25	211.80	388.1
Depressional Perennial Unnatural	Not mapped	Not Mapped	<0.1	<0.1
Depressional Perennial Unnatural Emergent	23.80	5.78	29.61	59.2
Depressional Perennial Unnatural Non-vegetated	180.53	38.95	415.98	635.5
Depressional Perennial Unnatural Shrub-Scrub	11.48	Not Mapped	Not Mapped	11.5
Depressional Perennial Unnatural Vegetated	44.91	40.54	99.24	184.7
Depressional Seasonal Managed Farmed	3.47	Not Mapped	11.05	14.5
Depressional Seasonal Natural Forested	545.89	258.32	318.54	1,122.8
Depressional Seasonal Natural Shrub-Scrub	935.49	1,005.36	3,548.63	5,489.5
Depressional Seasonal Unnatural Emergent	300.52	109.68	411.39	821.6
Depressional Seasonal Unnatural Forested	Not mapped	39.01	2.14	41.2
Depressional Seasonal Unnatural Shrub-Scrub	19.22	13.80	153.59	186.6

Type	Middle Fork Feather (acres) ^a	East Branch North Fork (acres) ^a	Honey-Eagle Lakes (acres) ^a	Total (acres) ^b
Depressional Seasonal Unnatural Emergent	Not mapped	Not mapped	517.14	517.1
Depressional Unnatural Non-vegetated	52.99	6.74	2.23	62.0
Depressional Unnatural Seasonal Non-vegetated	0.14	3.21	248.63	252.0
Depressional Unnatural Shrub-Scrub	Not mapped	Not mapped	152.74	152.7
Depressional Unnatural Vegetated	0.44	Not mapped	59.61	60.0
Lacustrine Natural Emergent	Not mapped	Not mapped	4.75	4.8
Lacustrine Natural Non-vegetated	2,279.10	1,144.47	89,532.66	92,956.2
Lacustrine Natural Vegetated	110.17	2.67	219.24	332.2
Lacustrine Unnatural Emergent	Not mapped	Not mapped	31.86	31.9
Lacustrine Unnatural Non-vegetated	15,584.85	104.96	3,041.41	18,731.2
Lacustrine Unnatural Vegetated	15.69	447.38	809.85	1,272.9
Riverine Natural	178,247.55	134,857.67	38,725.96	351,831.2
Riverine Natural Emergent	11,515.41	10,788.80	6,577.63	28,881.8
Riverine Natural Forested	227.84	143.46	137.94	509.2
Riverine Natural Non-Vegetated	4,614.88	2,010.79	2,638.21	9,263.9
Riverine Natural Shrub-Scrub	3,760.23	2,643.79	2,103.45	8,507.5
Riverine Natural Vegetated	232.90	Not mapped	1.35	234.3
Riverine Unnatural	83.45	27.37	248.70	359.5
Riverine Unnatural Emergent	0.27	2.84	166.80	169.9
Riverine Unnatural Non-vegetated	85.62	0.13	132.25	218.0
Riverine Unnatural Shrub-Scrub	Not mapped	Not mapped	53.17	53.2
Riverine Unnatural Vegetated	10.45	Not mapped	Not mapped	10.5
Slope Natural Vegetated	16,104.85	8,810.06	13,615.62	38,530.5
Total^b	247,254	166,936	186,508	600,708

Source: Caltrans 2025c

^a Rounded to the nearest tenth. Numbers may not sum due to rounding.

^b Rounded to the nearest whole number. Numbers may not sum due to rounding.

2.15.3. Non-wetland Waters

Other, non-wetland water resources information for the GAI was extracted from the SAMNA Reporting Tool, which relies on the USGS National Hydrography Dataset

(Table 2-8, Appendix E; Caltrans 2025c). Although suitable for advance mitigation project scoping, site-specific studies that result in more detailed mapping and classification of other, non-wetland aquatic resources would be required for advance mitigation projects to establish compensatory mitigation credits. Similar to the wetlands data, the waters data layer is separate from the land cover types discussed previously in Section 2.5; therefore, total acreages of water land cover types presented in Table 2-2 may not align with those presented in Table 2-8 (Caltrans 2025c).

2.15.4. Threatened and Endangered Fish Species

Special-status terrestrial species with the potential to occur within the GAI are discussed in Section 2.7. Threatened and endangered fish species are discussed below.

Threatened and endangered fish species with the potential to occur within the GAI were extracted from the SAMNA Reporting Tool's fish habitat layer, which was developed using the USGS National Hydrography Dataset and other information (Caltrans 2025c). Based on a search of the fish habitat layer, no federally or state listed threatened or endangered fish species have the potential to occur within the GAI.

Although it is the best information currently available, the SAMNA Reporting Tool's fish species list is uncertain (Caltrans 2025c). Therefore, although the SAMNA data layers and results are suitable to assist with advance mitigation project scoping, establishing compensatory mitigation credits approved by one or more natural resource regulatory agency requires additional analysis and site-specific studies.

2.16 Riparian Habitat

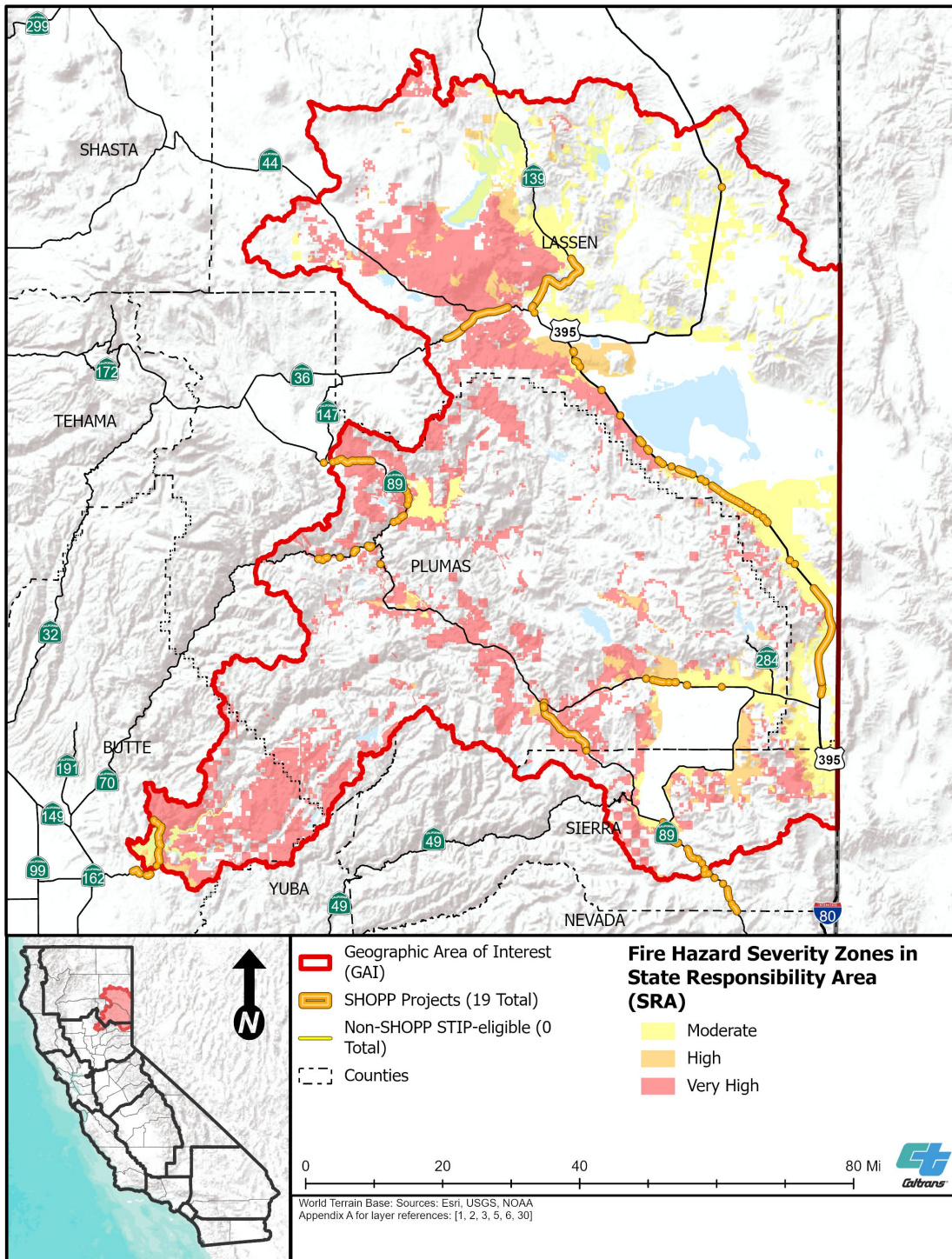
Riparian habitats may include portions that are wetlands or non-wetland waters, but they also may be outside these categories. California does not have a GIS layer for riparian ecotones and the natural resource regulatory agencies with authority in California do not have a definition for riparian habitat. Riparian areas are water-dependent lands along streams and lakes where transitions occur between terrestrial and aquatic parts of a watershed. As a function of the riparian corridor, riparian area boundaries fluctuate with the flows of their adjacent aquatic feature. Riparian area boundaries are more distinct and separate throughout most of the year, while during periods of high water, topographically lower riparian areas that are typically part of the floodplain become a part of the aquatic feature (Kattelmann and Embury 1996). Although more general, the riparian habitat estimated by the SAMNA's aquatic resources layer is better for planning in the GAI.

2.17 Fire Hazard Severity Zones

The California Department of Forestry and Fire Protection prepares Fire Hazard Severity Zone maps that classify the severity of fire hazards in California (Figure 2-13). These maps are developed by assigning a hazard score based on factors that influence fire likelihood and behavior, including fire history, existing and potential fuel, predicted flame length, blowing embers, terrain, and typical fire weather. Hazard scores are averaged over zone areas to result in a moderate, high, or very high zone class. As indicated on

Figure 2-13, very high, high, and moderate fire hazard severity zones are scattered throughout the GAI, with much of the GAI with no designated fire hazard severity. This information is important for scoping advance mitigation projects and transportation projects undertaken within the GAI, and it may inform the types of materials that can be used in an area based on their fire resistance capabilities.

Figure 2-13. Fire Hazard Severity Zones



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3. RELEVANT PLANS, POLICIES, AND REGULATIONS

This chapter summarizes the references applicable to the GAI that, when relevant, Caltrans will consult when conceptualizing advance mitigation project scopes informed by this RAMNA. Table 3-1 is organized by subject: laws and regulations, statewide and regional resource management plans, plans and permits focused on the species of mitigation need, resource agency land management plans (separated by agency), water resources plans and documents, county and city general plans, and other organization conservation and management documents. HCP, NCCP, and RCIS documents are discussed separately in Chapter 4, *Existing Mitigation Opportunities*, because they represent or support current compensatory mitigation credit purchase opportunities for Caltrans. Table 3-1 provides the following information for each reference identified:

- Reference document title
- Status:
 - Final: The reference is completed.
 - Draft: The reference is not complete, and changes may occur when it is finalized.
 - In progress: A formal draft version has not been completed, and the document is being written.
 - In litigation: The reference is subject to at least one lawsuit and is not being revised.
 - Updated periodically: The reference is updated with new information on a somewhat frequent basis.
 - Not publicly available: The reference is known to exist but does not appear to be publicly available.
- Spatial data: whether a map is provided with the document
- Reference purpose: a summary of information relevant to advance mitigation planning and/or a summary of reference intent
- Link: where the reference can be found
- Date: when the reference was published or last updated

The list of relevant documents, policies, and regulations in Table 3-1 is not exhaustive. Caltrans may consult additional relevant resources as advance mitigation planning is conceptualized. When conducting advance mitigation project scoping, Caltrans will check to determine whether it has the most up-to-date version of a particular reference.

3.1 Relationship to Goals and Objectives

As stated in Chapter 1, *Introduction*, the GAI for this RAMNA was selected by Caltrans District 2 based on the SAMNA results and other information. Caltrans District 2 specifically identified compensatory mitigation for the Sierra Nevada yellow-legged frog, foothill yellow-legged frog Feather River DPS, Cascades frog, golden eagle, fisher, northwestern pond turtle, riparian habitat, wetlands, and non-wetland waters as historical

and anticipated mitigation needs. Therefore, Table 3-1 emphasizes documents related to the specified wildlife and aquatic resources, which, in turn, form the basis for the goals and objectives presented in Chapter 7, *Wildlife Resources Conservation Goals and Objectives*, and Chapter 8, *Aquatic Resources Conservation Goals and Objectives*. As much as practicable, however, Caltrans intends for any compensatory mitigation established within the GAI to support these specific wildlife and aquatic resources to benefit other wildlife and aquatic resources.

Table 3-1. Comprehensive Plans, Agreements, Resource Management Plans, Policies, and Regulations Relevant to the GAI

Title	Status	Spatial Data	Reference Purpose	Link	Date
State Laws, Guidelines, and Regulations	See below	See below	See below	See below	See below
Barriers to Fish Passage SHC § 156	Final	No	Article 3.5 of Chapter 1 of Division 1 of the SHC, also known as Senate Bill 857 (Kuehl, Chapter 589 and Statute of 2005), prohibits new construction or continued maintenance upgrades of SHS facilities to prevent or impede the passage of salmon and steelhead, the majority of which are listed as either threatened or endangered in California, and requires Caltrans to do the following: ▪ Provide an annual list of fish passage priorities for the SHS to the legislature ▪ Complete assessments of potential barriers to anadromous fish prior to commencing any transportation project using state or federal transportation funds ▪ Submit assessments to the Fish Passage Assessment Database ▪ Construct all new transportation projects in a way that does not pose or create a barrier to fish passage Caltrans collaborates with the FishPAC to identify passage priority locations for the SHS. The FishPAC is a partnership between CDFW, NMFS, FWS, CCC, CalTrout, Pacific States Marine Fisheries Commission, other local fish passage advocates, and Caltrans.	https://leginfo.ca.gov/faces/codes_disp laySection.xhtml?sectionNum=156.&lawCode=SH C	1/1/2006 (effective date)
California Fish and Game Commission Wetlands Resources Policy	Updated periodically	No	California Fish and Game Commission's policy to seek to provide for the protection, preservation, restoration, enhancement, and expansion of wetland habitat in California.	https://fgc.ca.gov/About/Policies/Miscellaneous# Wetlands	8/18/2005 (last amended)
California Water Boards 2010 Update to Strategic Plan 2008–2012	Final	No	This is an update to the strategic plan from the Water Boards. Goals include implementing strategies to fully support beneficial uses for all water bodies listed in the 2006 report, improve and protect groundwater quality, increase sustainable local water supplies available for meeting beneficial uses by 1,725,000 acre-feet per year, comprehensively address water quality protection and restoration, improve transparency and accountability within the Water Boards, enhance consistency across the Water Boards, and ensure that the Water Boards have access to information and expertise.	https://www.waterboards.ca.gov/water_issues/hot topics/strategic_plan/	1/23/2019 (last updated)
2022 Fish Passage Annual Legislative Report	Updated periodically	No	This report identifies priority fish passage barriers on the SHS. Priorities are determined through FishPAC collaboration and are based on: ▪ Species diversity – listed threatened and endangered salmon and steelhead species currently or historically present in the watershed; ▪ Habitat – suitable habitat quality and quantity above each crossing, relative to recovery of threatened and endangered species; and ▪ Best professional knowledge – professional, discretionary value for science-based information known to fisheries and engineering subject matter experts. Subject matter experts include CDFW, NMFS, FWS, CCC, CalTrout, Pacific States Marine Fisheries Commission, other local fish passage advocates, and Caltrans.	https://dot.ca.gov/programs/legislative-affairs/reports	10/01/2022 (last updated)
CESA	Updated periodically (by California legislature)	No	CESA prohibits the take of any species of wildlife designated by the California Fish and Game Commission as an endangered, threatened, or candidate species. CDFW may authorize the take of any such species by permit if the conditions set forth in FGC § 2081, subdivisions (b) and (c), are met. (See California Code of Regulations, Title 14, § 783.4).	https://www.wildlife.ca.gov/Conservation/CESA	9/10/2018 (last amended)
Executive Order W-59-93	Final	No	This is the Governor of California's directive for a no net loss policy on the quantity, quality, and permanence of wetland acreages and values.	https://www.waterboards.ca.gov/water_issues/pro grams/cwa401/docs/wrapp2008/executive_order w59_93.pdf	8/23/1993

Title	Status	Spatial Data	Reference Purpose	Link	Date
Fish and Game Code § 1955	Updated periodically (by California legislature)	No	Section 1955 of the Fish and Game Code identifies the impacts of climate change and land use planning on California wildlife habitat connectivity and migratory corridors. Section 1955 states that habitat connectivity is essential for continued survival of California species, and so the Legislature intends to expand programs identified in Section 1797 (mitigation and conservation banking) and Section 1850 (advance mitigation planning) of the Fish and Game Code.	https://california.public.law/codes/fish_and_game_code_section_1955	1/1/2022 (effective date)
Native Plant Protection Act	Final	No	Enacted in 1977, the Act allows the California Fish and Game Commission to designate plants as rare or endangered. There are 64 species, subspecies, and varieties of plants that are protected as rare under the Native Plant Protection Act. The Act prohibits take of endangered or rare native plants but includes some exceptions for agricultural and nursery operations and emergencies, and after properly notifying CDFW for vegetation removal from canals, roads, and other sites; changes in land use; and in certain other situations.	https://leginfo.legislature.ca.gov/faces/codes_disp layText.xhtml?division=2.&chapter=10.&lawCode =FGC	1/1/1977 (effective date)
Porter-Cologne Water Quality Control Act	Updated periodically (by California legislature)	No	This law governs water quality in California, establishing the nine RWQCBs and their jurisdiction to protect California's surface water and groundwater through water quality objectives and the beneficial uses of water as outlined in a project's waste discharge requirements.	https://www.waterboards.ca.gov/laws_regulations/docs/portercologne.pdf	1/1/2026 (last amended)
State Board Resolution No. 68-16	Final	No	This resolution provides the policy for maintaining high water quality.	https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/1968/rs68_016.pdf	10/28/1968
State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State	Final	No	Created by the SWRCB and implemented by the Water Boards, this document creates a State of California wetland definition, a framework for determining jurisdiction of state wetlands, wetland delineation procedures, and application procedures for discharges of dredge and fill material to waters of the state.	https://www.waterboards.ca.gov/water_issues/programs/cwa401/wrapp.html	9/25/2025 (effective date)
Streambed Alteration Program FGC § 1602	Updated periodically (by California legislature)	No	Implemented by CDFW, this program regulates activities that may substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake. In general terms, CDFW jurisdiction extends to top-of-bank of the outer extent of riparian habitat, if present. Additionally, CDFW has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species.	https://california.public.law/codes/fish_and_game_code_section_1602	7/12/2021 (last amended)
Water Quality Control Plan for the Central Valley Region	Updated periodically	Yes	Implemented by Central Valley RWQCB. Establishes general and site-specific water quality standards and objectives in the Sacramento River and San Joaquin Basins.	https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/#basinplans	6/12/2026 (last revision)
Water Quality Control Plan for the Lahontan Region	Updated periodically	Yes	Implemented by the Lahontan RWQCB, this plan establishes general and site-specific water quality standards and objectives in the Lahontan Basin.	https://www.waterboards.ca.gov/lahontan/water_issues/programs/basin_plan/	9/22/2021 (last amended)
Federal Laws, Guidelines, and Regulations	See below	See below	See below	See below	See below
2008 Final Compensatory Mitigation Rule	Final	No	This is the Corps' ruling to establish standards and criteria for the use of all types of compensatory mitigation, including on- and off-site permittee-responsible mitigation, mitigation banks, and in-lieu fee mitigation to offset unavoidable impacts on WOTUS.	https://www.govinfo.gov/content/pkg/CFR-2012-title33-vol3/xml/CFR-2012-title33-vol3-part332.xml	7/9/2008
303(d) List of Impaired Water Bodies	Updated periodically	No	This is EPA and the SWRCB's listing of regulated impaired water bodies.	https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2024-integrated-report.html	1/21/2026 (last updated)
40 CFR § 131.12 California Antidegradation Policy	Final	No	The SWRCB implemented this policy. Required by federal law, the Antidegradation Policy applies to the disposal of waste to high-quality surface water and groundwater.	https://www.ecfr.gov/current/title-40/chapter-1/subchapter-D/part-131/subpart-B/section-131.12	8/21/2015 (last amended)

Title	Status	Spatial Data	Reference Purpose	Link	Date
Corps Regulatory Guidance Letter 18-01	Final	No	This is the Corps' guidance document on determining compensatory mitigation credits for the removal of obsolete dams and other structures from rivers and streams.	https://usace.contentdm.oclc.org/utis/getfile/colle ction/p16021coll9/id/1473	9/25/2018
Current Implementation of Waters of the United States	Updated periodically	No	This is EPA's website on the implementation and definition of WOTUS, based on the most current agency rulemaking and legal decisions.	https://www.epa.gov/wotus/current-implementation-waters-united-states	11/17/2025 (last updated as currently proposed)
CWA	Updated periodically (by Congress)	No	Authorized by EPA and delegated to the Corps and the SWRCB, the CWA establishes the basic structure for regulating discharges of pollutants into WOTUS and regulating quality standards for surface waters.	https://www.law.cornell.edu/uscode/text/33/1344	2/4/1987 (last amended)
CWA § 401	Updated periodically (by Congress)	No	This regulation, implemented by EPA and SWRCB, regulates discharge of pollutants into WOTUS.	https://www.law.cornell.edu/uscode/text/33/1341	12/27/1977 (last amended)
CWA § 402 National Pollutant Discharge Elimination System Municipal Separate Storm Sewer System Permit	Updated periodically (by Congress)	No	Implemented by EPA and SWRCB, this permit regulates discharge of stormwater from municipal sources that are a conveyance or system of conveyances and are: - Owned by a state, city, town, village, or other public entity that discharges to WOTUS; - Designed or used to collect or convey stormwater (for example, storm drains, pipes, ditches); - Not a combined sewer; and - Not part of a sewage treatment plant or publicly owned treatment works.	https://www.epa.gov/npdes/stormwater-discharges-municipal-sources	5/20/2026 (last amended)
CWA § 404	Updated periodically (by Congress)	No	This regulation, implemented by EPA and the Corps, regulates discharge of dredge or fill material into WOTUS.	https://uscode.house.gov/view.xhtml?hl=false&edition=prelim&req=granuleid%3AUSC-2024-title33-section1344&f=treesort&num=0#amendment-note	2/4/1987 (last amended)
Definition of "Waters of the United States"	Updated periodically	No	On November 17, 2025, the EPA and the Department of the Army announced the proposed rule "Updated Definition of Waters of the United States". This proposal implements the Supreme Court's decision in "Sackett vs. Environmental Protection Agency".	https://www.epa.gov/wotus/current-implementation-waters-united-states	11/17/2025 (last updated as currently proposed)
Executive Order 11990, Protection of Wetlands	Final	No	This order aims to minimize the destruction, loss, or degradation of wetlands, and preserve and enhance the natural and beneficial values of wetlands.	https://www.epa.gov/cwa-404/protection-wetlands-executive-order-11990	3/24/1977 (effective date)
FESA	Updated periodically (by Congress)	No	This Act authorizes FWS to protect federally listed threatened and endangered species.	https://www.fws.gov/endangered/laws-policies/	11/24/2003 (last amended)
Final 2015 Regional Compensatory Mitigation and Monitoring Guidelines for South Pacific Division	Final	No	This provides the Corps' guidelines for mitigation and monitoring in the South Pacific Division, including California.	https://www.spd.usace.army.mil/portals/13/docs/regulatory/mitigation/mitmon.pdf	1/12/2015 (last amended)
FWS Mitigation Policy	Final	No	FWS's policy builds upon the guidance in the 1981 Mitigation Policy for FWS recommendations and requirements for mitigating adverse impacts of land and water developments on fish and wildlife.	https://www.fws.gov/policy-library/A1501fw2	2/13/2026
FWS Endangered Species Act Compensatory Mitigation Policy	Final	No	FWS's policy adopts mitigation principles established in the FWS Mitigation Policy, establishes compensatory mitigation standards, and provides guidance for the application of compensatory mitigation through implementation of the FESA.	https://www.fws.gov/policy-library/a1501fw3	2/13/2026 (last amended)
National Wetlands Mitigation Action Plan	Final	No	EPA and Corps comprehensive, interagency document provides guidance on further achievement of the goal of no net loss of wetlands and to set forth the no-net-loss policy.	https://www.epa.gov/cwa-404/national-wetlands-mitigation-action-plan	11/12/2025

Title	Status	Spatial Data	Reference Purpose	Link	Date
Rising to the Urgent Challenge: Strategic Plan for Responding to Accelerating Climate Change	Updated periodically	No	FWS's document addresses adaptation, mitigation, and engagement strategies to achieve goals and objectives of minimizing the impact of climate change on fish and wildlife by applying science in managing species and habitats, reducing levels of greenhouse gases, and collaborating with other organizations to determine solutions to challenges and threats to fish and wildlife conservation posed by climate change.	https://pipap.sprep.org/content/strategic-plan-responding-accelerating-climate-change	9/1/2010
Section 10 of the Rivers and Harbors Appropriation Act of 1899	Updated periodically (by Congress)	No	This Act authorizes the Corps to protect navigable WOTUS by requiring a permit for construction of any structure over a navigable WOTUS. A Section 10 permit is required if the structure or work affects the course, location, or condition of the waterbody. The law applies to any dredging or disposal of dredged materials, excavation, filling, rechannelization, or any other modification of a navigable WOTUS.	https://www.epa.gov/cwa-404/section-10-rivers-and-harbors-appropriation-act-1899	2/18/2026 (last amended)
Section 14 of the Rivers and Harbors Appropriation Act of 1899	Updated periodically (by Congress)	No	This Act is also known as 33 USC Section 408 or, more simply, Section 408. Implemented by the Corps, this Act regulates the temporary occupation or use of any sea wall, bulkhead, jetty, dike, levee, wharf, pier, or other work built by the U.S.	https://www.poa.usace.army.mil/Portals/34/docs/regulatory/Section%2014.pdf	10/23/2018 (last amended)
Wild and Scenic Rivers Act	Final	Yes	This Act preserves certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. All federal agencies must seek to avoid or mitigate actions that would adversely affect National River Inventory river segments.	https://www.law.cornell.edu/uscode/text/16/chapter-28	12/19/2014 (last amended)
Statewide and Regional Resource Planning Documents	See below	See below	See below	See below	See below
A Climate Change Vulnerability Assessment of California's Terrestrial Vegetation	Final	Yes	CDFW's document to assess the climate vulnerability of terrestrial vegetation.	https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=116208&inline	1/1/2016
A Strategy for California @ 50 Million – Supporting California's Climate Change Goals	Final	Yes	This planning report from the California Governor's Office focuses on sustainability efforts across California in response to climate change.	http://opr.ca.gov/docs/EGPR_Nov_2015.pdf	11/1/2015
ACE Connectivity Project Version 3.0	Updated periodically	Yes	This CDFW effort analyzes large amounts of map-based data to inform decisions around goals such as biodiversity conservation, habitat connectivity, and climate change resiliency.	https://wildlife.ca.gov/Data/Analysis/ACE	12/18/2025 (last updated)
California Biodiversity Initiative	Final	No	This is a CNRA, California Department of Food and Agriculture, and Governor's Office of Planning and Research high-level planning document. It provides a roadmap to secure California's biodiversity future.	https://californiabiodiversityinitiative.org/pdf/california-biodiversity-action-plan.pdf	9/1/2018
California Essential Habitat Connectivity Project	Final	Yes	This CDFW and Caltrans assessment identifies large remaining blocks of intact habitat or natural landscape and model linkages between them that need to be maintained, particularly as corridors for wildlife.	https://www.wildlife.ca.gov/conservation/planning/connectivity/CEHC	2/1/2010
California Water Action Plan 2016 Update	Final	No	This plan calls for action to restore key mountain meadow habitat, manage headwaters, restore coastal watersheds, and enhance water flows in streams statewide.	http://resources.ca.gov/docs/california_water_action_plan/Final_California_Water_Action_Plan.pdf	1/1/2016
California Watershed Assessment Manual Volume I	Final	No	This assessment provides guidance for conducting a watershed assessment in California.	https://www.epa.gov/system/files/documents/2022-02/calwam.pdf	8/1/2004
Caltrans Adaptation Priorities Report: District 2	Final	No	Caltrans initiated a major agency-wide effort to adapt its infrastructure so that it can withstand future conditions. The effort began by determining which assets are most likely to be adversely affected by climate change in each Caltrans District.	https://srta.ca.gov/DocumentCenter/View/5483/Caltrans-District-2-Adaptation-Priority-Report	3/1/2020

Title	Status	Spatial Data	Reference Purpose	Link	Date
Caltrans Climate Change Vulnerability Assessment: District 2 Technical Report	Final	No	This is Caltrans' assessment of climate change vulnerabilities for the District.	dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/2019-climate-change-vulnerability-assessments/d2-technical-report-a11y.pdf	7/1/2018
Conservation and Mitigation Banking	Active Web Page	No	This is CDFW's main public webpage describing the process for creating and using mitigation banks.	https://wildlife.ca.gov/Conservation/Planning/Banking	Ongoing
From Wildlife-Vehicle Conflict to Solutions for California Wildlife & Drivers	Final	Yes	This is University of California, Davis's Road Ecology Center report on the ecological and financial cost of vehicle collisions with wildlife throughout the state, broken down by different regions in the state.	https://roadeology.ucdavis.edu/resource-type/report	11/10/2021
Large Mammal-Vehicle Collision Hot Spot Analyses, California, USA	Final	Yes	Western Transportation Institute's report documenting the methods and results of hot-spot analyses of large wild mammal-vehicle collisions in California, with an emphasis on mule deer. These analyses identified the road sections that had the highest concentration of deer-vehicle crashes and mule deer carcasses. Special-status species were not addressed.	https://westerntransportationinstitute.org/wp-content/uploads/2019/09/4W6693_Huijser-and-Begley-FINAL-Report-Caltrans-Statewide-20190913-reduced-image-size.pdf	9/13/2019
Regional Conservation Investment Strategies	Updated periodically	Yes	CDFW's central location for RCISs that are approved, in draft review, or in development in California. No RCISs occur within the GAI.	https://wildlife.ca.gov/Conservation/Planning/Regional-Conservation/RCIS	10/16/2025 (most recent program update)
Restoring California's Wildlife Connectivity 2022: 2022 Priority Wildlife Connectivity Project Locations by Region	Final	Yes	This document provides CDFW's priority wildlife movement barriers across the state. This document is focused on large wild mammal game species; however, some priorities would benefit special-status species such as bighorn sheep.	https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=204648&inline	12/1/2022
Safeguarding California Plan: 2018 Update	Final	No	This is CNRA's conservation plan. It includes goals to strengthen the climate adaptation component of conservation planning efforts, enhance habitat connectivity, protect climate refugia through strategic acquisition and protection activities, increase restoration and enhancement activities to increase climate resiliency of natural and working lands, increase biodiversity monitoring efforts, continue incorporating climate considerations into state investment decision processes, and provide educational opportunities to the public and state agency staff regarding climate impacts and adaptation options.	http://resources.ca.gov/docs/climate/safeguarding/update2018/safeguarding-california-plan-2018-update.pdf	1/1/2018
Sierra Nevada Conservancy 2024-2029 Strategic Plan	Final	No	A 5-year strategic plan by the Sierra Nevada Conservancy for internal guidance of goals and objectives within the Sierra-Cascade region. Includes goals to connect migration corridors for climate-vulnerable species, conserve significant carbon stores, improve ecological processes and functions, and develop forest-health and wildfire-resilience projects.	https://sierranevada.ca.gov/wp-content/uploads/sites/326/2024/06/SNC-2024-29-StrategicPlan.pdf	6/6/2024
SWAP	Updated periodically (10-year intervals)	Yes	This is CDFW's plan for protection of species of greatest conservation need, in addition to habitats and other wildlife in California. It includes habitat targets of anthropogenically created aquatic features and ciénegas, and specifically named desert pupfish as a Species of Greatest Conservation Need (SGCN) associated with these features. Springs and spring brooks are also listed as target aquatic habitats. The strategies associated with these targets include objectives to: - Reintroduce established self-sustaining and genetically viable populations of native aquatic SGCN species and reproduce one generation in the wild; and - Remove invasive or problematic species from historical native fish habitat	https://wildlife.ca.gov/SWAP	10/1/2025 (last updated)
SWAP Transportation Companion Plan	Final	Yes	This is CDFW's companion document to SWAP that provides for protection of species specific to transportation project planning.	https://swap.wildlife.ca.gov/conservation-tools/#companion-plans	12/1/2016

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SWAP Water Management Companion Plan	Final	Yes	This is CDFW's companion document to SWAP that recommends water management practices throughout the state of California.	https://cawaterlibrary.net/document/water-management-companion-plan-to-the-statewide-wildlife-action-plan/	12/1/2016
Wildlife Connectivity Advance Mitigation Guidelines	Final	No	The Wildlife Connectivity Advance Mitigation Guidelines (Guidelines) create incentives for improving habitat connectivity that will protect and enhance movement and migration for California's most threatened species. The Guidelines are applicable to the Conservation and Mitigation Banking Program and Mitigation Credit Agreements (MCAs), as part of the Regional Conservation Investment Strategy (RCIS) Program (Fish & G. Code, § 1955, subdivision (f)).	WildlifeConnectivityAdvanceMitigation9.3.24_AD_A.pdf	9/1/2024
Special-Status Taxa^a Documents	See below	See below	See below	See below	See below
Interagency Conservation Strategy for Mountain Yellow Legged Frogs in the Sierra Nevada	Final	No	This is CDFW's recovery plan for Sierra Nevada yellow-legged frog. Clades 1 and 2 occur within the GAI. It includes objectives to restore habitat and remove non-native predators.	https://www.fws.gov/sites/default/files/documents/Mountain-Yellow-Legged-Frog-Conservation-Strategy.pdf	11/1/2018
5-Year Status Review Sierra Nevada yellow-legged frog	Not applicable	Not applicable	No status review of this species is available.	https://ecos.fws.gov/ecp/species/9529	Not Applicable
Critical Habitat Designation for the Sierra Nevada Yellow-Legged Frog	Final	Yes	This is FWS' proposed designation of critical habitat for the Sierra Nevada yellow-legged frog.	https://ecos.fws.gov/ecp/species/9529	8/26/2016
Sierra Nevada Yellow-legged Frog Biological Opinions	Updated periodically	No	This is FWS' list of 57 biological opinions that have been issued for the Sierra Nevada yellow-legged frog; of these, 17 were for projects within the GAI.	https://ecos.fws.gov/ecp/species/9529	8/1/2024 (latest document)
Incidental Take Permits for Sierra Nevada Yellow-legged Frog	Updated periodically	No	This is CDFW's list of incidental take permits issued for Sierra Nevada yellow-legged frog from its publicly available document search website. There is 1 document in the search.	https://nrm.dfg.ca.gov/documents/docviewer.aspx	7/23/2020 (latest document)
Foothill Yellow-legged Frog Recovery Outline	Draft	No	This is FWS' recovery outline for the foothill yellow-legged frog. The North Feather DPS is the only DPS for this species within the GAI. Suggested recovery plan goals include: - Research DPS needs and habitat use to fill knowledge gaps. - Enhance occupied habitat to increase abundance and connectivity. - Augment existing populations to enhance resiliency and redundancy.	https://ecos.fws.gov/ecp/species/D02G	9/29/2023
Species Status Assessment Report for the Foothill Yellow-legged Frog (<i>Rana boylei</i>)	Final	Yes	This is FWS' assessment of the condition of the foothill yellow-legged frog before it became a listed species.	https://ecos.fws.gov/ecp/species/D02G	4/19/2023
5-Year Status Review Foothill yellow-legged frog	Not applicable	Not applicable	A 5-year review has not yet been conducted for this species.	Not applicable	Not applicable
Designation of Critical Habitat for Four Distinct Population Segments of the Foothill Yellow-Legged Frog	Final	Yes	This is FWS' proposed designation of critical habitat for the all DPS' of foothill yellow-legged frog.	https://ecos.fws.gov/ecp/species/D02G	1/14/2025
Foothill yellow-legged frog Biological Opinions	Updated Periodically	No	This is FWS' list of 30 biological opinions that have been issued for the foothill yellow-legged frog; of these, 10 were for projects within the GAI.	reports.ecosphere.fws.gov/FWSPublicReports/Reports/Index?reportname=BiologicalOpinionReport	8/13/2025 (latest document)
Considerations for Conserving the Foothill Yellow-Legged Frog	Final	No	This is CDFW's document reviewing foothill yellow-legged frog and ways to avoid and/or minimize project impacts.	https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=157562&inline	5/14/2018
Incidental Take Permits for foothill yellow-legged frog	Updated Periodically	No	This is CDFW's list of incidental take permits issued for foothill yellow-legged frog from its publicly available document search website. There are 19 documents in the search.	https://nrm.dfg.ca.gov/documents/ContextDocs.aspx?cat=CESA-Permitting	6/6/2024 (latest document)

Title	Status	Spatial Data	Reference Purpose	Link	Date
Cascades frog Recovery Plan	Not applicable	Not applicable	A recovery plan has not been developed by FWS for Cascades frog.	https://ecos.fws.gov/ecp/report/species-with-recovery-plans	Not applicable
Species Status Assessment for Cascades Frog (<i>Rana cascadae</i>)	Updated Periodically	Yes	This is FWS' assessment of the condition of Cascade frog in response to a petition to list the species as endangered or threatened. It summarizes management strategies such as non-native predator reduction and chytrid management.	https://ecos.fws.gov/ecp/species/7827	1/26/2022
Golden Eagle Status Review	Final	No	This is California Department of Fish and Game review of golden eagle breeding population in California.	https://www.bing.com/ck/a?!&p=aea94ce6ee8dbc5e56bb943014a8e3c09bae03e2d261ba93952f0b992e68bad1JmItldHM9MTc3Mzc5MjAwMA&ptn=3&ver=2&hsh=4&fclid=27702c30-9235-691d-1f4c-3a6393b268bb&psq=Golden+Eagle+Status+Review+1985&u=a1aHR0cHM6Ly9ucm0uZGZnLnNhLmdvdi9GaWxlSGFuZGxlcj5hc2h4P0RvY3VtZW50SUQ9NDE5MDI	6/30/1985
Incidental Take Permits for Golden Eagle	Updated Periodically	No	This is CDFW's list of incidental take permits issued for golden eagle from its publicly available document search website. There are 34 documents in the search	https://nrm.dfg.ca.gov/documents/ContextDocs.aspx?cat=CESA-Permitting	10/15/2025 (latest document)
Interim Golden Eagle Inventory and Monitoring Protocols	FWS 2010	No	This is FWS's protocol for determining and evaluating potential golden eagle habitat use for breeding and nesting.	https://wildlife.ca.gov/Conservation/Birds/Golden-Eagles/GEWG	2/1/2010
Fisher Recovery Plan	Not Applicable	Not Applicable	A recovery plan has not been developed by FWS for the fisher DPS that occurs in the GAI.	https://ecos.fws.gov/ecp/report/species-with-recovery-plans	Not applicable
Species Status Assessment for the Northern California-Southern Oregon Distinct Population Segment of Fisher (<i>Pekania pennanti</i>)	Final	No	This is FWS' assessment of the status of the northern DPS of fisher. The northern DPS of Fisher is not federally listed.	https://www.fws.gov/node/5296971	6/24/2025
Fisher Biological Opinions	Updated Periodically	No	This is FWS' list of 16 biological opinions that have been issued for fisher; of these, none are for projects that occur within the GAI.	https://reports.ecosphere.fws.gov/FWSPublicReports/Reports/Reports/Index?reportname=BiologicalOpinionReport	8/1/2024 (latest document)
Incidental Take Permits for Fisher	Updated Periodically	No	This is CDFW's list of incidental take permits issued for fisher from its publicly available document search website. There are eight documents in the search	https://nrm.dfg.ca.gov/documents/ContextDocs.aspx?cat=CESA-Permitting	8/27/2024 (latest document)
Western Pond Turtle Range-wide Management Strategy	Final	Yes	Multi-agency developed conservation strategy for western pond turtle. It includes goals to restore hydrology and habitat throughout the species' range.	cs-hr-northwestern-pond-turtle-202112.pdf	1/1/2020
Species Status Assessment Report for the Northwestern Pond Turtle (<i>Actinemys marmorata</i>) and Southwestern Pond Turtle (<i>Actinemys pallida</i>)	Updated Periodically	Yes	This is FWS' assessment of the status of northwestern pond turtle.	https://www.fws.gov/node/5110701	4/1/2023
Northwestern Pond Turtle Critical Habitat	Not Applicable	Not Applicable	There is no designated critical habitat for northwestern pond turtle at this time.	https://www.fws.gov/species/western-pond-turtle-actinemys-marmorata	Not applicable
Northwestern Pond Turtle Biological Opinions	Updated Periodically	No	This is FWS' list of 33 biological opinions that have been issued for northwestern pond turtle; of these, two are for projects that occur within the GAI.	reports.ecosphere.fws.gov/FWSPublicReports/Reports/Index?reportname=BiologicalOpinionReport	8/13/2025

Title	Status	Spatial Data	Reference Purpose	Link	Date
Northwestern Pond Turtle Incidental Take Permits	Updated Periodically	No	This is CDFW's list of incidental take permits issued for northwestern pond turtle from its publicly available document search website. There are eight documents in the search	https://nrm.dfg.ca.gov/documents/DocContexts.aspx	8/20/2021 (latest document)
State Land Management Plans	See below	See below	See below	See below	See below
General Planning Handbook for California State Parks	Final	Yes	This is California State Parks' guidelines for general plan development, which requires an inventory of known natural resources and general guidelines to comply with federal and state laws. Two state park entities occur within the GAI. Those with specific information pertinent to Chapters 7 and 8 of this RAMNA are listed below.	http://www.parks.ca.gov/pages/21299/files/planning_handbook_april_2010.pdf	4/1/2010
Lake Oroville State Recreation Area General Development Plan	Final	No	This is the management plan for the Lake Oroville State Recreation Area. It includes a policy of limiting development within 300 feet of the lake's edge.	https://www.parks.ca.gov/?page_id=24358	9/1/1988
Land Management Plan for the Antelope Valley and Smithneck Creek Wildlife Areas	Final	No	The Antelope Valley and Smithneck Creek Wildlife Areas (AVWA and SCWA) occupy approximately 5,700 acres and 1,400 acres, respectively, in the Sierra Valley watershed in Sierra County. Management of these wildlife areas focuses on protecting habitat and regulating hunting to support the Loyalton-Truckee mule deer herd, managing grazing to protect and enhance biological resources, and supporting the use of the wildlife areas for environmental education.	https://wildlife.ca.gov/Lands/Planning/Antelope-Valley-and-Smithneck-Creek-WA#docs	November 2008
Hallelujah Junction Wildlife Area Management Plan	Final	Yes	This is CDFW's management plan for Hallelujah Junction. It includes goals to enhance hydrologic stability, floodplain function, and ecological function of Long Valley Creek to enhance riparian habitat.	https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=84912&inline	12/1/2009
FWS Land Management Plans	See below	See below	See below	See below	See below
Not applicable	Not applicable	Not applicable	No National Wildlife Refuges occur within the GAI.	Not applicable	Not applicable
U.S. Military Land Management Plans	See below	See below	See below	See below	See below
Environmental Assessment for the Real Property Master Plan and Implementation of Master Planning Actions in the Storage and Warehouse Districts	Final	Yes	Resource management plan for the Sierra Army Depot.	https://sierra.army.mil/docs/librariesprovider5/default-document-library/siad-rpmp-ea_final_9mar2022-(002).pdf	3/1/2022
U.S. Bureau of Indian Affairs Land Management Plans	See below	See below	See below	See below	See below
Susanville Indian Rancheria Integrated Resource Management Plan	Final	Yes	Resource management plan for the Susanville Indian Rancheria. It includes goals and objectives to improve water quality.	https://www.sir-nsn.gov/pdf/NR-integrated-resource-management-plan.pdf	12/1/2014
USFS Land Management Plans	See below	See below	See below	See below	See below
River Plan Middle Fork of the Feather	Final	Yes	This is USFS' management plan for the Middle Fork Feather River.	https://www.fs.usda.gov/main/ltbmu/landmanagement/planning	7/1/2016
Plumas National Forest Land and Resource Management Plan	Final	No	This is USFS' plan for forest management in Plumas National Forest. It includes goals to improve habitat for endangered species and improve water quality by rehabilitating watersheds.	https://featherriver.org/db/files/107_Plumas_NF_LRMP_Part_1.pdf	1/1/1988
Land and Resource Management Plan Lassen National Forest	Final	No	This is USFS' plan for the Lassen National Forest. Includes goals to restore 20 acres of riparian habitat each year.	https://featherriver.org/db/files/83_LassenNF_ForestPlan_Part1.pdf	1/1/1992

Title	Status	Spatial Data	Reference Purpose	Link	Date
Tahoe National Forest Land and Resource Management Plan Environmental Impact Statement	Final	No	This is USFS’ management plan for the Tahoe National Forest. It includes several habitat restoration goals.	https://www.fs.usda.gov/main/tahoe/landmanagement/planning	4/30/2026 (last updated)
Humboldt-Toiyabe National Forest Land and Resource Management Plan	Updated periodically	No	This is USFS’ plan for forest management of the Humboldt-Toiyabe National Forest, which includes regions within the GAI. It includes goals to improve water quality and manage riparian areas to a satisfactory condition.	https://www.fs.usda.gov/r04/humboldt-toiyabe/planning/forest-plan/forest-plan-documents	1/1/1986
Sierra Nevada Forest Plan Amendment	Final	No	Integrated strategy for vegetation management throughout National Forests in the Sierras. It includes guidance on minimizing habitat fragmentation, restoring riparian habitat, and establishing riparian buffers.	https://www.fs.usda.gov/sites/nfs/files/legacy-media/humboldt-toiyabe/Toiyabe%20NF%20Amendment%209.pdf	1/1/2000
BLM Land Management Plans	See below	See below	See below	See below	See below
Eagle Lake Field Office Proposed Resource Management Plan and Final Environmental Impact Statement	Final	Yes	This is BLM’s resource management plan for the Eagle Lake Field Office. It includes goals to improve 35 miles of perennial or intermittent streams and 33 acres of riparian/wetland areas within the management area, prioritize development of new water sources, and restore and rehabilitate streams.	https://eplanning.blm.gov/Project-Home/?id=fc31f28f-a7f2-f011-8406-001dd802fdea	5/1/2007
Management of Wilderness Study Areas	Final	No	This is BLM’s plan for management of wilderness study areas, including five Wilderness Study Area’s that occur within the GAI. It includes guidelines on conducting revegetation and removing non-native species.	https://www.blm.gov/sites/default/files/uploads/me diacenter_blmpolicymanual6330.pdf	7/13/2012
NPS Land Management Plans	See below	See below	See below	See below	See below
Nationwide Rivers Inventory	Final	Yes	This is a listing of Nationwide River Inventory river segments that are potential candidates for inclusion in the National Wild and Scenic River System. No listed national river segments or potential candidates occur within the GAI.	https://www.nps.gov/subjects/rivers/nationwide-rivers-inventory.htm	6/12/2026 (last updated)
Not applicable	Not applicable	Not applicable	No NPS lands occur in the GAI.	Not applicable	Not applicable
Local Government Land Management Plans	See below	See below	See below	See below	See below
Hallelujah Junction Area Plan	Final	No	This is Lassen County’s Area plan for Hallelujah Junction. It requires the riparian corridor of Long Valley Creek to be used as a green space.	https://www.lassencounty.gov/DocumentCenter/View/1826/Hallelujah-Junction-Area-Plan-1984-PDF?bidId=	9/1/1984
Eagle Lake Area Plan	Final	Yes	This is Lassen County Planning Commission’s area plan for Eagle Lake. Environmental conservation policies focus on enhancing water quality	https://www.lassencounty.gov/DocumentCenter/View/872/Eagle-Lake-Area-Plan-1982-Updated-Aug-2024-PDF	8/1/2024 (last updated)
Johnstonville Area Plan	Final	No	This is Lassen County’s area plan for Johnstonville. It includes policies to enhance wildlife and native vegetation within riparian corridors.	https://www.lassencounty.gov/DocumentCenter/View/1834/Johnstonville-Area-Plan-PDF?bidId=	8/18/1987
Susanville Area Plan	Final	No	This is Lassen County’s Area plan for Susanville. It highlights the importance of the Susan River and Paiute Creek.	https://www.lassencounty.gov/DocumentCenter/View/867/Susanville-Area-Plan-and-EIR-1984-PDF	12/1/1984
Water Resources Plans and Documents	See below	See below	See below	See below	See below
Sierra Valley Groundwater Sustainability Plan	Final	Yes	This is Sierra Valley Groundwater Management District’s groundwater management plan for the Sierra Valley Groundwater Subbasin. It includes goals to enhance beneficial water uses.	https://www.sierravalleygmd.org/gsp-documents	1/31/2022

Title	Status	Spatial Data	Reference Purpose	Link	Date
Lahontan Basins Integrated Regional Water Management Plan	Updated periodically	Yes	This is Honey Lake Valley Resource Conservation District's water management plan. It includes goals to restore and improve natural resources, expand riparian habitat, and address climate change adaptation.	https://www.honeylakevalleyrcd.us/files/de42d33c7/Lahontan+Basins_IRWMP_Prop+1+Update_2019.pdf	7/1/2019
Northern Sacramento Valley Integrated Regional Water Management Plan	Updated periodically	Yes	This is Northern California Water's water management plan for the Northern Sacramento Valley. It includes goals and objectives to enhance floodplain ecosystems, manage invasive species, and improve riparian habitat.	https://norcalwater.org/efficient-water-management/efficient-water-management-regional-sustainability/regional-planning/irwmp/	12/1/2006 (last updated)
Feather River Watershed Management Strategy	Final	Yes	This is Plumas County Flood Control and Water Conservation District's water management plan for the Upper Feather River. It includes goals to improve vegetation management and restore aquatic habitats and outlines specific projects to complete restoration.	https://cawaterlibrary.net/wp-content/uploads/2017/06/FeatherRiverStrategy.pdf	5/14/2004
Coordinated Resource Management Plan for the Feather River	Final	No	Multi-agency water management plan for the Feather River. It includes goals to improve water quality and optimize beneficial uses of the Feather River.	https://featherriver.org/catalog/resource/78	2/8/1996
Upper Feather River Integrated Water Management Plan Update 2016	Updated Periodically	Yes	This is the Upper Feather River Regional Water Management Group's water management plan. It includes objectives to enhance water quality and address climate change through ecosystem restoration.	https://featherriver.org/wp-content/uploads/2015/03/Complete-Plan-without-Appendices.pdf	11/1/2016
Lahontan Basin Stormwater Resource Plan	Updated periodically	Yes	Stormwater management plan for the Honey Lake Valley Resource Conservation District. It includes goals to restore waterways to reduce sedimentation.	https://www.honeylakevalleyrcd.us/storm-water-resource-plan	1/1/2019
Water Quality Control Plan for the Lahontan Region	Updated periodically	Yes	This water quality control plan for the Lahontan Region sets water quality standards for surface and ground waters. It identifies water quality objectives and beneficial uses for the Lahontan region, includes an objective for wetland restoration and protection, and identifies total maximum daily loads for multiple waterways within the GAI.	https://www.waterboards.ca.gov/la_hontan/water_issues/programs/basin_plan/references.html	02/03/2025 (last updated)
The Water Quality Control Plan for the California Regional Water Quality Control Board Central Valley Region	Updated Periodically	Yes	This water quality control plan for the Sacramento Valley sets water quality standards for surface and ground waters. It identifies water quality objectives and beneficial uses for the Sacramento Valley region, includes an objective for wetland restoration and protection, and identifies total maximum daily loads for multiple waterways within the GAI.	https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/#basinplans	6/12/2026 (last updated)
County General Plans	See below	See below	See below	See below	See below
Plumas County General Plan	Updated periodically	Yes	This is the general plan for Plumas County. It includes a conservation and open space element that protects riparian corridors and wetlands from development.	https://www.plumascounty.us/2116/Plumas-County-2035-General-Plan	6/13/2023 (last amended)
Butte County General Plan 2040	Updated periodically	Yes	This is the general plan for Butte County. It includes a land use designation for open space. It prohibits development in wetlands or riparian habitats and requires a 100-foot setback from riparian areas.	https://encodeplus.hflip.co/butteco-generalplan.html	3/28/2023 (last amended)
Lassen County General Plan	Updated periodically	Yes	This is the general plan for Lassen County. It includes an open space land use designation and requires revegetation of disturbed native plant communities.	https://www.lassencounty.gov/DocumentCenter/View/868/Lassen-County-General-Plan-2000-PDF	9/1/1999 (last updated)
Sierra County General Plan 2012	Final	No	This is the general plan for Sierra County. It requires a 50-foot setback from intermittent streams and wetlands and a 100-foot setback from perennial streams. It includes a land use designation for open space and forest.	https://sierracounty.ca.gov/260/General-Plan	10/1/1996
City General Plans	See below	See below	See below	See below	See below
Susanville General Plan	Updated Periodically	Yes	This is the general plan for Susanville. It includes an open space/resource conservation land use category. Conservation policies include preventing erosion of streambanks through planting of native vegetation and establishing stream setbacks of an indeterminate magnitude.	https://www.cityofsusanville.gov/DocumentCenter/View/208/City-of-Susanville-General-Plan-1990-2010-PDF	12/1/2006 (revised)

Title	Status	Spatial Data	Reference Purpose	Link	Date
Portola General Plan	Updated Periodically	No	This is the general plan for Portola. It includes a land use category for natural features/open space and several policies instituting stream setbacks of indeterminate magnitude, and restoring riparian and aquatic habitat.	https://www.cityofportola.com/general-plan-update-2045	5/1/2023
City of Loyalton General Plan	Updated Periodically	Yes	This is the general plan for Loyalton. It includes an open space land use designation.	https://www.cityofloyalton.org/uploads/1/0/8/1/108187787/loyalton_general_plan_june_2015.pdf	6/16/2015
Other Conservation and Management Documents	See below	See below	See below	See below	See below
California EcoAtlas	Updated periodically (nearly daily)	Yes	Statewide database tracking the extent and condition of wetlands in California, managed by the San Francisco Estuary Institute.	https://www.ecoatlas.org/	1/1/2024
Demonstrating the California Wetland Status and Trends Program: A Probabilistic Approach for Estimating Statewide Aquatic Resource Extent, Distribution and Change Over Time	Final	No	A report from the Southern California Coastal Water Research Project describing a pilot study that is tracking wetland conditions statewide.	https://www.sccwrp.org/publications/	4/1/2015

^a Consistent with the Caltrans SAMNA and Chapter 4, *Existing Mitigation Opportunities*, for the purposes of this document, special-status species are defined as federally and state threatened, endangered, or sensitive species; state fully protected or rare species; or state species of special concern.

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4. EXISTING MITIGATION OPPORTUNITIES

SHC § 800.6(a)-authorized advance mitigation project types include purchasing credits and paying fees associated with existing mitigation sources. This chapter summarizes the mitigation credits and values currently available to Caltrans and/or pending through existing HCPs, NCCPs, mitigation and conservation banks, in-lieu fee programs, and MCAs. RCISs, which are a prerequisite to MCAs, are also discussed.

4.1 SHOPP Advance Mitigation Credits

The 2016 SHOPP, with California Transportation Commission approval, released the first funds used to program Caltrans advance mitigation projects in several Caltrans Districts. The projects were programmed against the \$40 million reserve created in the 2016 SHOPP for advance mitigation project delivery. Thirteen pilot advance mitigation projects were programmed in the SHOPP and their delivery is underway. One such project may inform Caltrans District 2's advance mitigation planning:

- 02-1H640 credit purchases: National Fish and Wildlife Foundation (“NFWF”) Sacramento District California In-lieu Fee Program pre-permit aquatic resource credit purchase.

This advance mitigation project consisted of aquatic resources pre-permit credit purchases from the NFWF Sacramento District California In-Lieu Fee Program for five service areas that overlap the GAI (Table 4-1). With natural resource regulatory agency approval, SHOPP transportation projects have begun to use these bulk credits to satisfy specific transportation project permit conditions; however, not all have been applied to a transportation project yet and some are still available.

Table 4-1. SHOPP Advance Mitigation Credits

Bank Where Credits Were Purchased	Credit Purchase Year	Signatories ^a	Service Area	Credit Type and Quantity
NFWF Sacramento District California In-lieu Fee Program	2014	Corps, EPA, NMFS, SWRCB	Feather River ^b , Modoc ^c , Northeast Sacramento River ^d , Northwest Sacramento River ^e , and Pit River ^f	Aquatic resource credits: 0.38 Feather River, 0.05 Modoc, 0.67 Northeast Sacramento River, 0.78 Northwest Sacramento River, 0.99 Pit River

^a These signatory agencies are also signatories to the *Master Process Agreement for Planning and Developing Advance Mitigation Throughout California for the California Department of Transportation* (Caltrans et al. 2020).

^b The Feather River aquatic resource service area consists of the following HUC-8 present within the GAI: 18020122 and 18020123.

^c The Modoc aquatic resource service area consists of the following HUC-8 present within the GAI: 18080003.

^d The Northeast Sacramento River aquatic resource service area does not include any HUC-8s within the GAI.

^e The Northwest Sacramento River aquatic resource service area does not include any HUC-8s within the GAI.

^f The Pit River aquatic resource service area does not include any HUC-8s within the GAI.

4.2 HCPs and NCCPs

HCPs¹ and NCCPs² define covered activities that consist of specific projects and actions that may have adverse effects on covered species and natural communities. FWS and/or CDFW estimate adverse effects associated with the covered activities and issue incidental take permits. Once the HCP, NCCP, or HCP/NCCP is adopted and the incidental take permits are issued, signatories and participating special entities, where applicable, can request take authorization for project-related effects on covered species. Participation in an adopted HCP, NCCP, or HCP/NCCP streamlines permit processes by eliminating the need to obtain project-specific incidental take permits from FWS and/or CDFW and providing early documentation of compliance with the California Endangered Species Act (“CESA”) and federal Endangered Species Act (“FESA”).

When Caltrans is not an NCCP permittee, under specific conditions and with signatory agency approval, Caltrans may be able to qualify as a Participating Special Entity under the plan, gaining some of the NCCP permittee’s privileges; however, not all NCCPs have a Participating Special Entity clause.

Caltrans identified no active or pending HCPs or NCCPs in the GAI to which Caltrans and/or RTPAs are currently signatories or Participating Special Entities.

4.3 Conservation and Mitigation Banks

A conservation or mitigation bank is privately or publicly owned land managed for its natural resource values and can be for profit or nonprofit. In exchange for permanently protecting, managing, and monitoring the land, the bank sponsor is allowed to sell or transfer habitat and/or aquatic resource credits to permittees who—after all appropriate and practicable avoidance and minimization has been performed—need to satisfy legal requirements and compensate for their project’s unavoidable natural resource impacts. Conservation banks generally protect threatened and endangered species habitat, while mitigation banks generally protect, restore, create, and/or enhance aquatic resources and sensitive habitats. The legal document for the establishment, operation, and use of a conservation bank or mitigation bank is a Bank Enabling Instrument (“BEI”).

Caltrans identified five active or pending conservation banks and three active mitigation banks with service areas that overlap part of the GAI. Information on the agency approvals and types of credits available are provided in Table 4-2.

None of these conservation and mitigation banks provide credits for the species of mitigation need identified in this RAMNA; however, credits for other listed species or habitats are available, as listed in Table 4-2. Figures 4-1 through 4-5 show conservation and mitigation bank service areas that are publicly available within the GAI.

¹ Pursuant to Section 10 of FESA or consultations under Section 7 of FESA.

² Pursuant to Section 2835 of the California Fish and Game Code (“FGC”).

Table 4-2. Overview of Conservation and Mitigation Banks within the GAI^a

Name	Year Approved	Current Status	Signatories ^b	Bank Location (County) ^c	Instrument Includes Pre-transfer Credit Sales?	Area (acres)	Credit Types
Big Gun Conservation Bank	2010	Active – credits available	FWS	Placer	No	47.81	California red-legged frog
Dolan Ranch Conservation Bank	1999	Active – credits available	FWS, CDFW	Colusa	No	252	Swainson's hawk, burrowing owl, vernal pool tadpole shrimp, vernal pool fairy shrimp, vernal pool creation, vernal pool preservation—giant garter snake credits sold out
Dove Ridge Conservation Bank	2003	Active – credits available	FWS	Butte	No	2,400	Vernal pool fairy shrimp, vernal pool tadpole shrimp, Butte County meadowfoam (sold out)
Hamilton Ranch Conservation Bank	2019	Active – credits available	FWS	Tehama	No	394	Conservancy fairy shrimp, vernal pool fairy shrimp, vernal pool tadpole shrimp, slender Orcutt grass, Hoover's spurge, blue oak woodland, northern hardpan vernal pool
Meridian Ranch Mitigation Bank	2013	Active – credits available	FWS, CDFW, Corps, EPA	Butte	Yes	377.63	Swainson's hawk foraging habitat preservation, vernal pool establishment and vernal pool preservation (includes vernal pool fairy shrimp and vernal pool tadpole shrimp)
Porter Ranch Mitigation Bank	2013	Active – credits available	FWS, Corps, EPA	Butte	No	663.25	Vernal pool fairy shrimp, vernal pool tadpole shrimp, vernal pool establishment, seasonal wetlands, Swainson's hawk foraging habitat, valley elderberry longhorn beetle, oak/elderberry savanna preservation/creation

Name	Year Approved	Current Status	Signatories ^b	Bank Location (County) ^c	Instrument Includes Pre-transfer Credit Sales?	Area (acres)	Credit Types
Stillwater Plains Mitigation Bank	2000	Active – credits available	FWS, CDFW, Corps, EPA	Shasta	No	834	Valley elderberry longhorn beetle, Boggs Lake hedge-hyssop, vernal pool creation, vernal pool preservation, vernal swale, emergent marsh, constructed channel, oak woodland
Sycamore Creek Conservation Bank	2025	Approved, not yet open	FWS, CDFW	Butte	Yes	273	Vernal pool tadpole shrimp, Swainson's hawk, Butte County meadowfoam

^a Up-to-date information on approved conservation and mitigation banks, including available credits, can be found at the following websites:

<https://www.wildlife.ca.gov/Conservation/Planning/Banking/Approved-Banks>

<https://ribits.ops.usace.army.mil/ords/f?p=107:2:.....>

<https://ecos.fws.gov/ecp/report/conservation-plans-region-summary?region=8&type=HCP>

^b All signatory agencies are also signatories to the *Master Process Agreement for Planning and Developing Advance Mitigation Throughout California for the California Department of Transportation* (Caltrans et al. 2020).

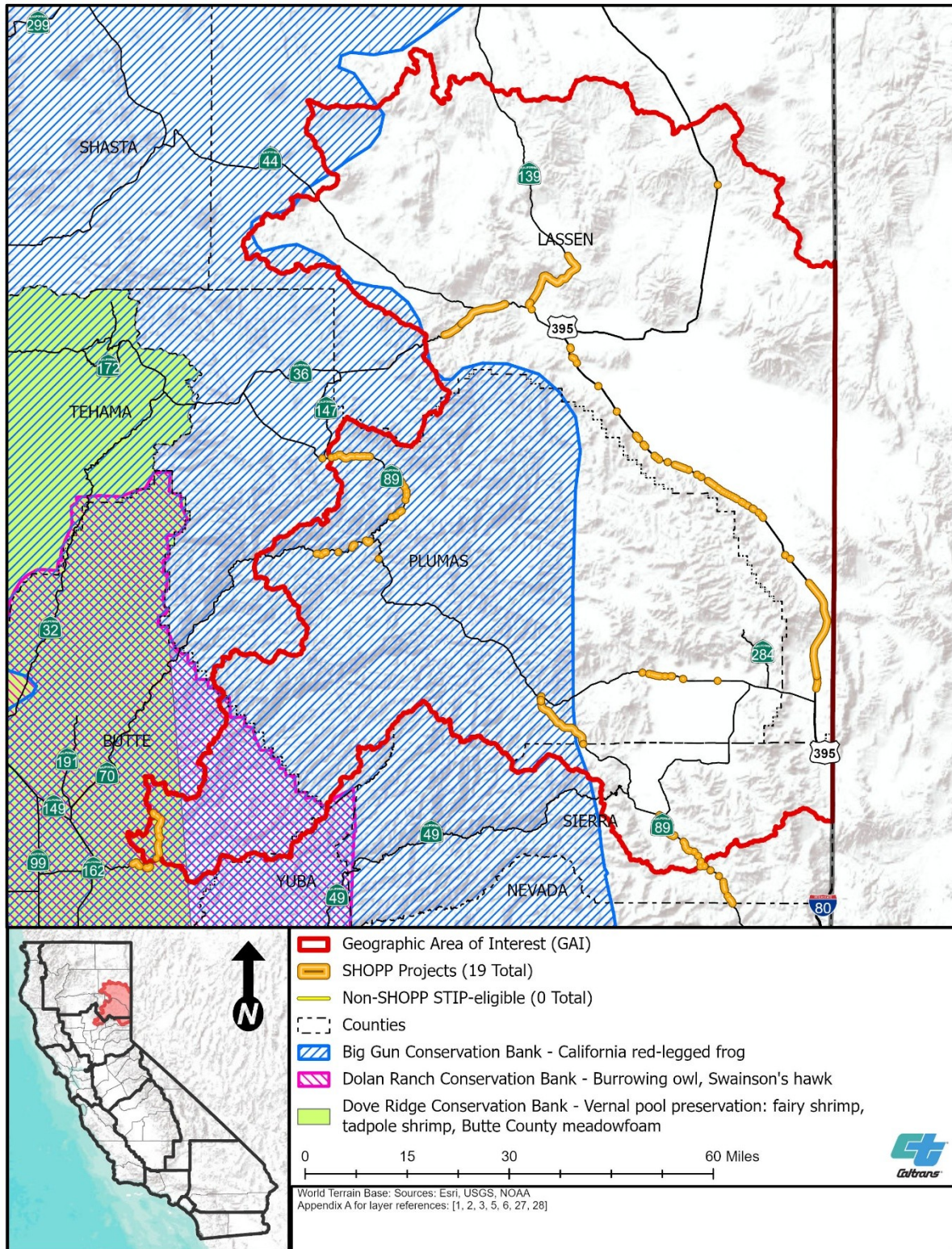
Figure 4-1. Conservation and Mitigation Bank Service Areas – Part 1

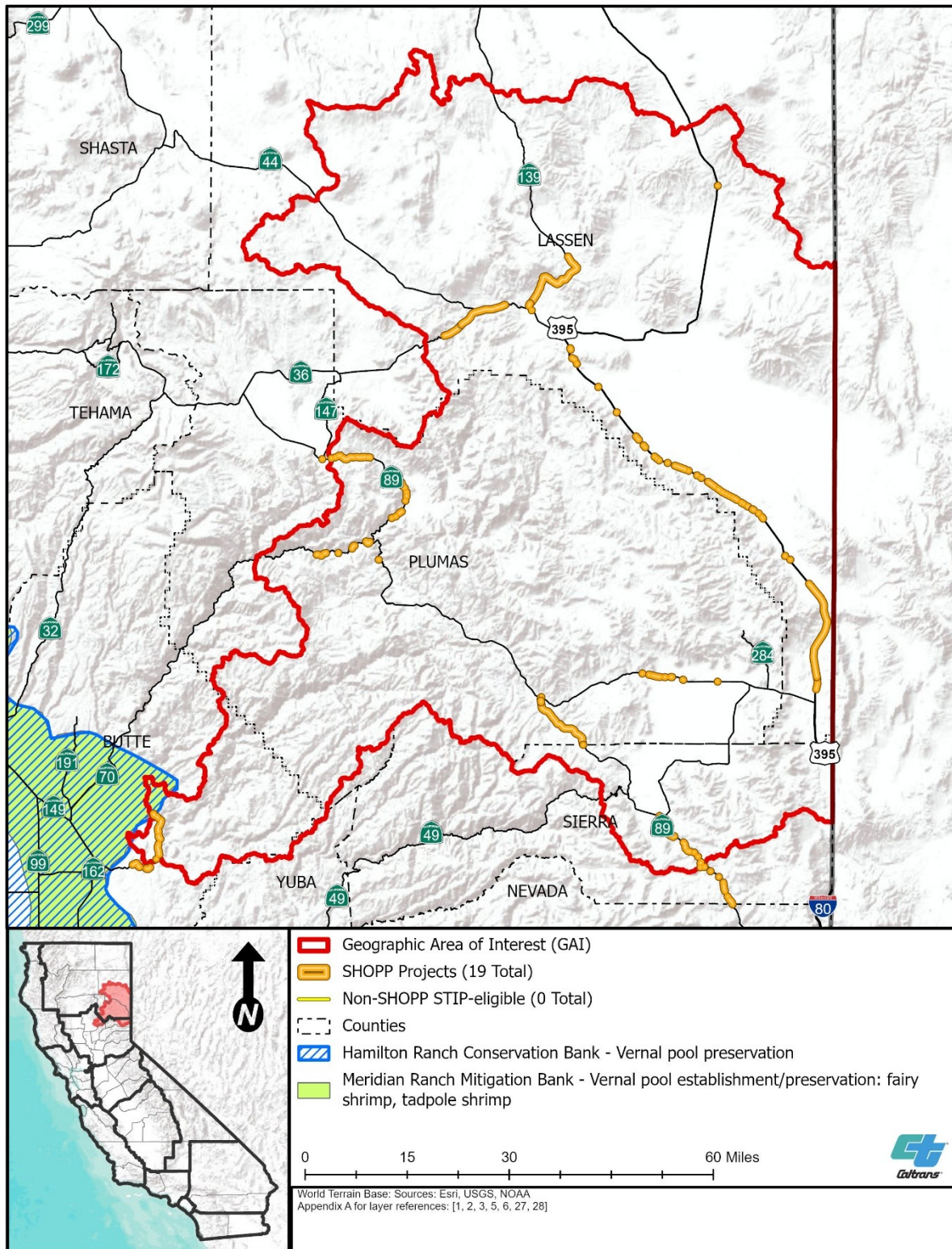
Figure 4-2. Conservation and Mitigation Bank Service Areas – Part 2

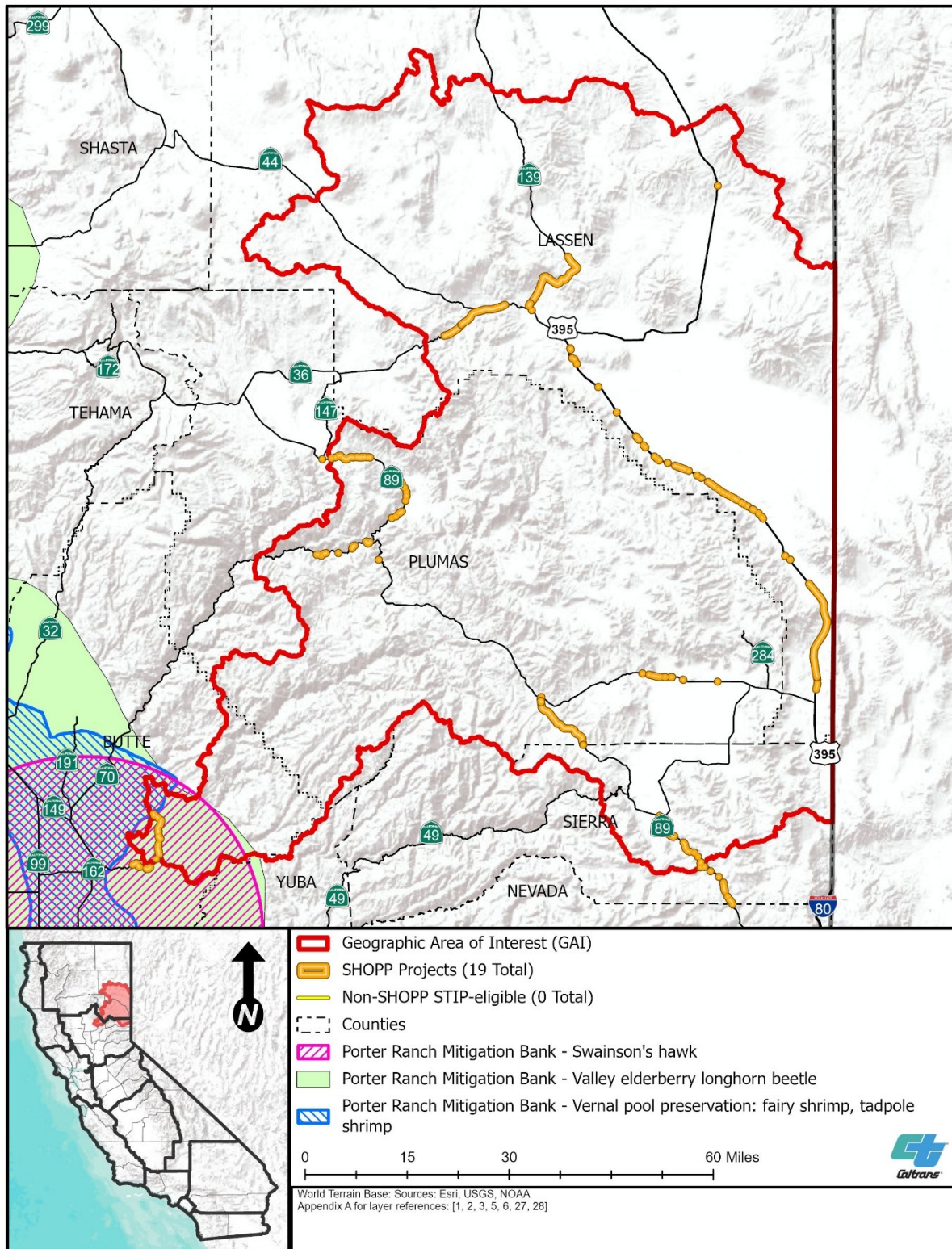
Figure 4-3. Conservation and Mitigation Bank Service Areas – Part 3

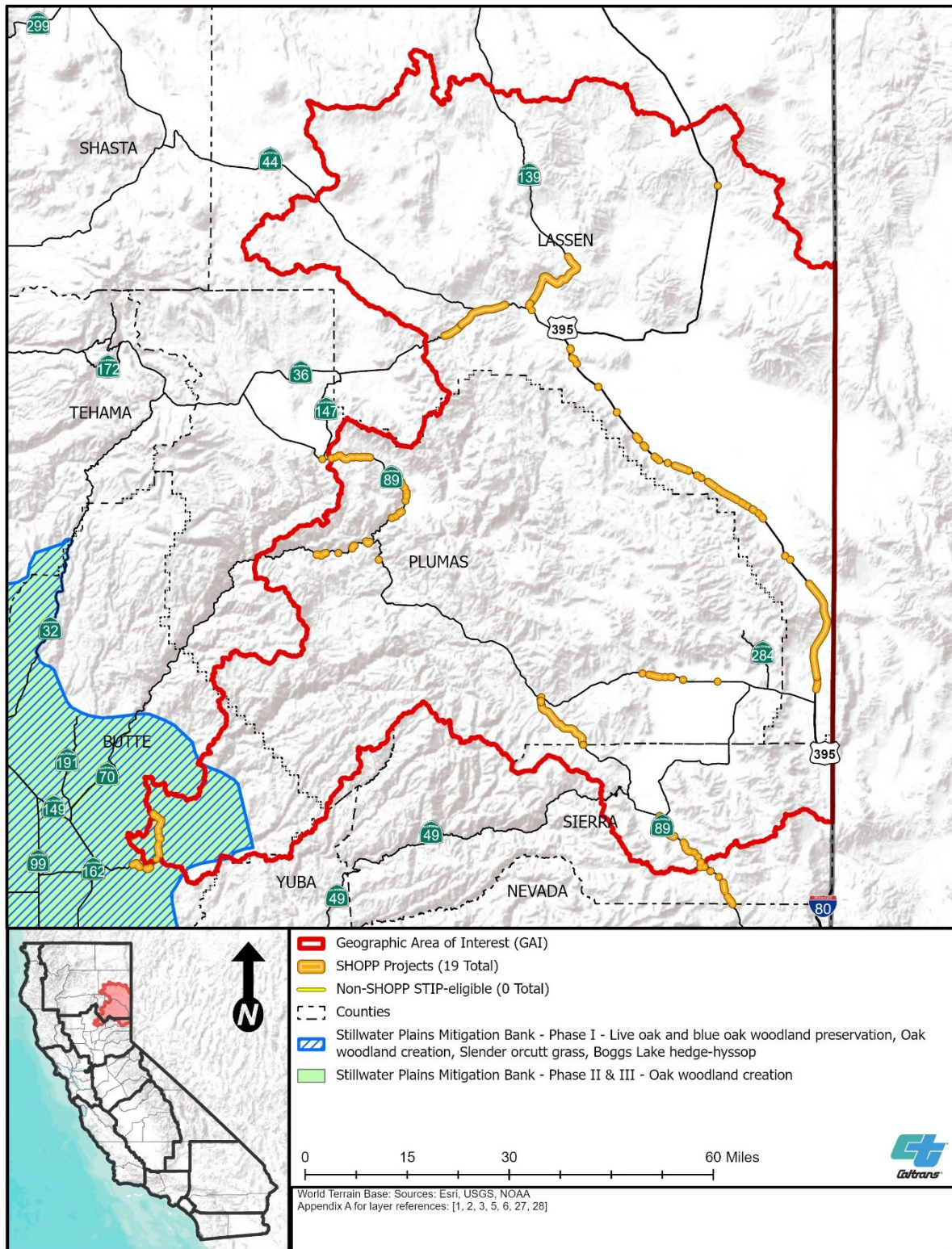
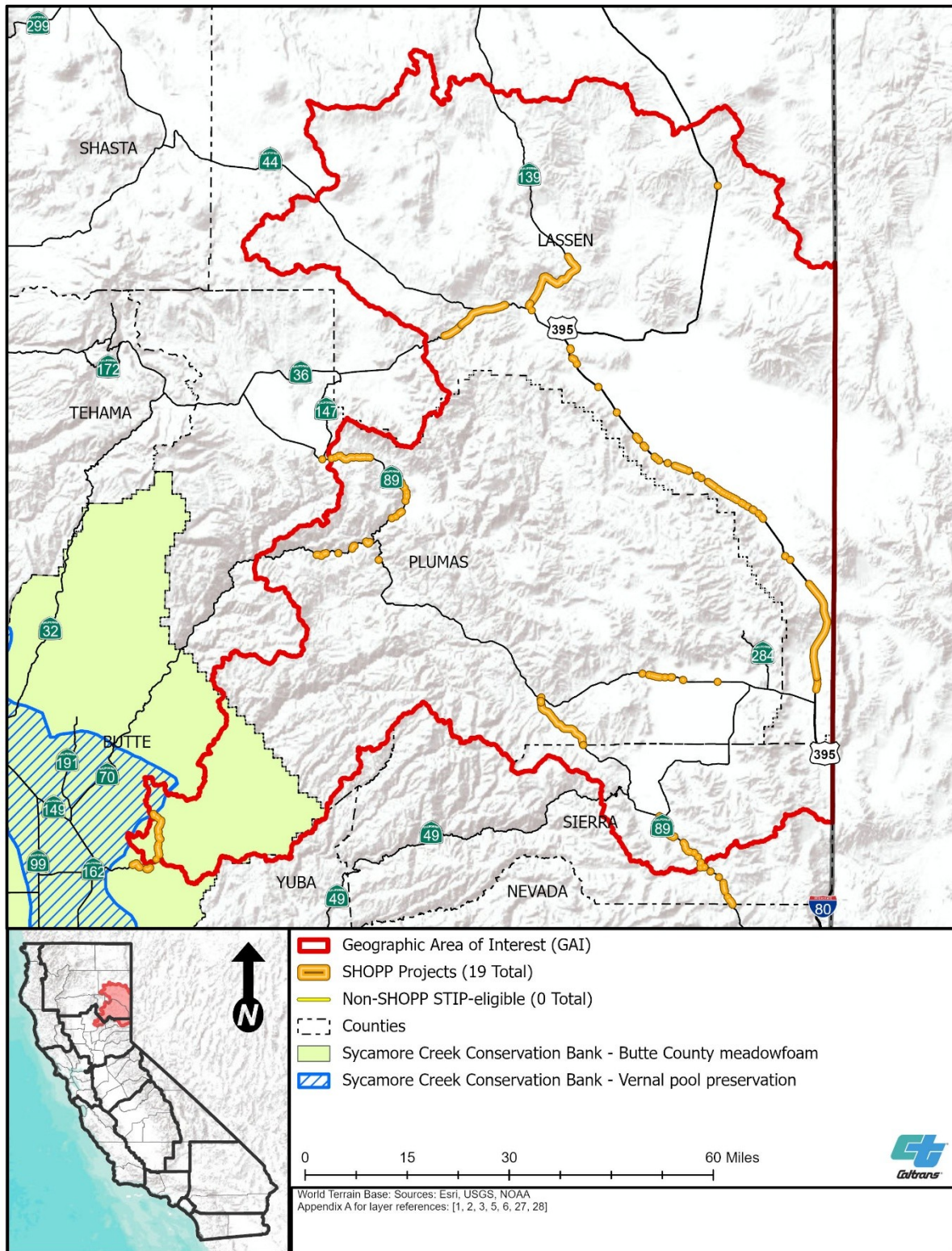
Figure 4-4. Conservation and Mitigation Bank Service Areas – Part 4

Figure 4-5. Conservation and Mitigation Bank Service Areas – Part 5

4.4 In-lieu Fee Programs

Compensatory mitigation can also be accomplished through participation in an in-lieu fee program, which is an agreement between a natural resource regulatory agency and a single in-lieu fee sponsor. In-lieu fee mitigation occurs when a permittee provides funds to an in-lieu fee sponsor instead of either completing permittee-responsible mitigation or purchasing credits from a conservation or mitigation bank. An in-lieu fee sponsor can include entities such as public agencies or nonprofit organizations, and the fees are used to plan, build, and maintain a mitigation site. This method is similar to purchasing mitigation credits in that the mitigation is usually conducted “off site.” Often, the mitigation occurs after the permitted impacts. However, when the instrument allows for pre-transfer credit purchases, credits can be purchased prior to permitted impacts.

One active in-lieu fee program has a service area that overlaps the GAI: the NFWF Sacramento District California In-lieu Fee Program (Table 4-3, Figures 4-6 and 4-7). The Northeastern Sacramento Valley, Modoc Plateau, and other vernal pool service areas are indicated on Figure 4-6. The Feather and Modoc aquatic resources service areas are indicated on Figure 4-7. See discussion in Section 4.1. The Sacramento District California ILF Program’s instrument has been amended to include pre-transfer credit purchases.

Table 4-3. Overview of In-lieu Fee Programs in the GAI^a

Name	Year Approved	Signatories ^b	Instrument Includes Pre-transfer Credit Purchases?	Location	Credit Types
NFWF Sacramento District California ILF Program	2014	Corps, EPA, NMFS, RWQCB, NFWF	Yes	Corps Sacramento District Boundary (entire)	▪ Modoc Aquatic Resources ▪ Feather Aquatic Resources ▪ Modoc Plateau Vernal Pools ▪ Northeastern Sacramento Valley Vernal pool ▪ All Other Vernal Pool Areas

^a Up-to-date information on approved in-lieu fee programs, including available credits, can be found at: [https://ribits.ops.usace.army.mil/ords/f?p=107:2:::~::](https://ribits.ops.usace.army.mil/ords/f?p=107:2:::)

^b Signatories in **bold** are signatories to the *Master Process Agreement for Planning and Developing Advance Mitigation Throughout California for the California Department of Transportation* (Caltrans et al. 2020).

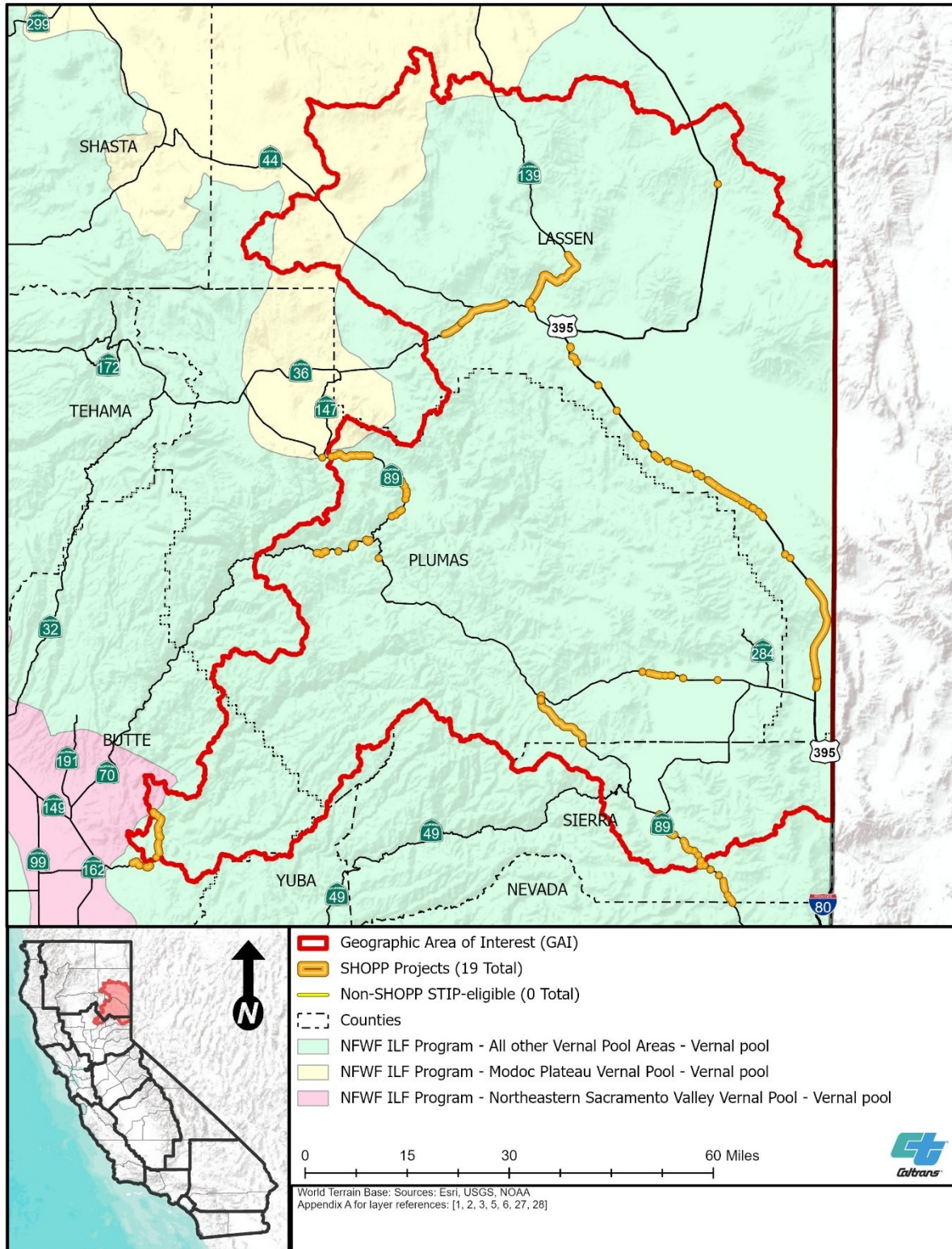
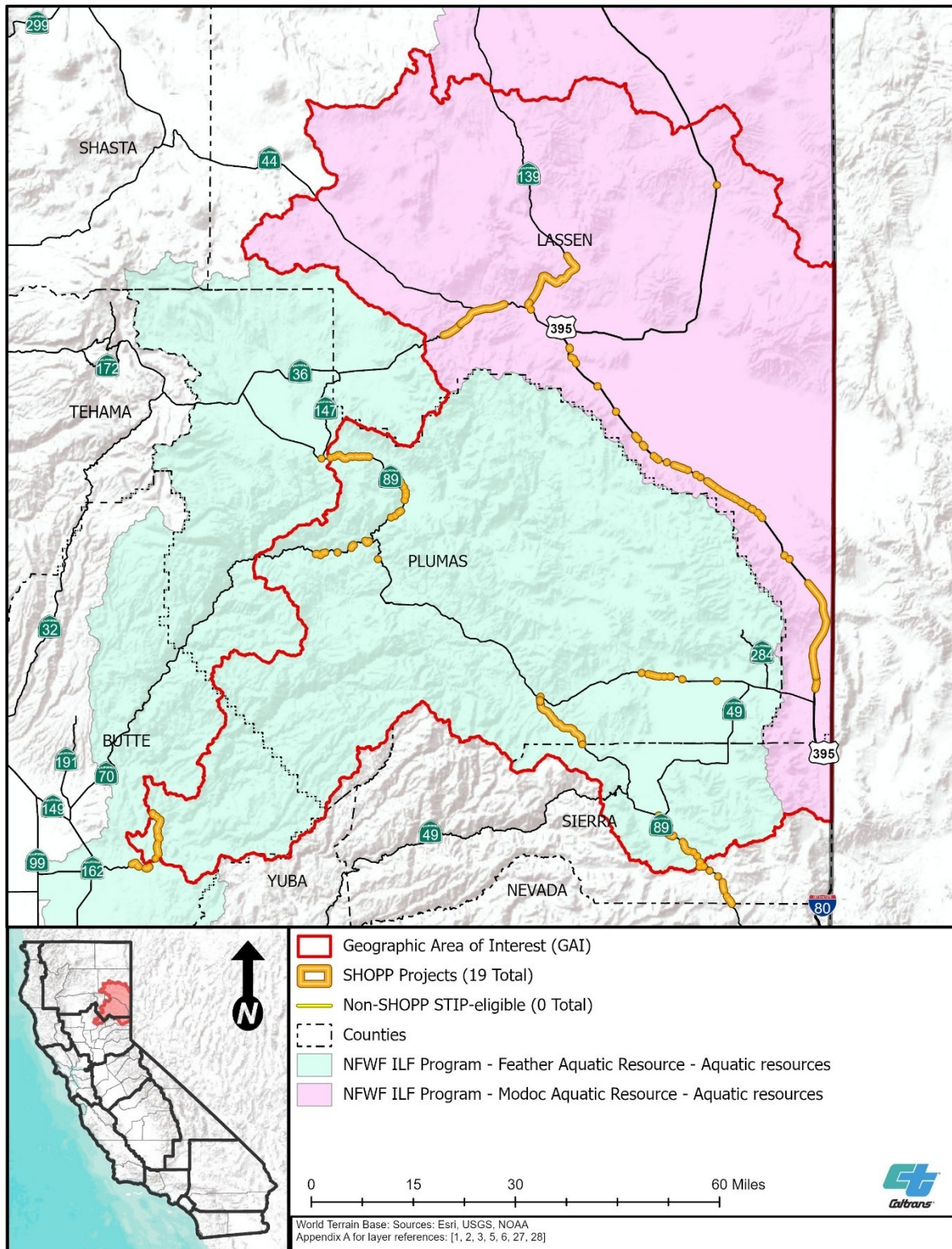
Figure 4-6. In-lieu Fee Programs – Part 1

Figure 4-7. In-lieu Fee Programs – Part 2



4.5 RCISs and MCAs

Assembly Bill 2087 established CDFW's RCIS Program in 2016 (FGC Chapter 9, § 1850 et seq.), which created a voluntary framework for governments and other entities to strategically plan for conservation investments in their areas, including investments performed for compensatory mitigation. To promote the conservation quality of compensatory mitigation investments, the RCIS Program provides an advance mitigation tool that can be applied to resources subject to regulations implemented by CDFW. MCAs are developed when and where an RCIS is approved by CDFW and contains the elements described in FGC § 1856(b). Then, with respect to the SHS, a useful MCA would create credits that may be used as compensatory mitigation to offset impacts identified under CESA and the Lake and Streambed Alteration Program.

An MCA has numerous required elements, many of which parallel the requirements of a mitigation bank. These required elements can be found in FGC § 1856, and additional guidance is available in *Regional Conservation Investment Strategies Program Guidelines* (CDFW 2023). It is important to note that MCAs are not permits such as HCPs and NCCPs (Section 4.2). MCA advance mitigation credits are analogous to conservation and mitigation bank credits (Section 4.3). In other words, unlike an HCP and NCCP, RCISs and MCAs do not result in the issuance of incidental take permits for covered activities.

Caltrans did not identify any active or pending RCISs with service areas that overlap the GAI. Because MCAs can only be issued once an RCIS has been approved, there are also currently no MCAs within this GAI.

4.6 Wildlife Crossing and Aquatic Corridor Enhancements

In 2022, [FGC § 1955 et seq.](#) authorized CDFW to approve compensatory mitigation credits for a “wildlife connectivity action” through its banking or RCIS programs. Therefore, when wildlife crossings and aquatic corridor enhancements improve the permeability of the SHS, through a BEI or MCA developed under an RCIS, CDFW is authorized to recognize CESA and Lake and Streambed Alteration credits for construction made separate and distinct from a specific transportation project. CDFW has drafted Wildlife Connectivity Advance Mitigation Guidelines (CDFW 2024b) that are intended to assist with the process. Connectivity information for the GAI is summarized in Section 2.9.

5. MODELED ESTIMATED IMPACTS

In this chapter, Caltrans documents the potential compensatory mitigation needs in the GAI for fiscal years 2023/24 to 2032/33. Needs were based on estimated potential compensatory mitigation requirements of Caltrans' anticipated SHOPP transportation projects and regional and local STIP-eligible transportation projects, as appropriate. Because the assessment is intended to inform advance mitigation project scoping, the impact estimates used to forecast compensatory mitigation needs do not distinguish between permanent or temporary impacts. Actual transportation project impacts, and natural resource regulatory agency compensatory mitigation conditions on transportation projects, will be determined in the future through each transportation project's environmental studies and permits.

In the sections below, Caltrans:

- Describes its approach to, and major assumptions, when estimating transportation-related compensatory mitigation needs within the GAI; and
- Provides its estimate of impacts for the 10-year planning period for aquatic resources, riparian habitat, species of mitigation need, and special-status species potentially co-occurring with the species of mitigation need.

Because Caltrans District 2 chose to focus the analysis on terrestrial and aquatic resources (Section 1.5), the results presented below are presented for aquatic resources for the East Branch North Fork Feather, Honey-Eagle Lakes, and Middle Fork Feather sub-basins (HUC-8s), which define the GAI, and for terrestrial resources for the Modoc Plateau, Mono, Northwestern Basin and Range, Sierra Nevada, Sierra Nevada Foothills, and Southern Cascades Ecoregion Sections.

5.1 Approach

Transportation projects eligible to use AMA-funded advance mitigation credits may only be SHOPP or STIP transportation projects (SHC § 800.7; Caltrans 2019a). Therefore, the compensatory mitigation needs for aquatic resources and wildlife within the GAI are based on Caltrans' anticipated SHOPP transportation project impacts and Caltrans, regional, and local STIP-eligible transportation project impacts:

- SHOPP transportation project needs are forecast quantitatively through the SAMNA model developed for the AMP.
- STIP-eligible needs are assessed qualitatively, through Caltrans District 2, MPO, RTPA, and other transportation agency coordination.

All estimates assume permanent losses, although it is likely that in many cases, some of the effects of a transportation project may be avoided, may be temporary, or may not result in a full loss.

5.1.1. SHOPP Needs Assessment: SAMNA Model Results

SHOPP impacts were forecast through the SAMNA. The SAMNA consists of an intersection of assumed transportation project footprints with natural resource layers developed for the SAMNA. Briefly described in Section 1.4, more detailed SAMNA information is provided in the *Advanced Mitigation Needs Assessment GIS Tool Report for California Department of Transportation* (Caltrans 2024b).

To identify the list of SHOPP projects planned for the GAI, Caltrans consulted the SHOPP Ten-Year Book for fiscal years 2023/24 to 2032/33 (Caltrans 2024). The intent of the SHOPP Ten-Year Book is to raise awareness of planned future transportation projects, and detailed transportation project information is not provided. The SHOPP Ten-Year Book includes 19 SHOPP transportation projects within the GAI that are currently in the planning and conceptual phases (Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*). The general locations of all 19 planned transportation projects are shown on most of the maps in this document.

SAMNA estimates are not precise and are not intended to be used for transportation project permitting; however, they are suitable for informing advance mitigation project scopes. The AMP developed the SAMNA strictly and specifically for Caltrans' use in advance mitigation planning—that is, when Caltrans is justifying, proposing, and scoping advance mitigation projects (Caltrans 2025a). The SAMNA model, its foundation, and assumptions are described in the *Statewide Advance Mitigation Needs Assessment Report* (Caltrans 2025a), and some of its uncertainties are highlighted in Appendix D, *Complete SAMNA Species Results*. All results are provided in acres. Some species and resources are not forecast to be affected.

Specific to this assessment, forecast impacts on aquatic resources can be found in Section 5.2 and forecast impacts on species of mitigation need can be found in Section 5.3. The SAMNA results for all habitats with at least one special-status species forecast to be affected are provided in Appendix D, *Complete SAMNA Species Results*.

5.1.2. Non-SHOPP STIP-eligible Needs Assessment

At this time, STIP-eligible needs are assessed qualitatively, through coordination between the Caltrans District, MPOs, RTPAs, and other public agencies that implement transportation improvements. Obtaining a reliable list of STIP transportation projects within the 10-year planning horizon is problematic. It is never known which transportation projects will be funded through the STIP until the funds are voted on by the California Transportation Commission, at which point the transportation projects are well past their planning and conceptualization phases and entering their delivery phases.

Because of this timing, funded STIP projects will likely need compensatory mitigation before the AMP can deliver the needed mitigation. AMP planning, therefore, must compile a list of transportation projects from the broader set of non-SHOPP transportation projects that may or may not receive STIP funding, such as STIP-eligible transportation projects. Additionally, the STIP is currently receiving very little funding in favor of the “fix-it-first”

philosophy of the Road Repair and Accountability Act of 2017, although there is a backlog of transportation projects that potentially need these funds.

To address the dynamic nature of the non-SHOPP STIP-eligible list, it was necessary to identify transportation projects that will be (1) reasonably certain to occur in the same 10-year timeframe as the SHOPP projects used in the SAMNA and (2) highly likely to receive STIP funding. To that end, the AMP consulted the Caltrans Division of Transportation Planning's Multimodal Operations, Non-SHOPP, Transportation Equity Report database, using the criteria that a transportation project would have to be in a fiscally constrained¹ regional transportation plan, with a Ready to List² year identified as occurring in the 10-year planning horizon. From this evaluation, there are no planned STIP-eligible transportation projects identified within the GAI for fiscal years 2023/24 to 2032/33 that could possibly benefit from AMA-funded advance mitigation projects.

Non-SHOPP STIP-eligible Potential Impacts

Because no planned STIP-eligible transportation projects were identified within the GAI for fiscal years 2023/24 to 2032/33, no STIP-eligible related impacts or mitigation needs are anticipated.

5.2 Estimated Aquatic Resources Impacts

The quantitative impacts presented in this document are estimates, pursuant to the SAMNA model. Specific aquatic resource impacts will be assessed in the future as part of each transportation project's environmental studies.

Below, estimated aquatic resource impacts are presented for the HUC-8 sub-basins that make up the GAI. Aquatic resources impacts are categorized as potential impacts on threatened and endangered fish, wetlands, and non-wetland waters. Riparian habitat is also discussed. Refer to Appendix E, *Aquatic Resource Locations*, for maps depicting the location and extent of wetlands and non-wetland waters within the GAI. Riparian habitat was identified by using California Statewide Resource Inventory (CARI), a statewide riparian area dataset.

5.2.1. Estimated Impacts on Threatened and Endangered Fish Habitat

Using the methods described in Section 5.1.1, impacts on threatened and endangered fish habitat were estimated for the 19 transportation projects listed in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*. Of the 19 SHOPP transportation projects evaluated, none are forecast to affect threatened and endangered fish habitat within the GAI (Caltrans 2025c).

¹ Transportation project funding is reasonably assured.

² Transportation project schedule is reasonably assured. Ready to List is a named milestone within the Caltrans project delivery process. It is the point when a complete package is ready for contractors to bid on and a transportation project has been approved to be advertised to bid for construction.

5.2.2. Estimated Impacts on Aquatic Resources

Using the methods described in Section 5.1.1, impacts on wetlands and non-wetland waters were estimated for the 19 transportation projects listed in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*.

Of the 19 SHOPP transportation projects evaluated, 6 are forecast to affect 1.2 acres of wetlands, 12 are forecast to affect 1.4 acres of non-wetland waters, and 9 are forecast to affect 9.3 acres of riparian habitat within the GAI (Table 5-1; Caltrans 2025c).

Table 5-1. Summary of Estimated SHOPP Impacts on Aquatic Resources within the GAI (acres)

Sub-basin (HUC-8)	Sub-basin Number	Wetlands: Number of Caltrans SHOPP Projects ^a	Estimated Wetlands Impact (acres)	Non-Wetland Waters: Number of Caltrans SHOPP Projects ^a	Estimated Non-Wetland Waters Impact (acres)	Riparian Function: Number of Caltrans SHOPP Projects ^a	Estimated Riparian Function Impact (acres)
East Branch North Fork Feather	18020122	0	0.0	2	0.1	3	1.5
Honey-Eagle Lakes	18080003	4	0.2	6	0.7	2	1.1
Middle Fork Feather	18020123	2	1.0	4	0.7	4	6.7
Total	Not applicable	6	1.2	12	1.4	9	9.3

^a Transportation projects are listed in Appendix B.

5.3 Estimated Plant and Wildlife Impacts

The quantitative results presented in this document are estimates, pursuant to the SAMNA model. Specific plant and wildlife resource impacts will be assessed in the future, as part of each transportation project's environmental studies.

Below, estimated impacts are presented for the ecoregion section within the GAI for species of mitigation need identified by Caltrans District 2, as well as for species that may co-occur in their habitats. The complete results of the SAMNA—inclusive of the 19 transportation projects planned within the GAI and listed in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*, that may affect special-status plant and wildlife species—are provided in Appendix D, *Complete SAMNA Species Results*.

The special-status terrestrial plant and wildlife species evaluated through the SAMNA consisted of federal and state threatened, endangered, or sensitive species; state fully protected or rare species; or state species of special concern. Based on a search of the species-attributed vegetation layer, 61 special-status terrestrial species have the potential to occur within the GAI (Section 2.7 and 2.15.4; Appendix D; Caltrans 2025b, 2025c). Using the methods described in Section 5.1.1, the SAMNA analysis determined that 19 SHOPP transportation projects could potentially affect 27 habitat types, which could support up to 61 special-status species within 5 of the ecoregion sections within the GAI (Table 5-2).

Table 5-2. Summary of Estimated SHOPP Impacts on Special-status Species Habitat in the GAI

Ecoregion Section	Number of Caltrans SHOPP Projects ^a	Number of Habitats ^b	Number of Special-status Species ^{c,d}	Estimated Total Habitat Impact (acres) ^b
Modoc Plateau	0	0	0	0
Mono	2	8	26	3.4
Northwestern Basin and Range	5	12	34	5.5
Sierra Nevada	8	19	38	21.2
Sierra Nevada Foothills	1	7	22	4.1
Southern Cascades	1	4	18	4.3
Total^e	18	27	61	38.5

^a Transportation projects are listed in Appendix B.

^b Excludes urban areas.

^c Special-status terrestrial plant and wildlife species evaluated through the SAMNA consisted of federal and state threatened, endangered, or sensitive species; state fully protected or rare species; or state species of special concern.

^d Included in the SAMNA. See SAMNA Report (Caltrans 2026 [report in progress]).

^e Totals may not reflect numbers presented in rows above. Some SHOPP transportation projects cross more than one ecoregion section. Some special-status species occur in more than one ecoregion section.

Caltrans identified species of mitigation need from the suite of special-status species anticipated to inhabit the GAI. Species of mitigation need are species for whom a high probability of mitigation need is anticipated (Section 1.5). The terrestrial species of mitigation need identified in Section 1.5— Cascades frog, fisher, foothill yellow-legged frog North Feather DPS, golden eagle, northwestern pond turtle and Sierra Nevada yellow-legged frog —were included in the analysis and each is discussed briefly in the subsections below.

5.3.1. Cascades Frog

Using the methods described in Section 5.1.1, impacts on Cascades frog and its habitat were estimated for the transportation projects that may affect wildlife (Appendix B, *Transportation Projects Planned for the GAI During the Planning Period*). Of the 19

SHOPP transportation projects evaluated, none are forecast to affect Cascades frog habitat within the GAI (Table 5-3; Caltrans 2025b, 2025c).

5.3.1. Fisher

Using the methods described in Section 5.1.1, impacts on fisher and its habitat were estimated for the transportation projects that may affect wildlife (Appendix B, *Transportation Projects Planned for the GAI During the Planning Period*). Of the 19 SHOPP transportation projects evaluated, 6 are forecast to affect 8.6 acres of fisher habitat within the GAI (Table 5-3; Caltrans 2025b, 2025c).

5.3.2. Foothill Yellow-legged Frog North Feather DPS

Using the methods described in Section 5.1.1, impacts on foothill yellow-legged frog North Feather DPS and its habitat were estimated for the transportation projects that may affect wildlife (Appendix B, *Transportation Projects Planned for the GAI During the Planning Period*). Of the 19 SHOPP transportation projects evaluated, 6 are forecast to affect 11.5 acres of foothill yellow-legged frog North Feather DPS habitat within the GAI (Table 5-3; Caltrans 2025b, 2025c).

5.3.3. Golden Eagle

Using the methods described in Section 5.1.1, impacts on golden eagle and its habitat were estimated for the transportation projects that may affect wildlife (Appendix B, *Transportation Projects Planned for the GAI During the Planning Period*). Of the 19 SHOPP transportation projects evaluated, 14 are forecast to affect 37.9 acres of golden eagle habitat within the GAI (Table 5-3; Caltrans 2025b, 2025c).

5.3.4. Northwestern Pond Turtle

Using the methods described in Section 5.1.1, impacts on northwestern pond turtle and its habitat were estimated for the transportation projects that may affect wildlife (Appendix B, *Transportation Projects Planned for the GAI During the Planning Period*). Of the 19 SHOPP transportation projects evaluated, 10 are forecast to affect 15.6 acres of northwestern pond turtle habitat within the GAI (Table 5-3; Caltrans 2025b, 2025c).

5.3.5. Sierra Nevada Yellow-legged Frog

Using the methods described in Section 5.1.1, impacts on Sierra Nevada yellow-legged frog and its habitat were estimated for the transportation projects that may affect wildlife (Appendix B, *Transportation Projects Planned for the GAI During the Planning Period*). Of the 19 SHOPP transportation projects evaluated, 4 are forecast to affect 2.1 acres of Sierra Nevada yellow-legged frog habitat within the GAI (Table 5-3; Caltrans 2025b, 2025c).

Table 5-3. Summary of Estimated SHOPP Impacts on Terrestrial Species of Mitigation Need within the GAI

Ecoregion Section	Cascades Frog Habitat: Number of Caltrans SHOPP Projects ^a	Cascades Frog: Estimated Habitat Impact (acres)	Fisher Habitat: Number of Caltrans SHOPP Projects ^a	Fisher: Estimated Habitat Impact (acres)	Foothill Yellow-legged Frog North Feather DPS Habitat: Number of Caltrans SHOPP Projects ^a	Foothill Yellow-legged Frog North Feather DPS: Estimated Habitat Impact (acres)	Golden Eagle Habitat: Number of Caltrans SHOPP Projects ^a	Golden Eagle: Estimated Habitat Impact (acres)	Northwestern Pond Turtle Habitat: Number of Caltrans SHOPP Projects ^a	Northwestern Pond Turtle: Estimated Habitat Impact (acres)	Sierra Nevada Yellow-legged Frog Habitat: Number of Caltrans SHOPP Projects ^a	Sierra Nevada Yellow-legged Frog: Estimated Habitat Impact (acres)
Modoc Plateau	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Mono	0	0.0	0	0.0	0	0.0	2	3.4	1	<0.1	0	0.0
Northwestern Basin and Range	0	0.0	0	0.0	0	0.0	5	5.5	4	3.0	0	0.0
Sierra Nevada	0	0.0	6	7.8	5	7.5	8	20.7	6	8.5	4	2.1
Sierra Nevada Foothills	0	0.0	0	0.0	1	4.0	1	4.1	1	4.1	0	0.0
Southern Cascades	0	0.0	1	0.8	0	0.0	1	4.3	0	0.0	0	0.0
Total^b	0	0.0	6	8.6	6	11.5	14	37.9	10	15.6	4	2.1

Source: Caltrans 2025b, 2025c
^a Transportation projects are listed in Appendix B.
^b Totals may not reflect numbers presented in rows above. Some SHOPP transportation projects cross more than one ecoregion section.

5.3.6. Potential Co-benefiting Species

The species of mitigation need co-occur with other protected plant, invertebrate, amphibian, reptile, bird, and mammal species. By procuring or establishing advance mitigation credits for one or more of the species of mitigation need, Caltrans District 2 will also benefit multiple special-status species that occur and use the same habitats.

Using the methods described in Section 5.1.1, the SAMNA forecast impacts on:

- an additional 22 special-status terrestrial species that potentially use the same habitats as the species of mitigation need in the Mono Ecoregion Section (Table 5-4);
- an additional 29 special-status terrestrial species that potentially use the same habitats as the species of mitigation need in the Northwestern Basin and Range Ecoregion Section (Table 5-5); and
- an additional 33 special-status terrestrial species that potentially use the same habitats as the species of mitigation need in the Sierra Nevada Ecoregion Section (Table 5-6); and
- an additional 19 special-status terrestrial species that potentially use the same habitats as the species of mitigation need in the Sierra Nevada Foothills Ecoregion Section (Table 5-7); and
- an additional 14 special-status terrestrial species that potentially use the same habitats as the species of mitigation need in the Southern Cascades Ecoregion Section (Table 5-8).

Table 5-4. Estimated SHOPP Impacts on Species of Mitigation Need and Co-occurring Species Habitat: Mono Ecoregion Section (acres)

Common Name	Species Name	Status	Annual Grassland	Fresh Emergent Wetland	Juniper	Montane Riparian	Sagebrush	Wet Meadow
Not applicable	Not applicable	Total^a	0.3	<0.1	0.2	<0.1	2.1	0.1
Species of Mitigation Need	See below	See below	See below	See below	See below	See below	See below	See below
foothill yellow-legged frog North Feather DPS	<i>Rana boylei</i>	FT, ST, FS	0.0	0.0	0.0	0.0	0.0	0.0
Sierra Nevada yellow-legged frog	<i>Rana sierrae</i>	FE, FT, FS	0.0	0.0	0.0	0.0	0.0	0.0
Cascades frog	<i>Rana cascadae</i>	SCE, SSC	0.0	0.0	0.0	0.0	0.0	0.0
northwestern pond turtle	<i>Actinemys marmorata</i>	FPT, FS, SSC	0.0	0.0	0.0	0.0	0.0	0.0
golden eagle	<i>Aquila chrysaetos</i>	FS, SFS, SFP	0.3	<0.1	0.2	<0.1	2.1	0.1
fisher	<i>Pekania pennanti</i>	NA	0.0	0.0	0.0	0.0	0.0	0.0
Plants	See below	See below	See below	See below	See below	See below	See below	See below
Tracy's eriastrum	<i>Eriastrum tracyi</i>	FS, SR	0.3	0.0	0.2	0.0	0.0	0.0
Webber's ivesia	<i>Ivesia webberi</i>	FT, FS	0.0	0.0	0.0	0.0	1.9	0.0
Birds	See below	See below	See below	See below				See below
greater sandhill crane	<i>Antigone canadensis tabida</i>	ST, FS, SFP	0.3	<0.1	0.0	0.0	0.0	0.1

Common Name	Species Name	Status	Annual Grassland	Fresh Emergent Wetland	Juniper	Montane Riparian	Sagebrush	Wet Meadow
short-eared owl	<i>Asio flammeus</i>	SSC	0.3	<0.1	0.2	<0.1	2.1	0.1
long-eared owl	<i>Asio otus</i>	SSC	0.3	0.0	0.2	<0.1	2.1	0.1
burrowing owl	<i>Athene cunicularia</i>	SCE, FS, SSC	0.3	0.0	0.2	0.0	2.1	0.1
redhead	<i>Aythya americana</i>	SSC	0.0	<0.1	0.0	0.0	0.0	0.0
Swainson's hawk	<i>Buteo swainsoni</i>	ST, FS	0.3	0.0	0.2	0.0	2.1	0.1
greater sage-grouse	<i>Centrocercus urophasianus</i>	FPT, SCE, FS, SSC	0.0	0.0	0.0	0.0	2.1	0.1
black tern	<i>Chlidonias niger</i>	SSC	0.0	<0.1	0.0	0.0	0.0	0.1
northern harrier	<i>Circus hudsonius</i>	SSC	0.3	<0.1	0.2	<0.1	0.0	0.1
willow flycatcher	<i>Empidonax traillii</i>	SE, FS	0.0	0.0	0.0	<0.1	0.0	0.1
bald eagle	<i>Haliaeetus leucocephalus</i>	SE, FS, SFP	0.0	0.0	0.0	0.0	<0.1	0.0
loggerhead shrike	<i>Lanius ludovicianus</i>	SSC	0.3	0.0	0.2	<0.1	2.1	0.1
yellow warbler	<i>Setophaga petechia</i>	SSC	0.0	0.0	0.0	<0.1	0.0	0.0
yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>	SSC	0.3	<0.1	0.0	0.0	0.0	0.1
Mammals	See below	See below	See below	See below	See below	See below	See below	See below
pallid bat	<i>Antrozous pallidus</i>	FS, SSC	0.3	0.0	0.2	<0.1	2.1	0.1
pygmy rabbit	<i>Brachylagus idahoensis</i>	FS, SSC	0.0	0.0	0.0	0.0	<0.1	0.0

Common Name	Species Name	Status	Annual Grassland	Fresh Emergent Wetland	Juniper	Montane Riparian	Sagebrush	Wet Meadow
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	FS, SSC	0.3	0.0	0.2	<0.1	2.1	0.1
spotted bat	<i>Euderma maculatum</i>	FS, SSC	0.3	0.0	0.2	<0.1	2.1	0.1
western white-tailed jackrabbit	<i>Lepus townsendii townsendii</i>	SSC	0.0	0.0	0.2	0.0	2.1	0.1
American badger	<i>Taxidea taxus</i>	SSC	0.3	0.0	0.2	<0.1	2.1	0.1

Source: Caltrans 2025b, 2025c

Notes: FE = federal endangered, FS = federal sensitive (USFS and/or BLM sensitive), FPT = federal proposed threatened, FT = federal threatened, NA = not applicable, SE = state endangered, SFP = state fully protected, SFS = state fire sensitive, SSC = species of special concern (CDFW), ST = state threatened, SCE = state candidate endangered, SR = state rare

^a These totals are not additive across all special-status species because each habitat type may provide suitable habitat for more than one special-status species or subspecies. The total acreage of each habitat type affected listed in the top row represents the largest number in each column, not the sum of the numbers.

Table 5-5. Estimated SHOPP Impacts on Species of Mitigation Need and Co-occurring Species Habitat: Northwestern Basin and Range Ecoregion Section (acres)

Common Name	Species Name	Status	Annual Grassland	Bitterbrush	Irrigated Hayfield	Low Sage	Montane Hardwood	Montane Riparian	Pasture	Perennial Grassland	Sagebrush	Valley Foothill Riparian	Wet Meadow
Not applicable	Not applicable	Total ^a	0.4	0.2	0.2	0.2	<0.1	<0.1	0.3	<0.1	1.7	<0.1	0.1
Species of Mitigation Need	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
foothill yellow-legged frog North Feather DPS	<i>Rana boylei</i>	FT, ST, FS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sierra Nevada yellow-legged frog	<i>Rana sierrae</i>	FE, FT, FS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cascades frog	<i>Rana cascadae</i>	SCE, SSC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
northwestern pond turtle	<i>Actinemys marmorata</i>	FPT, FS, SSC	0.4	0.0	0.0	0.0	<0.1	<0.1	0.3	0.0	0.0	<0.1	<0.1
golden eagle	<i>Aquila chrysaetos</i>	FS, SFS, SFP	0.4	0.2	0.2	0.2	<0.1	<0.1	0.3	<0.1	1.7	<0.1	0.1
fisher	<i>Pekania pennanti</i>	FS, SSC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Plants	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
Tracy's eriastrum	<i>Eriastrum tracyi</i>	FS, SR	0.4	0.0	0.0	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	0.0
Boggs Lake hedge-hyssop	<i>Gratiola heterosepaia</i>	SE, FS	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Webber's ivesia	<i>Ivesia webberi</i>	FT, FS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0
Invertebrates	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
western bumblebee	<i>Bombus occidentalis</i>	SCE, FS	0.1	0.1	0.0	0.2	0.0	0.0	0.1	0.0	<0.1	0.0	<0.1
Birds	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
American goshawk	<i>Astur atricapillus</i>	FS, SSC, SFS	0.0	<0.1	0.0	0.0	<0.1	<0.1	0.0	0.0	1.2	<0.1	0.0
tricolored blackbird	<i>Agelaius tricolor</i>	ST, FS, SSC	0.3	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1
greater sandhill crane	<i>Antigone canadensis tabida</i>	ST, FS, SFP	0.4	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	0.1
short-eared owl	<i>Asio flammeus</i>	SSC	0.4	0.2	0.2	0.2	0.0	<0.1	0.0	<0.1	1.7	<0.1	0.1
long-eared owl	<i>Asio otus</i>	SSC	0.4	0.2	0.2	0.2	<0.1	<0.1	0.3	<0.1	1.7	<0.1	0.1
burrowing owl	<i>Athene cunicularia</i>	SCE, FS, SSC	0.4	0.2	0.2	0.2	0.0	0.0	0.3	<0.1	1.7	<0.1	0.1
Swainson's hawk	<i>Buteo swainsoni</i>	ST, FS	0.4	0.2	0.2	0.2	<0.1	0.0	0.3	<0.1	1.7	<0.1	0.1
greater sage-grouse	<i>Centrocercus urophasianus</i>	FPT, SCE, FS, SSC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1
black tern	<i>Chlidonias niger</i>	SSC	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
northern harrier	<i>Circus hudsonius</i>	SSC	0.4	0.2	0.2	0.2	<0.1	<0.1	0.0	<0.1	0.0	<0.1	0.1
willow flycatcher	<i>Empidonax traillii</i>	SE, FS	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	0.0	0.0	<0.1	0.1

Common Name	Species Name	Status	Annual Grassland	Bitterbrush	Irrigated Hayfield	Low Sage	Montane Hardwood	Montane Riparian	Pasture	Perennial Grassland	Sagebrush	Valley Foothill Riparian	Wet Meadow
American peregrine falcon	<i>Falco peregrinus anatum</i>	FS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	0.0
bald eagle	<i>Haliaeetus leucocephalus</i>	SE, FS, SFP	0.4	0.2	0.0	0.2	<0.1	<0.1	0.0	0.0	1.7	<0.1	<0.1
loggerhead shrike	<i>Lanius ludovicianus</i>	SSC	0.4	0.2	0.2	0.2	<0.1	<0.1	0.0	<0.1	1.7	<0.1	0.1
bank swallow	<i>Riparia riparia</i>	ST, FS	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	<0.1	0.0	<0.1
yellow warbler	<i>Setophaga petechia</i>	SSC	0.0	0.0	0.2	0.0	<0.1	<0.1	0.0	0.0	0.0	<0.1	0.0
California spotted owl	<i>Strix occidentalis occidentalis</i>	FPT, FS, SSC	0.0	0.0	0.0	0.0	<0.1	<0.1	0.0	0.0	0.0	<0.1	0.0
yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>	SSC	0.4	0.0	0.2	0.0	0.0	0.0	0.3	<0.1	0.0	0.0	0.1
Mammals	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
pallid bat	<i>Antrozous pallidus</i>	FS, SSC	0.4	0.2	0.2	0.2	<0.1	<0.1	0.3	<0.1	1.7	<0.1	0.1
pygmy rabbit	<i>Brachylagus idahoensis</i>	FS, SSC	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	FS, SSC	0.4	0.2	0.2	0.2	<0.1	<0.1	0.3	<0.1	1.7	<0.1	0.1
spotted bat	<i>Euderma maculatum</i>	FS, SSC	0.4	0.2	0.0	0.2	0.0	<0.1	0.0	<0.1	1.7	<0.1	0.1
Sierra Nevada snowshoe hare	<i>Lepus americanus tahoensis</i>	SSC	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	0.0	0.0	0.0	0.0
western white-tailed jackrabbit	<i>Lepus townsendii townsendii</i>	SSC	0.0	0.0	0.2	0.2	0.0	0.0	0.0	<0.1	1.7	0.0	0.1
American badger	<i>Taxidea taxus</i>	SSC	0.4	0.2	0.2	0.2	<0.1	<0.1	0.3	<0.1	1.7	<0.1	0.1

Source: Caltrans 2025b, 2025c

Notes: FE = federal endangered, FS = federal sensitive (USFS and/or BLM sensitive); FT = federal threatened, FPT = federal proposed threatened, SE = state endangered, SFP = state fully protected, SFS = state fire sensitive, SSC = species of special concern (CDFW), ST = state threatened, SCE = state candidate endangered, SR = state rare

^a These totals are not additive across all special-status species because each habitat type may provide suitable habitat for more than one special-status species or subspecies. The total acreage of each habitat type affected listed in the top row represents the largest number in each column, not the sum of the numbers.

Table 5-6. Estimated SHOPP Impacts on Species of Mitigation Need and Co-occurring Species Habitat: Sierra Nevada Ecoregion Section (acres)

Common Name	Species Name	Status	Annual Grassland	Aspen	Barren	Bitterbrush	Eastside Pine	Jeffrey Pine	Mixed Chaparral	Montane Chaparral	Montane Hardwood	Montane Hardwood-Conifer	Montane Riparian	Pasture	Perennial Grassland	Ponderosa Pine	Riverine	Sagebrush	Sierran Mixed Conifer	Wet Meadow
Not applicable	Not applicable	Total ^a	2.5	0.5	1.7	0.1	2.9	0.8	0.4	0.1	<0.1	0.5	0.6	0.1	2.0	0.1	<0.1	4.0	2.6	0.7
Species of Mitigation Need	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
foothill yellow-legged frog North Feather DPS	<i>Rana boylei</i>	FT, ST, FS	2.5	0.0	0.0	0.0	0.0	0.0	0.4	0.1	<0.1	0.5	0.6	0.0	0.0	0.1	<0.1	0.0	2.6	0.7
Sierra Nevada yellow-legged frog	<i>Rana sierrae</i>	FE, FT, FS	0.0	0.1	0.0	0.0	0.0	0.8	0.0	0.0	<0.1	0.3	<0.1	0.0	0.0	0.1	<0.1	0.0	0.7	0.0
Cascades frog	<i>Rana cascadae</i>	SCE, SSC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
northwestern pond turtle	<i>Actinemys marmorata</i>	FPT, FS, SSC	2.5	0.0	0.0	0.0	0.0	0.0	0.4	0.1	<0.1	0.5	0.6	0.1	0.0	0.1	<0.1	0.0	2.6	0.7
golden eagle	<i>Aquila chrysaetos</i>	FS, SFS, SFP	2.5	0.0	1.7	0.1	2.9	0.8	0.4	0.1	<0.1	0.5	0.6	0.1	2.0	0.1	0.0	4.0	2.6	0.7
fisher	<i>Pekania pennanti</i>	FS, SSC	0.0	0.5	0.0	0.0	2.9	0.8	0.0	0.0	0.0	0.5	0.6	0.0	0.0	0.1	0.0	0.0	2.5	0.0
Plants	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
Webber's ivesia	<i>Ivesia webberi</i>	FT, FS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0
Invertebrates	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
western bumblebee	<i>Bombus occidentalis</i>	SCE, FS	2.5	0.5	1.7	0.1	2.9	0.8	0.4	0.1	<0.1	0.5	0.6	0.1	2.0	0.1	<0.1	4.0	2.6	0.7
Amphibians	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
southern long-toed salamander	<i>Ambystoma macrodactylum sigillatum</i>	SSC	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	<0.1	0.5	0.5	0.0	0.0	0.1	0.0	0.0	2.3	0.7
northern leopard frog	<i>Lithobates pipiens</i>	SSC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0
California red-legged frog	<i>Rana draytonii</i>	FT, SSC	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	0.2	0.0	0.0	0.0	0.1	<0.1	0.0	0.0	0.0
Birds	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
American goshawk	<i>Astur atricapillus</i>	FS, SSC, SFS	0.0	0.5	0.0	0.1	2.9	0.8	0.4	0.1	<0.1	0.5	0.6	0.0	0.0	0.1	0.0	3.2	2.6	0.0
greater sandhill crane	<i>Antigone canadensis tabida</i>	ST, FS, SFP	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
short-eared owl	<i>Asio flammeus</i>	SSC	0.0	0.0	0.0	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.1	0.0

Common Name	Species Name	Status	Annual Grassland	Aspen	Barren	Bitterbrush	Eastside Pine	Jeffrey Pine	Mixed Chaparral	Montane Chaparral	Montane Hardwood	Montane Hardwood-Conifer	Montane Riparian	Pasture	Perennial Grassland	Ponderosa Pine	Riverine	Sagebrush	Sierran Mixed Conifer	Wet Meadow
long-eared owl	<i>Asio otus</i>	SSC	2.5	0.5	0.0	0.1	2.9	0.0	0.4	0.1	<0.1	0.5	0.6	0.1	2.0	0.1	0.0	4.0	2.6	0.7
burrowing owl	<i>Athene cunicularia</i>	SCE, FS, SSC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.4	0.0	0.0
Swainson's hawk	<i>Buteo swainsoni</i>	ST, FS	0.0	0.0	0.0	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.4	0.0	0.0
Vaux's swift	<i>Chaetura vauxi</i>	SSC	0.0	0.0	0.0	0.0	0.0	0.7	0.4	0.0	<0.1	0.5	0.5	0.0	2.0	0.1	<0.1	0.0	2.3	0.7
northern harrier	<i>Circus hudsonius</i>	SSC	0.0	0.0	1.1	0.1	1.7	0.7	0.0	0.0	0.0	<0.1	0.0	0.0	2.0	0.0	0.0	0.0	0.3	0.0
olive-sided flycatcher	<i>Contopus cooperi</i>	SSC	0.0	0.5	0.0	0.0	2.9	0.8	0.4	0.0	<0.1	0.5	0.6	0.0	0.0	0.1	0.0	0.0	2.5	0.0
willow flycatcher	<i>Empidonax traillii</i>	SE, FS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.7
American peregrine falcon	<i>Falco peregrinus anatum</i>	FS	2.5	0.0	1.7	0.1	2.9	0.8	0.4	0.1	<0.1	0.5	0.6	0.0	2.0	0.1	<0.1	3.6	2.6	0.7
bald eagle	<i>Haliaeetus leucocephalus</i>	SE, FS, SFP	2.5	0.5	1.7	0.1	2.9	0.8	0.4	0.1	<0.1	0.5	0.6	0.0	2.0	0.1	<0.1	4.0	2.6	0.7
harlequin duck	<i>Histrionicus histrionicus</i>	SSC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	0.0	0.0
loggerhead shrike	<i>Lanius ludovicianus</i>	SSC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0
purple martin	<i>Progne subis</i>	SSC	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	0.5	0.5	0.0	2.0	0.1	<0.1	0.0	2.3	0.7
yellow warbler	<i>Setophaga petechia</i>	SSC	0.0	0.5	0.0	0.0	2.9	0.8	0.4	0.1	<0.1	0.5	0.6	0.0	0.0	0.1	0.0	0.0	2.6	0.0
great gray owl	<i>Strix nebulosa</i>	SE, FS, SFS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.7
California spotted owl	<i>Strix occidentalis occidentalis</i>	FPT, FS, SSC	0.0	0.5	0.0	0.0	2.9	0.8	0.0	0.0	<0.1	0.5	0.6	0.0	0.0	0.1	0.0	0.0	2.4	0.0
yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>	SSC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	2.0	0.0	0.0	0.0	0.0	0.0
Mammals	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
pallid bat	<i>Antrozous pallidus</i>	FS, SSC	2.5	0.0	1.7	0.1	2.9	0.8	0.4	0.1	<0.1	0.5	0.6	0.1	2.0	0.1	<0.1	4.0	2.6	0.7
pygmy rabbit	<i>Brachylagus idahoensis</i>	FS, SSC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0
gray wolf	<i>Canis lupus</i>	FE, SE	1.9	0.4	0.2	0.0	1.0	<0.1	0.0	0.1	0.0	0.2	0.6	0.1	0.0	0.0	0.0	<0.1	0.7	0.7
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	FS, SSC	2.5	0.5	1.7	0.1	2.9	0.8	0.4	0.1	<0.1	0.5	0.6	0.1	2.0	0.1	<0.1	4.0	2.6	0.7
spotted bat	<i>Euderma maculatum</i>	FS, SSC	2.5	0.0	0.0	0.1	2.9	0.8	0.0	0.1	0.0	0.5	0.6	0.0	2.0	0.1	<0.1	4.0	2.6	0.7
wolverine	<i>Gulo gulo</i>	FT, ST, FS, SFP	0.0	0.0	1.1	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0

Common Name	Species Name	Status	Annual Grassland	Aspen	Barren	Bitterbrush	Eastside Pine	Jeffrey Pine	Mixed Chaparral	Montane Chaparral	Montane Hardwood	Montane Hardwood-Conifer	Montane Riparian	Pasture	Perennial Grassland	Ponderosa Pine	Riverine	Sagebrush	Sierran Mixed Conifer	Wet Meadow
Sierra Nevada snowshoe hare	<i>Lepus americanus tahoensis</i>	SSC	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	2.5	0.0
western white-tailed jackrabbit	<i>Lepus townsendii townsendii</i>	SSC	0.0	0.0	0.0	0.0	2.1	0.8	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	3.9	0.0	0.0
American badger	<i>Taxidea taxus</i>	SSC	2.5	0.5	1.7	0.1	2.9	0.8	0.4	0.1	<0.1	0.5	0.6	0.1	2.0	0.1	0.0	4.0	2.6	0.7

Source: Caltrans 2025b, 2025c

Notes: FE = federal endangered, FS = federal sensitive (USFS and/or BLM sensitive); FT = federal threatened, FPT = federal proposed threatened, SE = state endangered, SFP = state fully protected, SFS = state fire sensitive, SSC = species of special concern (CDFW), ST = state threatened, SCE = state candidate endangered, SR = state rare

^a These totals are not additive across all special-status species because each habitat type may provide suitable habitat for more than one special-status species or subspecies. The total acreage of each habitat type affected listed in the top row represents the largest number in each column, not the sum of the numbers.

Table 5-7. Estimated SHOPP Impacts on Species of Mitigation Need and Co-occurring Species Habitat: Sierra Nevada Foothills Ecoregion Section (acres)

Common Name	Species Name	Status	Annual Grassland	Blue Oak Woodland	Blue Oak-Foothill Pine; Blue Oak Woodland	Mixed Chaparral	Montane Hardwood	Valley Foothill Riparian
Not applicable	Not applicable	Total^a	1.7	<0.1	1.7	<0.1	0.5	0.1
Species of Mitigation Need	See below	See below	See below	See below	See below	See below	See below	See below
Foothill yellow-legged frog North Feather DPS	<i>Rana boylei</i>	FT, ST, FS	1.7	<0.1	1.7	<0.1	0.5	0.1
Sierra Nevada yellow-legged frog	<i>Rana sierrae</i>	FE, FT, FS	0.0	0.0	0.0	0.0	0.0	0.0
Cascades frog	<i>Rana cascadae</i>	SCE, SSC	0.0	0.0	0.0	0.0	0.0	0.0
northwestern pond turtle	<i>Actinemys marmorata</i>	FPT, FS, SSC	1.7	<0.1	1.7	<0.1	0.5	0.1
golden eagle	<i>Aquila chrysaetos</i>	FS, SFS, SFP	1.7	<0.1	1.7	<0.1	0.5	0.1
fisher	<i>Pekania pennanti</i>	FS, SSC	0.0	0.0	0.0	0.0	0.0	0.0
Amphibians	See below	See below	See below	See below	See below	See below	See below	See below
California red-legged frog	<i>Rana draytonii</i>	FT, SSC	1.7	<0.1	1.7	<0.1	0.5	0.1
Reptiles	See below	See below	See below	See below	See below	See below	See below	See below
coast horned lizard	<i>Phrynosoma blainvilli</i>	FS, SSC	1.7	<0.1	1.7	<0.1	0.0	0.1
Birds	See below	See below	See below	See below	See below	See below	See below	See below
tricolored blackbird	<i>Agelaius tricolor</i>	ST, FS, SSC	1.7	0.0	0.0	0.0	0.0	0.1
grasshopper sparrow	<i>Ammodramus savannarum</i>	SSC	1.7	0.0	0.0	0.0	0.0	0.0
long-eared owl	<i>Asio otus</i>	SSC	1.7	<0.1	1.7	<0.1	0.5	0.1
black swift	<i>Cypseloides niger</i>	SSC	0.7	<0.1	1.0	0.0	0.4	0.1
white-tailed kite	<i>Elanus leucurus</i>	FS, SFP	1.7	<0.1	1.7	<0.1	0.0	0.1
willow flycatcher	<i>Empidonax traillii</i>	SE, FS	0.0	0.0	0.0	0.0	0.0	0.1
bald eagle	<i>Haliaeetus leucocephalus</i>	SE, FS, SFP	1.7	<0.1	1.7	<0.1	0.5	0.1
yellow-breasted chat	<i>Icteria virens</i>	SSC	0.0	0.0	0.0	0.0	0.0	0.1
loggerhead shrike	<i>Lanius ludovicianus</i>	SSC	1.7	<0.1	1.7	<0.1	0.5	0.1
yellow warbler	<i>Setophaga petechia</i>	SSC	0.0	<0.1	1.7	<0.1	0.5	0.1
California spotted owl	<i>Strix occidentalis occidentalis</i>	FPT, FS, SSC	0.0	0.0	1.7	0.0	0.5	0.1
Mammals	See below	See below	See below	See below	See below	See below	See below	See below

Common Name	Species Name	Status	Annual Grassland	Blue Oak Woodland	Blue Oak-Foothill Pine; Blue Oak Woodland	Mixed Chaparral	Montane Hardwood	Valley Foothill Riparian
pallid bat	<i>Antrozous pallidus</i>	FS, SSC	1.7	<0.1	1.7	<0.1	0.5	0.1
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	FS, SSC	1.7	<0.1	1.7	<0.1	0.5	0.1
spotted bat	<i>Euderma maculatum</i>	FS, SSC	1.7	<0.1	1.7	0.0	0.0	0.1
western mastiff bat	<i>Eumops perotis californicus</i>	FS, SSC	1.7	<0.1	1.7	<0.1	0.5	0.1
western red bat	<i>Lasiurus frantzii</i>	SSC	1.7	<0.1	1.7	<0.1	0.5	0.1
American badger	<i>Taxidea taxus</i>	SSC	1.7	<0.1	1.7	<0.1	0.5	0.1

Source: Caltrans 2025b, 2025c

Notes: FE = federal endangered, FS = federal sensitive (USFS and/or BLM sensitive); FT = federal threatened, FPT = federal proposed threatened, SE = state endangered, SFP = state fully protected, SFS = state fire sensitive, SSC = species of special concern (CDFW), ST = state threatened, SCE = state candidate endangered, SR = state rare

^a These totals are not additive across all special-status species because each habitat type may provide suitable habitat for more than one special-status species or subspecies. The total acreage of each habitat type affected listed in the top row represents the largest number in each column, not the sum of the numbers.

Table 5-8. Estimated SHOPP Impacts on Species of Mitigation Need and Co-occurring Species Habitat: Southern Cascades Ecoregion Section (acres)

Common Name	Species Name	Status	Barren	Bitterbrush	Eastside Pine	Sagebrush
Not applicable	Not applicable	Total^a	1.3	0.6	0.8	1.6
Species of Mitigation Need	See below	See below	See below	See below	See below	See below
foothill yellow-legged frog North Feather DPS	<i>Rana boylei</i>	FT, ST, FS	0.0	0.0	0.0	0.0
Sierra Nevada yellow-legged frog	<i>Rana sierrae</i>	FE, FT, FS	0.0	0.0	0.0	0.0
Cascades frog	<i>Rana cascadae</i>	SCE, SSC	0.0	0.0	0.0	0.0
northwestern pond turtle	<i>Actinemys marmorata</i>	FPT, FS, SSC	0.0	0.0	0.0	0.0
golden eagle	<i>Aquila chrysaetos</i>	FS, SFS, SFP	1.3	0.6	0.8	1.6
fisher	<i>Pekania pennanti</i>	FS, SSC	0.0	0.0	0.8	0.0
Invertebrates	See below	See below	See below	See below	See below	See below
western bumblebee	<i>Bombus occidentalis</i>	SCE, FS	1.3	0.6	0.8	1.6
Birds	See below	See below	See below	See below	See below	See below
long-eared owl	<i>Asio otus</i>	SSC	0.0	0.6	0.8	1.6
burrowing owl	<i>Athene cunicularia</i>	SCE, FS, SSC	1.3	0.6	0.0	1.4
northern harrier	<i>Circus hudsonius</i>	SSC	1.3	0.6	0.8	0.0
olive-sided flycatcher	<i>Contopus cooperi</i>	SSC	0.0	0.0	0.8	0.0
American peregrine falcon	<i>Falco peregrinus anatum</i>	FS	1.3	0.6	0.8	1.6
bald eagle	<i>Haliaeetus leucocephalus</i>	SE, FS, SFP	1.3	0.6	0.8	1.6
yellow warbler	<i>Setophaga petechia</i>	SSC	1.3	0.0	0.0	0.0

Common Name	Species Name	Status	Barren	Bitterbrush	Eastside Pine	Sagebrush
California spotted owl	<i>Strix occidentalis occidentalis</i>	FPT, FS, SSC	0.0	0.0	0.8	0.0
Mammals	See below	See below	See below	See below	See below	See below
pallid bat	<i>Antrozous pallidus</i>	FS, SSC	1.3	0.6	0.8	1.6
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	FS, SSC	1.3	0.6	0.8	1.6
spotted bat	<i>Euderma maculatum</i>	FS, SSC	0.0	0.6	0.8	1.6
western white-tailed jackrabbit	<i>Lepus townsendii townsendii</i>	SSC	0.0	0.0	0.8	1.6
American badger	<i>Taxidea taxus</i>	SSC	1.3	0.6	0.8	1.6

Source: Source: Caltrans 2025b, 2025c

Notes: FE = federal endangered, FS = federal sensitive (USFS and/or BLM sensitive); FT = federal threatened, FPT = federal proposed threatened, SE = state endangered, SFP = state fully protected, SFS = state fire sensitive, SSC = species of special concern (CDFW), ST = state threatened, SCE = state candidate endangered, SR = state rare

^a These totals are not additive across all special-status species because each habitat type may provide suitable habitat for more than one special-status species or subspecies. The total acreage of each habitat type affected listed in the top row represents the largest number in each column, not the sum of the numbers.

6. BENEFITING TRANSPORTATION PROJECT CONSIDERATIONS

Benefiting transportation projects have delivery schedules that would likely benefit from advance mitigation credits. Potentially benefiting transportation projects are identified in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*, for advance mitigation planning to guide advance mitigation project scoping. Actual benefiting transportation projects will be determined in the future. Caltrans and relevant natural resource regulatory agencies will evaluate the appropriateness of using advance mitigation credits on a case-by-case basis as part of each future transportation project's permitting and technical assistance processes.

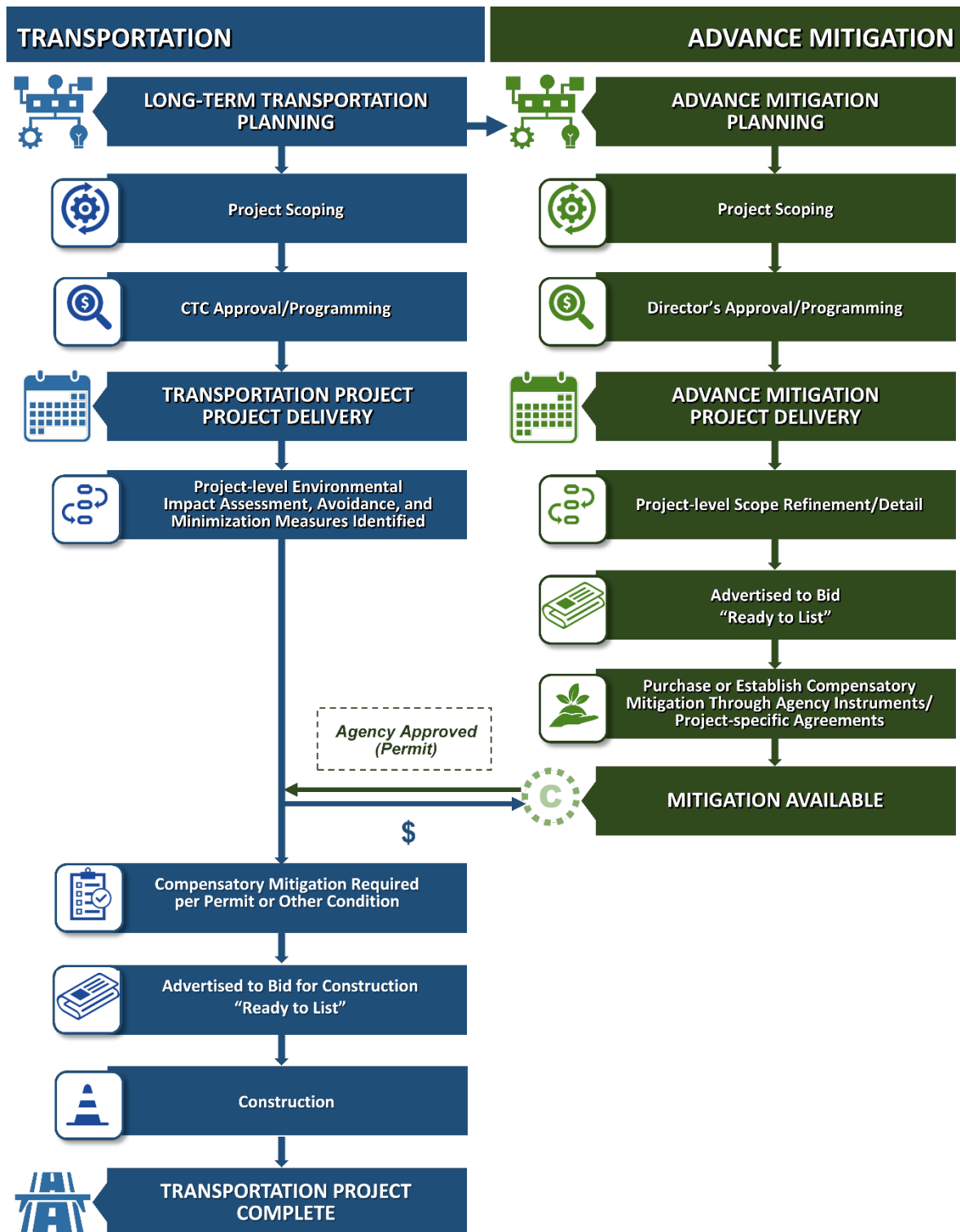
In this chapter, Caltrans summarizes the scheduling considerations and constraints of potential benefiting transportation projects in order to inform advance mitigation project schedules. A timeframe for the forecast advance mitigation needs is provided and analyzed. The potentially benefiting transportation projects' acceleration priorities are documented in this chapter.

6.1 Why Timing is Important

Broadly speaking, an advance mitigation project is an SHC § 800.6(a)-authorized activity that consists of (1) purchasing compensatory mitigation that has been previously approved by the natural resource regulatory agencies through a conservation bank, mitigation bank, HCP/NCCP, or in-lieu fee program; or (2) establishing and receiving approval of compensatory mitigation credits, such as establishing a mitigation bank in accordance with existing laws, policies, procedures, templates, and guidance (see Table 1-1). Elaborated upon in Chapter 9, *Assessment of Authorized Activities*, the time it takes to deliver each authorized activity varies; however, purchasing compensatory mitigation credits would likely take less time than establishing compensatory mitigation credits.

Caltrans transportation projects must have permits and compensatory mitigation lined up before advertising and selecting a contractor to bid upon and perform a transportation project (Figure 6-1). Therefore, for advance mitigation project scoping, the Caltrans District's nomination of a specific advance mitigation project type will be contingent, in part, on the anticipated timing of the potentially benefiting transportation project impacts. This is because, to benefit transportation projects as intended, the compensatory mitigation purchased or established through an advance mitigation project will need to be available to meet actual transportation project permit conditions established through an environmental study and document process undertaken prior to the transportation project incurring impacts (Figure 6-1).

Figure 6-1. Timing Advance Mitigation with Transportation Project Delivery



Key: CTC = California Transportation Commission

The date when a Caltrans potential transportation project is expected to be Ready to List¹ is an appropriate estimate for identifying when a Caltrans advance mitigation project will need to deliver compensatory mitigation to a potential benefiting transportation project. Approved credits must be in-hand before their offset value, with natural resource regulatory agency approval, may be applied to a transportation project.

6.2 Patterns of Estimated Potential Impacts

Given that the planning horizon for this assessment covers the 2024/25 through 2033/34 fiscal years, and that some of the transportation projects may have already gone to bid, it is necessary to consider which transportation projects:

- would need to acquire compensatory mitigation before the AMP can deliver, and therefore the AMP cannot feasibly supply compensatory mitigation credits on the required schedule;
- would need compensatory mitigation delivered in a nearer timeframe, which may favor seeking already existing credits as an AMP advance mitigation project scope; or
- would need compensatory mitigation later and, if so, whether time exists to establish new compensatory mitigation.

Initial estimated impact patterns are based on the SHOPP transportation project information provided in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*.

- As shown in Tables 6-1 through 6-3 and on Figures 6-2 through 6-4, when the SHOPP transportation projects identified previously have their aquatic resource impacts examined relative to their expected advertising date, the compensatory mitigation needs are spread throughout the 10-year planning period, as described below:
 - Compensatory mitigation needs within the East Branch North Fork sub-basin are focused on riparian habitat in fiscal years 2028/29 and 2032/33 with lesser impacts on non-wetland waters in fiscal years 2028/29 and 2032/33 (Table 6-1; Figure 6-2).
 - Compensatory mitigation needs within the Honey-Eagle Lakes sub-basin are focused on riparian habitat in fiscal year 2027/28 with lesser impacts on non-wetland waters in fiscal years 2026/27, 2027/28, 2028/29; and minor impacts on wetlands in fiscal years 2026/27, 2027/28, 2028/29, and 2032/33 and on non-wetland waters in fiscal years 2029/30 and 2032/33 (Table 6-2; Figure 6-3).

¹ Ready to List is a named milestone within the Caltrans project delivery process. It is the point when a complete package is ready for contractors to bid on and a transportation project has been approved to be advertised to bid for construction.

- Compensatory mitigation needs within the Middle Fork Feather sub-basin are focused on riparian habitat in fiscal year 2025/26 with lesser impacts on riparian habitat in fiscal years 2026/27, 2028/29, and 2030/31, on wetlands and non-wetland waters in fiscal year 2025/26, and minor impacts on wetlands in fiscal year 2026/27 and on non-wetland waters in fiscal years 2026/27, 2028/29, and 2030/31 (Table 6-3; Figure 6-4).
- As shown in Tables 6-4 through 6-8 and on Figures 6-5 through 6-9, when the SHOPP transportation projects identified previously have their forecast terrestrial species of mitigation need impacts examined relative to their expected advertising date, the compensatory mitigation needs are spread throughout the 10-year planning period, as described below:
 - There are no forecasted compensatory mitigation needs within the Modoc Plateau Ecoregion Section within the GAI.
 - Compensatory mitigation needs within the Mono Ecoregion Section are concentrated on golden eagle in fiscal year 2026/27 with minor impacts to northwestern pond turtle in fiscal year 2026/27 (Table 6-4; Figure 6-5).
 - Compensatory mitigation needs within the Northwestern Basin and Range Ecoregion Section are concentrated on golden eagle and northwestern pond turtle in fiscal years 2026/27 and 2028/29 with minor impacts to golden eagle and northwestern pond turtle in fiscal year 2029/30 and to golden eagle in fiscal year 2032/33 (Table 6-5; Figure 6-6).
 - Compensatory mitigation needs within the Sierra Nevada Ecoregion Section are concentrated on golden eagle in fiscal years 2025/26, 2026/27, and 2027/28, foothill yellow-legged frog North Feather DPS, northwestern pond turtle, and fisher in fiscal year 2025/26, and fisher in fiscal year 2027/28; with lesser impacts to golden eagle in fiscal years 2028/29 and 2031/32, foothill yellow-legged frog North Feather DPS in fiscal years 2026/27, 2027/28, 2028/29, and 2031/32, Sierra Nevada yellow-legged frog in fiscal years 2026/27, 2027/28, and 2031/32, northwestern pond turtle in fiscal years 2026/27, 2027/28, and 2031/32, and fisher in fiscal years 2026/27, 2028/29, and 2031/32 (Table 6-6; Figure 6-7).
 - Compensatory mitigation needs within the Sierra Nevada Foothills Ecoregion Section are concentrated on foothill yellow-legged frog North Feather DPS, northwestern pond turtle, and golden eagle in fiscal year 2030/31 (Table 6-7; Figure 6-8).
 - Compensatory mitigation needs within the Southern Cascades Ecoregion Section are concentrated on golden eagle in fiscal year 2027/28 with lesser impacts to fisher in fiscal year 2027/28 (Table 6-8; Figure 6-9).

Spatially, these transportation projects are distributed primarily in the western, central, southern, and southeastern parts of the GAI (Figure 6-10).

Table 6-1. East Branch North Fork Feather Sub-basin: Estimated Impacts on Aquatic Resources, by Transportation Project Delivery Year

Expected Advertisement Year	Fish: Number of Transportation Projects	Fish: Estimated Potential Impacts (acres)	Wetlands: Number of Transportation Projects	Wetlands: Estimated Potential Impacts (acres)	Non-Wetland Waters: Number of Transportation Projects	Non-Wetland Waters: Estimated Potential Impacts (acres)	Riparian: Number of Transportation Projects	Riparian: Estimated Potential Impacts (acres)
2024/25	0	0.0	0	0.0	0	0.0	0	0.0
2025/26	0	0.0	0	0.0	0	0.0	0	0.0
2026/27	0	0.0	0	0.0	0	0.0	0	0.0
2027/28	0	0.0	0	0.0	0	0.0	0	0.0
2028/29	0	0.0	0	0.0	1	0.1	2	1.2
2029/30	0	0.0	0	0.0	0	0.0	0	0.0
2030/31	0	0.0	0	0.0	0	0.0	0	0.0
2031/32	0	0.0	0	0.0	0	0.0	0	0.0
2032/33	0	0.0	0	0.0	1	<0.1	1	0.4
2033/34	0	0.0	0	0.0	0	0.0	0	0.0
Total ^a	0	0.0	0	0.0	2	0.1	3	1.5

^a Totals may be different due to rounding.

Figure 6-2. East Branch North Fork Feather Sub-basin: Estimated Impacts on Aquatic Resources, by Transportation Project Delivery Year

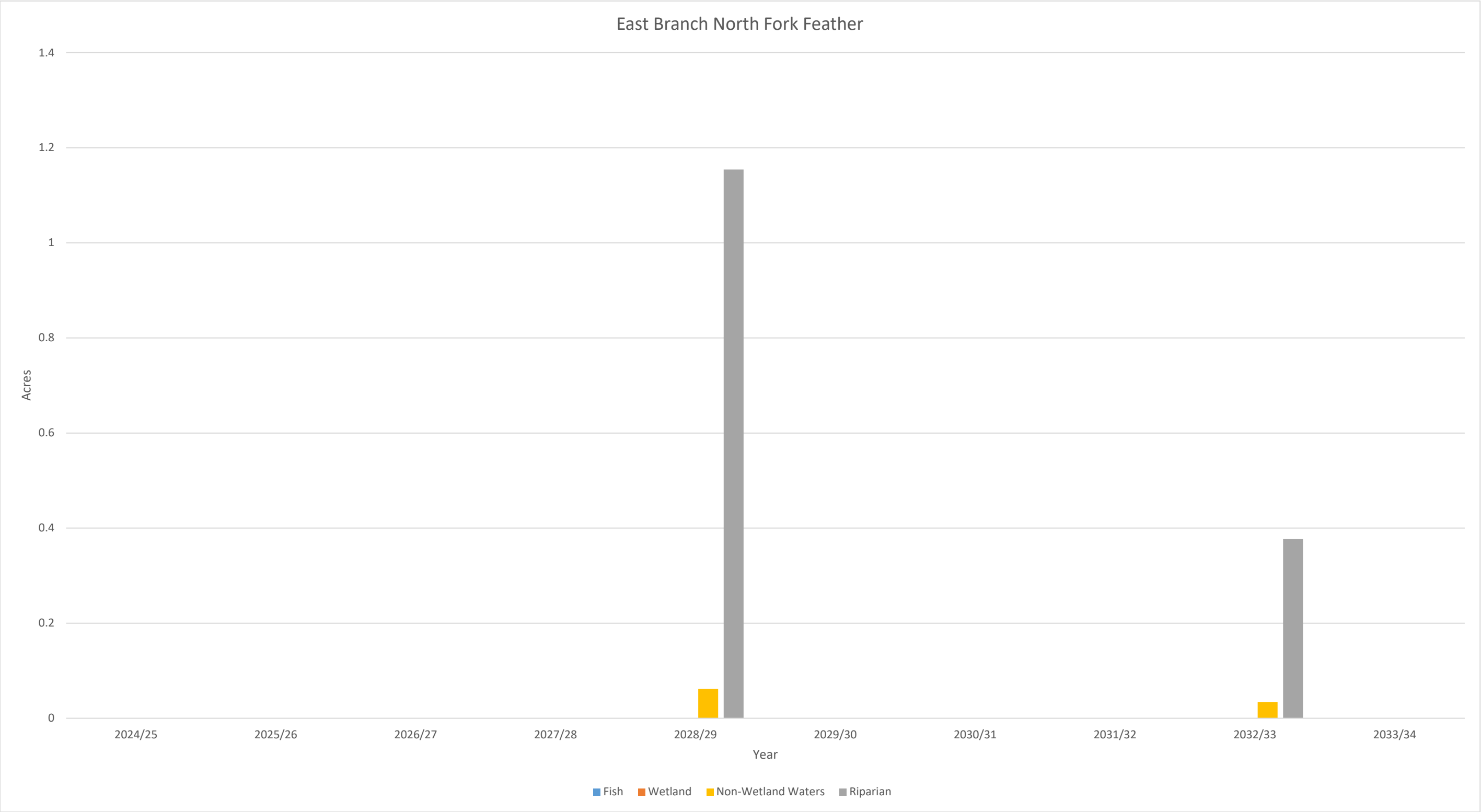


Table 6-2. Honey-Eagle Lakes Sub-basin: Estimated Impacts on Aquatic Resources, by Transportation Project Delivery Year

Expected Advertisement Year	Fish: Number of Transportation Projects	Fish: Estimated Potential Impacts (acres)	Wetlands: Number of Transportation Projects	Wetlands: Estimated Potential Impacts (acres)	Non-Wetland Waters: Number of Transportation Projects	Non-Wetland Waters: Estimated Potential Impacts (acres)	Riparian: Number of Transportation Projects	Riparian: Estimated Potential Impacts (acres)
2024/25	0	0.0	0	0.0	0	0.0	0	0.0
2025/26	0	0.0	0	0.0	0	0.0	0	0.0
2026/27	0	0.0	1	<0.1	1	0.3	1	0.1
2027/28	0	0.0	1	<0.1	1	0.2	1	1.0
2028/29	0	0.0	1	0.1	2	0.1	0	0.0
2029/30	0	0.0	0	0.0	1	<0.1	0	0.0
2030/31	0	0.0	0	0.0	0	0.0	0	0.0
2031/32	0	0.0	0	0.0	0	0.0	0	0.0
2032/33	0	0.0	1	<0.1	1	<0.1	0	0.0
2033/34	0	0.0	0	0.0	0	0.0	0	0.0
Total ^a	0	0.0	4	0.2	6	0.7	2	1.1

^a Totals may be different due to rounding.

Figure 6-3. Honey-Eagle Lakes Sub-basin: Estimated Impacts on Aquatic Resources, by Transportation Project Delivery Year

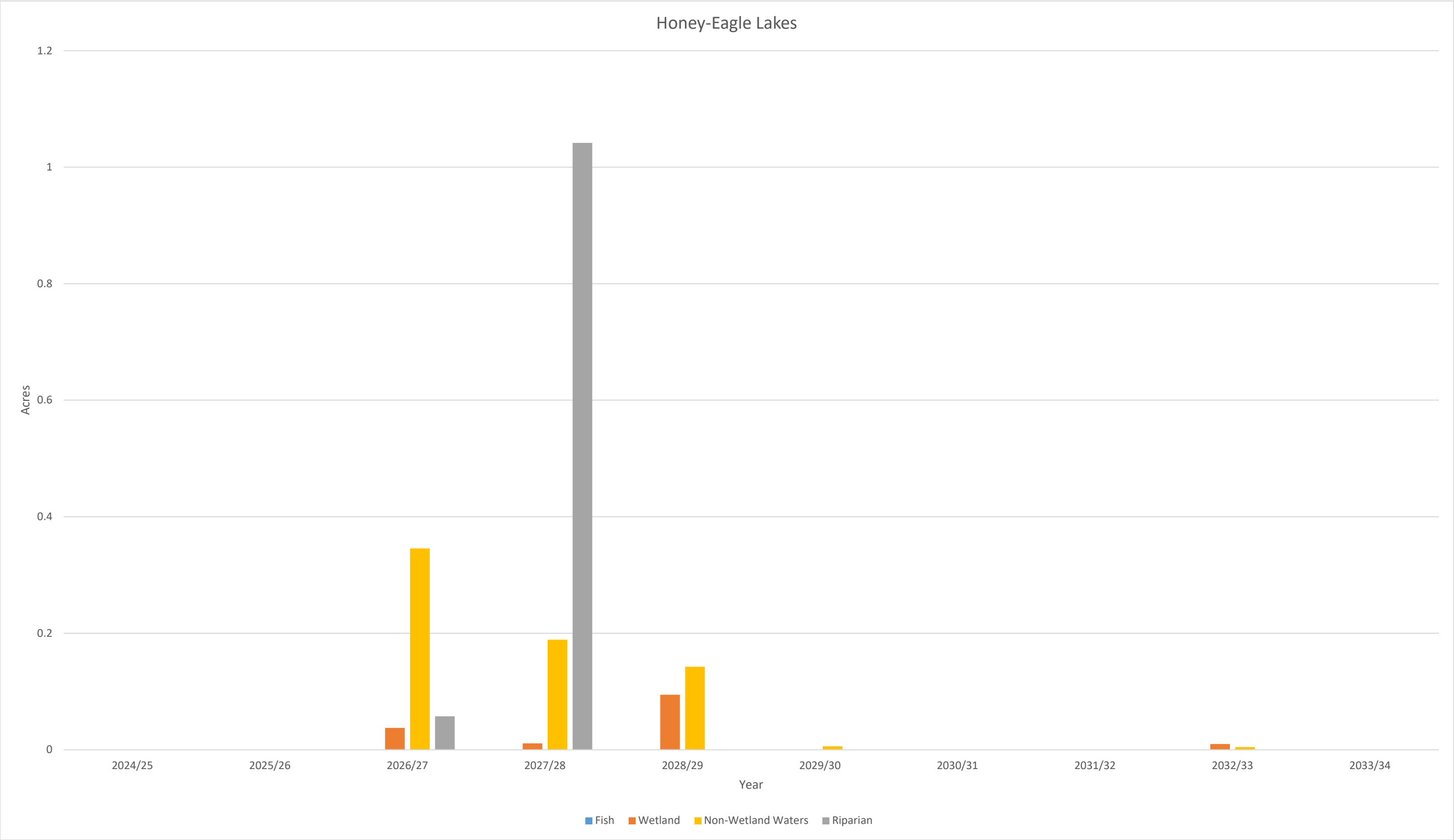


Table 6-3. Middle Fork Feather Sub-basin: Estimated Impacts on Aquatic Resources, by Transportation Project Delivery Year

Expected Advertisement Year	Fish: Number of Transportation Projects	Fish: Estimated Potential Impacts (acres)	Wetland: Number of Transportation Projects	Wetland: Estimated Potential Impacts (acres)	Non-Wetland Waters: Number of Transportation Projects	Non-Wetland Waters: Estimated Potential Impacts (acres)	Riparian : Number of Transportation Projects	Riparian Habitat: Estimated Potential Impacts (acres)
2024/25	0	0.0	0	0.0	0	0.0	0	0.0
2025/26	0	0.0	1	1.0	1	0.4	1	4.6
2026/27	0	0.0	1	<0.1	1	<0.1	1	0.5
2027/28	0	0.0	0	0.0	0	0.0	0	0.0
2028/29	0	0.0	0	0.0	1	0.1	1	0.8
2029/30	0	0.0	0	0.0	0	0.0	0	0.0
2030/31	0	0.0	0	0.0	1	0.1	1	0.8
2031/32	0	0.0	0	0.0	0	0.0	0	0.0
2032/33	0	0.0	0	0.0	0	0.0	0	0.0
2033/34	0	0.0	0	0.0	0	0.0	0	0.0
Total ^a	0	0.0	2	1.0	4	0.7	4	6.7

^a Totals may be different due to rounding.

Figure 6-4. Middle Fork Feather Sub-basin: Estimated Impacts on Aquatic Resources, by Transportation Project Delivery Year

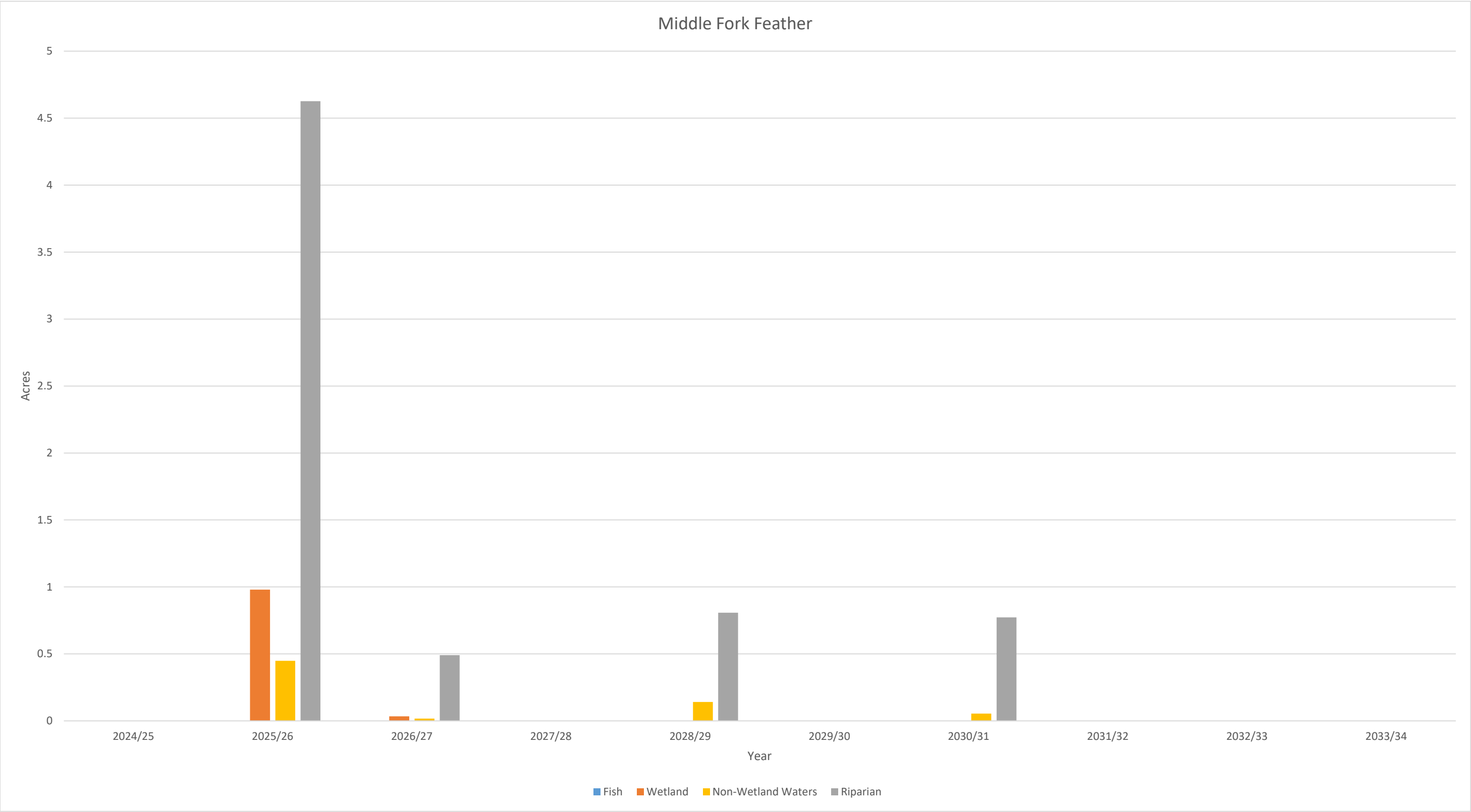


Table 6-4. Mono Ecoregion Section: Estimated Impacts on Terrestrial Species of Mitigation Need within the GAI, by Transportation Project Delivery Year

Expected Advertisement Year	Cascades Frog: Number of Transportation Projects	Cascades Frog: Estimated Potential Impacts (acres)	Fisher: Number of Transportation Projects	Fisher: Estimated Potential Impacts (acres)	Foothill Yellow- legged Frog North Feather DPS: Number of Transportation Projects	Foothill Yellow-legged Frog North Feather DPS: Estimated Potential Impacts (acres)	Golden Eagle: Number of Transportation Projects	Golden Eagle: Estimated Potential Impacts (acres)	Northwestern Pond Turtle: Number of Transportation Projects	Northwestern Pond Turtle: Estimated Potential Impacts (acres)	Sierra Nevada Yellow-legged Frog: Number of Transportation Projects	Sierra Nevada Yellow-legged Frog: Estimated Potential Impacts (acres)
2024/25	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2025/26	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2026/27	0	0.0	0	0.0	0	0.0	2	3.4	1	<0.1	0	0.0
2027/28	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2028/29	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2029/30	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2030/31	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2031/32	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2032/33	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2033/34	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total ^a	0	0.0	0	0.0	0	0.0	2	3.4	1	<0.1	0	0.0

^a Total may be different due to rounding.

Figure 6-5. Mono Ecoregion Section: Estimated Impacts on Terrestrial Species of Mitigation Need within the GAI, by Transportation Project Delivery Year

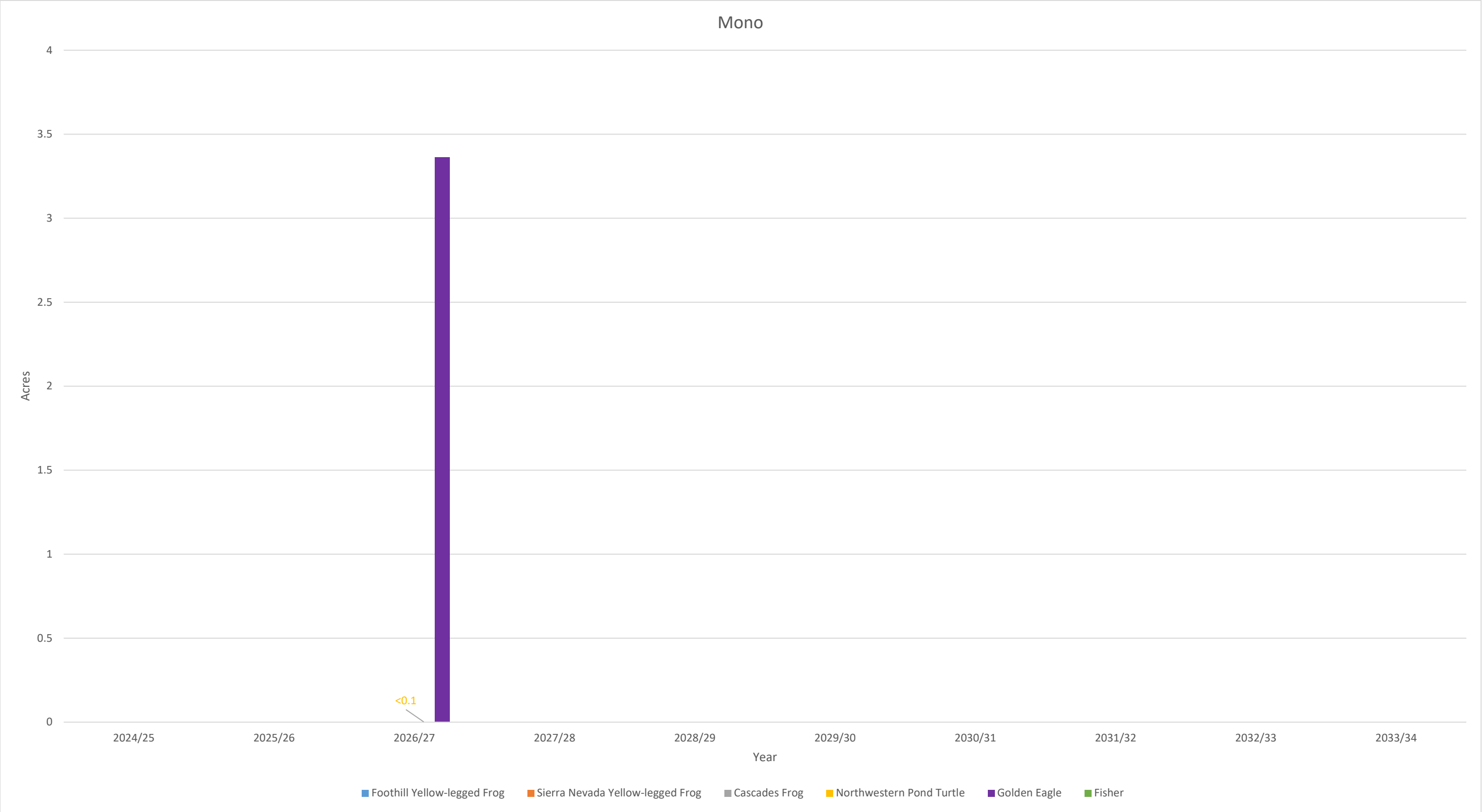


Table 6-5. Northwestern Basin and Range Ecoregion Section: Estimated Impacts on Terrestrial Species of Mitigation Need within the GAI, by Transportation Project Delivery Year

Expected Advertisement Year	Cascades Frog: Number of Transportation Projects	Cascades Frog: Estimated Potential Impacts (acres)	Fisher: Number of Transportation Projects	Fisher: Estimated Potential Impacts (acres)	Foothill Yellow-legged Frog North Feather DPS: Number of Transportation Projects	Foothill Yellow-legged Frog North Feather DPS: Estimated Potential Impacts (acres)	Golden Eagle: Number of Transportation Projects	Golden Eagle: Estimated Potential Impacts (acres)	Northwestern Pond Turtle: Number of Transportation Projects	Northwestern Pond Turtle: Estimated Potential Impacts (acres)	Sierra Nevada Yellow-legged Frog: Number of Transportation Projects	Sierra Nevada Yellow-legged Frog: Estimated Potential Impacts (acres)
2024/25	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2025/26	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2026/27	0	0.0	0	0.0	0	0.0	1	1.4	1	0.9	0	0.0
2027/28	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2028/29	0	0.0	0	0.0	0	0.0	2	4.0	2	2.1	0	0.0
2029/30	0	0.0	0	0.0	0	0.0	1	<0.1	1	<0.1	0	0.0
2030/31	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2031/32	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2032/33	0	0.0	0	0.0	0	0.0	1	0.1	0	0.0	0	0.0
2033/34	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total ^a	0	0.0	0	0.0	0	0.0	5	5.5	4	3.0	0	0.0

^a Total may be different due to rounding.

Figure 6-6. Northwestern Basin and Range Ecoregion Section: Estimated Impacts on Terrestrial Species of Mitigation Need within the GAI, by Transportation Project Delivery Year

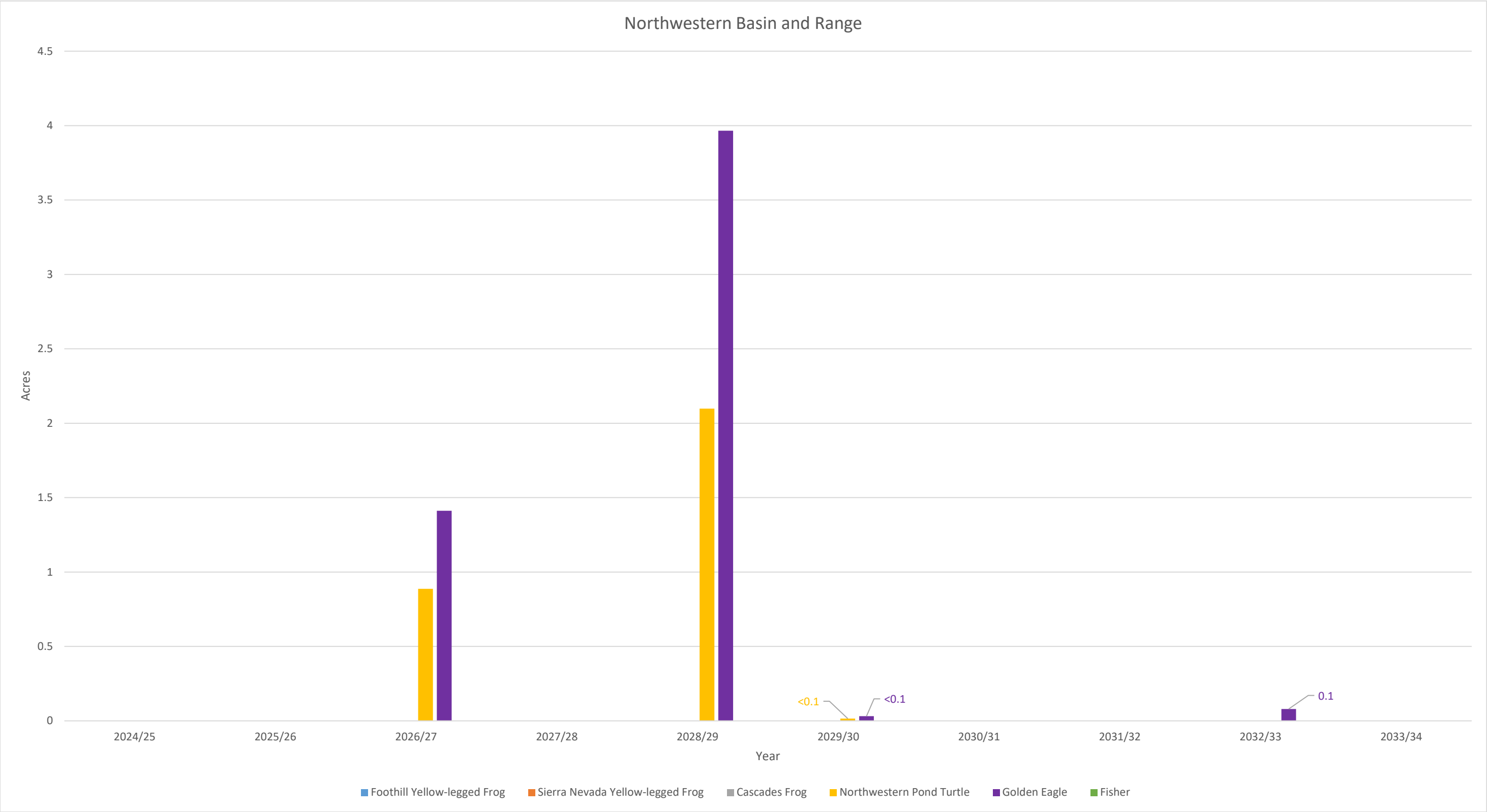


Table 6-6. Sierra Nevada Ecoregion Section: Estimated Impacts on Terrestrial Species of Mitigation Need within the GAI, by Transportation Project Delivery Year

Expected Advertisement Year	Cascades Frog: Number of Transportation Projects	Cascades Frog: Estimated Potential Impacts (acres)	Fisher: Number of Transportation Projects	Fisher: Estimated Potential Impacts (acres)	Foothill Yellow- legged Frog North Feather DPS: Number of Transportation Projects	Foothill Yellow- legged Frog North Feather DPS: Estimated Potential Impacts (acres)	Golden Eagle: Number of Transportation Projects	Golden Eagle: Estimated Potential Impacts (acres)	Northwestern Pond Turtle: Number of Transportation Projects	Northwestern Pond Turtle: Estimated Potential Impacts (acres)	Sierra Nevada Yellow-legged Frog: Number of Transportation Projects	Sierra Nevada Yellow-legged Frog: Estimated Potential Impacts (acres)
2024/25	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2025/26	0	0.0	1	2.9	1	5.3	1	6.3	1	5.5	0	0.0
2026/27	0	0.0	1	0.8	1	0.4	2	3.2	2	1.2	1	0.3
2027/28	0	0.0	2	2.9	1	0.4	3	9.4	1	0.4	2	1.2
2028/29	0	0.0	1	0.7	1	0.7	1	1.0	1	0.7	0	0.0
2029/30	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2030/31	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2031/32	0	0.0	1	0.6	1	0.6	1	0.9	1	0.7	1	0.6
2032/33	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2033/34	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total ^a	0	0.0	6	7.8	5	7.5	8	20.7	6	8.5	4	2.1

^a Total may be different due to rounding.

Figure 6-7. Sierra Nevada Ecoregion Section: Estimated Impacts on Terrestrial Species of Mitigation Need within the GAI, by Transportation Project Delivery Year

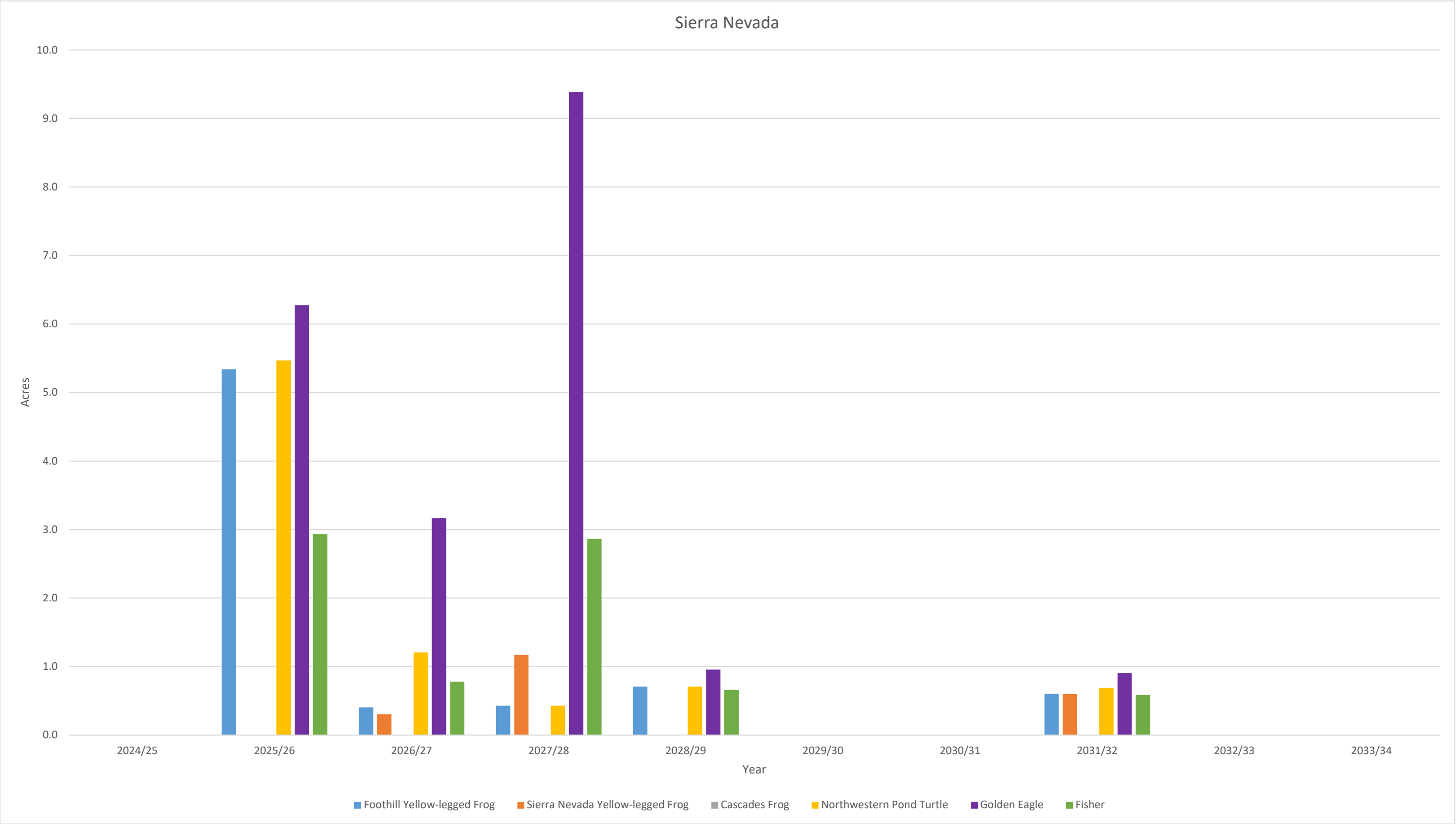


Table 6-7. Sierra Nevada Foothills Ecoregion Section: Estimated Impacts on Terrestrial Species of Mitigation Need within the GAI, by Transportation Project Delivery Year

Expected Advertisement Year	Cascades Frog: Number of Transportation Projects	Cascades Frog: Estimated Potential Impacts (acres)	Fisher: Number of Transportation Projects	Fisher: Estimated Potential Impacts (acres)	Foothill Yellow- legged Frog North Feather DPS: Number of Transportation Projects	Foothill Yellow- legged Frog North Feather DPS: Estimated Potential Impacts (acres)	Golden Eagle: Number of Transportation Projects	Golden Eagle: Estimated Potential Impacts (acres)	Northwestern Pond Turtle: Number of Transportation Projects	Northwestern Pond Turtle: Estimated Potential Impacts (acres)	Sierra Nevada Yellow-legged Frog: Number of Transportation Projects	Sierra Nevada Yellow-legged Frog: Estimated Potential Impacts (acres)
2024/25	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2025/26	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2026/27	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2027/28	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2028/29	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2029/30	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2030/31	0	0.0	0	0.0	1	4.0	1	4.1	1	4.1	0	0.0
2031/32	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2032/33	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2033/34	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total ^a	0	0.0	0	0.0	1	4.0	1	4.1	1	4.1	0	0.0

^a Total may be different due to rounding.

Figure 6-8. Sierra Nevada Foothills Ecoregion Section: Estimated Impacts on Terrestrial Species of Mitigation Need within the GAI, by Transportation Project Delivery Year

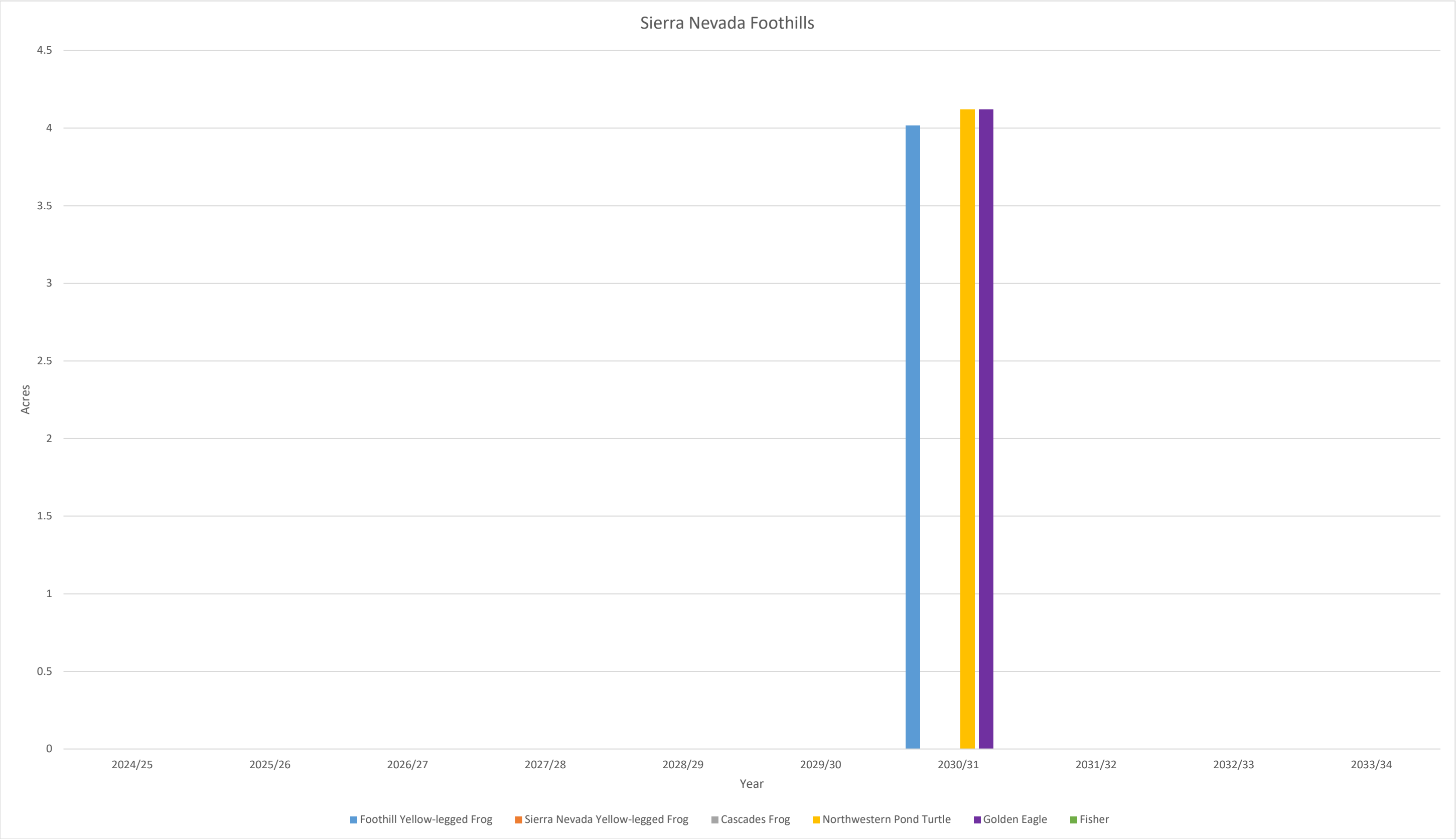
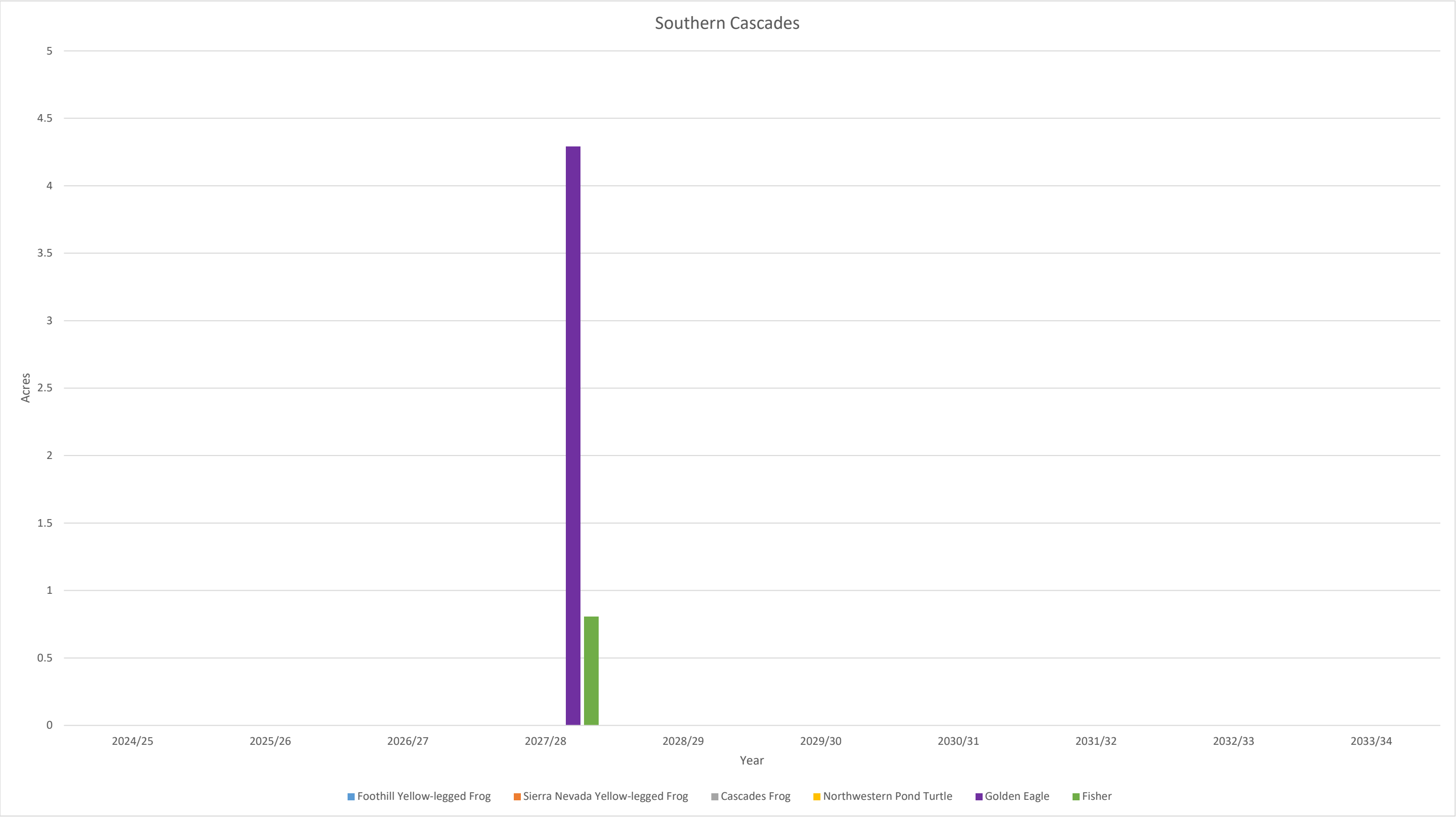


Table 6-8. Southern Cascades Ecoregion Section: Estimated Impacts on Terrestrial Species of Mitigation Need within the GAI, by Transportation Project Delivery Year

Expected Advertisement Year	Cascades Frog: Number of Transportation Projects	Cascades Frog: Estimated Potential Impacts (acres)	Fisher: Number of Transportation Projects	Fisher: Estimated Potential Impacts (acres)	Foothills Yellow-legged Frog: Number of Transportation Projects	Foothills Yellow-legged Frog: Estimated Potential Impacts (acres)	Golden Eagle: Number of Transportation Projects	Golden Eagle: Estimated Potential Impacts (acres)	Northwestern Pond Turtle: Number of Transportation Projects	Northwestern Pond Turtle: Estimated Potential Impacts (acres)	Sierra Nevada Yellow-legged Frog: Number of Transportation Projects	Sierra Nevada Yellow-legged Frog: Estimated Potential Impacts (acres)
2024/25	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2025/26	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2026/27	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2027/28	0	0.0	1	0.8	0	0.0	1	4.3	0	0.0	0	0.0
2028/29	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2029/30	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2030/31	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2031/32	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2032/33	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2033/34	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total ^a	0	0.0	1	0.8	0	0.0	1	4.3	0	0.0	0	0.0

^a Total may be different due to rounding.

Figure 6-9. Southern Cascades Ecoregion Section: Estimated Impacts on Terrestrial Species of Mitigation Need within the GAI, by Transportation Project Delivery Year



6.3 Acceleration Priorities

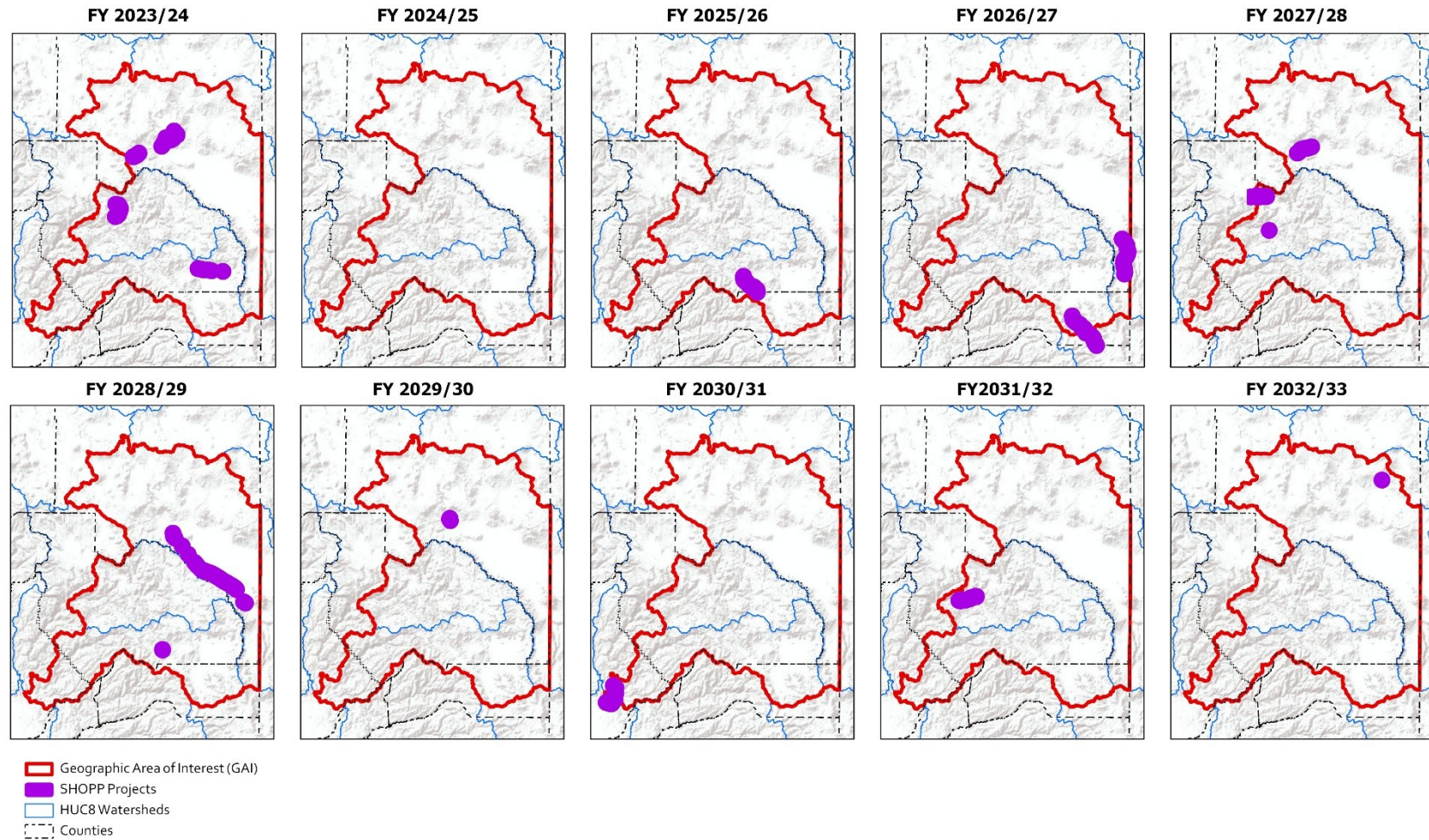
At the time of an advance mitigation project proposal, Caltrans' transportation project sequence prioritization will reflect the updated information provided in the most current SHOPP Ten-Year Book and will be based on meeting the Caltrans District's needs and performance targets while financially balancing the Caltrans District's and AMA accounts.

- As shown in Tables 6-1 through 6-3 and on Figures 6-2 through 6-4, which are based on Quarter 1 of the Ten-Year Book, most impacts on aquatic resources within the GAI are concentrated in fiscal years 2025/26, 2027/28, and 2028/29 with fewer impacts during the remainder of the 10-year planning period evaluated in the SAMNA and no impacts in fiscal years 2023/24 through 2032/33.
- As shown in Tables 6-4 through 6-8 and on Figures 6-5 through 6-9, most impacts on terrestrial species of mitigation need within the GAI are concentrated in fiscal years 2025/26, 2027/28, and 2030/31 with fewer impacts during the remainder of the 10-year planning period evaluated in the SAMNA and no impacts in fiscal year 2032/33.
- Most of the projects that are anticipated to advertise in or before fiscal year 2025/26 have already required specific project mitigation when they obtained their permits in fiscal year 2024/2025 (July 1, 2024, to June 30, 2025) (Figure 6-5).

Therefore, most transportation projects that could benefit from an advance mitigation project initiated post-RAMNA would need to be advertised in or after fiscal year 2025/2026.

Caltrans District 2's transportation project priorities are expressed in the State Highway System Management Plan, which identifies transportation projects that generally fall in the second 5 years of the 10-year project portfolio (Caltrans 2023). These priorities can change, however. Transportation planning is dynamic, and delivery schedules associated with many transportation projects provided in the 2023/2024 to 2032/2033 (Quarter 1) SHOPP Ten-Year Book, which informed this RAMNA, may change. Prior to proposing advance mitigation projects, Caltrans District 2 will consult the most recent State Highway System Management Plan to obtain an up-to-date estimate of the timing of transportation projects that may need credits established or purchased through the AMA.

Figure 6-10. Location of SHOPP Estimated Impacts, by Transportation Project Delivery Year, Ten-Year Book



Sources: Esri, USGS, NOAA, USGS

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7. WILDLIFE RESOURCES CONSERVATION GOALS AND OBJECTIVES

Caltrans' primary objective for natural resources is to avoid and minimize all impacts on special-status species from Caltrans transportation projects within the GAI. However, when avoidance and minimization are insufficient or infeasible, compensatory mitigation may be used to offset impacts. Credits or values established through SHC § 800.6(a)-authorized advance mitigation projects offer the unique opportunity to consolidate needed compensatory mitigation. This consolidation helps to provide strategically placed and environmentally sound compensatory mitigation options, including enhanced, restored, or created habitat and an improved environmental outcome that may not be available through the usual transportation project-by-project approach to compensatory mitigation.

Caltrans seeks to align its advance mitigation projects with natural resource regulatory agencies' goals and objectives, thus contributing to an improved environmental outcome within the GAI. With this in mind, this chapter presents Caltrans' understanding of natural resource regulatory agencies' regional conservation goals and objectives and how they could be applied to advance mitigation projects undertaken within the GAI to offset forecast impacts on natural resources from SHOPP and STIP-eligible transportation projects.

The goals and objectives assembled for this chapter are intended to guide Caltrans' advance mitigation project scoping decisions toward those choices that provide the greatest environmental benefit available through the advance mitigation planning and delivery processes. Such projects undertaken by Caltrans should contribute to natural resource protection and enhancement and should yield compensatory mitigation usable by future transportation projects, as specified in SHC § 800.¹ Compensatory mitigation usable by future transportation projects should be expressed in standard units or terms recognized by the natural resource regulatory agencies.

Information presented in this chapter is for advance mitigation project scoping purposes only. Transportation projects must still go through environmental and permitting processes and must demonstrate avoidance and minimization efforts prior to compensation.

7.1 Approach

For the purposes of this RAMNA, conservation goals and objectives are a broad set of regional natural resource sustainability goals and objectives that are consistent with both regulatory requirements and conservation science.

¹ Pursuant to SHC § 800.9, to the maximum extent practicable, the information required for an RCIS is presented in this RAMNA. During CDFW's review of an RCIS, CDFW determines whether the goals and objectives presented in the RCIS are consistent with FGC § 1852, subdivision (c)(8).

To determine the natural resource conservation goals and objectives applicable to the GAI:

- First, in Section 7.2, Caltrans identifies the natural resource regulatory agencies with the authority to condition transportation projects with natural resource-related compensatory mitigation within the GAI.
- Then, in Section 7.3, Caltrans summarizes the life history information for the six wildlife species of mitigation need chosen to focus the assessment, as identified in Section 1.5.
- Next, in Sections 7.4, 7.5, and 7.6, for the species of mitigation need, Caltrans identifies:
 - Federal and state binding and non-binding regional conservation and land management plans;
 - Current and projected pressures and stressors for which there is a potential transportation nexus;
 - Opportunities to enhance the conservation benefits through advance mitigation projects; and
 - Opportunities to benefit other special-status species as well as native plant and wildlife species through advance mitigation.
- Last, Caltrans analyzes the aforementioned information in relation to the transportation-related activities that could affect the species of mitigation need, and the potential range of compensatory mitigation that could satisfy a future transportation project condition associated with the activities.

The result of this analysis is a framework of conservation goals and objectives for use in advance mitigation project scoping (Section 7.7).

7.2 Natural Resource Regulatory Agencies with Wildlife Resources Oversight

Table 7-1 lists the natural resource regulatory agencies with the authority to condition transportation projects delivered within the GAI with wildlife resource-related compensatory mitigation. The aquatic resources used by wildlife, such as streams, wetlands, and non-wetland waters, are also regulated by other natural resource regulatory agencies. This RAMNA identifies goals and objectives for aquatic resources, including threatened and endangered fish species, separately in Chapter 8, *Aquatic Resources Conservation Goals and Objectives*.

Table 7-1. Natural Resource Regulatory Agencies with the Authority to Approve Natural Resource Compensatory Mitigation Credits (or Values)

Agency ^a	Summary
CDFW	CDFW oversees the conservation, protection, and management of fish, wildlife, native plants, and the habitats necessary for biologically sustainable populations of those species in California. CDFW's Environmental Review and Permitting, Conservation and Mitigation Banking, NCCP, and RCIS programs implement sections of the FGC, Title 14 of the California Code of Regulations, and Public Resources Code § 21000 et seq. These programs help fulfill CDFW's mission to manage California's diverse fish, wildlife, and plant resources, and the habitats upon which they depend for their ecological values. CDFW issues permits and agreements to project proponents under its authorities including incidental take permits and consistency determinations under the CESA, Lake and Streambed Alteration Agreements, approvals of conservation and mitigation banks, approvals of MCAs and RCISs, and NCCP permits. NCCP permits can authorize the take of fully protected species.
FWS	FWS has jurisdiction over a broad range of fish and wildlife resources. FWS authorities related to these resources are codified under multiple statutes, including, but not limited to, the FESA. Most statutes give FWS an advisory role in mitigation. However, if a non-federal entity applies for an incidental take permit for a listed animal species, Section 10(a)(1)(b) of the FESA requires that the impact of any incidental take be minimized and mitigated to the maximum extent practicable. Section 7(a)(1) of the FESA also requires all federal agencies to use their authorities to conserve listed species. Many federal agencies have developed programs to include mitigation as part of the Section 7(a)(2) consultation on their proposed actions to partially fulfill this Congressional mandate. In May 2023, FWS issued a Mitigation Policy that builds upon the guidance in the 1981 Mitigation Policy for recommendations and requirements on mitigating adverse impacts of land and water developments on fish and wildlife, and a FESA Compensatory Mitigation Policy that adopts mitigation principles established in the FWS Mitigation Policy, establishes compensatory mitigation standards, and provides guidance for the application of compensatory mitigation through implementation of the FESA. Conservation banking can assist federal and non-federal participants in the Sections 7 and 10 processes. In May 2003, FWS issued comprehensive federal guidelines designed to promote conservation banks as a tool for mitigating adverse impacts on species; the guidelines foster national consistency by standardizing establishment and operational criteria. Many activities conducted under Sections 7 and 10 of the FESA result in adverse effects on listed species, including habitat loss or modification. One way to offset these types of impacts is to include in the project design a plan that involves the restoration and/or protection of similar habitat on and/or off site. Purchasing credits in conservation banks is one method of protecting habitat on or off site.

^a In addition to the agencies listed above, the RWQCBs may exert jurisdiction over species to the extent that cold freshwater habitat; flood peak attenuation/flood water storage; freshwater replenishment; groundwater recharge; inland saline water habitat; migration of aquatic organisms; spawning, reproduction, and/or early development; warm freshwater habitat; water quality enhancement; and wildlife habitat beneficial uses exist and would be affected by a project.

7.3 Species of Mitigation Need

An overview of wildlife resources is provided in Chapter 2, *Environmental Setting*. As described in Section 1.5, six species of mitigation need were selected to focus the planning effort and improve the probability that advance mitigation projects undertaken by Caltrans will yield credits (or similar) that will be usable during the planning period. To this end, the terrestrial species of mitigation need identified for the GAI are Cascades

frog, fisher, foothill yellow-legged frog North Feather DPS, golden eagle, northwestern pond turtle, and Sierra Nevada yellow-legged frog. These species are briefly described below.

7.3.1. Cascades Frog

Cascades frog is a state species of special concern and candidate for state listing that is found in montane and subalpine habitats. The species occurs on slopes of the Cascades Mountains from Washington along the Canadian border south through California to the southern slope of Lassen Peak (FWS 2022a). Cascades frog is primarily aquatic and inhabits perennial and ephemeral features including lakes, ponds, wet meadows, and streams (FWS 2022a). Breeding habitats must remain inundated throughout tadpole development and metamorphosis. Aquatic features without fish are ideal for breeding to avoid predation. Cascades frogs exhibit sexual dimorphism, with females typically being larger than males. Following the breeding season, Cascades frogs are typically found along shorelines or on emergent rocks and logs of lakes, wet meadows, and streams. The species primarily utilizes streams as migration corridors but may also move over land when the landscape is still wet and soil moisture is high. The species overwinters within aerobic sediments of water bodies.

7.3.1. Fisher

Fishers that occur within the GAI are part of the Northern California-Southern Oregon DPS. This DPS does not currently have any special-status designation in California or on the federal level. Fishers within the GAI are further divided into the Northern Sierra Nevada subpopulation. Fishers are medium-sized mammals with light brown to black fur and white chest patches (FWS 2025d). The species is typically found in forested areas with large tree canopy cover. Fishers establish large home ranges that encompass all their resource needs. Male home ranges average 17.9 square miles and female home ranges average 6.6 square miles (FWS 2025d). The breeding season occurs from February through April, during which males may expand their home range. Female denning for birth typically occurs between mid-March and mid-April of the year following copulation (FWS 2025d). Dens are established in large-diameter trees with cavities in mature conifer and hardwood forests with complex understories at elevations ranging from 0 to 8,530 feet above mean sea level (FWS 2025d). Newborn kits are dependent on their mothers for the first 10 months of life. Fishers are opportunistic predators who feed on small mammals such as squirrels, mice, and hares.

7.3.2. Foothill Yellow-legged Frog North Feather DPS

Foothill yellow-legged frog North Feather DPS is a stream-obligate amphibian species that occurs from sea level to approximately 5,000 feet above mean sea level in a wide variety of upland vegetation types including valley-foothill riparian, ponderosa pine, mixed conifer, mixed chaparral, and wet meadow (FWS 2023b). The diversity of upland vegetation types that they occur in demonstrates that foothill yellow-legged frogs are not very particular about the terrestrial component of their habitat. Conversely, stream morphology is a strong predictor of the presence of the species because the right fluvial

microhabitat elements provide the right conditions for successful egg-laying, hatching, growth, and metamorphosis (FWS 2023b).

Suitable breeding habitat includes wide, sun-dappled mainstream channels (CDFW 2018b). Breeding typically occurs between May and July and is dependent upon factors such as streamflow and air and water temperatures. Tributary confluences with distinctive channel morphology and boulders that create microhabitats with below ambient flow provide attractive breeding locations (Kupferberf 1996). Egg masses are attached to cobble, boulder, bedrock, and occasionally wood and vegetative substrate in shallow, slow moving portions of streams. Females lay 1 egg mass per year, containing approximately 1,000 to 2,500 eggs. Young hatch after approximately 5 weeks, spend the next 2 to 4 months as tadpoles, then metamorphose into juvenile frogs by their first winter (FWS 2023b).

During fall and winter, non-breeding habitat typically includes small tributary streams with perennial flow (Bourque 2008; Gonsolin 2010; Kupferberg 1996). Woody debris, root wads, undercut banks, clumps of sedges, and large boulders at high waterlines can offer refuge from high winter flows.

7.3.1. Golden Eagle

Golden eagle is a California fully protected species and is protected under both the Bald and Golden Eagle Protection Act and Migratory Bird Treaty Act. Throughout their range, golden eagles are aerial predators that feed on small to mid-sized reptiles, birds, and mammals (Bloom and Hawks 1982). The species nests in open and semi-open habitat as well as open coniferous habitat (FWS 2010). Golden eagles exhibit strong nest fidelity. They nest on cliffs, in upper portions of deciduous and coniferous trees, or more rarely on artificial structures such as transmission towers. Golden eagles occur across much of the mountainous regions of North America with some migrating to lower elevations or south to milder states during the winter.

7.3.2. Northwestern Pond Turtle

Northwestern pond turtle is a medium sized, omnivorous turtle that appears olive to dark brown with a network of brown or black spots, lines, or dashes (Hays et al. 1999). The species requires aquatic habitats such as ponds, lakes, or streams for breeding, feeding, overwintering, and dispersal, basking sites for thermoregulation, and upland areas adjacent to aquatic habitats for nesting and overwintering (FWS 2023c). Preferred aquatic habitats consist of standing or slow-moving water that contains underwater shelter sites such as undercut banks, submerged vegetation, mud, rocks, and logs with abundant basking areas (Holland 1991). Suitable nesting habitat has sparse vegetation and little to no canopy cover that allows for sunlight exposure. Overwintering habitat generally occurs outside of the riparian zone in open areas where leaf litter is present (Reese and Welsh Jr. 1997). Nest sites are often within 100 to 500 meters of water (Thomson et al. 2016). Northwestern pond turtles spend up to seven months out of the water during the winter months and typically only travel 200 meters from aquatic habitats but have been documented to travel up to 1.4 kilometers to overwinter refugia. Mating typically occurs

between April and November with nesting and oviposition following from May through July (Bury et al. 2012).

7.3.1. Sierra Nevada Yellow-legged Frog

Sierra Nevada yellow-legged frog is an amphibian species which is listed as federally endangered and state threatened. It is found in the central and northern Sierra Nevada Mountains, from as far north as Lassen and Plumas counties to as far south as Inyo and Tulare counties (Vredenburg et al. 2007). The species is divided into three clades, with the GAI situated entirely within Clade 2. Additionally, four designated critical habitat subunits for this species are situated within the GAI: Bean Creek, Deanes Valley, Boulder/Lone Rock Creeks, and Gold Lake. Typical habitat for this species includes lakes, ponds, marshes, meadows and streams at elevations ranging from 4,500 to 12,000 feet above mean sea level. It is common for this species to use alpine lakes with grassy or muddy margins, but it is not limited to these types of lakes (Zweifel 1955). Adults can breed in a diversity of aquatic habitats, both lentic and lotic, with oviposition occurring in shallows of lakes and marsh habitats (Brown et al. 2014).

7.4 Regional Conservation Efforts

Caltrans' understanding of natural resource regulatory agency conservation goals and objectives is that they are generally designed to protect existing populations and habitat, and include acquiring, protecting, restoring, and/or enhancing habitat and linkages. Several conservation and land management plans listed in Table 3-1, relevant to the species of mitigation need, identify key habitats or designate specific lands or areas to protect for conservation of the species of mitigation need within the GAI. These conservation and land management plans are presented in Table 7-2.

The conservation and land management plans include measures to address specific known, ongoing threats to individuals and populations, which are incorporated into and/or inform the advance mitigation conservation goals and objectives compiled below. Caltrans may also use this information during advance mitigation project scoping to help compensatory mitigation efforts within the GAI align with the goals and objectives of natural resource regulatory agencies that approve mitigation.

Table 7-2. Documents Identifying Areas for Species of Mitigation Need Conservation within the GAI

Document	Reference	Areas of Important Habitat
Special-status Species Documents	See below	See below
<i>Critical Habitat Designation for the Sierra Nevada Yellow-Legged Frog</i>	FWS 2016	Identifies critical habitat for the Sierra Nevada yellow-legged frog. The four designated critical habitat subunits that overlap the GAI include: ▪ Boulder/Lone Rock Creeks ▪ Gold Lake ▪ Deanes Valley ▪ Bean Creek
<i>Interagency Conservation Strategy for Mountain Yellow-Legged Frogs in the Sierra Nevada (Rana sierrae and Rana muscosa)</i>	CDFW et al. 2018	Identifies three Sierra Nevada yellow-legged frog clades, including two that occur within the GAI. It includes objectives to restore habitat and remove non-native predators.
<i>Species Status Assessment for Cascades Frog (Rana cascadae)</i>	FWS 2022c	Summarizes Cascades frog management strategies such as non-native predator reduction and chytrid management.
<i>Foothill Yellow-Legged Frog Recovery Outline</i>	FWS 2023a	The North Feather DPS is the only DPS of this species that occurs within the GAI. Suggested recovery plan goals include: ▪ Research DPS needs and habitat use to fill knowledge gaps. ▪ Enhance occupied habitat to increase abundance and connectivity. ▪ Augment existing populations to enhance resiliency and redundancy.
<i>Western Pond Turtle Range-wide Management Strategy</i>	Western Pond Turtle Range-wide Conservation Coalition 2020	Multi-agency developed conservation strategy for northwestern pond turtle. It includes goals to restore hydrology and habitat throughout the species' range.
Conservation and Land Management Documents	See below	See below
<i>Plumas National Forest Land and Resource Management Plan</i>	USFS 1988	Includes goals to improve habitat for endangered species, maintain snags and downed trees for wildlife use, maintain golden eagle nesting territories, revegetate disturbed floodplains, utilize seasonal road closures to protect wildlife, and establish stream setbacks.

Document	Reference	Areas of Important Habitat
<i>Management of BLM Wilderness Study Areas</i>	BLM 2012	BLM's plan for management of wilderness study areas (WSA), including five WSA's that occur within the GAI. It includes guidelines on conducting revegetation and removing non-native species.
<i>Sierra Nevada Forest Plan Amendment</i>	USFS 2004	Integrated strategy for vegetation management throughout National Forests in the Sierras. It includes goals for widespread habitat restoration, reduced fisher habitat fragmentation, and invasive species management
<i>Susanville Indian Rancheria Integrated Resource Management Plan</i>	SIR 2014	Includes goals to increase species diversity and provide species habitat.
<i>Eagle Lake Field Office Resource Management Plan and Final Environmental Impact Statement</i>	BLM 2007	BLM's resource management plan for the Eagle Lake Field Office. Includes goals to improve 35 miles of perennial or intermittent streams and 33 acres of riparian/wetland areas in the management area, prioritize development of new water sources, and restore and rehabilitate streams.
<i>Ecological Restoration Implementation Plan</i>	USFS 2013	USFS' internal restoration plan, which includes general strategies focused on increasing collaboration with other organizations, completion of land management plans, and forest-specific goals including the overarching goal to restore Sierra Nevada yellow-legged frog habitat.
<i>Lassen National Forest Land and Resource Management Plan</i>	USFS 1992	Includes goals to restore 20 acres of riparian habitat a year which would benefit species of mitigation need, improve 100 acres of wetlands a year, and manage fisher habitat viability.
<i>Land and Resource Management Plan Humboldt-Toiyabe National Forest</i>	USFS 1986	USFS' plan for forest management of the Humboldt-Toiyabe National Forest, which includes regions within the eastern portions of the GAI. This plan includes goals to improve water quality and manage riparian areas to a satisfactory condition.
<i>Northern Sacramento Valley Integrated Regional Water Management Plan</i>	West Yost 2014	Water management plan for the Northern Sacramento Valley. It includes goals and objectives to enhance floodplain ecosystems, manage invasive species, and improve riparian habitat.
<i>Lahontan Basins Integrated Regional Water Management Plan</i>	Honey Lake Valley Resource Conservation District 2019a	Includes goals to restore and improve natural resources, expand riparian habitat, and address climate change adaptation.

Document	Reference	Areas of Important Habitat
<i>Upper Feather River Integrated Regional Water Management Plan</i>	Uma Hineman Consulting 2016	Water management plan for the Feather River that includes goals to enhance wildlife habitat, conduct invasive plant and animal removal, and remove barriers in aquatic habitats.
SWAP	CDFW 2025	The GAI overlaps two of the SWAP's defined geographic provinces: ▪ Cascades and Modoc Plateau ▪ Central Valley and Sierra Nevada Province
City and County General Plans	See below	See below
<i>Plumas County 2035 General Plan</i>	Plumas County 2023	Includes policies to limit development in stream corridors that could be habitat for the species of mitigation need and requires habitat management to protect endangered species.
<i>Butte County General Plan 2040</i>	Butte County 2023	Prohibits development in wetlands or riparian habitats and requires a 100-foot setback from riparian areas.
<i>Lassen County General Plan</i>	Lassen County 2000	Includes policies to limit habitat fragmentation, maintain wildlife corridors, eliminate invasive plants, and enhance riparian habitat.
<i>Sierra County General Plan</i>	Sierra County 2012	Includes goals to protect streams, lakes, wetlands, streamside management zones, and other riparian areas, as well as to preserve habitats for plant and wildlife species that are associated with mature forest successional stages, riparian areas, hardwoods, and meadows.

7.5 Pressures and Stressors

Pressures and stressors refer to environmental trends or physical, chemical, or biological factors or conditions that affect the species of mitigation need or their habitat. According to the SWAP (CDFW 2025), a pressure is defined as “an anthropogenic (human-induced) or natural driver that could result in changing the ecological conditions of the target. Pressures can be positive or negative depending on intensity, timing, and duration. Negative or positive, the influence of a pressure to the target is likely to be significant.” Additionally, stress is defined in the SWAP as “[a] degraded ecological condition of a target that resulted directly or indirectly from negative impacts of pressures (e.g., habitat fragmentation)” (CDFW 2025). The *Critical Habitat Designation for the Sierra Nevada Yellow-Legged Frog* (FWS 2016), *Interagency Conservation Strategy for Mountain Yellow-Legged Frogs in the Sierra Nevada (Rana sierrae and Rana muscosa)* (CDFW et al. 2018), *Species Status Assessment for Cascades Frog (Rana cascadae)* (FWS 2022b), and the *Western Pond Turtle Range-wide Management Strategy* (WPTRCC 2020) refer to these pressures and stressors.

The plans included in Table 7-2 identify multiple pressures and stressors contributing to the decline of the species of mitigation need within their ranges. These pressures and stressors were evaluated in relation to the types of effects that could result from, or be worsened by, transportation projects funded through SHOPP and STIP, and whether the species of mitigation need could benefit from in-kind compensatory mitigation purchased or established through an advance mitigation project.

7.5.1. Habitat Loss, Fragmentation, and Degradation

Urbanization and other anthropogenic factors such as roads, poor grazing practices, and habitat invasion by nonnative species have led to the loss and degradation of existing habitat for the species of mitigation need. Additionally, roads, dams, and water diversions have resulted in habitat fragmentation and a decrease in connectivity between habitats that support species of mitigation need populations, as well as increased mortality of wildlife species from vehicle strikes.

Little is known about the impacts of road construction or road use on Sierra Nevada yellow-legged frogs due to their remote distribution, but a few studies have addressed road effects on similar frogs or toads and other amphibians that could apply to this species. Some studies have also examined road effects on riparian habitat, which may have indirect effects on frog populations (Brown et al. 2014). Roads and highways hinder the movement of northwestern pond turtles, Sierra Nevada yellow-legged frogs, foothill yellow-legged frogs, and Cascades frogs and are considered permanent physical barriers leading to increased habitat fragmentation and isolation of populations (Vos and Chardon 1998). Roads near aquatic habitats that are poorly constructed or inadequately maintained may lead to increased erosion, sedimentation, and petrochemical runoff, negatively affecting amphibian populations (Brown et al. 2014). Culverts under roads may provide some connectivity for various species, but if not constructed properly they can

also impede dispersal and trap some species such as Sierra Nevada yellow-legged frogs and northwestern pond turtles (CDFW 2019).

Encroachment of human populations into the densely forested areas of the golden eagle's range has led to reductions in available habitat. Deforestation for logging and residential development contribute to the loss of suitable nesting sites. Conversion of foraging areas into agricultural development also contributes to habitat suitability decline. Additionally, timber harvest tends to select the trees that are most well suited for fisher habitat due to their preference for large, mature trees (FWS 2025d).

Conversion of aquatic and upland habitats to agricultural usage has reduced available northwestern pond turtle suitable habitat (FWS 2023c). Urbanization in these areas has separated populations leading to smaller, less robust populations. Mainly, conversion of upland habitat near aquatic habitat has led to decreased availability of nesting sites (FWS 2023c). Anthropogenic water usage has also contributed to northwestern pond turtle habitat loss through alterations of stream structure, water diversion, and groundwater pumping (FWS 2023c).

7.5.2. Invasive Species

Transportation projects and associated ongoing maintenance activities have the potential to introduce and/or spread nonnative, invasive species. The entry of invasive, nonnative species into an ecosystem may reduce biodiversity, degrade habitats, alter genetic diversity, shift habitat types, and further threaten already endangered or threatened natural resources. Introduced fish such as striped bass, brook trout, and brown trout, as well as bullfrogs, and crayfish are known to impact frog species and northwestern pond turtle through predation and disease transmission (FWS 2024; FWS 2022c). Non-native turtles, such as red-eared sliders, often outcompete northwestern pond turtles where they co-occur (FWS 2023c).

Large scale insect outbreaks of species like bark beetles and wood borer beetles lead to loss of tree habitat that could reduce availability for fishers and golden eagles (FWS 2025d).

7.5.3. Disease and Predation

Disease and predation rates can be affected by habitat loss, fragmentation, and degradation described in Section 7.5.1. Frogs may be affected by chytridiomycosis, a disease caused by a fungal pathogen called chytrid. A comprehensive sample of Cascade frog populations in 2010 found that approximately 50 percent of the populations had some degree of chytrid infection (FWS 2022c). Although the effects of chytrid on Sierra Nevada yellow-legged frogs are not well understood, it is known to have caused mass mortality and population declines in other amphibian species (CDFW 2019; FWS 2022c). Sierra Nevada yellow-legged frog may be particularly susceptible to this aquatic chytrid fungus because tadpoles remain in aquatic habitat for 3-4 years before metamorphosing, and post-metamorphic Sierra Nevada yellow-legged frogs are almost always near water (Brown et al. 2014). Tree diseases such as heart rot and broom rust may have short term

benefits to fishers by offering denning habitat (Davis 2009), but subsequently will lead to tree mortality and habitat loss (FWS 2025d).

Predation is considered a major threat to the species of mitigation need within the GAI. As noted above, frogs and northwestern pond turtles are susceptible to predation from invasive species including bullfrogs, crayfish, and nonnative fish (FWS 2023c). In particular, non-native trout that were once stocked in the same aquatic features where Cascades frog breeding occurs are a main predator of the species (FWS 2022c). Approximately 70 percent of fisher mortalities are attributed to predation from large predators such as bobcat, cougar, and coyote (FWS 2025d).

7.5.4. Climate Change, Drought, and Wildfire

Section 2.4 provided a brief overview of the GAI's climate and available planning-level predictions for climate change within the region. In the next 30 years, the climate is expected to change. Predicted climate change effects consist of projected extended periods of higher temperatures and more frequent heat waves in the summer; large fluctuations in precipitation, with dry years becoming drier and wet years becoming wetter; and an increased risk of drought, wildfires, and landslides (Caltrans 2019b). Wildfires in fisher ranges contribute to tree mortality leading to habitat loss.

Climate change has the potential to affect Sierra Nevada yellow-legged frog and Cascades frog populations by increasing the frequency, duration, and magnitude of droughts. Drought may also make water bodies shallower during winter, which increases the likelihood that the entire water body will freeze or become oxygen depleted, both of which can result in mortality that may adversely affect populations (Bradford 1982, Bradford et al. 1993). Decreased snowpack and increased evaporation are expected to increase the rate and frequency of wetland drying making movement for amphibians more difficult (FWS 2022c). Fishers may also be impacted by the drier conditions as they may change prey availability and increase energetic costs for thermoregulation (FWS 2025d).

Increased variability and changes in the type, magnitude, and timing of precipitation suggested by climate change models will result in more variable and extreme flows in river systems that support foothill yellow-legged frog (CDFW 2019). This has the potential to increase the likelihood of egg mass scouring and tadpole stranding. The magnitude and nature of these effects will vary regionally and locally based on several underlying factors. For example, given the projected increase in temperatures, a correlating reduction in seasonal snowpack is expected. Such a reduction could disrupt the timing and duration of peak stream flows, which could result in increased sedimentation and other negative effects on foothill yellow-legged frog breeding habitat.

Increased temperatures due to climate change may lead to a shift in the demographic structure of northwestern pond turtle populations, as higher numbers of females are produced at higher temperatures (FWS 2023c). Prolonged drought and increased frequency may lead to lower reproductive output.

Terrestrial connectivity within the GAI is depicted on Figure 2-8, which shows large blocks of conservation planning linkages and linkages with implantation flexibility. These areas are expected to provide opportunities for the species of mitigation need to respond to climate change stress by preserving large blocks of habitat and linkage areas that will allow migration of the wildlife species toward more suitable habitat as the climate changes and by providing protection for the ecological processes that support key habitats. The terrestrial climate resilience rank from the ACE dataset (CDFW 2018a) is presented in Figure 2-5. Resilience is highest in the Lake Tahoe basin. Resilience within this region ranges from 4 to 5. Resilience within the remainder of the GAI ranges from 2 to 3.

7.5.5. Contaminants

Pollutants have been associated with roads and industrial activity. Petroleum products from roadside runoff, pesticides, herbicides, mineral fertilizers, industrial chemicals, and airborne pollutants are known to have negative effects on amphibians. Amphibians are especially susceptible to contaminants in their environment because of their highly permeable skin. Amphibians affected by new generations of pesticides now in widespread use in the Central Valley may have negative effects on these organisms of the Sierra Nevada from pesticide drift. Amphibians spend a high percentage of their time in water, moving through the interface of water and air, and conduct a significant proportion of respiration through their skin, so they are at greater risk of exposure to pesticides which are readily absorbed through the skin, respiratory system, or gastrointestinal tract (Brown et al. 2014). Heavy metals are known to bioaccumulate throughout trophic systems and have the potential to cause harm to predators such as fishers and golden eagles (FWS 2025d).

7.6 Multi-species Benefits

While the wildlife species of mitigation need identified for this GAI are Cascades frog, fisher, foothill yellow-legged frog North Feather DPS, golden eagle, northwestern pond turtle, and Sierra Nevada yellow-legged frog, several other special-status species share habitat with these species, which may be addressed under CDFW's Lake and Streambed Alteration Agreement program. These species include, but are not limited to:

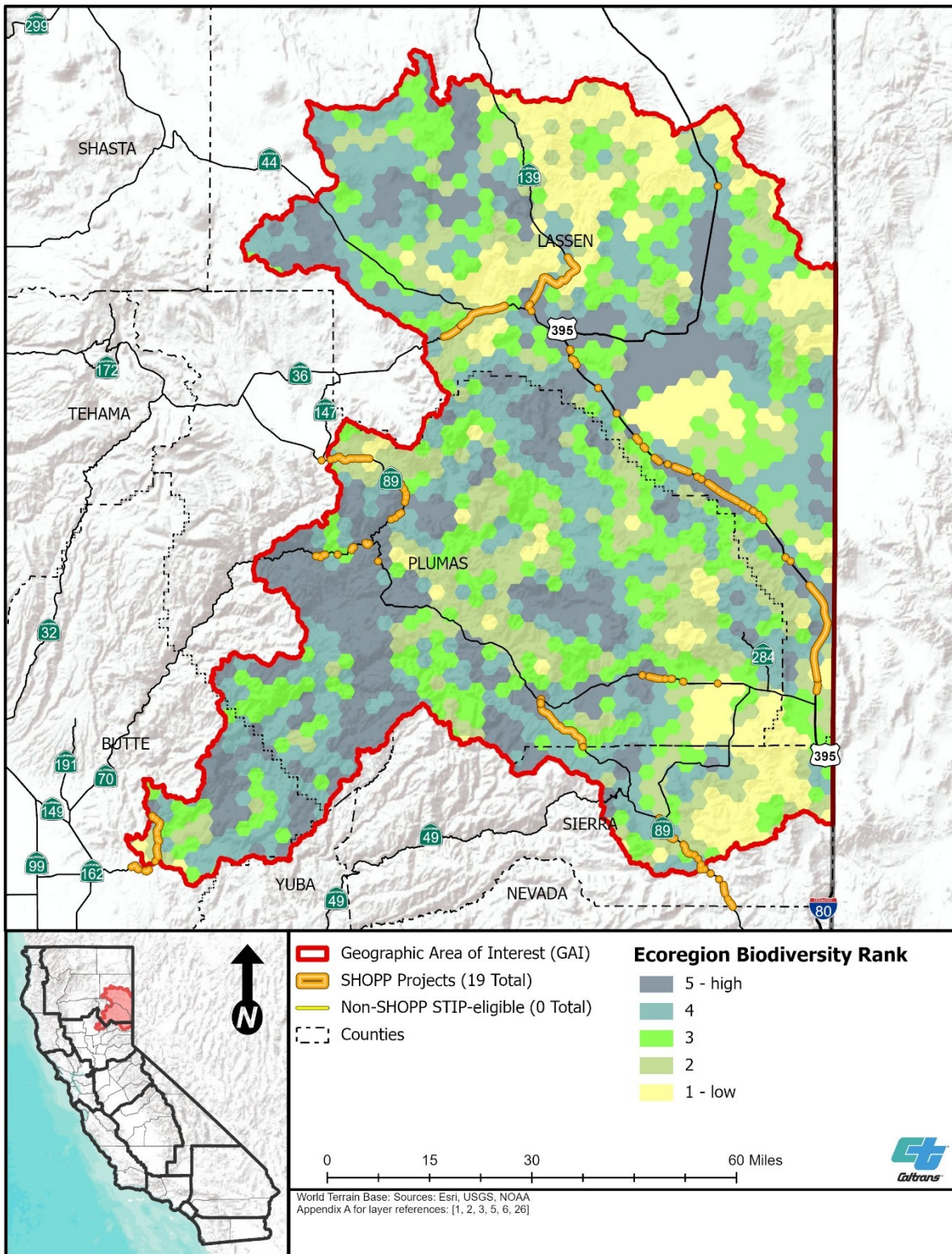
- southern long-toed salamander (*Ambystoma macrodactylum sigillatum*)
- northern leopard frog (*Lithobates pipiens*)
- bald eagle (*Haliaeetus leucocephalus*)
- American peregrine falcon (*Falco peregrinus anatum*)

A complete list of co-benefiting species based on forecast impacts from the SAMNA model is included in Table 5-4.

Advance mitigation planning provides Caltrans an opportunity to prioritize multi-species and multi-resource benefits through acquisition, protection, restoration, and/or enhancement of habitat that provides the most multi-species benefits within the GAI. Figure 7-1 illustrates the regional terrestrial biodiversity within the GAI, according to CDFW's ACE GIS dataset. According to these data, high to moderate terrestrial

biodiversity is present along most of the SHS with SHOPP projects within the GAI, while other portions of the SHS with SHOPP projects show low biodiversity. Habitats are mapped in Appendix C, *Land Cover Types*, and the other special-status species that may occur in these habitats are provided in Appendix D, *Complete SAMNA Species Results*.

Figure 7-1. Terrestrial Biodiversity within the GAI



Other efforts, such as planting Caltrans easements with species beneficial to pollinators, are expected to contribute to biodiversity protection and enhancement within the GAI. In addition, planting native plants in Caltrans easements also enhances biodiversity by reducing invasive species cover. The installation of culvert escape ramps, undercrossings, and fence jump-outs to facilitate safe movement across and away from highways would also benefit numerous terrestrial wildlife species. Advance mitigation purchased or established to address anticipated impacts on terrestrial species of mitigation need may also provide mitigation to compensate for impacts on these other species. Caltrans will consider the special-status species with the potential to co-occur in habitats with species of mitigation need to inform advance mitigation scoping and thereby improve the conservation benefits of mitigation within the GAI.

7.7 Advance Mitigation Conservation Goals and Objectives

The conservation goals and objectives compiled in Table 7-3 were intended to be relevant to anticipated future SHOPP and STIP transportation project mitigation needs, be consistent with the goals and objectives of natural resource regulatory agencies for the species of mitigation need, address pressures and stressors, and support species of mitigation need population recovery and success within the GAI. Each conservation goal is supported by one or more conservation objectives and is meant to further guide Caltrans District 2 toward scoping advance mitigation projects to achieve the desired result specified by the goal. Project-specific objectives will be developed for advance mitigation projects in the future during their project delivery phase in accordance with an instrument, MCA, or other project-specific agreement (Figure 1-2). Project-specific advance mitigation project objectives will be specific, measurable, achievable, relevant, and time-bound.

At the broad scale, these wildlife goals and objectives encompass large-scale ecological processes, environmental gradients, biological diversity, and regional wildlife linkages. These goals and objectives prioritize regional conservation that preserves intact habitat and provides habitat linkages and connectivity. Sub-objectives are included for each objective to guide Caltrans advance mitigation and project scoping toward those authorized actions that would create the greatest functional lift² or conservation benefit for the species of mitigation need within the GAI. Sub-objectives also capture specific measures from conservation and land management plans that address threats to the species of mitigation need.³ Several of the goals are interrelated, and many objectives could apply to more than one goal; objectives were grouped with the goal to which they most specifically aligned. Goals and objectives are generally presented in order from general to more specific. They are not presented in order of importance.

² For the purposes of this document, “functional lift” means the difference between an existing degraded condition and a restored or enhanced condition.

³ In accordance with both law and Caltrans policy, standard best management practices are followed on all Caltrans transportation projects. Therefore, they are presumed, and they are not itemized as goals and objectives for the AMP.

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Table 7-3. Advance Mitigation Conservation Goals and Objectives for the Species of Mitigation Need

Objective	Sub-Objective	Affected Species ^a	Alignment with Conservation and Management Plans ^b
Goal WILD-1: Conserve and expand habitat for species of mitigation need in the GAI to support ecosystem functions that are essential to recovery of the species.	See below	See below	See below
Objective WILD-1.1: Acquire, protect, restore, and/or enhance habitat of sufficient quantity to offset estimated impacts on species of mitigation need within the GAI in advance of transportation project impacts.	Sub-Objective WILD-1.1.1: Identify habitat for species of mitigation need within the GAI and acquire, protect, restore, and/or enhance this habitat such that the greatest functional lift to the species of mitigation need is provided, including consolidating compensatory mitigation. Sub-Objective WILD-1.1.2: Prioritize key areas, such as designated critical habitat, movement corridors, and buffer zones. Sub-Objective WILD-1.1.3: Prioritize acquisition and/or protection of large blocks of suitable, occupied habitat for the species of mitigation need; lands adjacent to occupied habitat; and/or land that expands or buffers existing occupied protected habitats. Sub-Objective WILD-1.1.4: Prioritize land acquisition and/or protection that supports key populations.^c Sub-Objective WILD-1.1.5: Prioritize acquisition, protection, and/or enhancement of SWAP (CDFW 2025) conservation targets: wet mountain meadow, western upland grasslands, Pacific northwest subalpine forest, north coastal mixed evergreen and montane conifer forests, great basin upland scrub, great basin pinyon-juniper woodland, chaparral, California foothill and valley forests and woodlands, California foothill and coastal rock outcrop vegetation, and big sagebrush scrub (Figure 7-2) that coincide with the species of mitigation need range, as well as other locally or regionally important habitat types. Sub-Objective WILD-1.1.6: Create, enhance, or restore breeding habitat in protected areas where it is limited.^c	▪ Sierra Nevada yellow-legged frog ▪ golden eagle ▪ Cascades frog ▪ foothill yellow-legged frog North Feather DPS ▪ fisher ▪ northwestern pond turtle	▪ SWAP (CDFW 2025b) and companion plans ▪ <i>Critical Habitat Designation for the Sierra Nevada Yellow-Legged Frog</i> (FWS 2016) ▪ <i>Interagency Conservation Strategy for Mountain Yellow-Legged Frogs in the Sierra Nevada (Rana sierrae and Rana muscosa)</i> (CDFW et al. 2018) ▪ <i>Plumas County 2035 General Plan</i> (Plumas County 2023) ▪ <i>Butte County General Plan 2040</i> (Butte County 2023) ▪ <i>Lahontan Basin Integrated Regional Water Management Plan</i> (Honey Lake Valley RCD 2019a) ▪ <i>Susanville Indian Rancheria Integrated Resource Management Plan</i> (SIR 2014) ▪ <i>Lassen County General Plan</i> (Lassen County 2000) ▪ <i>Plumas National Forest Land and Resource Management Plan</i> (USFS 1988) ▪ <i>Lassen National Forest Land and Resource Management Plan</i> (USFS 1992) ▪ <i>Eagle Lake Field Office Resource Management Plan and Final Environmental Impact Statement</i> (BLM 2007) ▪ <i>Ecological Restoration Implementation Plan</i> (USFS 2013) ▪ <i>Land and Resource Management Plan Toiyabe National Forest</i> (USFS 1986) ▪ <i>Tahoe National Forest Land and Resource Management Plan Environmental Impact Statement</i> (USFS 1990) ▪ <i>Interagency Conservation Strategy for Mountain Yellow-Legged Frogs in the Sierra Nevada</i> (CDFW, et al. 2018) ▪ <i>Sierra County General Plan</i> (Sierra County 2012) ▪ <i>Sierra Nevada Forest Plan Amendment</i> (USFS 2004) ▪ <i>Western Pond Turtle Range-wide Management Strategy</i> (WPTRCC 2020)

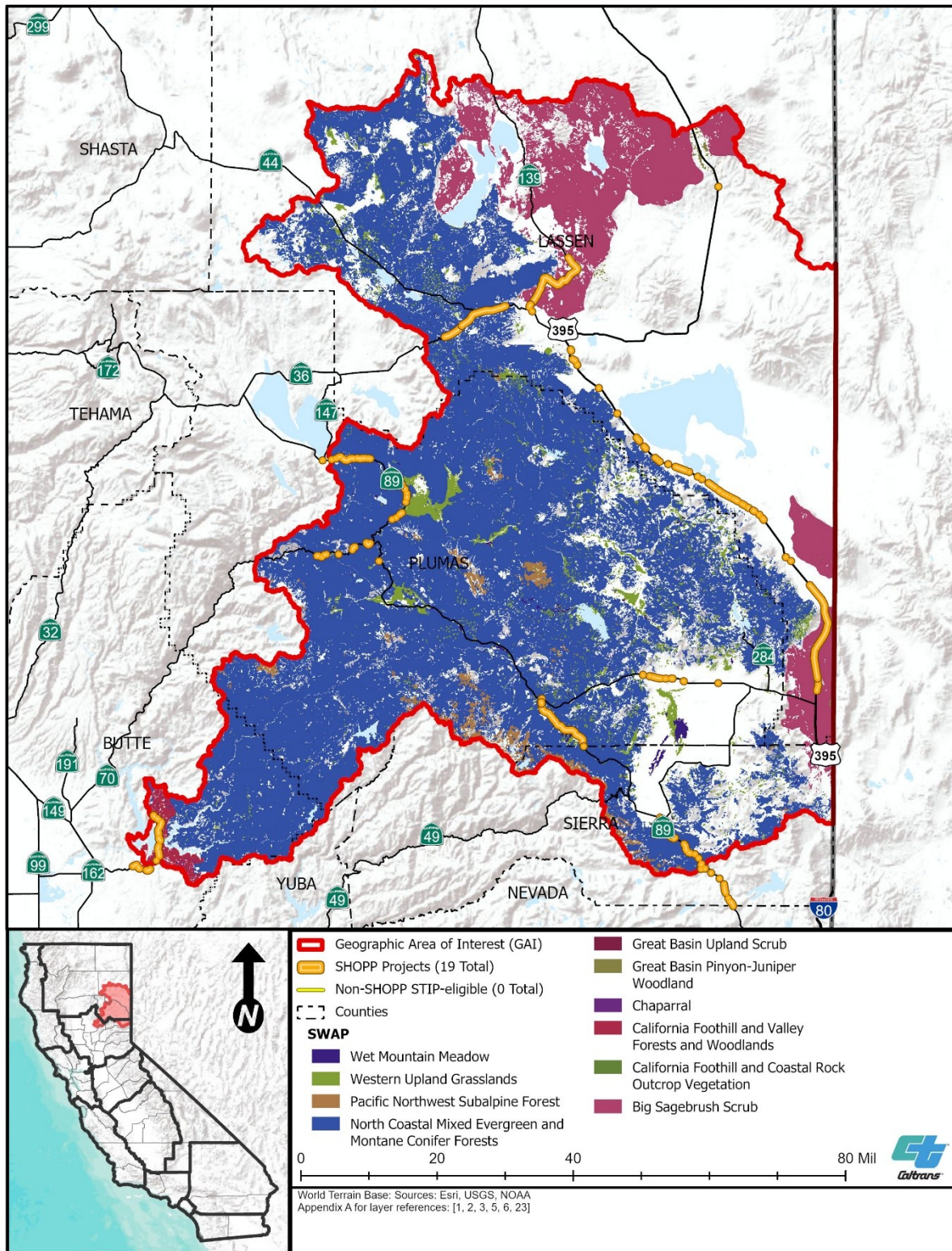
Objective	Sub-Objective	Affected Species ^a	Alignment with Conservation and Management Plans ^b
Goal WILD-2: Preserve, enhance, and increase connectivity between blocks of habitat supporting species of mitigation need to allow for dispersal that will maintain resilience and variability of populations.	See below	See below	See below
Objective WILD- 2.1: Acquire, protect, restore, and/or enhance movement corridors within the GAI in advance of transportation project impacts.	Sub-Objective WILD-2.1.1: Identify movement corridors for the wildlife species of mitigation need within the GAI and acquire, protect, restore, and/or enhance corridors such that the greatest functional lift for the species of mitigation need is provided. Sub-Objective WILD-2.1.2: Prioritize habitat in key linkage areas, between habitat areas, and/or areas that provide a buffer to key or existing corridors.^c Sub-Objective WILD-2.1.3: Identify areas that will enhance connectivity between existing protected breeding locations and create new breeding habitat for the species of mitigation need.^c	▪ Sierra Nevada yellow-legged frog ▪ foothill yellow-legged frog ▪ northwestern pond turtle ▪ fisher	▪ <i>Lassen County General Plan</i> (Lassen County 2000) ▪ <i>Lahontan Basins Integrated Regional Water Management Plan</i> (Honey Lake Valley RCD 2019a) ▪ <i>Interagency Conservation Strategy for Mountain Yellow-Legged Frogs in the Sierra Nevada</i> (CDFW, et al. 2018) ▪ <i>Sierra Nevada Forest Plan Amendment</i> (USFS 2004) ▪ <i>Western Pond Turtle Range-wide Management Strategy</i> (WPTRCC 2020) ▪ <i>Antelope Valley and Smithneck Creek Wildlife Areas Land Management Plan</i> (CDFW 2008)
Goal WILD-3: Support resiliency of the landscape to climate change.	See below	See below	See below
Objective WILD-3.1: Acquire, protect, restore, and/or enhance habitat that supports resilience to climate change within the GAI in advance of transportation project impacts.	Sub-Objective WILD-3.1.1: Identify, acquire, protect, restore, and/or enhance habitat critical to climate resilience for the species of mitigation need within the GAI (Figure 2-5). Sub-Objective WILD-3.1.2: Prioritize management of invasive species in key areas, such as movement corridors, that may be exacerbated by climate change and that would provide functional lift for the species of mitigation need.	▪ Sierra Nevada yellow-legged frog	▪ <i>Eagle Lake Field Office Resource Management Plan and Final Environmental Impact Statement</i> (BLM 2007) ▪ <i>Northern Sacramento Valley Integrated Regional Water Management Plan</i> (West Yost 2014) ▪ <i>Management of BLM Wilderness Study Areas</i> (BLM 2012)
Goal WILD-4: Decrease mortality and competition, and protect population health for species of mitigation need.	See below	See below	See below
Objective WILD-4.1: Reduce impacts of invasive species on populations of species of mitigation need within the GAI in advance of transportation project impacts.	Sub-Objective WILD-4.1.1: Reduce invasive species in key habitat locations and/or in areas that provide a buffer to high-value habitat for the species of mitigation need. Prioritize areas where invasive species reduction would provide the greatest functional lift to species of mitigation need and their habitat. Sub-Objective WILD-4.1.2: Prioritize restoration of native plant species in key areas, such as critical habitat, movement corridors, and buffer zones.	▪ Sierra Nevada yellow-legged frog ▪ foothill yellow-legged frog ▪ Cascades frog ▪ fisher	▪ <i>Eagle Lake Field Office Resource Management Plan and Final Environmental Impact Statement</i> (BLM 2007) ▪ <i>Upper Feather River Integrated Regional Water Management Plan</i> (Uma Hinman Consulting 2016) ▪ <i>Susanville Indian Rancheria Integrated Resource Management Plan</i> (SIR 2014) ▪ <i>Northern Sacramento Valley Integrated Regional Water Management Plan</i> (West Yost 2014) ▪ <i>Management of BLM Wilderness Study Areas</i> (BLM 2012) ▪ <i>Interagency Conservation Strategy for Mountain Yellow-Legged Frogs in the Sierra Nevada</i> (CDFW, et al. 2018) ▪ <i>Sierra Nevada Forest Plan Amendment</i> (USFS 2004)

Objective	Sub-Objective	Affected Species ^a	Alignment with Conservation and Management Plans ^b
Objective WILD-4.2: Reduce impacts from nonnative predators within the GAI in advance of transportation project impacts.	Sub-Objective WILD-4.2.1: Identify and implement measures to reduce predation, such as designing ponds with a hydrologic regime that would discourage bullfrogs and non-native fish from establishing.	▪ Sierra Nevada yellow-legged frog ▪ foothill yellow-legged frog ▪ Cascades frog ▪ northwestern pond turtle	▪ <i>Species Status Assessment for Cascades Frog</i> (FWS 2022b) ▪ <i>Interagency Conservation Strategy for Mountain Yellow-Legged Frogs in the Sierra Nevada</i> (CDFW, et al. 2018) ▪ <i>Foothill Yellow-Legged Frog Recovery Outline</i> (FWS 2023c) ▪ <i>Western Pond Turtle Range-wide Management Strategy</i> (WPTRCC 2020) ▪ <i>Antelope Valley and Smithneck Creek Wildlife Areas Land Management Plan</i> (CDFW 2008)
Objective WILD-4.3: Reduce road-associated mortality within the GAI in advance of transportation project impacts.	Sub-Objective WILD-4.3.1: Identify locations to develop safe SHS wildlife crossing areas within the GAI and direct the species of mitigation need to such crossing areas.	▪ Sierra Nevada yellow-legged frog	▪ <i>Eagle Lake Field Office Resource Management Plan and Final Environmental Impact Statement</i> (BLM 2007) ▪ <i>Northern Sacramento Valley Integrated Regional Water Management Plan</i> (West Yost 2014) ▪ <i>Management of BLM Wilderness Study Areas</i> (BLM 2012)
Goal WILD-5: Provide multi-species and multi-resource benefits.	See below	See below	See below
Objective WILD-5.1: Acquire, protect, restore, and/or enhance habitat that provides multi-species benefits within the GAI in advance of transportation project impacts.	Sub-Objective WILD-5.1.1: Prioritize mitigation to provide benefits to special-status species that may co-occur with the species of mitigation need and that will provide functional lift to other special-status species within the GAI. Sub-Objective WILD-5.1.2: Identify SHS right-of-way areas where enhancement efforts may benefit pollinators, as well as the species of mitigation need, such as low traffic areas, while reducing road-associated mortality. Sub-Objective WILD-5.1.3: Consider the needs of other co-occurring species when planning site-specific actions to restore or create aquatic breeding habitat for species of mitigation need.	▪ Sierra Nevada yellow-legged frog ▪ fisher	▪ <i>Eagle Lake Field Office Resource Management Plan and Final Environmental Impact Statement</i> (BLM 2007) ▪ <i>Upper Feather River Integrated Regional Water Management Plan</i> (Uma Hineman Consulting 2016) ▪ <i>Northern Sacramento Valley Integrated Regional Water Management Plan</i> (West Yost 2014) ▪ <i>Sierra Nevada Forest Plan Amendment</i> (USFS 2000)

^a This column includes species of mitigation need that could benefit from these objectives.
^b More information on these plans is provided in Chapter 3, *Relevant Plans, Policies, and Regulations*, and Chapter 4, *Existing Mitigation Opportunities*.
^c As identified in recovery plans and other pertinent documents (see Table 7-2).

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Figure 7-2. State Wildlife Action Plan Conservation Target Habitats



7.8 Summary

Caltrans anticipates that future SHOPP and STIP-eligible transportation projects may be conditioned by CDFW or FWS to address the pressures and stressors that threaten the species of mitigation need within the GAI. The pressures and stressors include:

- Habitat loss, fragmentation, and degradation;
- Invasive species;
- Disease and predation;
- Climate change, drought, and wildfire; and
- Contaminants.

Caltrans will seek to align advance mitigation project scopes with conservation goals and objectives that address the identified pressures and stressors, thereby aligning advance mitigation efforts with regional conservation efforts.

Regional conservation goals and objectives provide a framework for scoping compensatory mitigation credit establishment that would successfully offset future transportation project impacts on wildlife resources by creating functional lift or conservation benefit and by mitigating the pressures and stressors on wildlife resources within the GAI. To summarize Table 7-3:

- **Goals WILD-1 and WILD-2** seek to conserve and expand habitat for species of mitigation need within the GAI and increase connectivity between blocks of habitat. The objectives to fulfill these goals are acquisition, protection, restoration, and/or enhancement of land. Caltrans intends to prioritize efforts that provide the greatest functional lift for the species of mitigation need, and that provide a conservation benefit in terms of size, connectivity, quality, and contribution to the climate resilience of habitat within the GAI. By increasing connectivity for species of mitigation need, Caltrans anticipates that co-occurring species will realize these same benefits. These goals and objectives were selected to address habitat loss, fragmentation, and degradation as well as address impacts from climate change, drought, and wildfire. Further, Caltrans anticipates that actions completed through restoration, enhancement, and/or preservation may also provide opportunities to address invasive species, predation, and road-associated mortality.
- **Goal WILD-3** seeks to support landscape resiliency for species of mitigation need habitat within the GAI. The primary objectives are to reduce the effects of climate change on these species by increasing the protection and functionality of land that is identified as crucial for climate resiliency, including corridors that allow the wildlife species to migrate from areas of low climate resilience into areas with higher resilience and addressing the climate change-related threat from invasive species. In addition to addressing climate change in general, these goals and objectives address habitat loss, fragmentation, and degradation as well as invasive species.
- **Goal WILD-4** seeks to decrease mortality of the species of mitigation need from known immediate and ongoing threats to individuals or populations by protecting

native vegetation, reducing conditions that favor predators and competitors, and protecting the species of mitigation need from road-associated mortality. These objectives address issues related to habitat loss, fragmentation, and degradation, as well as threats from invasive species and predation.

- **Goal WILD-5** seeks to guide advance mitigation scoping to prioritize multi-species and multi-resource benefits to maximize ecological benefits within the GAI. Advance mitigation provides the opportunity to maximize Caltrans' benefit to conservation within the GAI, including to species other than the species of mitigation need and other land management objectives. Goal WILD-5 was developed to include conservation for multiple species.

Each of the goals and objectives have sub-objectives intended to guide advance mitigation scoping toward natural resource regulatory agencies' regional conservation goals. These sub-objectives will prompt Caltrans to incorporate priority habitat or corridors into advance mitigation scopes and address important threats within the area through an advance mitigation project. This concept is an important way Caltrans seeks to use advance mitigation scoping to set the stage, once funding approval is received, for specific advance mitigation projects that will provide a functional lift for the species of mitigation need and maximize conservation benefits from mitigation within the GAI.

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8. AQUATIC RESOURCES CONSERVATION GOALS AND OBJECTIVES

Caltrans' primary objective for aquatic resources is to avoid and minimize all impacts on fish, wetlands, non-wetland waters, and riparian habitat from Caltrans transportation projects within the GAI. However, when avoidance and minimization are insufficient or infeasible, compensatory mitigation may be used to offset impacts. Credits or values established through SHC § 800.6(a)-authorized advance mitigation projects offer the unique opportunity to consolidate needed compensatory mitigation. This consolidation helps to provide strategically placed and environmentally sound compensatory mitigation options, including restoration, enhancement, and preservation, and to provide an improved environmental outcome that may not be available through the usual transportation project-by-project approach to compensatory mitigation.

Caltrans seeks to align its advance mitigation projects with natural resource regulatory agencies' conservation goals and objectives and to contribute to an improved environmental outcome within the GAI. With this in mind, this chapter presents Caltrans' understanding of natural resource regulatory agencies' regional conservation goals and objectives that could be applied to advance mitigation projects undertaken within the GAI to offset forecast impacts from SHOPP transportation projects.

The goals and objectives developed in this chapter are intended to guide advance mitigation scoping decisions toward those choices that will provide for the greatest environmental benefit available through the advance mitigation planning and delivery processes. Such advance mitigation projects undertaken by Caltrans should contribute to aquatic resource and riparian habitat restoration and enhancement and should yield compensatory mitigation usable by future transportation projects, as specified in SHC § 800.¹ Compensatory mitigation usable by future transportation projects should be expressed in standard units or terms recognized by the natural resource regulatory agencies.

Information presented in this chapter is for advance mitigation project scoping purposes only. Transportation projects must still go through environmental and permitting processes and must demonstrate avoidance and minimization efforts prior to compensation.

8.1 Approach

For the purposes of this RAMNA, conservation goals and objectives are a broad set of regional natural resource sustainability goals and objectives that are consistent with both

¹ Pursuant to SHC § 800.9, to the maximum extent practicable, the information required for an RCIS is presented in this RAMNA. During CDFW's review of an RCIS, CDFW determines whether the goals and objectives presented in the RCIS are consistent with FGC § 1852, subdivision (c)(8).

regulatory requirements and conservation science. To determine the aquatic resource conservation goals and objectives applicable to the GAI:

- First, in Section 8.2, Caltrans identifies natural resource regulatory agencies with the authority to condition transportation projects with aquatic resource-related and riparian habitat compensatory mitigation within the GAI.
- Then, in Section 8.3, Caltrans summarizes information for wetland, non-wetland waters, riparian habitat, and fish species addressed by the assessment.
- Next, in Sections 8.4, 8.5, and 8.6, for aquatic resources, Caltrans identifies:
 - Federal and state policies and binding and non-binding regional conservation and land management plans;
 - Current and projected pressures and stressors, including climate change, for which there is a transportation nexus;
 - Opportunities to enhance the conservation benefits through advance mitigation projects; and
 - Opportunities to provide co-benefits, where possible, to water quality, groundwater recharge, and species that require aquatic habitats.
- Last, Caltrans analyzes the aforementioned information in relation to the transportation-related activities that could potentially affect aquatic resources and riparian habitats, and the potential range of compensatory mitigation that could satisfy a transportation project condition associated with the activities.

The result of this analysis is a framework of conservation goals and objectives for use in advance mitigation project scoping (Section 8.7).

8.2 Natural Resource Regulatory Agencies with Aquatic Resources Oversight

Table 8-1 lists the natural resource regulatory agencies with the authority to condition transportation projects delivered within the GAI with aquatic resource-related compensatory mitigation. Terrestrial special-status wildlife species are known to use streams, wetlands, and other aquatic resources that are regulated by federal and state agencies specific to those habitat types. This RAMNA identifies goals and objectives for terrestrial species separately in Chapter 7, *Wildlife Resources Conservation Goals and Objectives*.

Table 8-1. Natural Resource Regulatory Agencies with the Authority to Approve Aquatic Resource Compensatory Mitigation Credits (or Values)

Agency	Summary
CDFW	CDFW oversees the conservation, protection, and management of fish, wildlife, native plants, and the habitats necessary for biologically sustainable populations of those species in California. California law (FGC § 1602) also requires an entity to notify CDFW prior to commencing any activity that may substantially divert or obstruct the natural flow of any river, stream, or lake; substantially change or use any material from the bed, channel, or bank of any river, stream, or lake; or deposit or dispose of debris, waste, or other materials containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake. CDFW issues agreements to project proponents under its authorities, including Lake and Streambed Alteration Agreements, approvals of conservation and mitigation banks, approvals of MCAs and RCISs, and NCCP permits. Under the CESA, CDFW also has authority to issue incidental take permits for state-listed species, and Consistency Determinations for state and federally listed species. Additionally, CDFW's Environmental Review and Permitting, Conservation and Mitigation Banking, NCCP, and RCIS programs implement sections of the FGC, Division 1 of Title 14 of the California Code of Regulations, et seq. These programs help fulfill CDFW's mission to manage California's diverse fish, wildlife, and plant resources, and the habitats upon which they depend, for their ecological values.
Corps	It is the mission of the Corps' Regulatory Program (33 CFR Part 230 and Parts 320–332) to protect the nation's aquatic resources and navigation capacity while allowing reasonable development through fair, flexible, and balanced permit decisions. The Corps is responsible for administering laws for the protection and preservation of aquatic resources pursuant to Section 10 of the Rivers and Harbors Act of 1899 and CWA Section 404. Pursuant to the Rivers and Harbors Act, all work or structures in, over, or under navigable WOTUS require Corps authorization. The Corps authorizes, under CWA Section 404, the discharge of dredged or fill material into WOTUS, including wetlands. When the Corps' civil works projects are proposed to be used or altered by another entity, CWA Section 408 permission (33 USC 408 or Section 14 of the Rivers and Harbors Act of 1899, as amended) must be obtained in addition to the CWA Section 404 authorization. According to the 2008 mitigation rule, in general it is the preference of the Corps to use the following order of priority for mitigation: mitigation bank, in-lieu fee program, permittee responsible mitigation under the watershed approach, in-kind/on-site permittee responsible mitigation, and out-of-kind/off-site permittee responsible mitigation, but the preference may change based on what is environmentally preferable.
EPA	EPA has authority under the CWA (33 USC § 11251–1357) to restore and maintain the chemical, physical, and biological integrity of the nation's waters. EPA and the Corps jointly implement the CWA Section 404 program, which regulates discharge of dredge or fill material into WOTUS. Federal authorizations also need to be reviewed for compliance with CWA Section 401. EPA has been delegated the responsibility of implementing CWA Section 401 for projects on tribal land, unless EPA has delegated 401 authority to a recognized tribe.

Agency	Summary
FWS	FWS has jurisdiction over a broad range of fish and wildlife resources. FWS does not, however, have jurisdiction over anadromous fish. FWS authorities related to these resources are codified under multiple statutes, including, but not limited to, the FESA. Most statutes give FWS an advisory role in mitigation. However, if a non-federal entity applies for an incidental take permit for a listed animal species, Section 10(a)(2)(b) of the FESA requires that the impact of any incidental take be minimized and mitigated to the maximum extent practicable. Section 7(a)(1) of the FESA also requires all federal agencies to use their authorities to conserve listed species. Many federal agencies have developed programs to include mitigation as part of the Section 7(a)(2) consultation on their proposed actions to partially fulfill this Congressional mandate. In May 2023, FWS issued a Mitigation Policy that builds upon the guidance in the 1981 Mitigation Policy for recommendations and requirements on mitigating adverse impacts of land and water developments on fish and wildlife, and an FESA Compensatory Mitigation Policy that adopts mitigation principles established in the FWS Mitigation Policy, establishes compensatory mitigation standards, and provides guidance for the application of compensatory mitigation through implementation of the FESA. Conservation banking can assist federal and non-federal participants in the Sections 7 and 10 processes. In May 2003, FWS issued comprehensive federal guidelines designed to promote conservation banks as a tool for mitigating adverse impacts on species; the guidelines foster national consistency by standardizing establishment and operational criteria. Many activities conducted under Sections 7 and 10 of the FESA result in adverse effects on listed species, including habitat loss or modification. One way to offset these types of impacts is to include in the project design a plan that involves the restoration and/or protection of similar habitat on and/or off site. Purchasing credits in conservation banks is one method of protecting habitat on or off site.
Water Boards	The Porter-Cologne Act governs water quality regulation in California and gives the Water Boards the authority to condition projects, through waste discharge requirements, to protect water quality and the beneficial uses of waters of the state, as identified in Basin Plans. Basin Plans, adopted by the RWQCBs, incorporate the beneficial use designation of surface waters of the state and must consider (among other uses) the use and value of water for protection and propagation of fish, shellfish, and wildlife. The Water Boards have been delegated the responsibility of implementing CWA Section 401, which regulates the discharge of pollutants into WOTUS. The Water Boards may determine that compensatory mitigation is necessary to offset unavoidable impacts on aquatic resources. Compensatory mitigation can be achieved through purchase of credits, as outlined in the <i>State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State</i> (SWRCB 2019). Projects that occur within one region are regulated by that regional board, whereas projects that cross regions are regulated by the SWRCB.

8.3 Aquatic Resources

An overview of aquatic resources was provided in Chapter 2, *Environmental Setting*, and is summarized below. The GAI overlaps with the HUC-8 boundaries listed in Table 8-2.

Table 8-2. Named Aquatic Features within the GAI with Aquatic Resource Goals and Objectives, by HUC-8

East Branch North Fork Feather HUC-8 18020122	Honey-Eagle Lakes HUC-8 18080003	Middle Fork Feather HUC-8 18020123
▪ Clarks Creek ▪ Dixie Creek ▪ Dolly Creek ▪ East Branch North Fork Feather ▪ Greenhorn Creek ▪ Indian Creek ▪ Little Grizzly Creek ▪ Meadow Valley Creek ▪ Smith Creek ▪ Spanish Creek ▪ Thompson Creek	▪ Baxter Creek ▪ Eagle Lake ▪ Honey Lake ▪ Jensen Slu ▪ Lassen Creek ▪ Long Valley Creek ▪ Shoals Creek ▪ Susan River ▪ Willow Creek	▪ Charles Valley Creek ▪ Cottonwood Creek ▪ Fall River ▪ Feather River ▪ Grizzly Creek ▪ Humbug Creek ▪ Jamison Creek ▪ Lake Davis ▪ Lake Oroville ▪ Poplar Creek ▪ Smith Creek ▪ Smithneck Creek ▪ South Fork Feather River ▪ Sulphur Creek ▪ Sucker Run

8.3.1. Wetlands and Non-wetland Waters

Within the GAI, the major stream systems include the Feather River, Susan River, and Long Valley Creek (Lahontan RWQCB 2021). Additionally, there are hundreds of named and unnamed tributaries, the majority of which flow into these rivers. Flow into these systems originates from rainfall and snowfall in the Sierra Nevada and Southern Cascades (Figure 2-4).

Aquatic habitat types with the potential to occur within the GAI are mapped in Appendix G, *Aquatic Resource Locations*. Based on the SAMNA Reporting Tool's wetlands and waters layer, the GAI has a total of 600,708 acres of aquatic habitat, consisting of 43 wetland and non-wetland waters habitats in Table 2-8 (Caltrans 2025a). Ten beneficial uses that support the preservation and enhancement of wildlife habitat and aquatic resources within the GAI also align with the AMP's objective to contribute to an improved environmental outcome through transportation project mitigation and are relevant to this RAMNA (Table 2-6).

8.3.2. Riparian Habitat

Riparian habitat is discussed in Section 2.16. Because no detailed riparian GIS layer is currently available, riparian habitat information was excerpted from the SAMNA's aquatic resources layer, which divides aquatic resources into three classes: waters, wetlands, and riparian (Caltrans 2025c).

8.3.3. Threatened and Endangered Fish Species

Threatened and endangered fish species potentially occurring within the GAI were discussed in Section 2.15.4. Based on SAMNA results and historical mitigation needs, no fish species were identified as species of mitigation need for this RAMNA; that is, based on this RAMNA, fish species benefits will not be an advance mitigation project's primary objective (Section 1.5.3).

8.4 Regional Conservation Efforts

Caltrans' understanding of natural resource regulatory agency conservation goals and objectives is that they are generally designed to protect aquatic resources. Several conservation and land management plans listed in Table 3-1, relevant to the aquatic resources, identify key habitats, specific designated waters, or areas for aquatic resource enhancement and restoration. Others identify key qualities, such as water quality, that are essential for aquatic resource enhancement and restoration. Still others name specific National Hydrologic Dataset features for aquatic resource enhancement and restoration. Additionally, the documents include strategies for aquatic resource protection and measures to address specific known, ongoing threats to aquatic resources. These conservation and land management plans are presented in Table 8-3.

8.5 Pressures and Stressors

Pressures and stressors refer to environmental trends or physical, chemical, or biological factors or conditions that affect aquatic resources. According to the SWAP (CDFW 2025), a pressure is defined as "an anthropogenic (human-induced) or natural driver that could result in changing the ecological conditions of the target. Pressures can be positive or negative depending on intensity, timing, and duration. Negative or positive, the influence of a pressure to the target is likely to be significant." Additionally, stress is defined in the SWAP as "[a] degraded ecological condition of a target that resulted directly² or indirectly from negative impacts of pressures (e.g., habitat fragmentation)" (CDFW 2025). The Corps defines human stressors as human-caused sources of disturbance in an ecosystem, such as roads, urban areas, and agricultural lands (Corps 2015).

The documents in Table 8-3 identify multiple pressures and stressors on aquatic resources within the GAI where hydrology, land use and management, and climate intersect. These pressures and stressors were evaluated in relation to the types of direct and indirect effects that could result from transportation projects funded through SHOPP and could benefit from in-kind mitigation purchased or established through an advance mitigation project.

² Direct effects occur at the time of construction and indirect effects are reasonably certain to occur, but later in time.

Table 8-3. Documents Identifying Aquatic Resource Goals and Objectives within the GAI

Document	Reference	Information Identified
Policies, Procedures, Guidelines, and Water Quality Plans	See below	See below
<i>2008 Final Compensatory Mitigation Rule</i>	<i>73 Federal Register</i> 19593	This is the Corps' ruling to establish standards and criteria for the use of all types of compensatory mitigation, including on- and off-site permittee-responsible mitigation, mitigation banks, and in-lieu fee mitigation to offset unavoidable impacts on WOTUS. It recognizes that consolidating mitigation may be environmentally preferable for linear projects (because advance, or at least concurrent, compensatory mitigation is environmentally preferable, but not always possible to achieve) (Preamble and 33 Section 332.3).
<i>303(d) List of Impaired Water Bodies</i>	SWRCB 2024	Section 303(d) of the CWA requires that every 2 years, each state submit to EPA a list of rivers, lakes, and reservoirs in the state for which pollution control or requirements have failed to provide for water quality. Based on a review of this list and its associated Total Maximum Daily Load Priority Schedule (Section 2.13), 16 waterbodies are listed as impaired within the GAI. None of them have an established Total Maximum Daily Load (Appendix F).
<i>California Wetlands Conservation Policy</i>	Executive Order W-59-93	The "No Net Loss Policy" for wetlands aims to "[e]nsure no overall net loss and achieve a long-term net gain in the quantity, quality, and permanence of wetlands acreage and values in California in a manner that fosters creativity, stewardship and respect for private property."
<i>National Wetlands Mitigation Action Plan</i>	EPA and Corps 2002	This is an EPA and Corps comprehensive, interagency document to further achievement of the goal of no net loss of wetlands. The goals and objectives of the <i>National Wetlands Mitigation Action Plan</i> were incorporated into the 2008 Final Compensatory Mitigation Rule, which was updated in 2015 and includes the no net loss policy.
<i>Final 2015 Regional Compensatory Mitigation and Monitoring Guidelines for South Pacific Division</i>	Corps 2015	This provides guidelines for compensatory mitigation site selection. A watershed approach should be used when selecting sites to establish compensatory mitigation.
<i>State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State</i>	SWRCB 2019	This creates a State of California wetland definition, a framework for determining jurisdiction of state wetlands, wetland delineation procedures, and application procedures for discharges of dredge and fill material to waters of the state.

Document	Reference	Information Identified
<i>Water Quality Control Plan for the Lahontan Region</i>	Lahontan RWQCB 2021	Water quality control plan for the Lahontan Region that sets water quality standards for surface and ground waters. It identifies water quality stressors, objectives and beneficial uses for the Lahontan region and includes an objective for wetland restoration. It also identifies total maximum daily loads for Heavenly Valley Creek.
<i>Water Quality Control Plan for the California Regional Water Quality Control Board Central Valley Region</i>	RWQCB 2019	Water quality control plan for the Sacramento Valley Region that sets water quality standards for surface and ground waters. It identifies water quality stressors, objectives and beneficial uses for the Sacramento Valley region, includes an objective for wetland restoration and protection, and identifies total maximum daily loads for multiple waterways within the GAI.

Document	Reference	Information Identified
Conservation and Land Management Documents	See below	See below
<i>Coordinated Resource Management Plan for the Feather River</i>	Feather River Coordinated Resource Management Group 1996	Includes goals to improve water quality and optimize beneficial uses of the Feather River.
<i>Eagle Lake Field Office Proposed Resource Management Plan and Final Environmental Impact Statement</i>	BLM 2007	Includes a goal to improve 35 miles of perennial or intermittent streams and 33 acres of riparian/wetland areas within the management area.
<i>Feather River Watershed Management Strategy</i>	Plumas County 2004	Includes goals to improve vegetation management and restore aquatic habitats of the Feather River watershed.
<i>Johnstonville Area Plan</i>	Lassen County 1987	Includes policies to enhance riparian corridors within the plan area.
<i>Lahontan Basin Integrated Regional Water Management Plan</i>	Honey Lake Valley RCD 2019a	Includes goals to restore and improve natural resources, expand riparian habitat, and address climate change adaptation.
<i>Lassen National Forest Land and Resource Management Plan</i>	USFS 1992	Includes goals to restore 20 acres of riparian habitat per year within the National Forest.
<i>Northern Sacramento Valley Integrated Regional Water Management Plan</i>	West Yost 2014	Includes goals and objectives to enhance floodplain ecosystems, manage invasive species, and improve riparian habitat within the plan area.
<i>Portola General Plan</i>	City of Portola 2023	Includes goals to restore riparian and aquatic habitat within the city limits.
<i>Plumas National Forest Land and Resource Management Plan</i>	USFS 1988	Includes goals to improve habitat for endangered species and other benefiting species, such as trout, and improve water quality by rehabilitating watersheds within the National Forest.

Document	Reference	Information Identified
<i>Susanville General Plan</i>	City of Susanville 2006	Includes goals to enhance streams by planting native vegetation to prevent erosion within the city limits.
<i>Susanville Indian Rancheria Integrated Resource Management Plan</i>	Susanville Indian Rancheria 2014	Includes goals and objectives to improve water quality within the plan area.
<i>Sierra Nevada Forest Plan Amendment Final Supplemental Environmental Impact Statement</i>	USFS 2004	Includes guidance on restoring riparian habitat.
<i>SWAP</i>	CDFW 2025	Identified American Southwest riparian forest and woodland, wet mountain meadow, and freshwater marsh as conservation targets. Includes goals to manage invasive species and identifies saltcedar, Russian olive, giant reed, eucalyptus, English ivy, and Eurasian watermilfoil as invasive species that invade aquatic habitats within the GAI.
<i>Tahoe National Forest Land and Resource Management Plan Environmental Impact Statement</i>	USFS 1990	Includes general goals to restore damaged watersheds, improve habitat for riparian and meadow-associated wildlife, restore riparian vegetation to 80 percent crown closure, and enhance in-stream cover where existing cover is less than 50 percent within the National Forest.
<i>Upper Feather River Integrated Resource Water Management Plan</i>	Uma Hinman Consulting 2016	Includes objectives to enhance water quality and address climate change through ecosystem restoration and the restoration of natural hydrologic functions.
<i>Interagency Conservation Strategy for Mountain Yellow Legged Frogs in the Sierra Nevada</i>	CDFW, et al. 2018	Includes goals to restore habitat through riparian vegetation enhancement, meadow restoration, and water table stabilization, and reduce habitat fragmentation.
<i>Foothill Yellow-Legged Frog Recovery Outline</i>	FWS 2023c	Includes goals to enhance habitat to increase connectivity.
<i>Western Pond Turtle Range-wide Management Strategy</i>	WPTRCCC 2020	Includes goals to restore hydrology and habitat throughout the species' range.

8.5.1. Habitat Loss, Fragmentation, and Degradation

Urbanization and other anthropogenic factors such as roads, poor grazing practices, barriers, and habitat invasion by nonnative species have led to the loss and degradation of aquatic resources. Additionally, the expansion of roads and urbanization have resulted in habitat fragmentation, a decrease in connectivity between habitats that support different life stages, and the contribution of nonpoint source pollution from chemicals and toxins. Roads have affected local hydrological conditions by changing sheet flow and altering water movement in drainages (CDFW 2025b). Within the GAI, most urbanization and development have occurred near the intersection of Highway 395 and I-139 and along Highway 395 and State Route 70 (Figure 2-6).

8.5.2. Invasive Species

Transportation projects and associated ongoing maintenance activities have the potential to introduce and/or spread nonnative, invasive species. When invasive, nonnative species enter an ecosystem, they can disrupt the natural balance, resulting in a reduction of biodiversity, degradation of habitats, alteration of native genetic diversity, shifting of wetland type, disruption of aquatic and terrestrial connectivity, and further threats to already endangered or threatened natural resources (CDFW 2025b).

Invasive plant species that affect riparian systems within the GAI include Eurasian watermilfoil, saltcedar, Russian olive, giant reed, eucalyptus, and English ivy (CDFW 2025b). Invasive wildlife species that affect riparian systems within the GAI include non-native fish such as brown trout (*Salmo trutta*) and brook trout (*Salvelinus fontinalis*) and American bullfrog (CDFW 2025b).

8.5.3. Altered Hydrology, Geomorphology, and Water Quality

Water quality and hydrology can be directly altered by physical barriers such as culverts, dams (including cofferdams), dikes, trash racks, bridges, roads, canals, and other human-made infrastructure, which can have effects both upstream and downstream by truncating connectivity, altering sediment transport processes, altering natural flow regimes, and changing water surface elevations, adding to the downstream loss of habitat. Stable geomorphology and sediment transport are critical to maintaining healthy streams so that degradation and aggradation do not destroy habitats in the stream, riparian, and wetland habitats downstream. The loss of wetlands can result in increased flooding and decreased water quality in downstream tributaries. Water diversions, in-channel construction, riparian vegetation reduction, agriculture, alteration of streambed and banks, components of timber management, and point and nonpoint source pollution have affected the aquatic ecosystem by altering historical flooding regimes, erosion, and deposition of sediments that maintain floodplains (CDFW 2025a).

8.5.4. Climate Change and Drought

Section 2.4 provided a brief overview of the GAI's climate and available planning-level predictions for climate change for the region. In the next 30 years, the climate is expected to change. Expected changes include higher average winter temperatures, reduced annual snowpack, and increased fire frequency and intensity (CDFW 2025a). Drought in

the Sierra Nevada region can lead to changes in meadow hydrology that could affect stream flows and water release in wetland and riparian habitats (Dettinger 2018).

8.5.5. Wildfire Risk

Vegetation can be altered by large-scale wildfire effects from altering microclimatic regimes, increasing runoff and river discharge, and enhancing erosion and sediment inputs, transport, and deposition. Roads can exacerbate the risks associated with runoff and shifting sedimentation levels. Fires can also affect the physical characteristics of riparian and wetland ecosystems by transitioning vegetation from aquatic and riparian areas to uplands (Bixby et al. 2015). Fire in riparian zones can reduce canopy cover, resulting in increased water temperatures (CDFW 2025a).

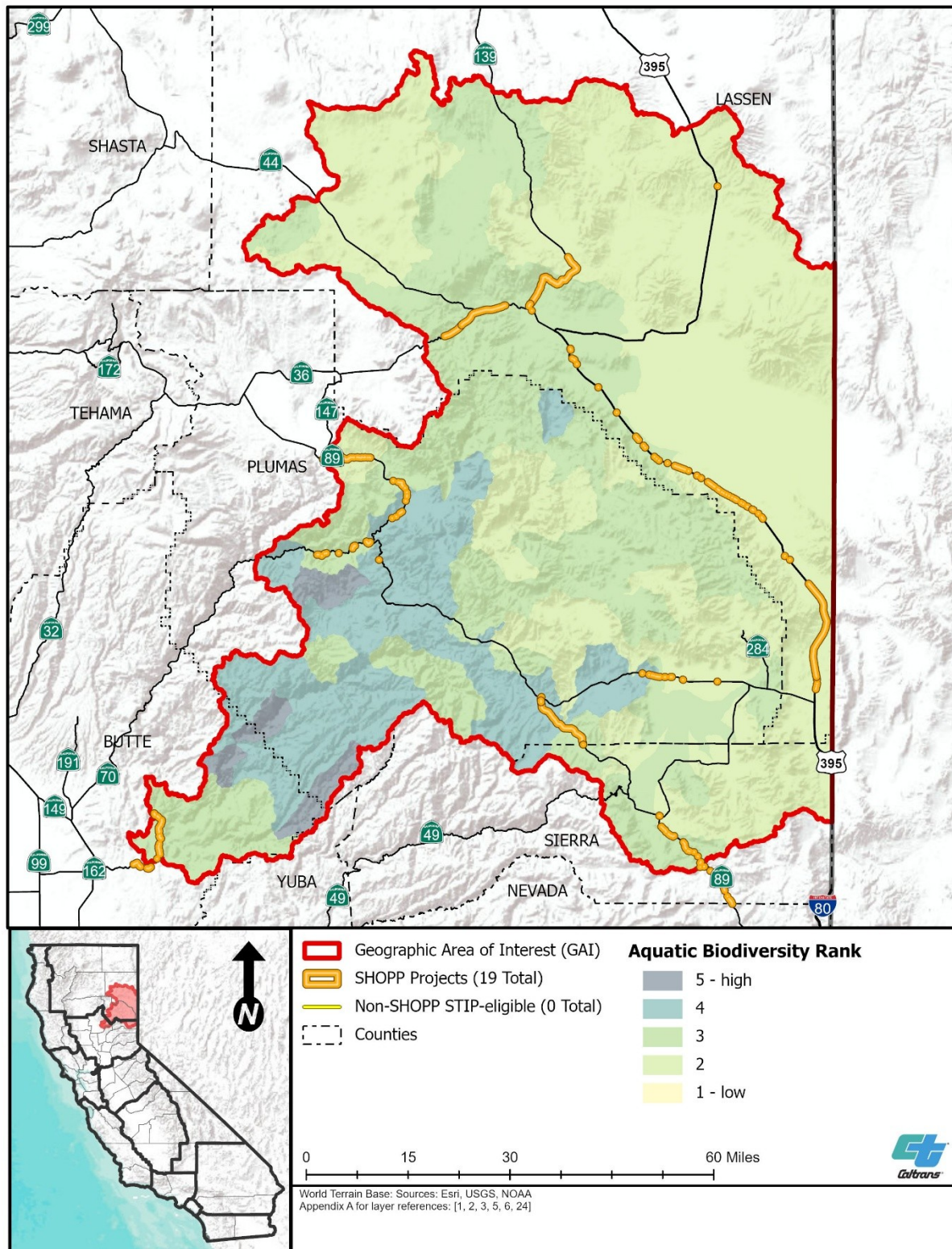
8.6 Multi-resource Benefits

Advance mitigation planning provides Caltrans an opportunity to integrate the enhancement and/or restoration of multiple aquatic resource related values into its advance mitigation scoping to benefit California native aquatic biodiversity, aquatic and terrestrial connectivity, special-status species, wetlands, and non-wetland aquatic resources:

- Figure 8-1 illustrates the regional aquatic biodiversity within the GAI, as provided by CDFW's ACE GIS dataset. According to these data, most of the GAI includes areas with low to moderate aquatic biodiversity, with moderate to high biodiversity in the southwestern portion of the GAI. Most SHOPP projects are located in areas of moderate to low biodiversity.
- Enhancing and/or restoring the aquatic resources within the GAI is expected to contribute to biologically sustainable populations of special-status aquatic, wetland, and riparian plant and wildlife species. For example, increasing the amount, complexity, and connectivity of riparian habitat will provide additional shaded riverine aquatic habitat within the GAI that can benefit fish species such as Eagle lake rainbow trout (*Oncorhynchus mykiss aquilarum*) in addition to other species that use aquatic habitat such as Smoke Creek pyrg (*Pyrgulopsis eremica*) and northern slender pondweed (*Stuckenia filiformis* ssp. *alpina*).
- Enhancing and/or restoring the aquatic resources within the GAI is expected to support or contribute to beneficial uses of wetland and non-wetland waters of the GAI. For example, enhancement and/or restoration of wetlands adjacent to wildlife habitat would likely improve wildlife habitat water quality. Further, enhancement and/or restoration of wetlands adjacent to GAI waters could sequester contaminants on waterways identified as 303(d) impaired and/or with an established total maximum daily load.

Caltrans will consider aquatic resources' biodiversity values, special-status species with the potential to co-occur in aquatic habitats, beneficial uses of waters, and impaired waterways during advance mitigation project scoping, thereby improving the conservation benefits of mitigation within the GAI.

Figure 8-1. Aquatic Biodiversity of the GAI



8.7 Advance Mitigation Conservation Goals and Objectives

The conservation goals and objectives compiled in Table 8-4 are intended to be relevant to anticipated future SHOPP transportation project compensatory mitigation needs, be consistent with the goals and objectives of natural resource regulatory agencies for aquatic resources, address pressures and stressors on aquatic resources, and support mitigation success within the GAI. Each conservation goal is supported by one or more conservation objectives; objectives are more specific, measurable, achievable, relevant, and time-bound measures that align to a desired result specified by a goal. At the broad scale, these aquatic resource goals and objectives encompass ecological processes, address functions and values of aquatic systems, and prioritize regional conservation that preserves intact aquatic resources, restores aquatic function, and supports climate change planning.

Sub-objectives are included for each objective to guide Caltrans' advance mitigation scoping toward those actions that would create the greatest functional lift or conservation benefit, support long-term preservation, restore surface water flows, protect and restore hydrologic processes such as channel stability, and reduce climate change effects on aquatic resources within the GAI. Sub-objectives also capture specific measures from conservation and land management plans that address threats to aquatic resources. Several of the goals are interrelated, and many objectives could apply to more than one goal; objectives were grouped with the goal to which they most specifically aligned. Goals and objectives are generally presented in order from general to more specific.

The goals, objectives, and sub-objectives presented in Table 8-4 reflect Caltrans' intention to develop advance mitigation project scopes for in-kind mitigation and are intended to reflect the watershed approach, as practiced by natural resource regulatory agencies. The watershed approach is an analytical process through which the Corps, EPA, and the Water Boards make decisions that support the sustainability or improvement of aquatic resources, with the goal of maintaining and improving the quality and quantity of aquatic resources through strategic selection of compensatory mitigation sites. The Corps subscribes to a watershed approach for compensatory mitigation that uses the HUC-based classification system; a topographic watershed-based system depending on the size and location of a transportation or other project (Corps 2015). The Water Boards generally subscribe to an approach for compensatory mitigation decisions that follows the Corps' watershed approach; however, the HU classification system may be used on a case-by-case basis (SWRCB 2021).

Table 8-4. Advance Mitigation Conservation Goals and Objectives for Aquatic Resources

Objective	Sub-Objective	Alignment with Documents Identified in Table 8-3
Goal AR-1: No net loss to area, functions, values, and condition of wetland and non-wetland water resources.	See below	See below
Objective AR-1.1: Improve quality and function of wetland and non-wetland water resources.	Sub-Objective AR-1.1.1: Enhance and/or rehabilitate wetland and non-wetland water resources such that the greatest functional lift to the aquatic resource is provided, including by consolidating compensatory mitigation consistent with Executive Order W-59-93. Sub-Objective AR-1.1.2: Enhance and/or rehabilitate key wetland and non-wetland water habitats that are identified in the SWAP, FWS recovery plans, CDFW recovery plans, and other land management plans identified in Table 8-3. Sub-Objective AR-1.1.3: Prioritize enhancement and/or restoration of riparian vegetation within the Honey-Eagle Lakes, Middle Fork Feather, and East Branch North Fork Feather HUC-8s, particularly in the Susan River, Smoke Creek, and Middle Fork Feather River, as well as other named and unnamed tributaries, many of which are listed in Table 8-2. Sub-Objective AR-1.1.4: Enhance and/or restore wetland and non-wetland water resource functions, such as connectivity, abundance of native plants, stream geomorphology, hydrologic regime, substrate diversity and complexity, and water quality, that define habitat value for aquatic organisms and increase basin-wide value of resources.	▪ <i>303(d) List of Impaired Water Bodies</i> (SWRCB 2024) ▪ <i>Butte County General Plan</i> (Butte County 2023) ▪ <i>California Wetlands Conservation Policy</i> (Executive Order W-59-93) ▪ <i>Eagle Lake Field Office Proposed Resource Management Plan and Final Environmental Impact Statement</i> (BLM 2007) ▪ <i>Feather River Watershed Management Strategy</i> (Plumas County 2004) ▪ <i>Foothill Yellow-Legged Frog Recovery Outline</i> (FWS 2023a) ▪ <i>Interagency Conservation Strategy for Mountain Yellow-Legged Frogs in the Sierra Nevada</i> (CDFW, et al. 2018) ▪ <i>Johnstonville Area Plan</i> (Lassen County 1987) ▪ <i>Lassen National Forest Land and Resource Management Plan</i> (USFS 1992) ▪ <i>National Wetlands Mitigation Action Plan</i> (EPA and Corps 2002) ▪ <i>Northern Sacramento Valley Integrated Regional Water Management Plan</i> (West Yost 2014) ▪ <i>Portola General Plan</i> (City of Portola 2024) ▪ <i>Plumas National Forest Land and Resource Management Plan</i> (USFS 1988) ▪ <i>Sierra Nevada Forest Plan Amendment</i> (USFS 2004) ▪ <i>Susanville Indian Rancheria Integrated Resource Management Plan</i> (SIR 2014) ▪ <i>Susanville General Plan</i> (City of Susanville 1990) ▪ <i>SWAP</i> (CDFW 2025b) ▪ <i>Tahoe National Forest Land and Resource Management Plan Environmental Impact Statement</i> (USFS 1990) ▪ <i>Upper Feather River Integrated Regional Water Management Plan</i> (Uma Hinman Consulting 2016) ▪ <i>Water Quality Control Plan for the California Regional Water Quality Control Board Central Valley Region</i> (RWQCB 2019) ▪ <i>Water Quality Control Plan for the Lahontan Region</i> (Lahontan RWQCB 2021) ▪ <i>Western Pond Turtle Range-wide Management Strategy</i> (WPTRCC 2020)
Objective AR-1.2: Avoid a net loss of aquatic resource acreage by establishing aquatic resources.	Sub-Objective AR-1.2.1: Establish and/or reestablish wetland and non-wetland waters, particularly in key wetland and non-wetland water habitats that are identified in the SWAP, FWS recovery plans, CDFW recovery plans, and other land management plans identified in Table 8-3. Sub-Objective AR-1.2.2: Establish and/or reestablish riparian vegetation within the Middle Fork Feather, East Branch North Fork Feather, and Honey-Eagle Lakes HUC-8s, particularly in the Susan River, Feather River, and Smoke Creek as well as other named and unnamed tributaries to the Honey Lake and Eagle Lake, many of which are listed in Table 8-2.	▪ Same references as listed with Objective AR-1.1.

Objective	Sub-Objective	Alignment with Documents Identified in Table 8-3
Goal AR-2: Restore and/or enhance the chemical, physical, and biological integrity of wetlands and non-wetland waters.	See below	See below
Objective AR-2.1: Restore and/or enhance water quality.	Sub-Objective AR-2.1.1: In coordination with the RWQCB, restore and/or enhance wetland and non-wetland waters with RWQCB biology-related beneficial use designations such as cold freshwater habitat; flood peak attenuation/flood water storage; freshwater replenishment; groundwater recharge; inland saline water habitat; migration of aquatic organisms; spawning, reproduction, and/or early development; warm freshwater habitat; water quality enhancement; and wildlife habitat. Sub-Objective AR-2.1.2: In coordination with natural resource regulatory agencies, address aggradation, erosion, nutrients, contaminants, sedimentation, and temperatures within the Middle Fork Feather, East Branch North Fork Feather, and Honey-Eagle Lakes HUC-8s (Table 8-2). Sub-Objective AR-2.1.3: In coordination with the RWQCB, implement restoration and enhancement actions that address water quality for aquatic resources, for example, at the Feather River and Susan River, and at several lakes in the GAI, including Eagle Lake and Honey Lake. Sub-Objective AR-2.1.4: Restore or create riparian floodplain habitat, adjacent wetlands, and adjacent non-wetland aquatic features to enhance water quality in tributaries and downstream systems.	▪ <i>303(d) List of Impaired Water Bodies</i> (SWRCB 2024) ▪ <i>Coordinated Resource Management Plan for the Feather River</i> (Feather River 1996) ▪ <i>Feather River Watershed Management Strategy</i> (Ecosystem Sciences 2004) ▪ <i>Foothill Yellow-Legged Frog Recovery Outline</i> (FWS 2023) ▪ <i>Interagency Conservation Strategy for Mountain Yellow-Legged Frogs in the Sierra Nevada</i> (CDFW 2018) ▪ <i>Lahontan Basins Integrated Regional Water Management Plan</i> (Honey Lake Valley RCD 2019) ▪ <i>Lahontan Basin Storm Water Resource Plan</i> (Honey Lake Valley RCD 2019) ▪ <i>Northern Sacramento Valley Integrated Regional Water Management Plan</i> (West Yost 2014) ▪ <i>Plumas National Forest Land and Resource Management Plan</i> (USFS 1988) ▪ <i>Portola General Plan</i> (City of Portola 2024) ▪ <i>Sierra Nevada Forest Plan Amendment</i> (USFS 2004) ▪ <i>SWAP</i> (CDFW 2025) ▪ <i>Susanville General Plan</i> (City of Susanville 1990) ▪ <i>Upper Feather River Integrated Regional Water Management Plan</i> (Uma Hinman Consulting 2016) ▪ <i>Water Quality Control Plan for the Lahontan Region</i> (Lahontan RWQCB 2021) ▪ <i>Water Quality Control Plan for the California Regional Water Quality Control Board Central Valley Region</i> (RWQCB 2019)
Objective AR-2.2: Improve surface water hydrology.	Sub-Objective AR-2.2.1: Restore and/or enhance natural hydrologic regimes, natural sediment transport, and geomorphic processes. Sub-Objective AR-2.2.2: Reconnect severed aquatic systems and improve connectivity in aquatic and riparian systems, with particular focus on reconnecting higher watershed areas with lower watershed areas, such as reconnecting tributaries. Sub-Objective AR-2.2.3: Reestablish hydrologic regimes or drainage patterns for better function of springs, seeps, vernal pools, fens, bogs, and marsh habitats.	▪ <i>303(d) List of Impaired Water Bodies</i> (SWRCB 2024) ▪ <i>Feather River Watershed Management Strategy</i> (Ecosystem Sciences 2004) ▪ <i>Foothill Yellow-Legged Frog Recovery Outline</i> (FWS 2023) ▪ <i>Lahontan Basin Storm Water Resource Plan</i> (Honey Lake Valley RCD 2019) ▪ <i>Sierra Nevada Forest Plan Amendment</i> (USFS 2004) ▪ <i>SWAP</i> (CDFW 2025) ▪ <i>Upper Feather River Integrated Regional Water Management Plan</i> (Uma Hinman Consulting 2016) ▪ <i>Western Pond Turtle Range-wide Management Strategy</i> (WPTRCC 2020)
Objective AR-2.3: Improve water storage and groundwater recharge	Sub-Objective AR-2.3.1: Promote restoration of stream and riparian areas' natural functions to provide water storage and release. Sub-Objective AR-2.3.2: Reduce excessive nonnative invasive vegetation along stream/riparian corridors to lower vegetative transpiration rates to sustainable levels and increase water storage in soils and streams. Sub-Objective AR-2.3.3: Create or restore wetlands adjacent to streams to enhance groundwater-surface water dynamics in tributaries.	▪ <i>Feather River Watershed Management Strategy</i> (Ecosystem Sciences 2004) ▪ <i>Lahontan Basins Integrated Regional Water Management Plan</i> (Honey Lake Valley RCD 2019) ▪ <i>Sierra Nevada Forest Plan Amendment</i> (USFS 2004) ▪ <i>Upper Feather River Integrated Regional Water Management Plan</i> (Uma Hinman Consulting 2016)

Objective	Sub-Objective	Alignment with Documents Identified in Table 8-3
Goal AR-3: Support resiliency of aquatic resources to climate change	See below	See below
Objective AR-3.1: Reduce impacts from climate change.	Sub-Objective AR-3.1.1: Enhance and/or restore aquatic resource function and value in areas of lower climate resilience to reduce climate change effects on aquatic resources. Sub-Objective AR-3.1.2: Prioritize enhancement and/or restoration that will increase resilience to climate change such as at aquatic features with hydrologic connection to the Susan River and Feather River, such that the potential for aquatic resource migration increases by the enhancement and/or restoration of ecotones that transition from aquatic to upland habitats. Sub-Objective AR-3.1.3: Prioritize riparian areas of the Middle Fork Feather, East Branch North Fork Feather, and Honey-Eagle Lakes HUC-8s identified in Table 8-2 and implement improvements for enhancement and/or restoration to improve freshwater quantity and quality, floodplain connectivity, and instream cover continuity. Sub-Objective AR-3.1.4: Enhance, rehabilitate, establish and/or re-establish aquatic habitats by using native species such as cottonwood (<i>Populus</i> sp.), white alder (<i>Alnus rhombifolia</i>), willows (<i>Salix</i> spp.), cattails (<i>Typha</i> spp.), rushes (<i>Juncus</i> spp.), and bulrushes (<i>Schoenoplectus</i> spp.) to reduce the effects of climate change.	▪ <i>Lassen County General Plan</i> (Lassen County 2000) ▪ <i>Lahontan Basins Integrated Regional Water Management Plan</i> (Honey Lake Valley RCD 2019) ▪ <i>Lassen National Forest Land and Resource Management Plan</i> (USFS 1992) ▪ <i>SWAP</i> (CDFW 2025) ▪ <i>Upper Feather River Integrated Regional Water Management Plan</i> (Uma Hinman Consulting 2016)
Objective AR-3.2: Improve aquatic habitat resiliency.	Sub-Objective AR-3.2.1: Promote native plant species that can stabilize banks, improve filtering of nutrient loads from water, and maintain the flood conveyance properties of streams and estuaries, such as rushes, bulrushes, cattail, and willows. Sub-Objective AR-3.2.2: Prioritize management of invasive species that occur within large contiguous areas in aquatic habitats, such as giant reed, tamarisk, Brazilian egeria, Eurasian watermilfoil, purple loosestrife, perennial pepperweed, New Zealand mud snail, and Eurasian mussel that may be exacerbated by climate change such that the greatest functional lift is provided. Sub-Objective AR-3.2.3: Enhance, rehabilitate, establish, and/or re-establish small (that is, low order) tributaries/streams that discharge into larger rivers and lakes such as the Susan River and Feather River.	▪ <i>Butte County General Plan</i> (Butte County 2023) ▪ <i>Lassen County General Plan</i> (Lassen County 2000) ▪ <i>Northern Sacramento Valley Integrated Regional Water Management Plan</i> (West Yost 2014) ▪ <i>Sierra Nevada Forest Plan Amendment</i> (USFS 2004) ▪ <i>SWAP</i> (CDFW 2025) ▪ <i>Upper Feather River Integrated Regional Water Management Plan</i> (Uma Hinman Consulting 2016) ▪ <i>Western Pond Turtle Range-wide Management Strategy</i> (WPTGCC 2020)

Objective	Sub-Objective	Alignment with Documents Identified in Table 8-3
Goal AR-4: Provide multi-resource benefits.	See below	See below
Objective AR-4.1: Maximize mitigation opportunities for multiple environmental benefits.	Sub-Objective AR-4.1.1: Enhance, rehabilitate, establish, and/or re-establish aquatic resource areas currently occupied by, or that provide habitat for, one or more special-status species, or areas that contribute to the protection of ecologically, geographically, and/or genetically distinct populations or sub-populations of obligate aquatic special-status species. Sub-Objective AR-4.1.2: Enhance and/or restore habitats for other aquatic species such as aquatic plants, fish species included in Section 2.15.4, as well as species included in Appendix D that could benefit from aquatic habitat enhancement and/or restoration. Sub-Objective AR-4.1.3: Address additional RWQCB beneficial use designations, such as recreation (for example, bird watching), through enhancement, rehabilitation, establishment and/or re-establishment actions that provide a functional lift.	▪ <i>Interagency Conservation Strategy for Mountain Yellow-Legged Frogs in the Sierra Nevada</i> (CDFW, et al. 2018) ▪ <i>Eagle Lake Area Plan</i> (Lassen County 2024) ▪ <i>Eagle Lake Field Office Proposed Resource Management Plan and Final Environmental Impact Statement</i> (BLM 2007) ▪ <i>Lassen County General Plan</i> (Lassen County 2000) ▪ <i>Northern Sacramento Valley Integrated Regional Water Management Plan</i> (West Yost 2014) ▪ <i>Sierra Nevada Forest Plan Amendment</i> (USFS 2004) ▪ <i>SWAP</i> (CDFW 2025) ▪ <i>Tahoe National Forest Land and Resource Management Plan Environmental Impact Statement</i> (USFS 1990) ▪ <i>Upper Feather River Integrated Regional Water Management Plan</i> (Uma Hinman Consulting 2016) ▪ <i>Western Pond Turtle Range-wide Management Strategy</i> (WPTRCC 2020)

8.8 Summary

Caltrans anticipates that future SHOPP transportation projects may be conditioned by the Corps, Water Boards, and/or CDFW to address the pressures and stressors that threaten aquatic resources within the GAI. The pressures and stressors include:

- Habitat loss, fragmentation, and degradation;
- Invasive species;
- Altered hydrology, geomorphology, and water quality;
- Climate change and drought; and
- Wildfire risk.

Therefore, Caltrans will seek to align advance mitigation scopes with conservation goals and objectives that address the identified pressures and stressors, thereby aligning advance mitigation efforts with regional conservation efforts. As noted in 33 CFR § 332.3, consolidating compensatory mitigation is generally ecologically preferable.

Regional conservation goals and objectives provide a framework for scoping mitigation credit establishment that would likely successfully offset future transportation project impacts on aquatic resources by creating functional lift or conservation benefit, and by mitigating the pressures and stressors on aquatic resources within the GAI. To summarize Table 8-4:

- **Goal AR-1** seeks to achieve no net loss of area, functions, values, and the condition of wetland and non-wetland water resources within the GAI. The primary objectives associated with this goal are to improve existing wetland and non-wetland water resources and create new ones. The sub-objectives were selected to address the following pressures and stressors: altered hydrology, geomorphology, and water quality; habitat loss, fragmentation, and degradation; invasive species; and wildfire risk.
- **Goal AR-2** seeks to restore and maintain the chemical, physical, and biological integrity of waters. The primary objectives associated with this goal are to protect and/or enhance water quality, improve surface water hydrology, and improve water storage and groundwater recharge. The sub-objectives were selected to address the following pressures and stressors: altered hydrology, geomorphology, and water quality.
- **Goal AR-3** seeks to support climate resiliency for aquatic resources within the GAI. The primary objectives are to reduce impacts on aquatic resources from climate change and improve aquatic habitat climate resiliency. The sub-objectives were selected to address the following pressures and stressors: climate change, drought; invasive species; and wildfire risk.
- **Goal AR-4** seeks to guide advance mitigation project scoping to prioritize multi-resource benefits, with the only objective being to coordinate mitigation efforts for multi-resource benefits. The sub-objectives of Goal AR-4 describe what additional benefits exist for other resources within the GAI, including benefits to upland terrestrial habitat. Goal AR-4 was developed to include conservation for multiple resources while seeking to address in-kind transportation projects' effects on aquatic resources.

Each of the goals and objectives have sub-objectives intended to further guide advance mitigation project scoping toward resource and regulatory agencies' regional conservation goals and objectives. These sub-objectives will prompt Caltrans to incorporate multiple benefits into advance mitigation project scopes and address important threats in the area through an advance mitigation project. This concept is an important way Caltrans seeks to use advance mitigation scoping to set the stage, once funding approval is received, for specific advance mitigation projects to provide a functional lift for aquatic resources and to maximize conservation benefits from mitigation within the GAI.

9. ASSESSMENT OF AUTHORIZED ACTIVITIES

Informed by this RAMNA and its reviewers' comments and feedback, Caltrans District 2 will nominate advance mitigation projects to the Caltrans Director and request funding approval (see Step 4 on Figure 1-1; Figure 6-1; Caltrans 2019a). Each advance mitigation project nominated to the Director will consist of a scope, schedule, and cost for an SHC § 800.6(a)-authorized activity. With respect to scope, in this chapter, Caltrans analyzes the information presented previously to identify advance mitigation project scope options that have a high probability of successfully meeting the AMP's transportation project and environmental objectives. Understanding the regulatory framework, environmental setting, available opportunities to purchase credits, impact forecasts, transportation project schedule needs, and natural resource regulatory agency goals and objectives will assist Caltrans District 2 with scoping of SHC § 800.6(a)-authorized activities to be considered further for potential funding by the AMA (see Step 4 of Figure 1-1 and Section 9.4).

Note that the analysis presented in this chapter is for advance mitigation project scoping purposes only. Transportation projects must still go through environmental and permitting processes and must demonstrate avoidance and minimization efforts prior to compensation.

9.1 Overview of Advance Mitigation Project Scope Development

Advance mitigation project scopes will provide enough information, at the appropriate level of detail, for the Caltrans Director to concur with funding. Appropriately, advance mitigation project scopes will address transportation project delivery acceleration and environmental objectives:

- To meet the AMP's objective of accelerating transportation project delivery, advance mitigation project scopes will be consistent with the AMP's founding legislation and the state's competitive bid requirements and will address transportation project schedule milestones and constraints.
- To meet the environmental objectives through transportation project mitigation, an advance mitigation project scope will be consistent with natural resource regulatory agency goals and objectives expressed in an approved regulatory instrument or interagency agreement and/or aligned with conservation goals and objectives identified in Chapter 7, *Wildlife Resources Conservation Goals and Objectives*, or Chapter 8, *Aquatic Resources Conservation Goals and Objectives*.

Summaries of transportation-related advance mitigation project scope requirements and conservation-related advance mitigation project scope goals and objectives are provided in Tables 9-1 and 9-2, respectively.

Table 9-1. Summary of Transportation-related Advance Mitigation Project Scope Requirements

Advance mitigation project scopes must:

Be an authorized activity in accordance with SHC § 800.6(a)

Benefit multiple transportation projects' delivery schedules

Deliver mitigation anticipated to be needed to fulfill the mitigation requirements of transportation improvements^a

Be consistent with natural resource regulatory agency goals and objectives

Yield mitigation in units and terms approved by natural resource regulatory agencies with the authority to condition transportation project permits with compensatory mitigation

Employ, as appropriate, existing applicable state and federal standards and instruments, mitigation-related agreements, advance mitigation project-specific agreements,^{b,c} and contracts with qualified third parties^d

Address overlapping mitigation requirements

Implement the state's competitive proposal and bidding processes^d

Strategically exercise the AMA

Manage the financial, technical, and strategic risks associated with Caltrans' investments

^a California Constitution, Article XIX, § 2, subdivision (a)

^b An advance mitigation project-specific interagency agreement is a general term to describe an agreement between natural resource regulatory agencies that attaches or binds advance mitigation requirements to a sponsor, qualified third party, or permittee; natural resource regulatory agencies agree that the action provides mitigation. Examples of advance mitigation project-specific interagency agreements include cooperative agreements, MCAs, or other interagency agreements. Advance mitigation project-specific interagency agreements are developed after a Caltrans advance mitigation project is funded.

^c The authority for Caltrans to enter into interagency agreements with public entities such as CDFW is under SHC § 114 and SHC § 130.

^d Procedures for Caltrans to enter in contracts with third parties are available at:
<https://dot.ca.gov/programs/procurement-and-contracts/contractor-resources>.

Table 9-2. Summary of Conservation-related Advance Mitigation Project Scope Goals and Objectives

Advance mitigation project scopes will strive to:

Benefit multiple wildlife species and aquatic resources

Be consistent with existing regional conservation planning expressed in a natural resource regulatory agency strategic plan, conservation plan, HCP, NCCP, watershed plan, restoration plan, investment strategy, RCIS, BEI, in-lieu fee program instrument, land management plan, or other documented conservation effort

Benefit regional biodiversity

Contribute to landscape climate change resiliency

Contribute to landscape connectivity

Contribute to federal and/or California special-status species population recovery

Mitigate effects of stressors on wildlife species and aquatic resources

Restore and rehabilitate wildlife habitat and aquatic resources

9.2 Benefiting Transportation Project Needs Summary

The proximity of planned SHOPP transportation projects to natural resources is shown on figures throughout this document; non-SHOPP, STIP-eligible projects were not identified for the planning period, and so are not shown. Estimated transportation project mitigation needs within the GAI for fiscal years 2023/24 to 2032/33 are presented in Chapter 5, *Modeled Estimated Impacts*, and the timing of the needs is analyzed in Chapter 6, *Benefiting Transportation Project Considerations*. For the time interval under consideration, fiscal years 2023/24 to 2032/33, Caltrans District 2 intends to prioritize purchasing or developing mitigation credits or values that address Road Repair and Accountability Act of 2017 (also known as Senate Bill 1) priorities that are planned for the middle and end of the planning period. Given the expected timing of mitigation need, at this time (August 2026) mitigation that can be purchased or established by or after fiscal year 2027/28 could potentially address mitigation for impacts on approximately:

- 0.1 acre of non-wetland waters and 1.5 acres of riparian habitat in the East Branch North Fork Feather sub-basin within the GAI, potentially contributing to the acceleration of 2 and 3 transportation projects, respectively (Table 6-1).
- 0.2 acre of wetlands, 0.7 acre of non-wetland waters, and 1.1 acre of riparian habitat in the Honey-Eagle Lakes sub-basin within the GAI, potentially contributing to the acceleration of 3, 6, and 1 transportation projects, respectively (Table 6-2).
- 0.2 acre of non-wetland waters, and 1.6 acres of riparian habitat in the Middle Fork Feather sub-basin within the GAI, potentially contributing to the acceleration of 2, and 2 transportation projects, respectively (Table 6-3).
- No species of mitigation need habitat in the Mono Ecoregion Section (Table 6-4).

- 2.2 acres of northwestern pond turtle habitat and 4.2 acres of golden eagle habitat impacts in the Northwestern Basin and Range Ecoregion Section, potentially contributing to 3 and 4 transportation projects, respectively (Table 6-5).
- 1.7 acres of foothill yellow-legged frog North Feather DPS habitat, 1.8 acres of Sierra Nevada yellow-legged frog habitat, 1.8 acres of northwestern pond turtle habitat, 11.3 acres of golden eagle habitat, and 4.2 acres of fisher habitat in the Sierra Nevada Ecoregion Section, potentially contributing to 3, 3, 3, 5, and 4 transportation projects, respectively (Table 6-6).
- 4.0 acres of foothill yellow-legged frog North Feather DPS habitat, 4.1 acres of northwestern pond turtle habitat, and 4.1 acres of golden eagle habitat in the Sierra Nevada Foothills Ecoregion Section, potentially contributing to 1, 1, and 1 transportation projects, respectively (Table 6-7).
- 4.3 acres of golden eagle habitat and 0.8 acre of fisher habitat in the Southern Cascades Ecoregion Section, potentially contributing to 1 and 1 transportation projects, respectively (Table 6-8).

All or some of these needs could form the basis for Caltrans District 2 to develop an advance mitigation project scope.

9.3 Authorized Activity Summary

Advance mitigation project scope options that have a high probability of successfully meeting the AMP's objectives are feasible. Below, a brief description of each of the 11 SHC § 800.6(a)-authorized advance mitigation project types is provided, followed by a discussion of its feasibility. Listed in Table 9-3, some advance mitigation project types are not currently feasible because they are not available within the GAI. Others are not currently feasible because a regulatory and administrative pathway is not available. Others have potential but may not be feasible to implement on a schedule to contribute to accelerated transportation project delivery. Further, the activity authorized by SHC § 800.6(a)(4) is only feasible if § 800.6(a)(1)–(3) options are not feasible. Results of the feasibility analysis are summarized in the subsections below, and in Table 9-4 (wildlife resources) and Table 9-5 (aquatic resources) later in this chapter.

Table 9-3. Advance Mitigation Project Types^a

Advance Mitigation Project Type	Authorization	Section
Caltrans pays mitigation fees or other costs or payments associated with coverage of transportation projects under an approved NCCP ^b and/or an approved HCP.	SHC § 800.6(a)(2)	9.3.1
Caltrans purchases credits from an existing conservation bank.	SHC § 800.6(a)(1)	9.3.2
Caltrans purchases credits from an existing mitigation bank.	SHC § 800.6(a)(1)	9.3.3
Caltrans purchases credits from an existing in-lieu fee program.	SHC § 800.6(a)(1)	9.3.4
Caltrans purchases credits developed through an MCA, established under a CDFW-approved RCIS. ^c	SHC § 800.6(a)(3)(A)	9.3.5

Advance Mitigation Project Type	Authorization	Section
Caltrans funds the establishment of a Caltrans or third-party sponsored and operated conservation bank, in accordance with applicable state and federal standards.	SHC § 800.6(a)(1)	9.3.6
Caltrans funds the establishment of a Caltrans or third-party sponsored and operated mitigation bank in accordance with applicable state and federal standards.	SHC § 800.6(a)(1)	9.3.7
Caltrans funds the establishment of a Caltrans or third-party sponsored and operated in-lieu fee program in accordance with applicable state and federal standards.	SHC § 800.6(a)(1)	9.3.8
Caltrans funds the implementation of conservation actions and habitat enhancement actions ^{c,d} to generate mitigation credits pursuant to an MCA ^b established under a CDFW-approved RCIS. ^c The scope may include Caltrans first entering into or funding the preparation of an MCA. ^c The scope may also include Caltrans first entering into or funding the preparation of an RCIS. ^c	SHC § 800.6(a)(3) SHC § 800.6(a)(3)(A)	9.3.9
Caltrans acquires, restores, manages, monitors, enhances, and preserves lands, waterways, aquatic resources, or fisheries, or funds the acquisition, restoration, management, monitoring, enhancement, and preservation ^e of lands, waterways, aquatic resources, or fisheries, that would measurably advance a conservation objective specified in an RCIS if the department concludes that the action or actions could conserve or create environmental values that are appropriate to mitigate the anticipated potential impacts of planned transportation improvements.	SHC § 800.6(a)(3)(B)	9.3.10
When the other mitigation options (above) are not practicable, Caltrans may perform mitigation in accordance with a programmatic mitigation plan ^f pursuant to SHC § 800.9. The programmatic mitigation plan shall include, to the maximum extent practicable, the information required for an RCIS. ^c	SHC § 800.6(a)(4) SHC § 800.9	9.3.11

^a Caltrans intends to contract or subcontract implementation tasks when appropriate and as required.

^b When Caltrans is a permittee under the NCCP, or if Caltrans qualifies as a Participating Special Entity and the project is a covered activity in the NCCP

^c See: <https://www.wildlife.ca.gov/Conservation/Planning/Regional-Conservation>

^d Under specific conditions, fish passage and wildlife crossing structures may qualify as enhancement actions under an RCIS in accordance with FGC § 1850–1861.

^e The Water Boards do not typically approve establishment of or accept preservation credits.

^f Programmatic mitigation plans are defined in 23 USC § 169(a) (SHC § 800.9). No more than 25 percent of the funds in the AMA may be allocated for this purpose over a 4-year period [SHC § 800.6(a)(4)].

9.3.1. NCCP and/or HCP Fees

NCCPs and HCPs are discussed in Section 4.2. NCCPs and HCPs are species-focused and are aligned with and plan for natural resource protection. HCPs, including multiple species HCPs, and NCCPs provide for incidental take under FESA and CESA, respectively. FWS is the signatory agency to HCPs. CDFW is the signatory agency to NCCPs.

Caltrans identified no active or pending HCPs or NCCPs with plan areas that overlap the GAI to which Caltrans and/or RTPAs are currently signatories or Participating Special

Entities. Other project-specific HCPs may exist in the GAI but apply to non-transportation agency users and cannot be used for Caltrans projects.

Feasibility. This authorized activity is not feasible. At this time (August 2026), there are no HCPs or NCCPs that Caltrans can contribute or pay fees to in the GAI.

9.3.2. Conservation Bank Credit Purchase

Conservation banks are discussed in Section 4.3. Conservation banks are species-focused, and each bank's alignment with natural resource protection is documented through its BEI. In the GAI, CDFW is a signatory to one active and one pending conservation bank, neither of which offer credits for the species of mitigation need (Table 4-2). FWS is a signatory to four active and one pending conservation bank, none of which offer credits for the species of mitigation need. CDFW and FWS are cosignatories to one active and one pending conservation bank.

Conservation bank service areas are shown on Figures 4-1, 4-2, and 4-5, and the anticipated transportation project impact forecast on terrestrial species of mitigation need is presented by year on Figures 6-5 through 6-9. When placed side-by-side, it is possible to see that multiple transportation projects may need species of mitigation need credits and which bank's service areas might have them available by 2027/2028, when the credits might contribute to transportation project acceleration.

Feasibility. This authorized activity is not feasible. At this time (August 2026) no conservation bank credits are available for purchase in the GAI for the species of mitigation need.

9.3.3. Mitigation Bank Credit Purchase

Mitigation banks are discussed in Section 4.3. Mitigation banks are wetlands- and non-wetland waters-focused, and each bank's alignment with natural resource protection is documented through its BEI. Three mitigation banks occur within the GAI provide wetland and/or non-wetland water credits. The Corps is a signatory to all mitigation banks within the GAI (Table 4-3; Figures 4-2 through 4-4).

Feasibility. This authorized activity may be feasible. Caltrans District 2 may be able to address some aquatic resource and vernal pool mitigation needs through credits purchased previously through the SHOPP (Table 4-1) or through purchase from an existing mitigation bank if the bank instrument includes pre-transfer credit purchases. After the Caltrans Director's approval for funding, delivering an advance mitigation project to purchase credits or fees is expected to take 1 to 3 years, at which point the credits or values would be available to transportation projects. For existing banks, a BEI amendment would be required to formalize a process for bulk pre-transfer credit purchases and additional time for amending the bank instrument should be addressed in the schedule; the additional time it would take to amend an instrument may make this pathway infeasible. Pre-transfer credit purchases are included in the BEI for one of the existing mitigation banks (Meridian Ranch). In 2021, the Interagency Project Delivery Team finalized new bank templates that incorporate pre-transfer purchase terms

satisfactory to the Project Delivery Team; however, terms may not be satisfactory for bankers and Caltrans. Caltrans District 2 should explore with bank sponsors whether additional Caltrans-specific terms would also need to be negotiated with bank sponsors. The decision to amend a BEI is at the discretion of the bank sponsor.

9.3.4. In-lieu Fee Credit Purchase

In-lieu fee programs are discussed in Section 4.4.¹ In-lieu fee mitigation occurs when a permittee provides funds to an in-lieu fee sponsor instead of either completing project-specific mitigation, or purchasing credits from a conservation or mitigation bank. Additionally, it offers permittees an in-lieu fee option to satisfy their compensatory mitigation obligations as determined by the applicable regulatory agencies for impacts on aquatic resources authorized under the CWA, Rivers and Harbors Act, ESA, Porter-Cologne Water Quality Control Act, and other applicable laws. Once enough money is received by an in-lieu fee program, it implements wetland, stream, or threatened or endangered species habitat restoration, creation, enhancement, or preservation activities within a watershed or other defined area.² The in-lieu fee program's alignment with natural resource protection is documented through its enabling instrument and will be incorporated into future biological opinions on transportation projects.

There is one active in-lieu fee program with a service area that overlaps the GAI (Table 4-3; Figures 4-6 and 4-7). the NFWF Sacramento District In-Lieu Fee Program instrument includes pre-transfer credit purchases.

Feasibility. This authorized activity is feasible. After the Caltrans Director's approval for funding, delivering an advance mitigation project to purchase credits or fees is expected to take 1 to 3 years, at which point the credits or values would be available to transportation projects. Bulk credits purchased from the NFWF Sacramento District California ILF Program through an advance mitigation project might, with natural resource agency approval, be incorporated into future conditions on transportation projects.

9.3.5. MCA Credit Purchase

As discussed in Section 4.5, MCAs are an advance mitigation tool that can be developed when and where an RCIS is approved by CDFW. CDFW has released RCIS program guidelines, including guidance for the creation of MCAs (CDFW 2023).³ However, an approved RCIS is a pre-condition for MCA creation and there are no active or pending RCISs with service areas that overlap the GAI.

Feasibility. At this time (August 2026), this authorized activity is not feasible because no MCA credits are available for purchase in the GAI.

¹ Up-to-date information on approved in-lieu fee programs, including available credits, can be found at: <https://ribits.ops.usace.army.mil/ords/f?p=107:47:13453394859366::NO>

² https://www.fhwa.dot.gov/innovation/everydaycounts/edc-1/pdf/banking_faq.pdf

³ <https://wildlife.ca.gov/Conservation/Planning/Regional-Conservation>

9.3.6. Conservation Bank Establishment

Instructions and guidance for establishing conservation banks are available from CDFW⁴ and FWS.⁵ Conservation banks are species-focused, and each bank's alignment with natural resource protection will be documented through its BEI. CDFW and FWS are potential signatories, and circumstances may occur in which the Corps and/or Water Boards would participate.

To support future transportation project conditions, a conservation bank funded through the AMA would establish CESA and FESA credits. At a minimum, conservation bank establishment project scopes will refer to and rely on GAI information provided in:

- Chapter 2, *Environmental Setting*
- Chapter 3, *Relevant Plans, Policies, and Regulations*
- Chapter 7, *Wildlife Resources Conservation Goals and Objectives*
- Chapter 8, *Aquatic Resources Conservation Goals and Objectives*
- Appendix C, *Land Cover Types*
- Appendix D, *Complete SAMNA Species Results*

An understanding of CDFW and FWS goals and objectives for wildlife resources in the GAI will improve the chances that credits established through an advance mitigation project will meet the compensatory mitigation needs of Caltrans' future transportation projects. In Chapter 7, *Wildlife Resources Conservation Goals and Objectives*, Caltrans analyzed and synthesized the relevant and applicable information listed in Chapter 3, *Relevant Plans, Policies, and Regulations*, to develop its understanding of natural resource regulatory agency goals and objectives for the GAI. In brief, it is Caltrans' understanding that a conservation bank that addresses the following goals would be consistent with CDFW and FWS goals:

- Conserve and expand habitat for species of mitigation need in the GAI to support ecosystem functions that are essential to recovery of the species (WILD-1).
- Preserve, enhance, and increase connectivity between blocks of wildlife habitat supporting species of mitigation need to allow for dispersal that will maintain resilience and variability of wildlife populations (WILD-2).⁶
- Support resiliency of the landscape to climate change (WILD-3).
- Decrease mortality and competition, and protect population health for species of mitigation need (WILD-4).
- Prioritize multi-species and multi-resource benefits (WILD-5).

⁴ <https://wildlife.ca.gov/Conservation/Planning/Banking/Templates>

⁵ <https://www.fws.gov/service/conservation-banking>

⁶ In 2021, CDFW was authorized to approve compensatory mitigation credits for wildlife connectivity actions taken under the conservation and mitigation banking program or the regional conservation investment strategy program (FGC § 1955 et. seq.). CDFW's *Wildlife Connectivity Advance Mitigation Guidelines* (CDFW, et al. 2018) provides guidance for applying connectivity actions to mitigation requirements.

Further, for each objective, Table 7-3 presents sub-objectives, which are intended to help guide Caltrans advance mitigation project scoping toward protecting natural resources through transportation project mitigation.

Feasibility. This authorized activity may be feasible. As pointed out previously, instructions and guidance for establishing conservation banks are available from CDFW and FWS. After the Caltrans Director's approval for funding, delivering an advance mitigation project to establish a conservation bank is expected to take 2 to 6 years before the initial credit release; the credits or values would be available to transportation projects according to the credit release schedule in the Interagency Review Team-approved BEI (CNRA et al. 2011). Caltrans may contract or subcontract bank establishment and/or implementation tasks, including site selection.

9.3.7. Mitigation Bank Establishment

Instructions and guidance for establishing mitigation banks are available from the Corps⁷ and CDFW.⁸ At a minimum, mitigation bank establishment project scopes will refer to and rely on GAI information provided in:

- Chapter 2, *Environmental Setting*
- Chapter 3, *Relevant Plans, Policies, and Regulations*
- Chapter 7, *Wildlife Resources Conservation Goals and Objectives*
- Chapter 8, *Aquatic Resources Conservation Goals and Objectives*
- Appendix E, *Aquatic Resource Locations*

To support future transportation project permits, Caltrans would prioritize wetlands and waters credit establishment under the Corps' jurisdiction (wetlands and WOTUS) and Water Boards jurisdiction (waters of the state), as well as riparian credit establishment under CDFW's Lake and Streambed Alteration Program.

Mitigation banks are wetland- and waters-focused, and each bank's alignment with natural resource protection is documented through its BEI. The Corps, Water Boards, FWS, and CDFW are potential signatories. In some circumstances, CDFW's participation in a bank could be documented through an MCA.

An understanding of Corps, Water Boards, FWS, and CDFW goals and objectives for aquatic resources in the GAI will improve the chances that credits established through an advance mitigation project will meet the compensatory mitigation needs of Caltrans' future transportation projects. In Chapter 8, *Aquatic Resources Conservation Goals and Objectives*, Caltrans analyzed and synthesized the relevant and applicable information listed in Chapter 3, *Relevant Plans, Policies, and Regulations*, to develop its understanding of natural resource regulatory agency goals and objectives for the GAI. In

⁷ https://www.usace.army.mil/Missions/Civil-Works/Regulatory-Program-and-Permits/mitig_info/

⁸ <https://wildlife.ca.gov/Conservation/Planning/Banking/Templates>

brief, it is Caltrans' understanding that a mitigation bank that addresses the following goals would be consistent with natural resource regulatory agency goals:

- Ensure no net loss of area, functions, values, and condition of wetland and non-wetland water resources⁹ (AR-1).
- Restore and/or enhance the chemical, physical, and biological integrity of wetlands and non-wetland waters (AR-2).
- Support resiliency of aquatic resources to climate change (AR-3).
- Provide multi-resource benefits (AR-4).

Further, for each objective, Table 8-4 presents sub-objectives, which are intended to help guide Caltrans advance mitigation project scoping toward protecting natural resources through transportation project mitigation.

Feasibility. This authorized activity may be feasible. As discussed above, instructions and guidance for establishing mitigation banks are available from the Corps and CDFW and, therefore, establishing credits is feasible. After the Caltrans Director's approval for funding, delivering an advance mitigation project to establish a mitigation bank is expected to take at least 2 to 6 years before the initial credit release, at which point the credits or values would be available to transportation projects. Caltrans may contract or subcontract bank establishment and/or implementation tasks, including site selection.

9.3.8. In-lieu Fee Program Establishment

In-lieu fee programs are wetlands, waters, and/or wildlife oriented and their alignment with natural resource protection will be documented through its enabling instrument. Instructions and guidance for establishing in-lieu fee programs are available from the federal agencies.¹⁰ With respect to wildlife, like the Corps, FWS also follows federal guidance for establishing an in-lieu fee program; however, a supportive regulatory and administrative pathway for CDFW to develop an in-lieu fee program has not been developed.

To support future transportation project conditions, in-lieu fee program establishment projects would rely on the same information as mitigation bank establishment (Section 9.3.7). At a minimum, in-lieu fee establishment project scopes will refer to and rely on GAI information provided in:

- Chapter 2, *Environmental Setting*
- Chapter 3, *Relevant Plans, Policies, and Regulations*
- Chapter 7, *Wildlife Resources Conservation Goals and Objectives*
- Chapter 8, *Aquatic Resources Conservation Goals and Objectives*
- Appendix E, *Aquatic Resource Locations*

⁹ Preservation alone is not recognized by the Corps or Water Boards as providing no net loss.

¹⁰ <https://www.spl.usace.army.mil/Missions/Regulatory/Mitigation/>

To support future transportation project permits, Caltrans would seek CWA credit establishment under the Corps' jurisdiction (WOTUS) and Water Boards' jurisdiction (waters of the state). The Corps, EPA, and/or Water Boards are potential signatories to the in-lieu fee program enabling instrument. Caltrans may also seek to establish credits that could be applied as compensatory mitigation to offset impacts as part of future ESA biological assessments/opinions in coordination with FWS.

Feasibility. This authorized activity may be feasible. As stated above, instructions and guidance for establishing an in-lieu fee program for CWA credits are available from the federal agencies. After the Caltrans Director's approval for funding, delivering an advance mitigation project to establish an in-lieu fee program is expected to take 2 to 6 years. Credits or values would be available to transportation projects according to the Interagency Review Team-approved in-lieu fee enabling instrument. Caltrans may contract or subcontract implementation tasks.

9.3.9. MCA Credit or Value Establishment

As discussed in Section 4.5, MCAs are an advance mitigation tool that can be developed when and where an RCIS is approved by CDFW. In accordance with the *Regional Conservation Investment Strategies Program Guidelines*, MCAs are species- and species habitat-focused and can include credits under CESA and/or for riparian habitat to meet mitigation needs under a Lake and Streambed Alteration Agreement. An MCA's alignment with natural resource protection will be documented through the foundational RCIS and the MCA itself. RCIS development is also an SHC § 800.6(a)-authorized advance mitigation project deliverable.

At this time, Caltrans cannot be an MCA sponsor.¹¹ Therefore, Caltrans envisions that credits or values created through an MCA and funded through the AMA could be established under two scenarios:

- Caltrans funds the performance of conservation actions and habitat enhancement actions as needed to generate mitigation credits pursuant to an MCA, in which a third party is the MCA sponsor. The MCA sponsor, CDFW, and landowner would be signatories to the MCA. This scenario assumes an existing RCIS anticipates the requirements and needs for MCA credits to apply to transportation projects.
- Caltrans funds the preparation of an RCIS that anticipates transportation project requirements and needs for MCA credits prior to funding the preparation of an MCA by a third-party who is the MCA sponsor, as in the scenario above.¹²

To support future transportation project permits, an MCA or, if needed, an RCIS in concert with an MCA, funded through the AMA, would establish CESA and/or Lake and

¹¹ CDFW's legislation requires that MCA securities take the form of cash, a letter of credit, or a surety bond according to FGC § 1856 subdivision (g)(17), which includes and references all of § 1798.5 subdivision (a)(2).

¹² In accordance with SHC § 800.6(a)(3)(A), advance mitigation project scopes funded through the AMA may also include Caltrans first entering into or funding the preparation of an RCIS.

Streambed Alteration Program credits¹³ and CDFW would be the signatory. Caltrans may also request other natural resource regulatory agencies to be signatories to the MCA or may request project-specific interagency agreements with other natural resource regulatory agencies whose jurisdiction overlaps with CDFW's.¹⁴ However, participation in an MCA may be more feasible for state agencies than federal agencies. Under federal definitions, MCAs may be treated as permittee-responsible mitigation. Federal agencies prioritize credits purchased or established through banking and in-lieu fee programs over permittee-responsible mitigation.

Feasibility. At this time (August 2026), RCIS program guidelines, which include guidance for the creation of MCAs, are available (CDFW 2024a).¹⁵ Once an MCA has been approved by CDFW, mitigation credits created through the agreement would be available to be applied to Caltrans transportation projects.

However, at this time, there are no pending or approved MCAs, timelines and specifics related to the MCAs are uncertain, and scoping and delivering an advance mitigation project within the AMP's timeline needs is unlikely. Caltrans will stay involved to understand the MCA credit or establishment process. However, given the nature of the AMP's revolving account, which sustains itself through transportation project reimbursements, Caltrans has determined that it cannot commit AMA funds until the creation process can predictably deliver credits on a schedule.

Wildlife Crossing and Aquatic Corridor Enhancements

As described in Section 4.6, CDFW is authorized through FGC § 1957(a) to approve compensatory mitigation credits for wildlife connectivity actions under both the Conservation and Mitigation Banking Program and the RCIS Program. Consequently, through these mechanisms, CDFW and other natural resource regulatory agencies may be able to recognize credits established through wildlife crossing and aquatic corridor enhancement made separate and distinct from specific transportation projects. A BEI and MCA for connectivity would be consistent with Caltrans' understanding of natural resource regulatory agency's goals and objectives to preserve, enhance, and increase connectivity between blocks of species of mitigation need habitat (WILD-2 and AR-2), support resiliency of the landscape and aquatic resources to climate change (WILD-3 and AR-3), and provide multi-resource benefits (WILD-5 and AR-4). CDFW has released wildlife connectivity advance mitigation guidelines (CDFW 2024b) and other resources¹⁶ outlining pathways through which connectivity actions may be applied as advance mitigation.

The AMP is authorized to fund the creation of credits through conservation banks [SHC § 800.6(a)] and MCAs created pursuant to a CDFW-approved RCIS

¹³ Caltrans is the Lead Agency under CEQA; CDFW's permitting authority does not include conditioning transportation projects under CEQA (Section 7).

¹⁴ Parallel evaluations are undertaken when, for the same environmental enhancement/action, two or more agencies must employ different mechanisms to approve the credits.

¹⁵ <http://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=216523&inline>

¹⁶ <https://wildlife.ca.gov/Conservation/Planning/Connectivity>

[SHC § 800.6(b)]. FGC § 1957(a) provides a means by which the AMP could potentially fund credit establishment or creation through fish and wildlife connectivity projects. Caltrans will reassess wildlife crossing and aquatic corridor enhancements related to feasibility with respect to the AMA expenditures and mitigation needs covered in this RAMNA once CDFW's guidelines for wildlife crossing and aquatic corridor enhancements are finalized.

9.3.10. Mitigation That Meets an RCIS Conservation Objective

SHC § 800.6(a)(3)(B) authorizes the following expenditure from the AMA:

Caltrans acquires, restores, manages, monitors, enhances, and preserves lands, waterways, aquatic resources, or fisheries, or funds the acquisition, restoration, management, monitoring, enhancement, and preservation¹⁷ of lands, waterways, aquatic resources, or fisheries that would measurably advance a conservation objective specified in an RCIS if the department concludes that the action or actions could conserve or create environmental values that are appropriate to mitigate the anticipated potential impacts of planned transportation improvements.

Feasibility. At this time (August 2026), this authorized activity is not feasible because there are no RCIS programs established within the GAL. A supportive regulatory and administrative pathway for a natural resource regulatory agency to recognize credits or values outside of existing advance mitigation mechanisms, such as the procedures to establish banks, does not exist. Without an existing regulatory pathway, the time to establish credits or values for this advance mitigation project type is uncertain. Consequently, at this time, scoping and delivering an advance mitigation project within the AMP's timeline needs through this authorized activity is unlikely.

9.3.11. Mitigation in Accordance with a Programmatic Mitigation Plan

Caltrans may undertake this project type if all other advance mitigation project types discussed above are not feasible [SHC § 800.6(a)(4)]. In brief, SHC § 800.6(a)(4) and SHC § 800.9 authorize the following expenditure from the AMA:

Caltrans performs mitigation in accordance with a programmatic mitigation plan pursuant to SHC §800.9. The programmatic mitigation plan shall include, to the maximum extent practicable, the information required for a RCIS.

This authorized activity would likely require an advance mitigation project-specific agreement, such as a cooperative agreement, and the time needed to establish credits or values for this advance mitigation project type is uncertain. In general, unless otherwise prescribed in regulation, an advance mitigation project-specific interagency agreement should include the agency's jurisdiction, resource type, resource value, protection level, service area, time frame, performance and compliance requirements, mitigation

¹⁷ Water Boards do not typically approve establishment of or accept preservation credits.

accounting procedures, funding, monitoring, and the advance mitigation project's closeout terms and conditions.

Feasibility. At this time (August 2026), a number of the authorized activities listed in Table 9-3 appear to be feasible (see Tables 9-4 and 9-5). This suggests that addressing a Caltrans SAMNA-estimated need will not require another approach in accordance with SHC § 800.6(a)(4). At this time, management of the AMA does not need to consider limiting any advance mitigation project type to 25 percent of the fund.

9.3.12. Discussion

Caltrans modeled its compensatory mitigation needs in the GAI for fiscal years 2023/24 to 2032/33 (Chapter 5, *Modeled Estimated Impacts*) and evaluated its needs considering when transportation projects might need the mitigation (Chapter 6, *Benefiting Transportation Project Considerations*, and Section 9.2). Summarized in Tables 9-4 and 9-5, Caltrans identified a few options for how to meet its mitigation needs. The authorized activities consist of options to purchase existing mitigation credits (Sections 9.3.1 to 9.3.5) or establish additional mitigation (Section 9.3.6 through 9.3.11).

Based on its evaluation, Caltrans found that, at this time (August 2026), a few authorized activities appear to be feasible and, under several scenarios, advance mitigation project scopes could cover multiple resources and address overlapping natural resource regulatory agency jurisdictions (see Section 9.2). Under some conditions, establishing new mitigation credits through existing mechanisms may also be possible.

Table 9-4. Wildlife Resources Credit Options and Feasibility, August 2026

Authorized Activity	Regulatory and Administrative Pathway Available	Available/Opportunity Exists in the GAI	Potential to Address Overlapping Jurisdictions	Time to Complete Funding and Scoping ^a	Time to Complete Credit Approval Process
Pay NCCP and/or HCP fees	No	No, there are no HCP/NCCPs in the GAI that apply to transportation projects	Not available	Not available	Not available
Purchase conservation bank credits	Yes	Yes, there are five active or pending FWS-approved banks and two CDFW-approved banks within the GAI with wildlife species credits. However, no credits are available within the GAI for the species of mitigation need.	Yes, CDFW and FWS for dually listed species	1 to 3 years	1 month to 3 years (depending on complexity and possible need for amendment allowing advance mitigation purchase)
Purchase in-lieu fee program credits	No	No, although there is one in-lieu fee program in the GAI, it is not approved by FWS and does not offer species-specific credits.	Not available	Not available	Not available
Purchase MCA credits	No	Not available	Not available	Not available	Not available
Establish conservation bank	Yes	Yes, with CDFW and FWS	Yes, with CDFW and FWS	2 to 6 years	2 to 6 years
Establish in-lieu fee program	Yes	Yes, with FWS	Yes, with FWS Potential to align with Corps in-lieu fee program	2 to 6 years	4 to 6 years

Authorized Activity	Regulatory and Administrative Pathway Available	Available/Opportunity Exists in the GAI	Potential to Address Overlapping Jurisdictions	Time to Complete Funding and Scoping ^a	Time to Complete Credit Approval Process
Establish MCA credits or values ^b	No, no RCISs in GAI	No, no RCISs in GAI	Maybe, for the CDFW program, CDFW approves the credits and allows other regulatory agencies to acknowledge MCA credits, if desired Potential for parallel evaluation(s) with other natural resource regulatory agencies	Not available	Not available
Establish RCIS and MCA ^b	Yes, RCIS and MCA creation guidelines available	Yes, RCIS and MCA creation guidelines available	Maybe, for the CDFW program, CDFW approves the credits and allows other regulatory agencies to acknowledge MCA credits, if desired Potential for parallel evaluation(s) with other natural resource regulatory agencies	Not available	Not available
Establish mitigation that meets an RCIS objective	No, no RCISs in GAI	Not available	Not available	Not available	Not available
Establish mitigation in accordance with a programmatic mitigation plan	No	Not available	Not available	Not available	Not available

^a Caltrans contracting processes and agency interactions are incorporated into this time estimate.

^b Either Caltrans or a third party would be the signatory with CDFW.

Table 9-5. Aquatic Resources Credit Options and Feasibility, August 2026

Authorized Activity	Regulatory and Administrative Pathway Available	Available/Opportunity Exists in the GAI	Potential to Address Overlapping Jurisdictions	Time to Complete Funding and Scoping ^a	Time to Complete Credit Approval Process
Purchase mitigation bank credits	Yes, may require instrument amendment	Yes, three Corps banks have service areas that overlap the GAI	Yes, Corps, EPA, CDFW, FWS, and Water Boards	1 to 3 years	1 month to 3 years (depending on complexity and possible need for amendment allowing advance mitigation purchase)
Purchase in-lieu fee credits ^b	Yes	Yes, there is one Corps in-lieu fee program within the GAI	Yes, EPA, Water Boards	1 to 3 years	1 month to 3 years (depending on complexity and possible need for amendment allowing advance mitigation purchase)
Purchase MCA credits	No, no RCISs in GAI	Not available	Not available	Not available	Not available
Establish mitigation bank	Yes	Yes, Corps, EPA, CDFW, FWS, and Water Boards	Yes, Corps, CDFW, EPA, FWS, and Water Boards	2 to 6 years	4 to 6 years
Establish in-lieu fee program	Yes	Yes, Corps, EPA, FWS, and Water Boards	Maybe, Corps, EPA, FWS, and Water Boards	2 to 6 years	4 to 6 years

Authorized Activity	Regulatory and Administrative Pathway Available	Available/Opportunity Exists in the GAI	Potential to Address Overlapping Jurisdictions	Time to Complete Funding and Scoping ^a	Time to Complete Credit Approval Process
Establish MCA credits or values ^c	No, no RCISs in GAI	No, no RCIS's in the GAI	Maybe, for CDFW program, CDFW approves the credits and allows other regulatory agencies to acknowledge MCA credits, if desired Potential for parallel evaluation(s) with other natural resource regulatory agencies	Not available	Not available
Establish RCIS and MCA ^c	Yes; RCIS and MCA creation guidelines available	Yes, RCIS and MCA creation guidelines available	Maybe; for the CDFW program, CDFW approves the credits and allows other regulatory agencies to acknowledge MCA credits, if desired Potential for parallel evaluation(s) with other natural resource regulatory agencies	Not available	Not available
Establish mitigation that meets an RCIS objective	No, no RCISs in GAI	Not available	Not available	Not available	Not available
Establish mitigation in accordance with a programmatic mitigation plan	No	Not available	Not available	Not available	Not available

^a Caltrans contracting processes and agency interactions are incorporated into this time estimate.

^b Applies to the purchase of in-lieu fee credits at in-lieu fee programs associated with an HCP/NCCP.

^c Either Caltrans or a third party would be the signatory with CDFW.

9.4 Next Steps

Caltrans is required to avoid and minimize any impacts on the environment where practicable, but some impacts are unavoidable. When this is the case, as determined by a natural resource regulatory agency, Caltrans may use compensatory mitigation to offset these unavoidable impacts on the environment. Compensatory mitigation involves the restoration, establishment, enhancement, and/or preservation of the environment, including wetlands, non-wetland waters, and threatened or endangered species and/or their habitats, including riparian habitat.

Caltrans District 2 will consider all feasible options when developing advance mitigation project scopes. The feasibility of each authorized activity to meet the mitigation need depends on the availability of a regulatory and administrative pathway as well as other conditions summarized in Tables 9-4 and 9-5. Not included in the table is an explicit comparison of other desired qualities, outcomes, or other factors of performing any particular authorized activity, which Caltrans District 2 will also consider based on its localized knowledge of delivering mitigation in its region. For example, Caltrans may prioritize advance mitigation projects that reduce risk in implementation and long-term management by eliciting others to be bank or in-lieu fee sponsors.

As described in the introduction to this chapter and in Section 9.1, to inform the advance mitigation project scope, Caltrans District 2 will use information within the RAMNA. Each scope will consider mitigation needs; the timing of mitigation needs; conservation data and plans; input from natural resource regulatory agencies, interested parties, and tribes; feasibility; timing; and other financial, strategic, and technical risks associated with transportation project delivery and conservation actions. Advance mitigation project scopes will also employ, as appropriate, existing applicable state and federal standards and instruments, mitigation-related agreements, advance mitigation project-specific agreements, and contracts with qualified third parties.

Caltrans District 2 will submit a nominated advance mitigation project's scope, schedule, and budget to the Caltrans Director for approval. When the Director concurs and funding is approved, Caltrans District 2 will commit to delivering the advance mitigation project within the scope, schedule, and budget communicated with nomination materials. At that point, Caltrans District 2 will initiate project delivery (see Steps 6 through 10 on Figure 1-2; Caltrans 2025a). Advance mitigation project delivery includes engaging stakeholders, analyzing project alternatives, coordinating with natural resource regulatory agencies with the authority to approve compensatory mitigation, contracting with third parties and/or credit sponsors, and developing an agency-approved instrument and/or one or more advance mitigation project-specific interagency agreement(s). Additionally:

- Stakeholder engagement will be conducted in accordance with each advance mitigation project's communication plan and be consistent with the applicable and appropriate requirements of existing applicable state and federal standards and instruments.

- When required by the advance mitigation project type, site selection may be performed by or under contract to Caltrans through a competitive bid process, and may include existing mitigation providers, for example, banks, NCCPs, MCAs, and the identification of new acquisitions. When a competitive bid process is used, sites are subject to what bid respondents put forward in their proposals. Site selection should be consistent with appropriate conservation goals and objectives identified in Chapter 7, *Wildlife Resources Conservation Goals and Objectives*, and Chapter 8, *Aquatic Resources Conservation Goals and Objectives*.
- When appropriate for the advance mitigation project type, it may be necessary to identify the steps required to meet the goal of satisfying overlapping jurisdictional mitigation requirements.
- Instruments and advance mitigation project-specific interagency agreements will specify the terms of use of the credits, including the service areas. Service areas will be defined based on feedback from the natural resource regulatory agencies. It is intended for the ecological units used for this RAMNA to lead to ecologically based advance mitigation project scopes and service areas; Caltrans uses HUC-8 sub-basins to be consistent with the 2008 Mitigation Rule and ecoregions to be consistent with the SWAP.

As with all credits and values established through advance mitigation processes, the credits' suitability for application to a specific transportation project is determined in the future, on a case-by-case basis, when transportation project mitigation requirements are known.

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