



ADVANCE MITIGATION PROGRAM
Upper Cosumnes and Upper Mokelumne
Sub-basins
Regional Advance Mitigation
Needs Assessment
Appendices

Version 1.0 – DRAFT

Establishing Caltrans' Need for Advance Mitigation
for the Upper Cosumnes and Upper Mokelumne Sub-basins
forecast fiscal years 2023/24 to 2032/33

California Department of Transportation – District 3

July 2026

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APPENDIX A: GIS SOURCES

This RAMNA relies on maps to convey information. At the bottom of each map figure is a citation that lists the GIS source identification numbers. These source identification numbers refer to Table A-1, where the metadata documentation is provided. When available, the source date and/or website address to access the data layer online are also provided.

Table A-1. District 3 RAMNA GIS Sources

ID	GIS Layer	Source	Source Date	Download Date	Website
1	State Highway Network	Caltrans	8/1/2018	10/11/2018	https://gisdata-caltrans.opendata.arcgis.com/datasets/77f2d7ba94e040a78bfbe36feb6279da_0/about
2	SHOPP	Caltrans	2023/2024 Q3	NA	Caltrans System Planning
3	STIP	California Transportation Commission	2023/2024 Q3	NA	Caltrans System Planning
4	Ecoregion Section (GAI)	USFS	1/26/2021	1/26/2021	https://data.fs.usda.gov/geodata/edw/datasets.php?xmlKeyword=Ecomap
5	Watershed Boundary Dataset	USGS	9/26/2014	10/19/2018	https://www.usgs.gov/core-science-systems/ngp/national-hydrography
6	County Boundaries	U.S. Census Bureau	7/8/2016	10/11/2018	https://data.ca.gov/dataset/ca-geographic-boundaries
7	California Conservation Easements	California Protected Areas Database	6/1/2024	7/24/2024	https://www.calands.org/cced/
8	California Protected Areas Holdings	California Protected Areas Database	6/1/2024	7/24/2024	https://www.calands.org/cpad/
9	Tribal Land Boundaries	Bureau of Indian Affairs	5/16/2017	10/11/2018	https://biamaps.geoplatform.gov/BIA-OpenData/Data/
10	U.S. Military Installments	U.S. Census Bureau	11/22/2023	1/12/2024	https://catalog.data.gov/dataset/tiger-line-shapefile-2022-nation-u-s-military-installation
11	Farmland Mapping and Monitoring Program	California Department of Conservation	9/22/2023	1/12/2024	https://gis.conservation.ca.gov/portal/home/group.html?id=b1494c705cb34d01acf78f4927a75b8f#overview
12	ACE Climate Resilience – ACE [ds2738]	CDFW	2/22/2018	10/17/2018	https://map.dfg.ca.gov/metadata/ds2738.html?5.66.18

ID	GIS Layer	Source	Source Date	Download Date	Website
13	Vegetation D03/D10 in Caltrans District 10 Geospatial Data for the Advance Mitigation Needs Assessment	Caltrans	1/1/2017	3/24/2021	https://dot.ca.gov/programs/environmental-analysis/biology/advancemitigation
14	Wetlands D03/D10 in Caltrans District 10 Geospatial Data for the Advance Mitigation Needs Assessment	Caltrans	1/1/2017	3/24/2021	https://dot.ca.gov/programs/environmental-analysis/biology/advancemitigation
15	FWS Critical Habitat	FWS	10/1/2018	3/24/2021	https://ecos.fws.gov/ecp/report/table/critical-habitat.html
16	Essential Connectivity Areas – CEHC	CDFW	1/1/2014	10/17/2018	https://map.dfg.ca.gov/metadata/ds0620.html
17	Natural Landscape Blocks – CEHC	CDFW	10/1/2017	10/17/2018	https://map.dfg.ca.gov/metadata/ds0621.html
18	Potential Riparian Connections – CEHC	CDFW	3/1/2010	10/17/2018	https://gis.data.ca.gov/datasets/CDFW::potential-riparian-connections-cehc-ds622/explore?location=37.324177%2C-119.243579%2C6
19	National Flood Hazard Layer	Federal Emergency Management Agency	6/29/2018	9/25/2019	https://www.fema.gov/national-flood-hazard-layer-nfhl
20	CalWater Hydrologic Areas	CDFW	11/1/2016	10/19/2018	https://frap.fire.ca.gov/mapping/gis-data/
21	Vernal Pools – ACE [ds2732]	CDFW	2/13/2020	1/29/2021	https://map.dfg.ca.gov/metadata/ds2732.html
22	Terrestrial Connectivity – ACE [ds2734]	CDFW	8/28/2019	9/25/2019	https://map.dfg.ca.gov/metadata/ds2734.html
23	SWAP Terrestrial Targets – 2015	CDFW	2/1/2018	10/29/2018	https://map.dfg.ca.gov/metadata/ds1966.html
24	Aquatic Biodiversity Summary – ACE [ds2768]	CDFW	2/22/2018	7/3/2019	https://map.dfg.ca.gov/metadata/ds2768.html

ID	GIS Layer	Source	Source Date	Download Date	Website
25	Calfish Passage Assessment Database	CDFW	10/3/2019	12/15/2019	https://map.dfg.ca.gov/metadata/ds0069.html
26	Terrestrial Biodiversity Summary – ACE [ds2739]	CDFW	2/24/2020	7/3/2019	https://map.dfg.ca.gov/metadata/ds2739.html
27	Regulatory In-Lieu Fee and Bank Information Tracking System	Corps	Not available	Not available	https://ribits.ops.usace.army.mil/ords/f?p=107:2
28	CDFW Approved Mitigation Service Areas	CDFW	2/6/2024	2/8/2024	https://map.dfg.ca.gov/metadata/ds2782.html
29	National HydrographyDataset Plus	EPA	3/13/2019	4/29/2021	https://www.epa.gov/waterdata/get-nhdplus-national-hydrography-dataset-plus-data
30	Fire Hazard Severity Zones in State Responsibility Area	California Department of Forestry and Fire Protection	11/1/2007	6/1/2022	https://34c031f8-c9fd-4018-8c5a-4159cdf6b0d-cdn-endpoint.azureedge.net/-/media/osfm-website/what-we-do/community-wildfire-preparedness-and-mitigation/fire-hazard-severity-zones/documents/relief-upon.pdf?rev=d7dd8d66c25f48aba431a33006708d89&hash=184F05D9CA74A95A5E40AD2CFFEDD254
31	Sierra Nevada Foothill Landscape Blocks [ds1004]	CDFW	6/17/2014	9/12/2022	https://map.dfg.ca.gov/metadata/DS1004.html
32	Sierra Nevada Foothill Riparian Corridors [ds1018]	CDFW	6/17/2014	9/12/2022	https://map.dfg.ca.gov/metadata/DS1018.html
33	Sierra Nevada Foothill Wildlife Linkages [ds1005]	CDFW	6/9/2014	9/12/2022	https://map.dfg.ca.gov/metadata/DS1005.html
34	California Wild and Scenic Rivers	California Department of Water Resources	12/2/2022	8/25/2023	https://data.cnra.ca.gov/dataset/wild-and-scenic-rivers-california-state-designations-only-2020

ID	GIS Layer	Source	Source Date	Download Date	Website
35	Conservation Plan Boundaries, HCP and NCCP	CDFW	8/27/2021	9/1/2023	https://map.dfg.ca.gov/metadata/ds0760.html
36	303(d) List for Impaired Waterbodies	SWRCB	6/9/2021	5/13/2022	https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html
37	ZIP Codes	U.S. Postal Service	2/11/2020	3/11/2020	https://www.arcgis.com/home/item.html?id=8d2012a2016e484dafaac0451f9aea24#overview
38	RipZET ^a	Caltrans	8/1/2024	8/5/2024	Not available

^a Data were used for tables, but not for figures, in this RAMNA.

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APPENDIX B: TRANSPORTATION PROJECTS PLANNED FOR THE GAI DURING THE PLANNING PERIOD

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 2024a). 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 18 SHOPP transportation projects in the GAI that are currently in the planning and conceptual phases (Table B-1).

Each transportation project's potential impact was defined using a buffer from the edge of pavement. Different buffer widths were used depending on the transportation project's activity or activities, since many transportation projects consist of multiple activities. Most of the planned activities are pavement improvements. See Table 1 of Caltrans (2024b) for the range of buffers relevant to the transportation projects listed in the SHOPP Ten-Year Book. Many transportation projects include multiple activities.

The subset of the Caltrans District 3 SHOPP transportation projects that are planned in the GAI during the planning period covered by this RAMNA, as well as the HUC-8 and ecoregion section, advertised year, and planned activities for each planned transportation project, are listed in Table B-1.

References

- Caltrans (California Department of Transportation). 2024a. "State Highway Operation & Protection Program Ten-Year Project Book 2023/24–2032/33." Quarter 3, Fiscal Year 2023/24. April. Sacramento, California. Accessed October 25, 2024. <https://dot.ca.gov/-/media/dot-media/programs/asset-management/documents/2024-q2-project-book-combined-a11y.pdf>.
- . 2024b. "Statewide Advance Mitigation Needs Assessment Report." State Highway Operation and Protection Program. Ten-Year Project Book. Second Quarter 2023/2024 Fiscal Year. September. Sacramento, California. Accessed October 25, 2024. <https://dot.ca.gov/programs/environmental-analysis/biology/advancemitigation>.

Table B-1. SHOPP Transportation Projects Planned in the GAI and Planning Period

ID Number	HUC-8	Ecoregion Section	Advertised Year	Caltrans District	County	Route ^a	Begin Mile ^a	End Mile ^a	Activity
18344	Upper Mokelumne	Sierra Nevada	2023/24	10	Alpine	4	R0.000	31.677	Pavement
21933	Upper Mokelumne	Sierra Nevada	2025/26	10	Alpine	4	0.38	30.37	Drainage
19026	Upper Mokelumne	Great Valley	2028/29	10	Amador	49	0	R7.000	Pavement
11366	Upper Mokelumne	Sierra Nevada Foothills	2023/24	10	Amador	88	5.5	14.3	Pavement
19026	Upper Mokelumne	Sierra Nevada Foothills	2028/29	10	Amador	49	0	R7.000	Pavement
22988	Upper Mokelumne	Sierra Nevada Foothills	2029/30	10	Amador	88	14.3	32.3	Pavement
19003	Upper Mokelumne	Sierra Nevada	2023/24	10	Amador	88	R54.7	R60.8	Drainage
22988	Upper Mokelumne	Sierra Nevada	2029/30	10	Amador	88	14.3	32.3	Pavement
19026	Upper Mokelumne	Sierra Nevada Foothills	2028/29	10	Calaveras	49	0	R7.000	Pavement
21691	Upper Mokelumne	Sierra Nevada Foothills	2023/24	10	Calaveras	26	18.1	18.1	Reactive safety
22992	Upper Mokelumne	Sierra Nevada Foothills	2030/31	10	Calaveras	49	R0.0	30.865	Pavement
20401	Upper Cosumnes	Sierra Nevada Foothills	2029/30	3	El Dorado	50	0	R9.0	Pavement
22503	Upper Cosumnes	Great Valley	2024/25	3	Sacramento	99	6.04	7.06	Bridge – health

ID Number	HUC-8	Ecoregion Section	Advertised Year	Caltrans District	County	Route ^a	Begin Mile ^a	End Mile ^a	Activity
23786	Upper Cosumnes	Great Valley	2031/32	3	Sacramento	99	5.5	7.75	Sustainability/Climate change
22870	Upper Mokelumne	Great Valley	2025/26	3	Sacramento	12	0.7	6.11	Reactive safety
22877	Upper Mokelumne	Great Valley	2030/31	3	Sacramento	160	11.7	35.045	Pavement
23785	Upper Mokelumne	Great Valley	2030/31	3	Sacramento	5	0.21	4.63	Sustainability/Climate change
24086	Upper Mokelumne	Great Valley	2025/26	3	Sacramento	5	1.2	3.1	Reactive safety
19027	Upper Mokelumne	Great Valley	2029/30	10	San Joaquin	12	M5.0	27.642	Pavement
22548	Upper Mokelumne	Great Valley	2023/24	10	San Joaquin	88	5.1	16.4	Pavement
24392	Upper Mokelumne	Great Valley	2031/32	10	San Joaquin	5	35.5	49.819	Pavement

Source: Caltrans (2024a)

Notes: M = middle, R = right

^a Routes and begin and end postmiles are representative of the project and are not necessarily associated with the county, ecoregion, or HUC-8 specified in the table row.

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APPENDIX C: LAND COVER TYPES

Land cover types in the GAI were excerpted from the SAMNA Reporting Tool's vegetation layer, which was developed by merging CDFW's 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 2024a, 2024b; CDFW 2019). Land cover types that occur in the GAI based on the SAMNA Reporting Tool are listed below (CDFW 2019), and complete descriptions can be found in Mayer and Laudenslayer (1988). Table C-1 indicates which ecoregion sections these habitat types occur in.

A key map is provided after Table C-1 that references mapbook pages including zoomed-in views of locations in the GAI and mapped land cover types (page C-5). These nine maps correspond with the aquatic resources maps in Appendix G, *Aquatic Resource Locations*.

Tree-dominated Habitats: Tree-dominated habitats have at least 10 percent total tree canopy crown closure. In the GAI, tree-dominated habitats include aspen, blue oak woodland, blue oak-foothill pine, closed-cone pine-cypress, coastal oak woodland, Douglas-fir, eastside pine, eucalyptus, Jeffrey pine, lodgepole pine, montane hardwood, montane hardwood-conifer, montane riparian, ponderosa pine, red fir, Sierran mixed conifer, subalpine conifer, valley foothill riparian, valley oak woodland, and white fir, which are found in all three ecoregion sections.

Shrub-dominated Habitats: Shrub-dominated habitats have at least 10 percent total cover by shrub species and less than 10 percent cover by tree species. In the GAI, shrub-dominated habitats include alpine dwarf-shrub, chamise-redshank chaparral, coastal scrub, low sage, mixed chaparral, montane chaparral, and sagebrush, which are found in all three ecoregion sections.

Herbaceous-dominated Habitats: Herbaceous-dominated habitats have at least 2 percent total cover by herbaceous species and less than 10 percent total cover by tree or shrub species. In the GAI, herbaceous-dominated habitats include annual grassland, fresh emergent wetland, pasture, perennial grassland, saline emergent wetland, and wet meadow, which are found in all three ecoregion sections.

Aquatic Habitats: Aquatic habitats have at least 98 percent total cover by open water and no more than 2 percent total cover by vegetation in the continually exposed shore zone. In the GAI, aquatic habitats include lacustrine and riverine, which are found in all three ecoregion sections.

Developed Habitats: Developed habitats have at least 2 percent total cover by non-wildland vegetation grown for food, fiber, or landscaping and do not meet criteria for any wildland habitat. In the GAI, developed habitats include cropland, deciduous orchard, evergreen orchard, irrigated row and field crops, urban, and vineyard, which are found in all three ecoregion sections.

Non-vegetated Habitats: Non-vegetated habitats include barren areas, characterized by less than 2 percent cover by herbaceous species. Barren areas are found in all three ecoregion sections.

References

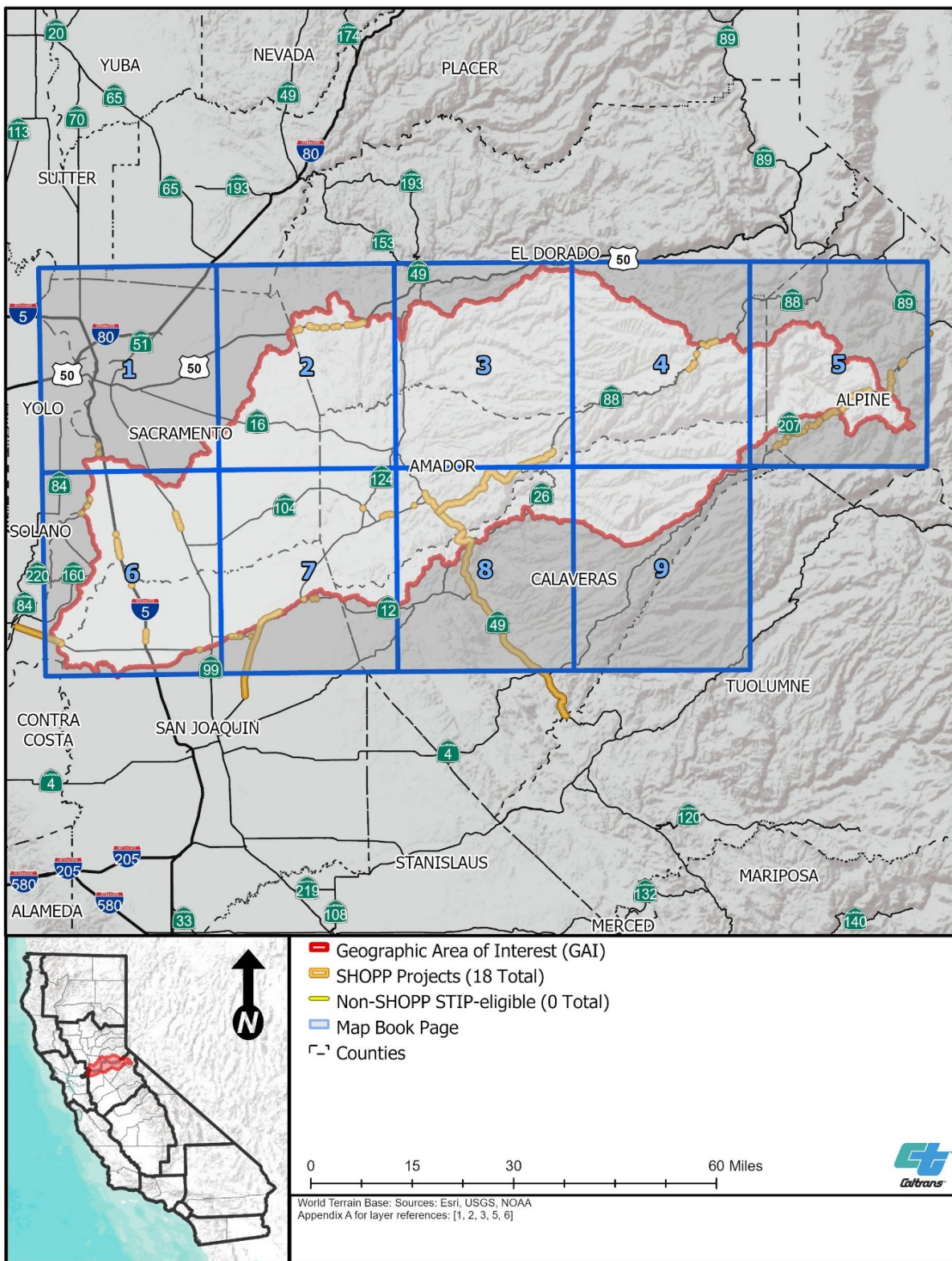
- Caltrans (California Department of Transportation). 2024a. "Caltrans District 3 Geospatial Data for the Advance Mitigation Needs Assessment for the Third Quarter of FY 2023/2024" (data file). Accessed October 16, 2024. <http://www.dot.ca.gov/env/advancemitigation/>.
- . 2024b. "Vegetation_D03/D10 in Caltrans District 3 Geospatial Data for the Advance Mitigation Needs Assessment for the Third Quarter of FY 2023/2024" (data file). Accessed October 16, 2024. <http://www.dot.ca.gov/env/advancemitigation/>.
- CDFW (California Department of Fish and Wildlife). 2019. *California Wildlife Habitat Relationships (CWHR) System*. Supported by the California Interagency Wildlife Task Group and maintained by the CDFW. Database Version 9.0.
- Mayer, K. E., and W, F. Laudenslayer, Jr., eds. 1988. "A Guide to Wildlife Habitats of California." State of California, Resources Agency, Department of Fish and Game. Sacramento, California. Including Revisions and Updates. Accessed August 16, 2021. <https://www.wildlife.ca.gov/Data/CWHR/Wildlife-Habitats>.

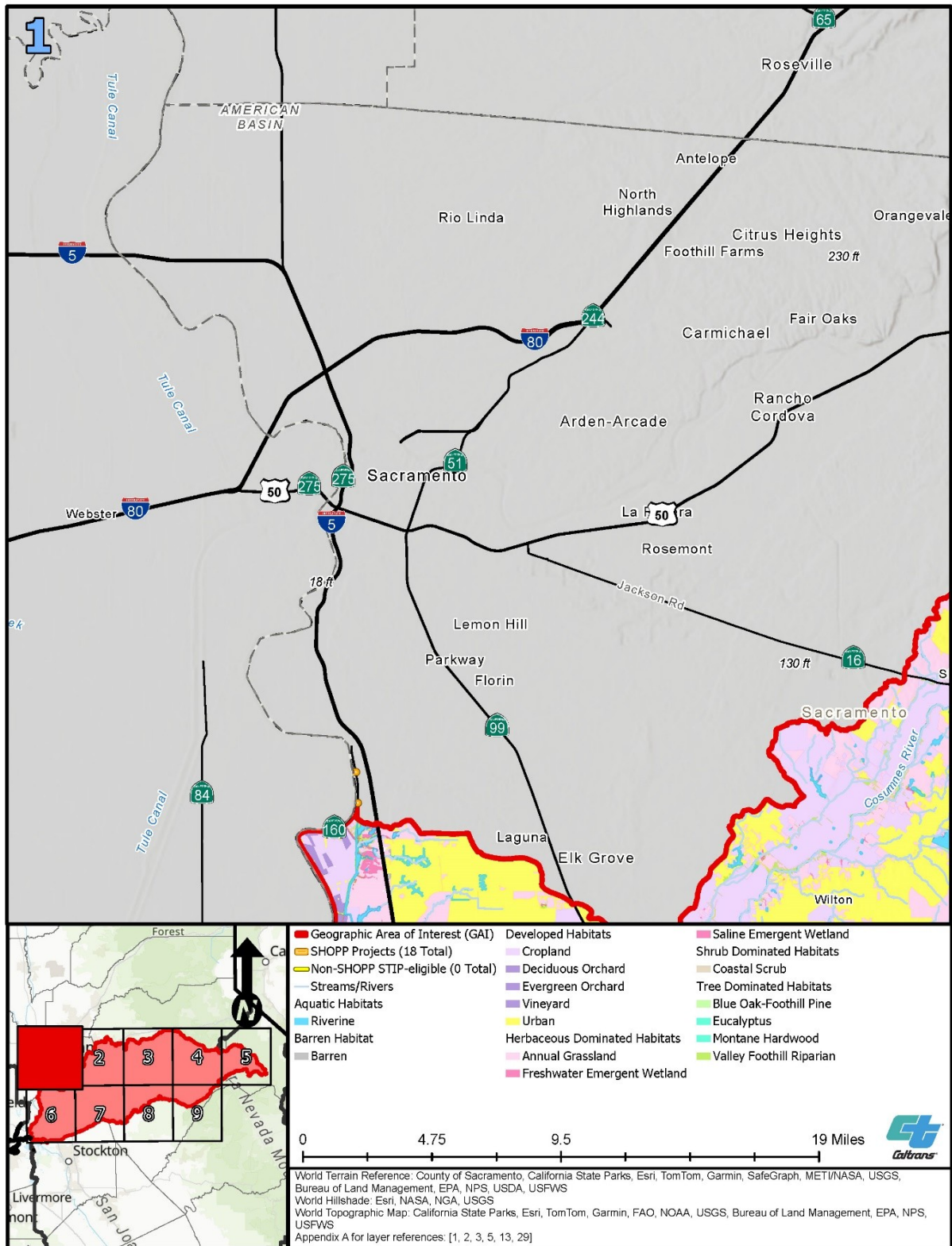
Table C-1. Land Cover Types in the GAI

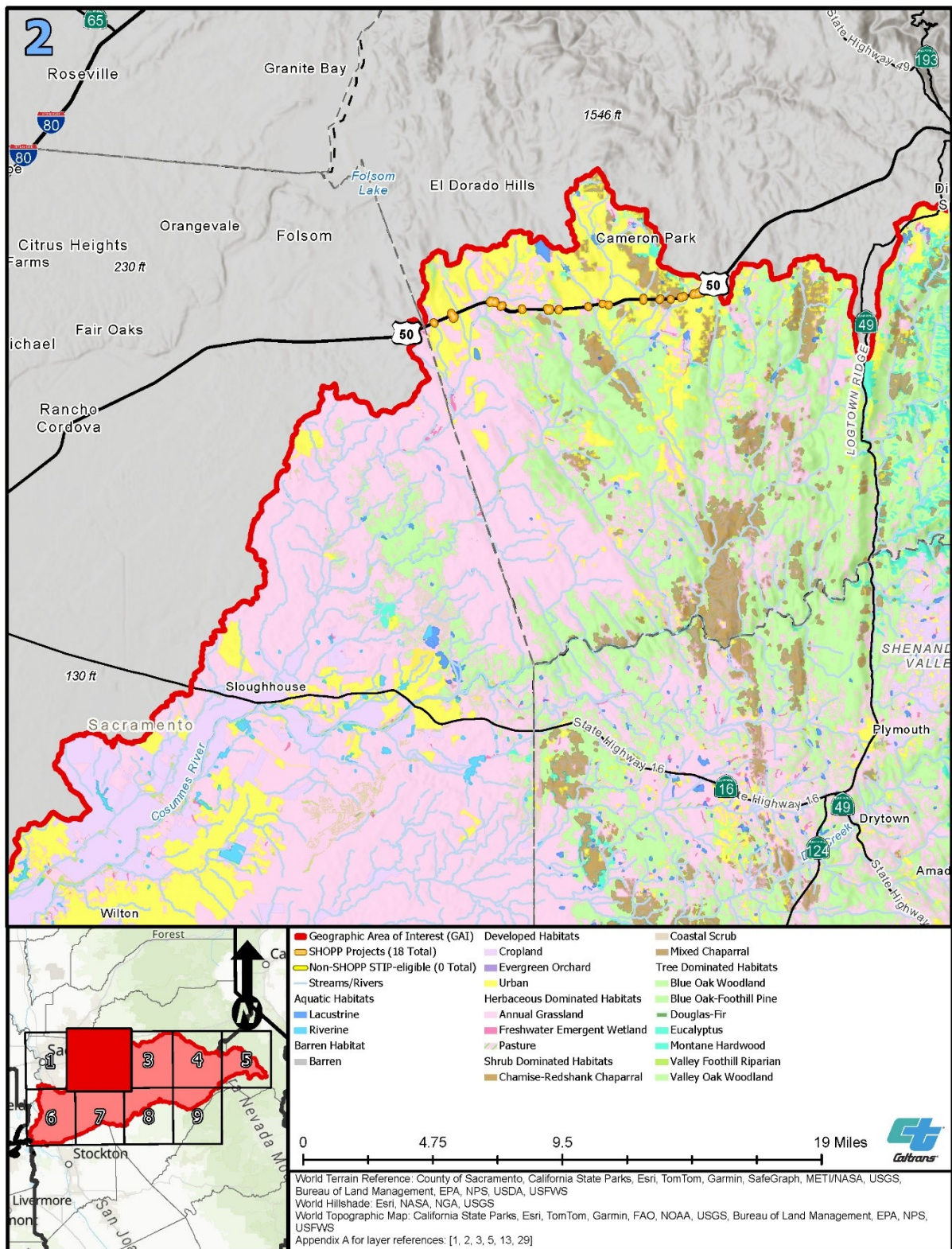
Land Cover Type	Great Valley Ecoregion	Sierra Nevada Ecoregion	Sierra Nevada Foothills Ecoregion
Tree-dominated Habitats	See below	See below	See below
Aspen	Not mapped	Present	Not mapped
Blue Oak Woodland	Present	Present	Present
Blue Oak Woodland; Blue Oak-Foothill Pine	Present	Present	Present
Blue Oak-Foothill Pine	Present	Present	Not mapped
Closed-Cone Pine-Cypress	Not mapped	Present	Not mapped
Coastal Oak Woodland	Present	Not mapped	Not mapped
Douglas-Fir	Not mapped	Present	Present
Eastside Pine	Not mapped	Present	Not mapped
Eucalyptus	Present	Not mapped	Present
Jeffrey Pine	Not mapped	Present	Present
Lodgepole Pine	Not mapped	Present	Not mapped
Montane Hardwood	Present	Present	Present
Montane Hardwood-Conifer	Not mapped	Present	Present
Montane Riparian	Present	Present	Not mapped
Ponderosa Pine	Present	Present	Present
Red Fir	Not mapped	Present	Not mapped
Sierran Mixed Conifer	Not mapped	Present	Not mapped
Subalpine Conifer	Not mapped	Present	Not mapped
Valley Foothill Riparian	Present	Present	Present
Valley Oak Woodland	Present	Present	Present
White Fir	Not mapped	Present	Not mapped
Shrub-dominated Habitats	See below	See below	See below
Alpine Dwarf-Shrub	Not mapped	Present	Not mapped
Chamise-Redshank Chaparral	Present	Present	Present
Coastal Scrub	Present	Not mapped	Not mapped
Low Sage	Not mapped	Present	Not mapped
Mixed Chaparral	Present	Present	Present
Montane Chaparral	Not mapped	Present	Not mapped
Sagebrush	Not mapped	Present	Not mapped

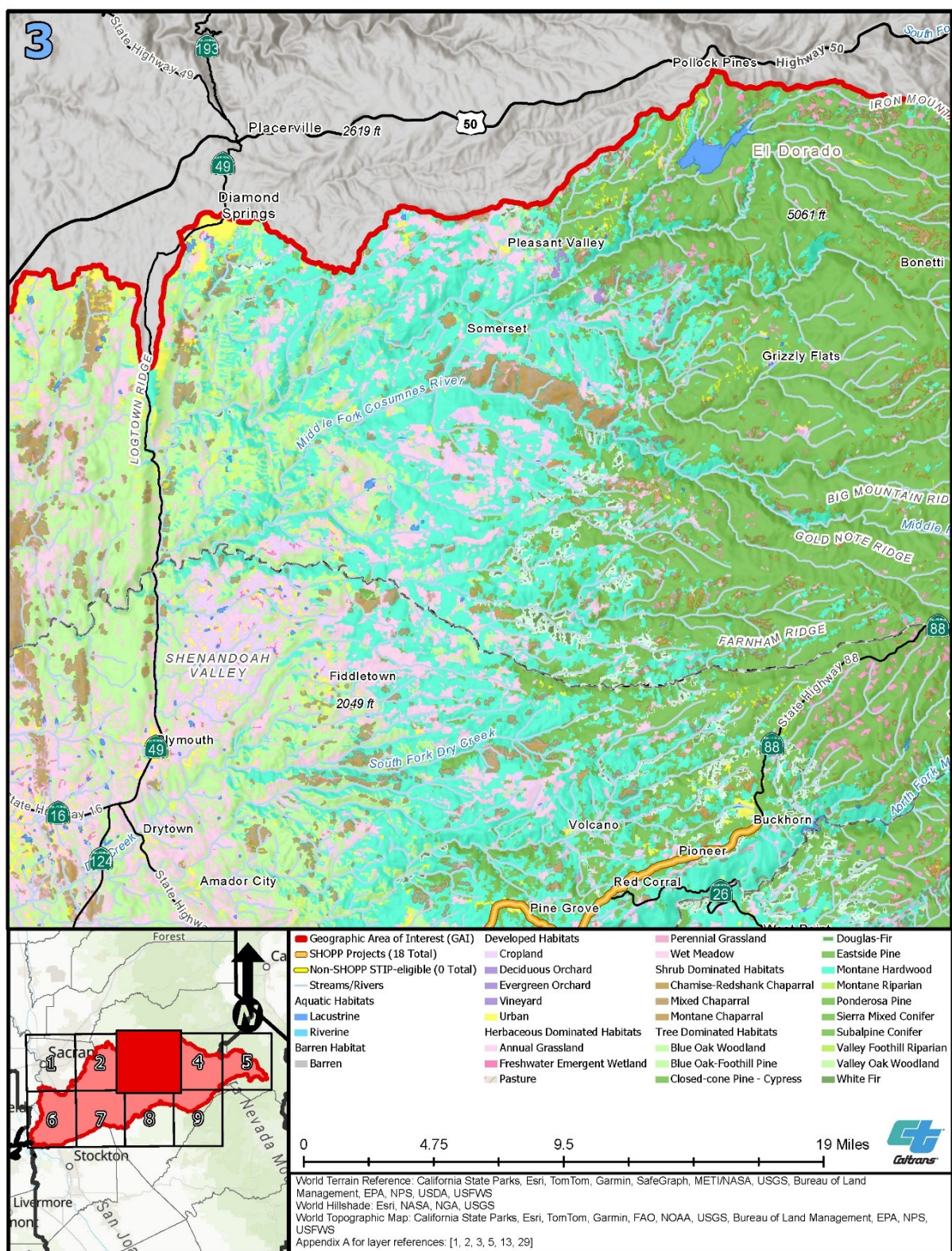
Land Cover Type	Great Valley Ecoregion	Sierra Nevada Ecoregion	Sierra Nevada Foothills Ecoregion
Herbaceous-dominated Habitats	See below	See below	See below
Annual Grassland	Present	Present	Present
Fresh Emergent Wetland	Present	Present	Present
Pasture	Present	Present	Present
Perennial Grassland	Not mapped	Present	Not mapped
Saline Emergent Wetland	Present	Not mapped	Not mapped
Wet Meadow	Present	Present	Not mapped
Aquatic Habitats	See below	See below	See below
Lacustrine	Present	Present	Present
Riverine	Present	Present	Present
Developed Habitats	See below	See below	See below
Cropland	Present	Present	Present
Deciduous Orchard	Present	Present	Not mapped
Evergreen Orchard	Present	Present	Present
Irrigated Row and Field Crops	Present	Not mapped	Not mapped
Urban	Present	Present	Present
Vineyard	Present	Present	Not mapped
Non-vegetated Habitats	See below	See below	See below
Barren	Present	Present	Present

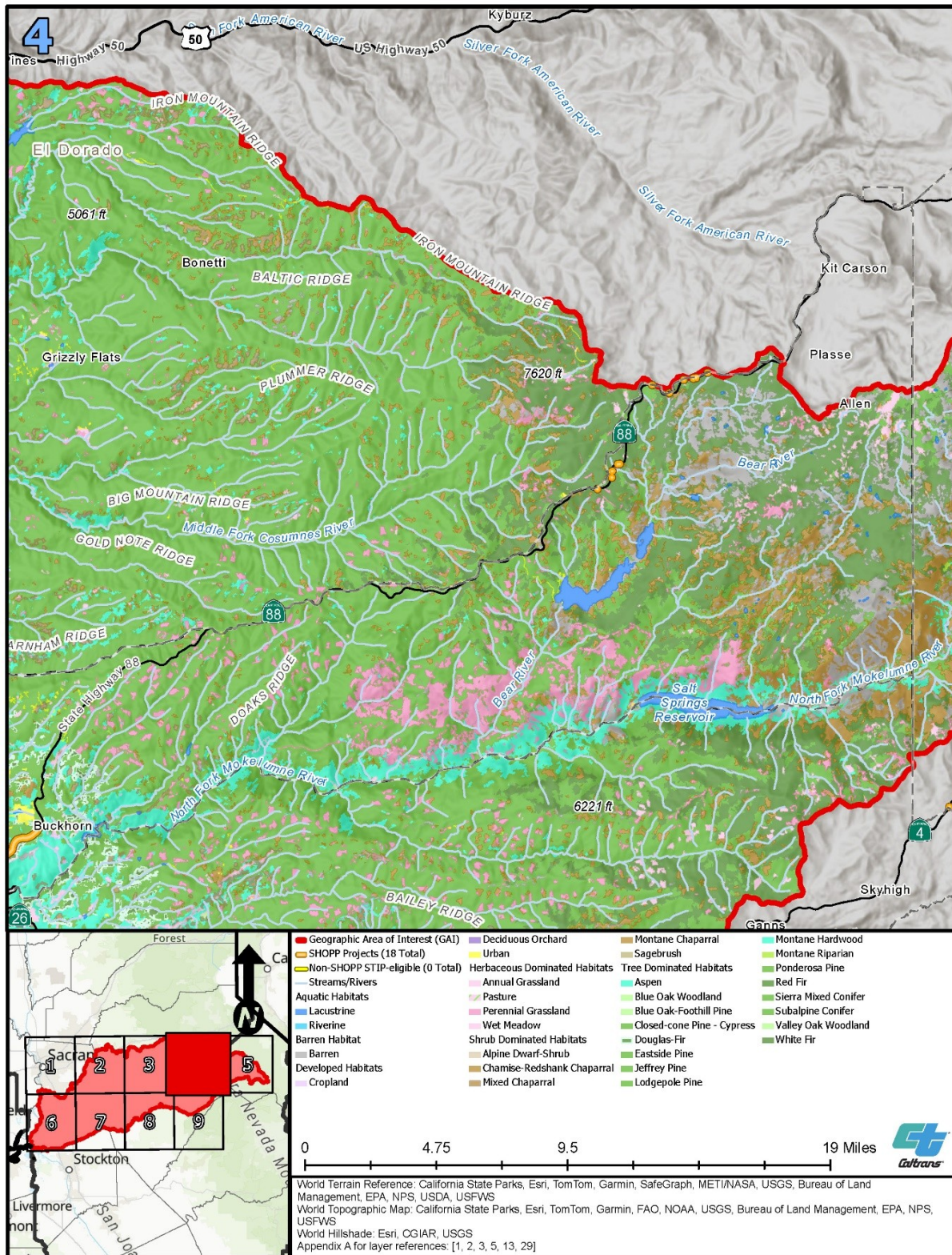
Sources: Caltrans 2024a, 2024b
Notes: Not mapped = Not present

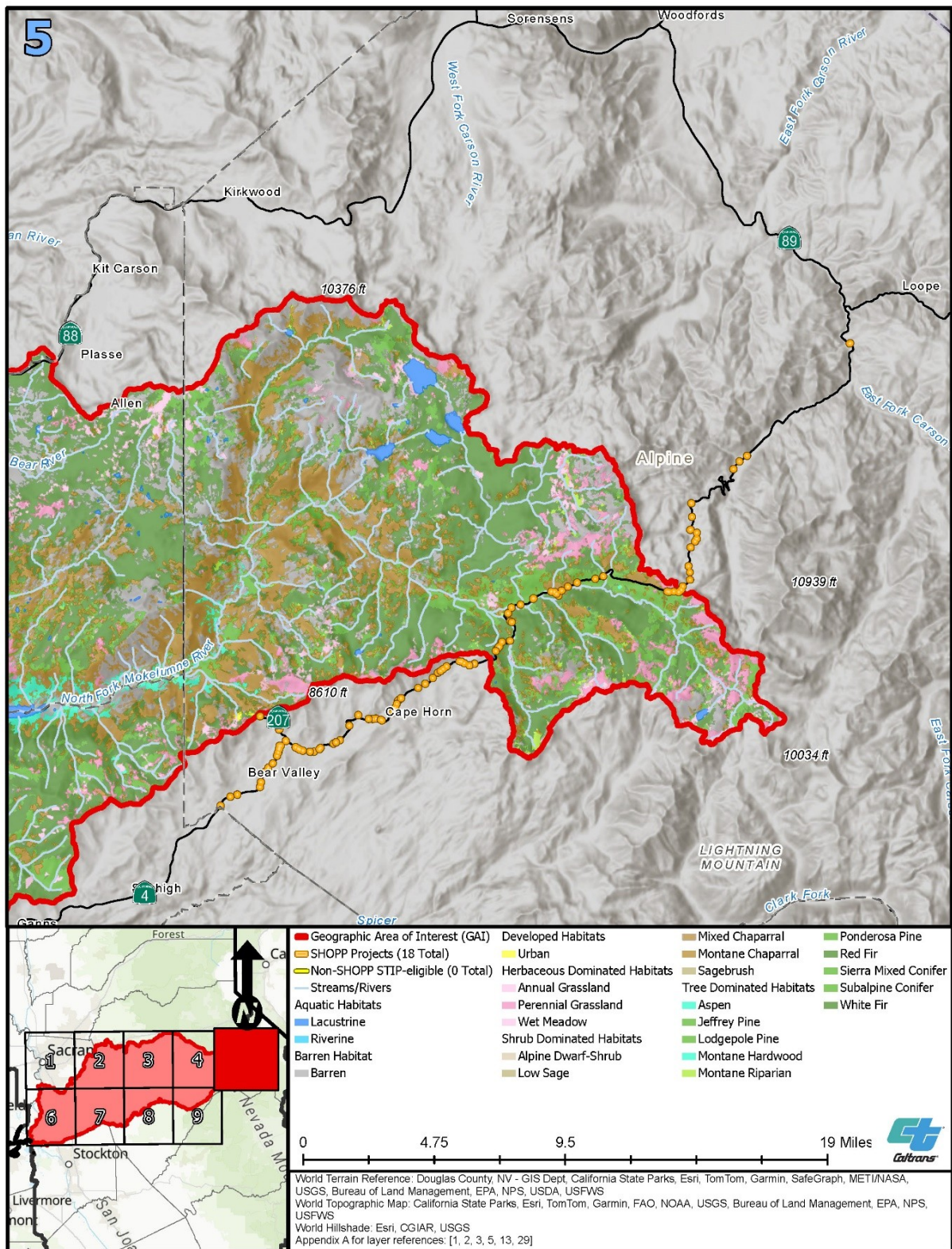


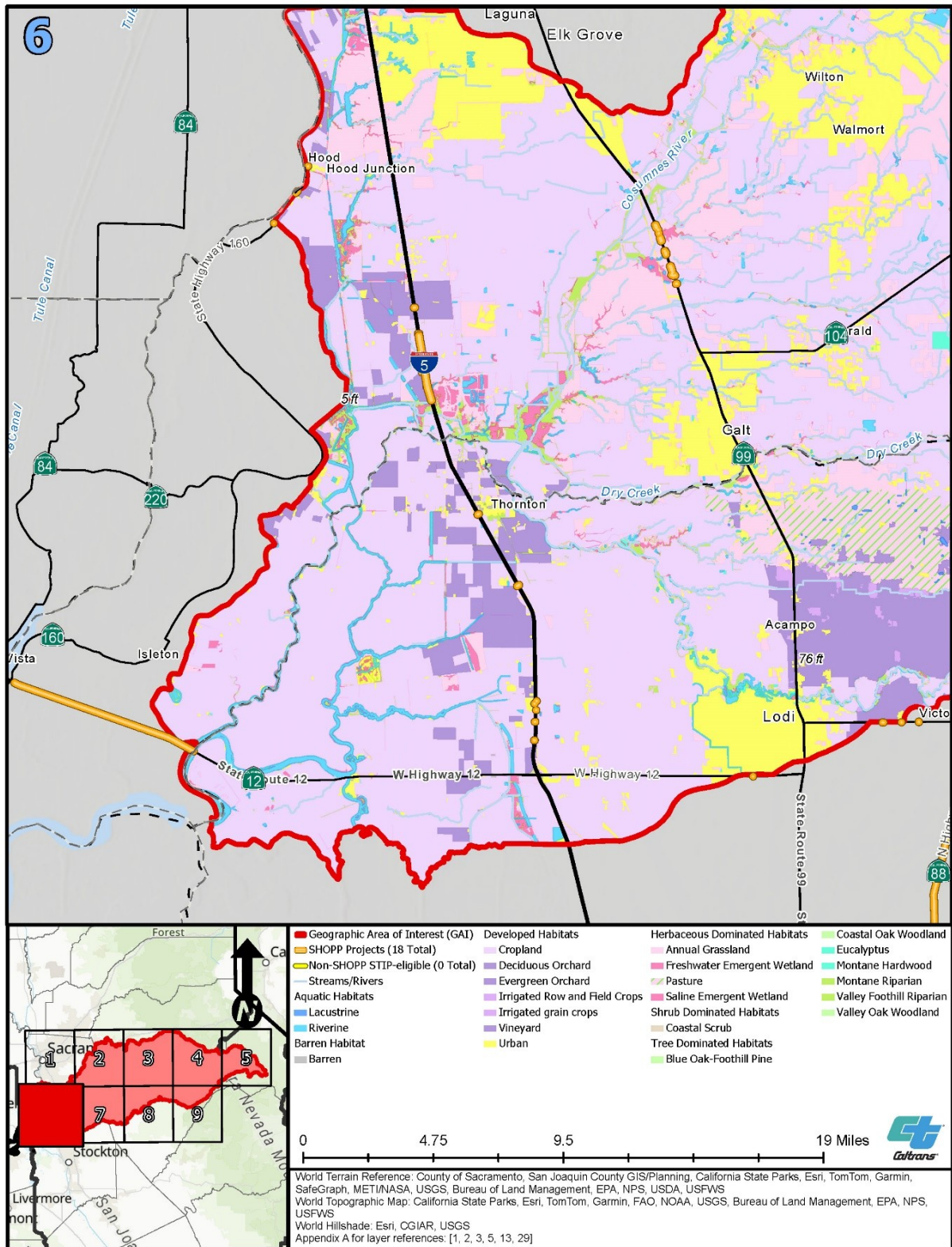


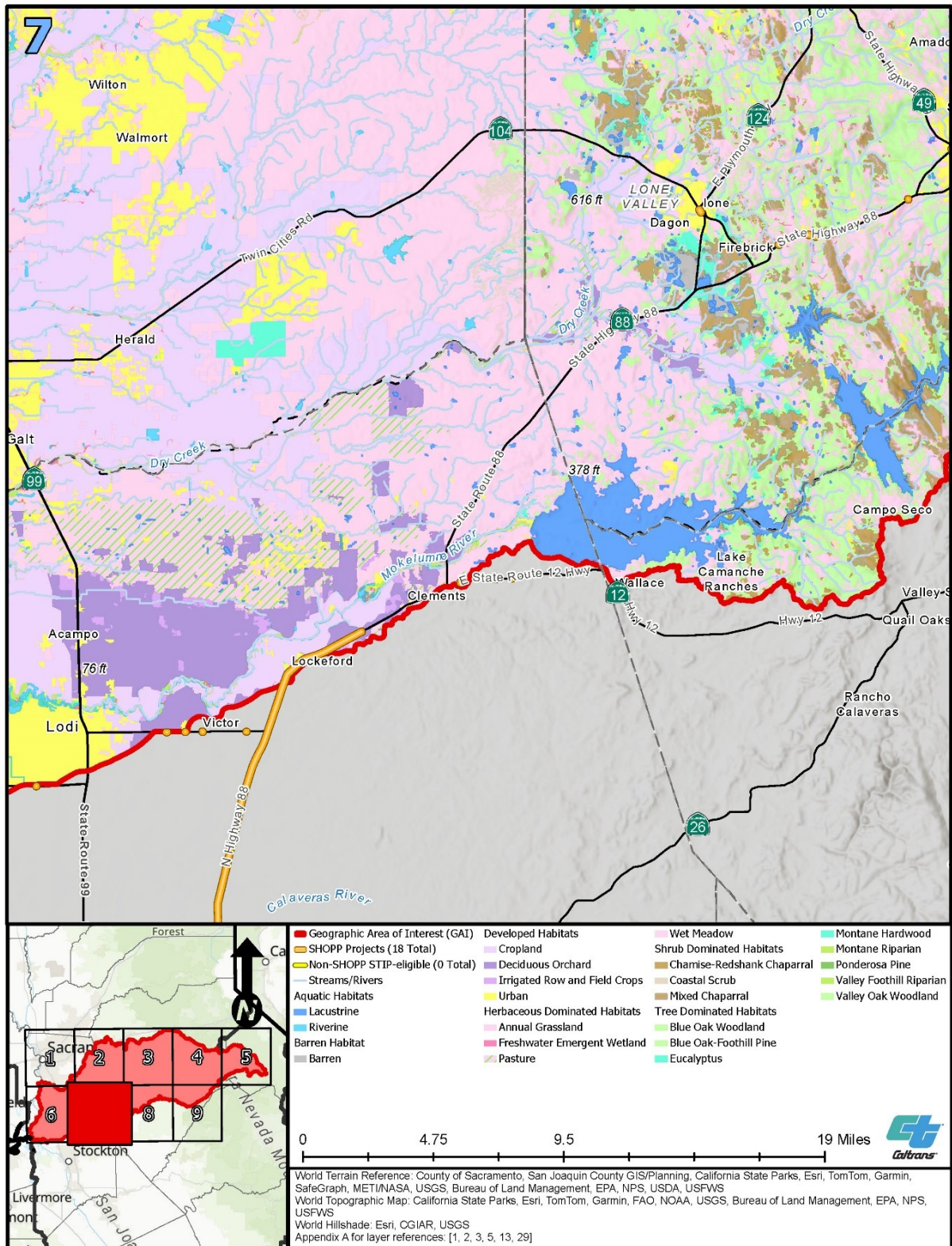


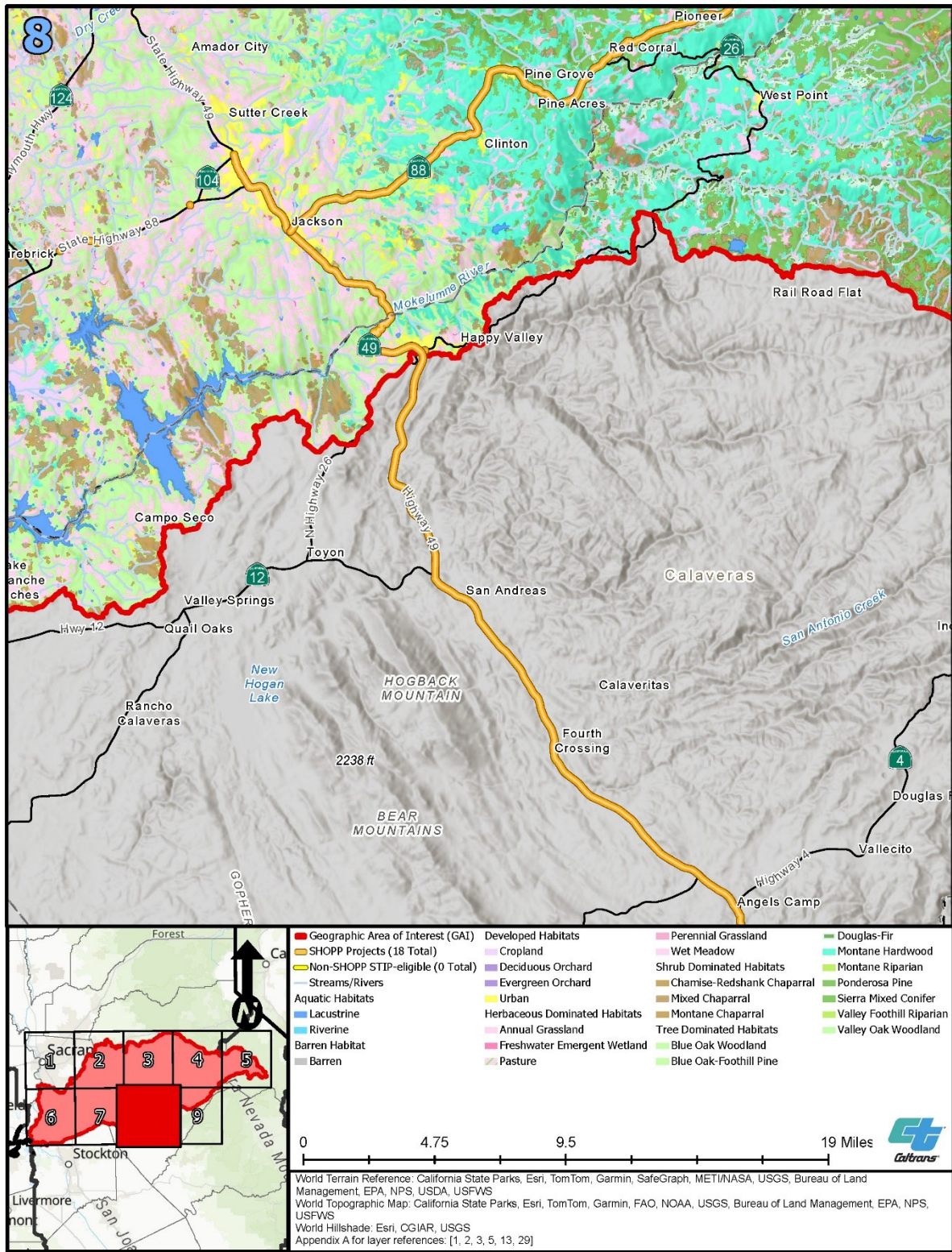


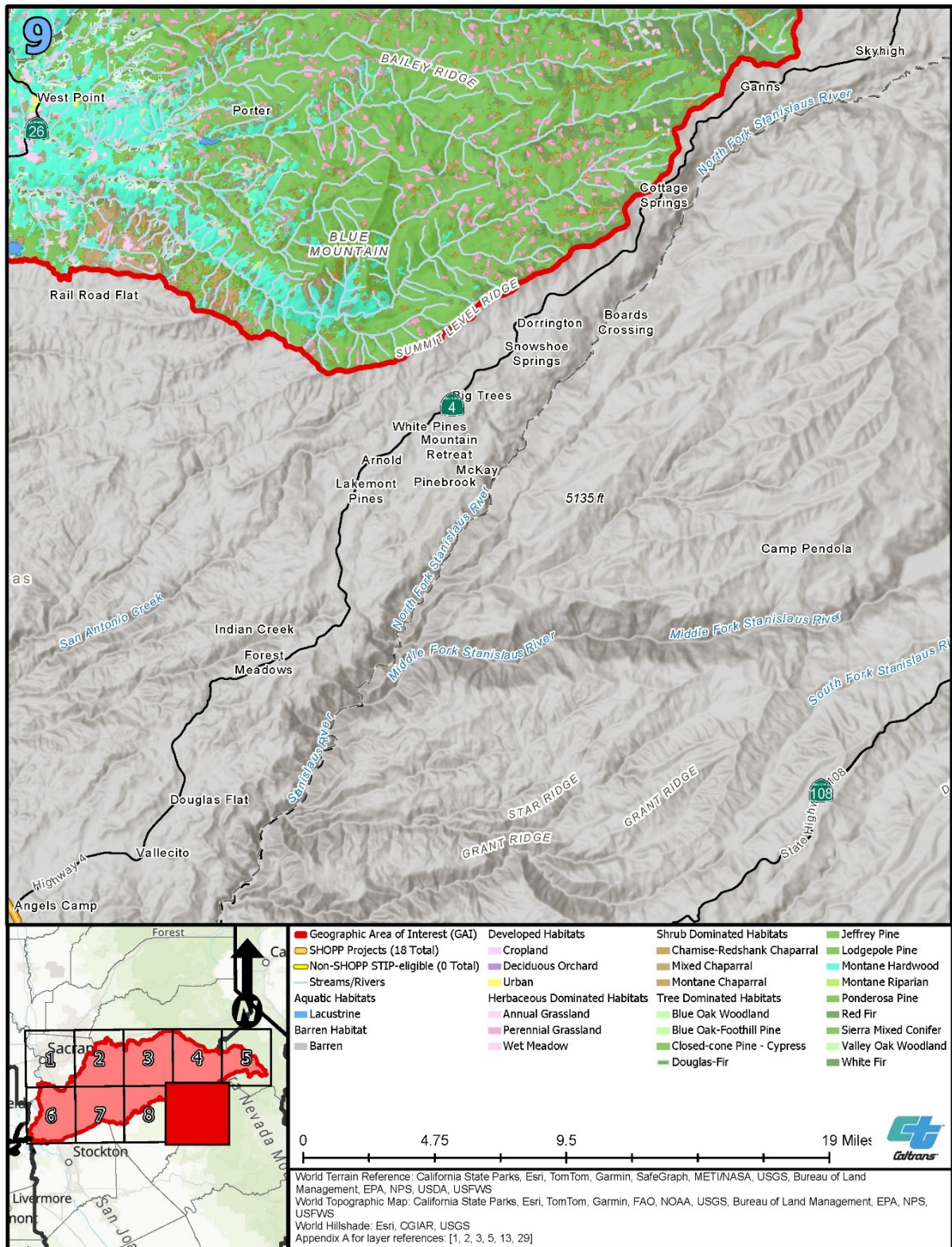












APPENDIX D: COMPLETE SAMNA SPECIES RESULTS

Complete terrestrial species SAMNA results for the GAI are provided in Tables D-1 through D-3, which include SAMNA results for the portions of the Great Valley Ecoregion Section (starts on page D-3), Sierra Nevada Ecoregion Section (starts on page D-7), and Sierra Nevada Foothills Ecoregion Section (starts on page D-11) in the GAI. The tables list the species for which the SAMNA has enough and the right kind of information to forecast potential impacts from transportation projects conceptualized in long-range transportation plans (Caltrans 2024). SAMNA results are only as accurate as their foundational data and have not been ground truthed. Regarding these results:

- Species without CWHR system-supplied home ranges but identified by the California Natural Diversity Database as potentially present will be incorporated into the analysis of specific advance mitigation projects and future transportation projects.
- Subspecies may or may not have CWHR-supplied or other documented sources showing their home ranges.
- When a subspecies did not have home range information that could be incorporated into the SAMNA model (that is, from a geographically based, available dataset), SAMNA results are provided at the species level, which may include both special-status and non-special-status species; therefore, the number of species with the potential to be affected may be overestimated.
- If impacts were estimated, additional information sources¹ were consulted to determine whether special-status subspecies are located in the GAI, and the SAMNA results are usable for this analysis. Footnotes have been added to the tables where data input limitations and modeling assumptions resulted in identification of potential impacts on species or subspecies that are not present in the GAI.
- When no impacts are estimated for a specific habitat, for any species, the habitat is excluded from this appendix.
- When no impacts for a species are estimated for any habitat, the species is included. Based on available information, it is potentially present in the GAI, but not in the habitats forecast to be affected by transportation projects.

Total habitat impacts for each special-status species are indicated in the far-right column of each table. Total habitat impacts in the bottom row of each table indicate the total anticipated impacts for each habitat type. 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.

¹ For plants, this includes the California Native Plant Society and the California Consortium of Herbaria. For federally listed species, this includes recent 5-year reviews, FWS species profiles, recovery plans, and Environmental Conservation Online System range maps. For birds, this includes California Species of Special Concern (Shuford and Gardali 2008). For amphibians and reptiles, this includes California Herps online, HCPs/NCCPs, and NPS documents.

Habitats referenced in Tables D-1 through D-3 are mapped in Appendix C, *Land Cover Types*. While California red-legged frog, foothill yellow-legged frog, giant garter snake, Swainson's hawk, and valley elderberry longhorn beetle are the species of mitigation need identified for this GAI, several other special-status species share habitat with these species of mitigation need and may be affected by Caltrans future transportation projects. Advance mitigation planning will consider the special-status species that co-occur in habitats that may also benefit from advance mitigation project planning and scoping, in order to improve the conservation benefits of compensatory mitigation in the GAI. For example, advance mitigation established for California red-legged frog impacts may also provide mitigation to compensate for impacts on other species. The types of habitats for the species of mitigation need with the potential to be affected in the GAI, and the other special-status species that may share these habitats, were excerpted from Tables D-1 through D-3 and are provided in tables in Chapter 5, *Modeled Estimated Impacts*, of the RAMNA main text.

References

- Caltrans (California Department of Transportation). 2024. "Caltrans District 3 Geospatial Data for the Advance Mitigation Needs Assessment for the Third Quarter of FY 2023/2024" (data file). Accessed October 16, 2024.
<http://www.dot.ca.gov/env/advancemitigation/>.
- Shuford, W. D., and T. Gardali, editors. 2008. *California Bird Species of Special Concern: A Ranked Assessment of Species, Subspecies, and Distinct Populations of Birds of Immediate Conversation Concern in California*.

Table D-1. Complete SAMNA Results for the Great Valley Ecoregion Section in the GAI, by Land Cover (acres)

Common Name	Scientific Name	Status	Annual Grassland	Coastal Scrub	Deciduous Orchard	Irrigated Row and Field Crops	Riverine	Valley Foothill Riparian	Vineyard	Total
Plants	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
Bakersfield cactus ^a	<i>Opuntia basilaris</i> var. <i>treleasei</i>	FE, SE	0.81	0.00	0.00	0.00	0.00	0.00	0.00	0.81
Boggs Lake hedge-hyssop	<i>Gratiola heterosepala</i>	FS, SE	3.86	0.00	0.00	0.00	0.00	0.00	0.00	3.86
Butte County meadowfoam ^a	<i>Limnanthes floccosa</i> ssp. <i>californica</i>	FE, SE	3.05	0.00	0.00	0.00	0.00	0.00	0.00	3.05
California Jewelflower ^a	<i>Caulanthus californicus</i>	FE, SE	0.81	0.00	0.00	0.00	0.00	0.00	0.00	0.81
Clara Hunt's milk-vetch ^a	<i>Astragalus claranus</i>	FE, SE	3.05	0.00	0.00	0.00	0.00	0.00	0.00	3.05
Colusa grass ^a	<i>Neostapfia colusana</i>	FT, SE	3.86	0.00	0.00	0.00	0.00	0.00	0.00	3.86
Contra Costa goldfields ^a	<i>Lasthenia conjugens</i>	FE	3.05	0.00	0.00	0.00	0.00	0.00	0.00	3.05
Crampton's tuctoria or Solano grass ^a	<i>Tuctoria mucronata</i>	FE, SE	3.05	0.00	0.00	0.00	0.00	0.00	0.00	3.05
Greene's tuctoria ^a	<i>Tuctoria greenei</i>	FE, SR	3.86	0.00	0.00	0.00	0.00	0.00	0.00	3.86
Hairy orcutt grass ^a	<i>Orcuttia pilosa</i>	FE, SE	3.86	0.00	0.00	0.00	0.00	0.00	0.00	3.86
Hoover's spurge ^a	<i>Euphorbia hooveri</i>	FT	3.86	0.00	0.00	0.00	0.00	0.00	0.00	3.86
Kern mallow ^a	<i>Eremalche parryi</i> ssp. <i>kernensis</i>	FE	0.81	0.00	0.00	0.00	0.00	0.00	0.00	0.81
Palmate-bracted bird's-beak ^a	<i>Chloropyron palmatum</i>	FE, SE	3.86	0.00	0.00	0.00	0.00	0.00	0.00	3.86
Sacramento orcutt grass	<i>Orcuttia viscida</i>	FE, SE	3.05	0.00	0.00	0.00	0.00	0.00	0.00	3.05
San Joaquin adobe sunburst ^a	<i>Pseudobahia peirsonii</i>	FT, SE	0.81	0.00	0.00	0.00	0.00	0.00	0.00	0.81
San Joaquin Valley orcutt grass ^a	<i>Orcuttia inaequalis</i>	FT, SE	0.81	0.00	0.00	0.00	0.00	0.00	0.00	0.81
San Joaquin woollythreads ^a	<i>Monolopia congdonii</i>	FE	0.81	0.00	0.00	0.00	0.00	0.00	0.00	0.81
Slender orcutt grass	<i>Orcuttia tenuis</i>	FT, SE	3.05	0.00	0.00	0.00	0.00	0.00	0.00	3.05
Succulent owl's-clover	<i>Castilleja campestris</i> var. <i>succulenta</i>	FT, SE	3.86	0.00	0.00	0.00	0.00	0.00	0.00	3.86
Invertebrates	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
Valley elderberry longhorn beetle	<i>Desmocerus californicus dimorphus</i>	FT	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.15
Vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	FT	1.81	0.00	0.00	0.00	0.00	0.00	0.00	1.81
Vernal pool tadpole shrimp	<i>Lepidurus packardii</i>	FE	2.82	0.00	0.00	0.00	0.00	0.00	0.00	2.82
Amphibians	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
California tiger salamander	<i>Ambystoma californiense</i>	FE, FT, ST	3.86	0.00	0.00	0.00	0.00	0.15	0.00	4.01
Western spadefoot	<i>Spea hammondi</i>	FS, SSC	3.86	0.03	6.20	1.33	0.20	0.00	0.05	11.66
Reptiles	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
Blainville's horned lizard	<i>Phrynosoma blainvillii</i>	FS, SSC	3.86	0.03	0.00	1.33	0.00	0.15	0.05	5.41
Common gartersnake ^b	<i>Thamnophis sirtalis</i>	SSC	3.86	0.03	6.20	1.33	0.00	0.15	0.05	11.61

Common Name	Scientific Name	Status	Annual Grassland	Coastal Scrub	Deciduous Orchard	Irrigated Row and Field Crops	Riverine	Valley Foothill Riparian	Vineyard	Total
Giant gartersnake	<i>Thamnophis gigas</i>	FT, ST	3.86	0.00	0.00	0.00	0.20	0.15	0.00	4.21
Gophersnake ^c	<i>Pituophis catenifer</i>	None	3.86	0.03	6.20	1.33	0.00	0.15	0.05	11.61
Ring-necked snake ^d	<i>Diadophis punctatus</i>	FS, SSC	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05
Birds	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
American white pelican ^e	<i>Pelecanus erythrorhynchos</i>	SSC	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.20
Bald eagle	<i>Haliaeetus leucocephalus</i>	FS, SE, SFP, SFS	3.86	0.03	0.00	0.00	0.20	0.15	0.00	4.23
Bank swallow	<i>Riparia riparia</i>	FS, ST	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.20
Bewick's wren ^f	<i>Thryomanes bewickii</i>	SSC	0.00	0.03	6.20	0.00	0.00	0.15	0.00	6.38
Black rail	<i>Laterallus jamaicensis</i>	FS, ST, SFP	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.20
Burrowing owl	<i>Athene cunicularia</i>	FS, SSC	3.86	0.03	0.00	0.00	0.00	0.15	0.00	4.03
California quail ^g	<i>Callipepla californica</i>	SSC	3.86	0.03	6.20	0.00	0.00	0.15	0.05	10.28
California towhee ^h	<i>Pipilo crissalis</i>	None	0.00	0.03	6.20	0.00	0.00	0.15	0.00	6.38
Common yellowthroat ⁱ	<i>Geothlypis trichas</i>	SSC	3.86	0.00	0.00	0.00	0.00	0.15	0.00	4.01
Golden eagle	<i>Aquila chrysaetos</i>	FS, SFS, SFP	3.86	0.03	0.00	0.00	0.00	0.15	0.00	4.03
Grasshopper sparrow	<i>Ammodramus savannarum</i>	SSC	3.86	0.00	0.00	0.00	0.00	0.00	0.00	3.86
Great blue heron ^j	<i>Ardea herodias</i>	SFS	3.86	0.03	0.00	1.33	0.20	0.15	0.00	5.56
Great egret ^k	<i>Ardea alba</i>	SFS	3.86	0.00	0.00	1.33	0.20	0.15	0.05	5.59
Greater white-fronted goose ^l	<i>Anser albifrons</i>	SSC	3.86	0.00	0.00	1.33	0.20	0.00	0.00	5.38
Hutton's vireo ^m	<i>Vireo huttoni</i>	SSC	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.04
Least bittern	<i>Ixobrychus exilis</i>	SSC	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.20
Lesser sandhill crane	<i>Grus canadensis canadensis</i>	SSC	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.31
Loggerhead shrike	<i>Lanius ludovicianus</i>	SE, SSC	3.86	0.03	6.20	0.00	0.00	0.15	0.05	10.28
Marsh wren ⁿ	<i>Cistothorus palustris</i>	SSC	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.15
Modesto song sparrow	<i>Melospiza melodia mailliardi</i>	SSC	3.86	0.03	6.20	0.00	0.20	0.15	0.00	10.44
Mountain plover	<i>Charadrius montanus</i>	FS, SSC	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.28
Northern harrier	<i>Circus cyaneus</i>	SSC	3.86	0.03	6.20	0.00	0.20	0.15	0.05	10.49
Oregon vesper sparrow	<i>Pooecetes gramineus affinis</i>	SSC	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05
Osprey ^o	<i>Pandion haliaetus</i>	FS	2.45	0.00	0.00	0.00	0.20	0.15	0.00	2.80
Peregrine falcon ^p	<i>Falco peregrinus</i>	SFS, SFP	3.86	0.03	0.00	0.00	0.20	0.15	0.00	4.23
Purple martin	<i>Progne subis</i>	SSC	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.20
Redhead	<i>Aythya americana</i>	SSC	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.20
Red-winged blackbird ^q	<i>Agelaius phoeniceus</i>	SSC	3.86	0.03	6.20	1.33	0.00	0.15	0.00	11.56

Common Name	Scientific Name	Status	Annual Grassland	Coastal Scrub	Deciduous Orchard	Irrigated Row and Field Crops	Riverine	Valley Foothill Riparian	Vineyard	Total
Sandhill crane	<i>Grus canadensis</i>	FS, ST, SSC, SFP	3.86	0.00	0.00	1.33	0.00	0.15	0.00	5.34
Savannah sparrow ^r	<i>Passerculus sandwichensis</i>	SE, SSC	3.86	0.03	6.20	0.00	0.00	0.15	0.05	10.28
Short-eared owl	<i>Asio flammeus</i>	SSC	3.86	0.03	0.00	1.33	0.00	0.15	0.00	5.36
Song sparrow ^s	<i>Melospiza melodia</i>	SSC	3.86	0.03	6.20	0.00	0.20	0.15	0.00	10.44
Spotted towhee ^t	<i>Pipilo maculatus</i>	SSC	0.00	0.03	6.20	0.00	0.00	0.15	0.00	6.38
Swainson's hawk	<i>Buteo swainsoni</i>	FS, ST	3.86	0.00	0.00	0.00	0.00	0.15	0.00	4.01
Tricolored blackbird	<i>Agelaius tricolor</i>	FS, ST, SSC	3.86	0.00	6.20	1.33	0.00	0.15	0.00	11.54
Tule greater white-fronted goose ^u	<i>Anser albifrons elgasi</i>	SSC	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.20
Vesper sparrow ^v	<i>Pooecetes gramineus</i>	SSC	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05
White-tailed kite	<i>Elanus leucurus</i>	FS, SFP	3.86	0.03	6.20	1.33	0.00	0.15	0.05	11.61
Yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>	SSC	3.86	0.00	0.00	0.00	0.00	0.00	0.00	3.86
Mammals	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
American badger	<i>Taxidea taxus</i>	SSC	3.86	0.03	6.20	1.33	0.00	0.15	0.05	11.61
Black-tailed jackrabbit ^w	<i>Lepus californicus</i>	None	3.86	0.03	6.20	1.33	0.00	0.15	0.05	11.61
Broad-footed mole ^x	<i>Scapanus latimanus</i>	SSC	2.91	0.03	6.16	1.33	0.00	0.12	0.05	10.59
California sea-lion ^y	<i>Zalophus californianus</i>	None	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.20
California vole ^z	<i>Microtus californicus</i>	FE, FS, SE, SSC	3.86	0.03	6.20	1.33	0.00	0.15	0.05	11.61
Deer mouse ^{aa}	<i>Peromyscus maniculatus</i>	SSC	3.86	0.03	6.20	1.33	0.00	0.15	0.05	11.61
Harbor seal ^{bb}	<i>Phoca vitulina</i>	None	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.20
Heermann's kangaroo rat ^{cc}	<i>Dipodomys heermanni</i>	None	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05
Northern river otter ^{dd}	<i>Lontra canadensis</i>	SSC	0.00	0.00	0.00	0.00	0.20	0.15	0.00	0.35
Ornate shrew ^{ee}	<i>Sorex ornatus</i>	FE, SSC	1.52	0.03	0.00	0.00	0.00	0.00	0.00	1.54
Pallid bat	<i>Antrozous pallidus</i>	FS, SSC	3.86	0.03	6.20	1.33	0.20	0.15	0.05	11.81
Red fox ^{ff}	<i>Vulpes vulpes</i>	FE, FS, ST	1.99	0.00	0.04	0.00	0.00	0.00	0.05	2.09
Ringtail	<i>Bassariscus astutus</i>	SFP	3.50	0.03	0.00	0.00	0.00	0.15	0.05	3.73
Sacramento Valley red fox ^{gg}	<i>Vulpes vulpes patwin</i>	None	1.99	0.00	0.04	0.00	0.00	0.00	0.05	2.09
San Joaquin pocket mouse	<i>Perognathus inornatus</i>	FS	3.86	0.00	0.00	0.00	0.00	0.00	0.00	3.86
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	FS, SSC	3.86	0.03	6.20	1.33	0.20	0.15	0.05	11.81
Western mastiff bat	<i>Eumops perotis</i>	FS, SSC	0.05	0.00	4.23	0.00	0.00	0.00	0.00	4.28
Western red bat	<i>Lasiurus blossevillii</i>	SSC	3.86	0.03	0.00	0.00	0.20	0.15	0.00	4.23

Common Name	Scientific Name	Status	Annual Grassland	Coastal Scrub	Deciduous Orchard	Irrigated Row and Field Crops	Riverine	Valley Foothill Riparian	Vineyard	Total
Western spotted skunk ^{hh}	<i>Spilogale gracilis</i>	SSC	3.86	0.03	6.20	1.33	0.00	0.15	0.05	11.61
Yuma myotis	<i>Myotis yumanensis</i>	FS	3.86	0.03	6.20	1.33	0.20	0.15	0.05	11.81
Not applicable	Not applicable	Total	3.86	0.03	6.20	1.33	0.20	0.15	0.05	11.81

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

^a This plant species does not occur in the Great Valley Ecoregion in the GAI.

^b Common gartersnake: Only the San Francisco subspecies and south coast population are considered special status, and they do not occur in the GAI.

^c Gophersnake: Only the Santa Cruz Island subspecies is considered special status, and it does not occur in the GAI.

^d Ring-necked snake: Only the regal, San Bernardino, and San Diego subspecies are considered special status, and they do not occur in the GAI.

^e American white pelican: This species is only considered special status in its nesting range, and it does not nest in the Great Valley Ecoregion section of the GAI.

^f Bewick's wren: Only the San Clemente subspecies is considered special status, and it does not occur in the GAI.

^g California quail: Only the Catalina subspecies is considered special status, and it does not occur in the GAI.

^h California towhee: Only the Inyo subspecies is considered special status, and it does not occur in the GAI.

ⁱ Common yellowthroat: Only the saltmarsh subspecies is considered special status, and it does not occur in the GAI.

^j Great blue heron: This species is only on the CDFW Special Animals List as State Fire Sensitive.

^k Great egret: This species is only on the CDFW Special Animals List as State Fire Sensitive.

^l Greater white-fronted goose: Only the tule subspecies is considered special status, and it does not occur in the GAI.

^m Hutton's vireo: Only the Catalina subspecies is considered special status, and it does not occur in the GAI.

ⁿ Marsh wren: Only the Clark's subspecies is considered special status, and it does not occur in the GAI.

^o Osprey: This species is only on the CDFW Special Animals List as State Fire Sensitive.

^p Peregrine falcon: This species is only on the CDFW Special Animals List as State Fire Sensitive.

^q Red-winged blackbird: Only the Kern subspecies is considered special status, and it does not occur in the GAI.

^r Savannah sparrow: Only the Belding's, Bryant's, and large-billed subspecies are considered special status, and they do not occur in the GAI.

^s Song sparrow: This is a duplicate for Modesto song sparrow.

^t Spotted towhee: Only the San Clemente subspecies is considered special status, and it does not occur in the GAI.

^u Tule greater white-fronted goose: Does not occur in the GAI.

^v Vesper sparrow: This is a duplicate for Oregon vesper sparrow.

^w Black-tailed jackrabbit: Only the San Diego subspecies appears on the CDFW Special Animals List and it does not occur in the GAI.

^x Broad-footed mole: Only the Alameda Island subspecies is considered special status, and it does not occur in the GAI.

^y California sea-lion: This species is only protected by the Marine Mammal Protection Act and is not on the CDFW Special Animals List.

^z California vole: Only the Mohave River, San Pablo, Amargosa, south coast marsh, and Owens Valley subspecies are considered special status, and none of them occur in the GAI.

^{aa} Deer mouse: Only the Anacapa Island subspecies is considered special status, and it does not occur in the GAI.

^{bb} Harbor seal: Does not occur in the GAI. This species is only protected by the Marine Mammal Protection Act and is not on the CDFW Special Animals List.

^{cc} Heermann's kangaroo rat: Only the Morro Bay subspecies is considered special status, and it does not occur in the GAI.

^{dd} Northern river otter: Only the southwestern subspecies is considered special status, and it does not occur in the GAI.

^{ee} Ornate shrew: Only the Buena Vista Lake, Monterey, southern California saltmarsh, Suisun, and Santa Catalina subspecies are considered special status, and none of them occur in the GAI.

^{ff} Red fox: Only the Sierra Nevada subspecies is considered special status, and it does not occur in the Great Valley Ecoregion section of the GAI.

^{gg} Sacramento Valley red fox: While this subspecies appears on the CDFW Special Animals List, it is not considered special status and is not tracked in the CNDDDB.

^{hh} Western spotted skunk: Only the Channel Islands subspecies is considered special status, and it does not occur in the GAI.

Table D-2. Complete SAMNA Results for the Sierra Nevada Ecoregion Section in the GAI, by Land Cover (acres)

Common Name	Scientific Name	Status	Annual Grassland	Barren	Blue Oak Woodland	Douglas-Fir	Jeffrey Pine	Lodgepole Pine	Low Sage	Mixed Chaparral	Montane Chaparral	Montane Hardwood	Montane Hardwood- Conifer	Perennial Grassland	Ponderosa Pine	Red Fir	Sierran Mixed Conifer	Total
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
Boggs Lake hedge-hyssop ^a	<i>Gratiola heterosepala</i>	FS, SE	6.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.52
Chinese Camp brodiaea ^a	<i>Brodiaea pallida</i>	FT, SE	6.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.90	0.00	0.00	0.00	0.00	0.00	11.42
El Dorado bedstraw ^a	<i>Galium californicum</i> ssp. <i>sierrae</i>	FE, SR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	4.90	3.49	0.00	0.00	0.00	0.00	8.60
lone buckwheat ^a	<i>Eriogonum apricum</i> var. <i>apricum</i>	FE, SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21
lone manzanita ^a	<i>Arctostaphylos myrtifolia</i>	FT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	4.90	0.00	0.00	0.00	0.00	0.00	5.11
Irish Hill buckwheat ^t ^a	<i>Eriogonum apricum</i> var. <i>prostratum</i>	FE, SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21
Layne's ragwort	<i>Packera layneae</i>	FT, SR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	4.90	0.00	0.00	0.00	0.00	0.00	5.11
Pine Hill ceanothus ^a	<i>Ceanothus roderickii</i>	FE, SR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	4.90	0.00	0.00	0.00	0.00	0.00	5.11
Pine Hill flannelbush ^a	<i>Fremontodendron decumbens</i>	FE, SR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	4.90	0.00	0.00	0.00	0.00	0.00	5.11
Stebbins' morning-glory ^a	<i>Calystegia stebbinsii</i>	FE, SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	4.90	0.00	0.00	0.00	0.00	0.00	5.11
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
California red-legged frog	<i>Rana draytonii</i>	FT, SSC	11.02	0.00	0.37	0.47	0.00	0.00	0.00	0.21	0.00	6.52	5.42	0.00	8.19	0.00	0.00	32.19
Ensatina ^b	<i>Ensatina eschscholtzii</i>	FS	0.00	0.00	0.37	0.47	0.00	0.00	0.00	0.21	0.00	6.52	5.42	0.00	8.19	0.00	0.04	21.21
Foothill yellow-legged frog	<i>Rana boylei</i>	FCE, FCT, FS, SE, ST, SSC	11.02	0.00	0.37	0.47	0.00	0.00	0.00	0.21	0.00	6.52	5.42	0.00	8.19	0.00	0.04	32.22
Long-toed salamander	<i>Ambystoma macrodactylum</i>	FE, SE, SFP, SSC	0.00	0.00	0.00	0.00	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.08	0.63
Mount Lyell salamander	<i>Hydromantes platycephalus</i>	None	0.00	0.02	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.08	0.58
Sierra Nevada yellow-legged frog	<i>Rana sierrae</i>	FE, FS, ST	0.00	0.00	0.00	0.00	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.08	0.63
Yosemite toad	<i>Anaxyrus canorus</i>	FT, FS, SSC	0.00	0.00	0.00	0.00	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.08	0.29
Reptiles	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
California mountain kingsnake ^c	<i>Lampropeltis zonata</i>	None	11.02	0.00	0.37	0.47	0.00	0.00	0.00	0.21	0.00	6.52	5.42	0.00	8.19	0.00	0.04	32.22
Common gartersnake ^d	<i>Thamnophis sirtalis</i>	SSC	11.08	0.00	0.37	0.47	0.00	0.00	0.00	0.21	0.02	6.52	5.42	0.00	8.19	0.00	0.12	32.39
Common sagebrush lizard ^e	<i>Sceloporus graciosus</i>	FS	0.00	0.00	0.00	0.47	0.07	0.02	0.02	0.21	0.08	6.52	5.42	0.00	8.19	0.00	0.12	21.11
Gophersnake ^f	<i>Pituophis catenifer</i>	None	11.08	0.00	0.37	0.47	0.00	0.00	0.00	0.21	0.00	6.52	5.42	0.00	8.19	0.00	0.04	32.29
Northern rubber boa ^g	<i>Charina bottae</i>	None	0.00	0.00	0.00	0.47	0.07	0.02	0.00	0.00	0.08	6.52	5.42	0.00	8.19	0.46	0.12	21.34
Ring-necked snake ^h	<i>Diadophis punctatus</i>	FS, SSC	11.02	0.00	0.37	0.47	0.00	0.00	0.00	0.21	0.00	6.52	5.42	0.00	8.19	0.00	0.04	32.22
Striped racer ⁱ	<i>Coluber lateralis</i>	None	0.00	0.00	0.37	0.47	0.00	0.00	0.00	0.21	0.00	6.04	5.37	0.00	6.39	0.00	0.04	18.88

Common Name	Scientific Name	Status	Annual Grassland	Barren	Blue Oak Woodland	Douglas-Fir	Jeffrey Pine	Lodgepole Pine	Low Sage	Mixed Chaparral	Montane Chaparral	Montane Hardwood	Montane Hardwood- Conifer	Perennial Grassland	Ponderosa Pine	Red Fir	Sierran Mixed Conifer	Total
Western skink ^j	<i>Plestiodon skiltonianus</i>	FS	11.02	0.00	0.37	0.47	0.00	0.00	0.00	0.21	0.00	6.04	5.37	0.00	6.39	0.00	0.04	29.90
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
Bald eagle	<i>Haliaeetus leucocephalus</i>	FS, SE, SFP, SFS	11.08	0.98	0.37	0.47	0.07	0.02	0.02	0.21	0.08	6.52	5.42	0.02	8.19	0.46	0.12	34.02
Bell's sparrow ^k	<i>Artemisiospiza belli</i>	FT, SSC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21
Bewick's wren ^l	<i>Thryomanes bewickii</i>	SSC	0.00	0.00	0.37	0.47	0.00	0.00	0.00	0.21	0.00	6.52	5.42	0.00	8.19	0.00	0.00	21.17
California quail ^m	<i>Callipepla californica</i>	SSC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41	0.00	0.00	0.00	0.00	0.00	0.41
California spotted owl	<i>Strix occidentalis occidentalis</i>	FS, SSC	0.00	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.00	6.52	5.42	0.00	8.19	0.26	0.04	20.89
California towhee ⁿ	<i>Pipilo crissalis</i>	None	0.00	0.00	0.37	0.00	0.00	0.00	0.00	0.21	0.00	6.52	5.00	0.00	7.03	0.00	0.00	19.13
Golden eagle	<i>Aquila chrysaetos</i>	FS, SFS, SFP	11.08	0.98	0.37	0.47	0.07	0.02	0.02	0.21	0.08	6.52	5.42	0.02	8.19	0.46	0.12	34.02
Great blue heron ^o	<i>Ardea herodias</i>	SFS	11.02	0.00	0.37	0.47	0.00	0.00	0.00	0.00	0.00	6.52	5.42	0.02	8.19	0.00	0.04	32.03
Great gray owl	<i>Strix nebulosa</i>	FS, SE, SFS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.04	0.33
Hutton's vireo ^p	<i>Vireo huttoni</i>	SSC	0.00	0.00	0.37	0.47	0.00	0.00	0.00	0.21	0.00	6.52	5.42	0.00	8.19	0.00	0.04	21.21
Loggerhead shrike	<i>Lanius ludovicianus</i>	SE, SSC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41	0.00	0.00	0.00	0.00	0.00	0.41
Long-eared owl	<i>Asio otus</i>	SSC	11.08	0.00	0.37	0.00	0.00	0.00	0.02	0.21	0.08	6.52	5.42	0.02	8.19	0.00	0.12	32.03
Northern goshawk	<i>Accipiter gentilis</i>	FS, SSC, SFS	0.00	0.00	0.37	0.47	0.07	0.02	0.02	0.21	0.08	6.52	5.42	0.00	8.19	0.46	0.12	21.93
Northern harrier	<i>Circus cyaneus</i>	SSC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41	0.00	0.00	0.00	0.00	0.00	0.41
Olive-sided flycatcher	<i>Contopus cooperi</i>	SSC	0.00	0.00	0.00	0.47	0.07	0.02	0.00	0.21	0.00	6.52	5.42	0.00	8.19	0.46	0.12	21.47
Osprey ^q	<i>Pandion haliaetus</i>	FS	11.08	0.98	0.37	0.47	0.07	0.02	0.00	0.21	0.08	6.52	5.42	0.02	8.19	0.46	0.12	34.00
Peregrine falcon ^r	<i>Falco peregrinus</i>	SFS, SFP	11.08	0.98	0.37	0.47	0.07	0.02	0.02	0.21	0.08	6.52	5.42	0.02	8.19	0.46	0.12	34.02
Purple martin	<i>Progne subis</i>	SSC	11.02	0.00	0.37	0.47	0.00	0.00	0.00	0.00	0.00	6.04	5.37	0.00	6.39	0.00	0.04	29.69
Red-winged blackbird ^s	<i>Agelaius phoeniceus</i>	SSC	11.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	11.10
Song sparrow ^t	<i>Melospiza melodia</i>	SSC	11.08	0.00	0.37	0.47	0.07	0.00	0.00	0.21	0.00	6.52	5.42	0.02	8.19	0.00	0.12	32.46
Sooty grouse ^u	<i>Dendragapus fuliginosus</i>	SSC	0.07	0.00	0.00	0.00	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.46	0.08	0.72
Spotted owl ^v	<i>Strix occidentalis</i>	FT, FS, ST, SFS, SSC	0.00	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.00	6.52	5.42	0.00	8.19	0.34	0.04	20.97
Spotted towhee ^w	<i>Pipilo maculatus</i>	SSC	0.00	0.00	0.37	0.47	0.00	0.00	0.00	0.21	0.00	6.52	5.42	0.00	8.19	0.00	0.04	21.21
Vaux's swift	<i>Chaetura vauxi</i>	SSC	0.00	0.00	0.00	0.47	0.00	0.00	0.00	0.21	0.00	6.52	5.42	0.00	8.19	0.29	0.04	21.13
Yellow warbler	<i>Setophaga petechia</i>	SSC	0.00	0.00	0.37	0.47	0.00	0.00	0.00	0.21	0.00	6.52	5.42	0.00	8.19	0.00	0.04	21.21

Common Name	Scientific Name	Status	Annual Grassland	Barren	Blue Oak Woodland	Douglas-Fir	Jeffrey Pine	Lodgepole Pine	Low Sage	Mixed Chaparral	Montane Chaparral	Montane Hardwood	Montane Hardwood- Conifer	Perennial Grassland	Ponderosa Pine	Red Fir	Sierran Mixed Conifer	Total
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
American badger	<i>Taxidea taxus</i>	SSC	11.08	0.98	0.37	0.47	0.07	0.02	0.02	0.21	0.08	6.52	5.42	0.02	8.19	0.46	0.12	34.02
Big-eared woodrat ^x	<i>Neotoma macrotis</i>	FS, SSC	0.00	0.00	0.37	0.47	0.00	0.00	0.00	0.21	0.00	6.52	5.42	0.00	8.19	0.00	0.04	21.21
Black-tailed jackrabbit ^y	<i>Lepus californicus</i>	None	11.02	0.00	0.37	0.47	0.00	0.00	0.00	0.21	0.00	6.52	5.42	0.00	8.19	0.00	0.04	32.22
Broad-footed mole ^z	<i>Scapanus latimanus</i>	SSC	11.08	0.00	0.37	0.47	0.07	0.02	0.00	0.00	0.00	6.52	5.42	0.02	8.19	0.46	0.12	32.73
Brush rabbit ^{aa}	<i>Sylvilagus bachmani</i>	FE, SE	11.02	0.00	0.37	0.47	0.00	0.00	0.00	0.21	0.00	6.04	5.37	0.00	6.39	0.00	0.04	29.90
California pocket mouse ^{bb}	<i>Chaetodipus californicus</i>	SSC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41	0.00	0.00	0.00	0.00	0.00	0.41
California vole ^{cc}	<i>Microtus californicus</i>	FE, FS, SE, SSC	11.02	0.00	0.37	0.47	0.00	0.00	0.00	0.21	0.00	6.52	5.42	0.00	8.19	0.00	0.04	32.22
Deer mouse ^{dd}	<i>Peromyscus maniculatus</i>	SSC	11.08	0.98	0.37	0.47	0.07	0.02	0.02	0.21	0.08	6.52	5.42	0.02	8.19	0.46	0.12	34.02
Fisher	<i>Pekania pennanti</i>	FS, SSC	0.00	0.00	0.00	0.47	0.07	0.02	0.00	0.00	0.00	0.00	4.49	0.00	8.19	0.46	0.12	13.81
Fringed myotis	<i>Myotis thysanodes</i>	FS	11.08	0.98	0.37	0.47	0.07	0.02	0.02	0.21	0.08	6.52	5.42	0.02	8.19	0.46	0.12	34.02
Heermann's kangaroo rat ^{ee}	<i>Dipodomys heermanni</i>	None	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41	0.00	0.00	0.00	0.00	0.00	0.41
Lodgepole chipmunk ^{ff}	<i>Tamias speciosus</i>	None	0.00	0.00	0.00	0.00	0.07	0.02	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.46	0.08	0.71
Long-eared myotis	<i>Myotis evotis</i>	FS	0.00	0.98	0.37	0.40	0.07	0.02	0.00	0.00	0.08	2.58	3.64	0.02	6.15	0.46	0.08	14.86
Marten	<i>Martes caurina</i>	FS	0.00	0.02	0.00	0.00	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.46	0.08	0.66
Mountain beaver	<i>Aplodontia rufa</i>	FE, SSC	0.00	0.00	0.00	0.00	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.46	0.08	0.65
Mountain lion ^{gg}	<i>Puma concolor</i>	SSC	11.08	0.00	0.37	0.47	0.07	0.02	0.02	0.21	0.08	6.52	5.42	0.02	8.19	0.46	0.12	33.04
Northern flying squirrel ^{hh}	<i>Glaucomys sabrinus</i>	None	0.00	0.00	0.00	0.40	0.07	0.02	0.00	0.00	0.00	0.91	1.97	0.00	4.38	0.46	0.08	8.29
Ornate shrew ⁱⁱ	<i>Sorex ornatus</i>	FE, SSC	11.02	0.00	0.37	0.00	0.00	0.00	0.00	0.21	0.00	0.00	5.42	0.00	8.19	0.00	0.04	25.24
Pallid bat	<i>Antrozous pallidus</i>	FS, SSC	11.08	0.98	0.37	0.47	0.07	0.02	0.02	0.21	0.08	6.52	5.42	0.02	8.19	0.46	0.12	34.02
Red fox ^{jj}	<i>Vulpes vulpes</i>	FE, FS, ST	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.18
Ringtail	<i>Bassariscus astutus</i>	SFP	11.08	0.98	0.37	0.47	0.07	0.00	0.02	0.21	0.08	6.52	5.42	0.02	8.19	0.00	0.12	33.54
Sierra Nevada red fox	<i>Vulpes vulpes necator</i>	FS, FE, ST	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.18
Small-footed myotis	<i>Myotis ciliolabrum</i>	FS	11.02	0.97	0.37	0.00	0.00	0.00	0.00	0.21	0.00	6.52	5.42	0.00	8.19	0.00	0.04	32.73
Snowshoe hare	<i>Lepus americanus</i>	SSC	0.00	0.00	0.00	0.00	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.08	0.63
Spotted bat	<i>Euderma maculatum</i>	FS, SSC	11.08	0.00	0.37	0.00	0.07	0.00	0.02	0.00	0.08	0.00	5.42	0.02	8.19	0.00	0.12	25.36
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	FS, SSC	11.08	0.98	0.37	0.47	0.00	0.00	0.00	0.21	0.00	6.52	5.42	0.00	8.19	0.34	0.04	33.61
Vagrant shrew ^{kk}	<i>Sorex vagrans</i>	SSC	0.00	0.00	0.00	0.00	0.07	0.02	0.00	0.00	0.06	0.00	0.00	0.02	0.00	0.08	0.08	0.33
Western mastiff bat	<i>Eumops perotis</i>	FS, SSC	11.02	0.97	0.37	0.00	0.00	0.00	0.00	0.21	0.00	6.52	5.42	0.00	8.19	0.00	0.00	32.69
Western red bat	<i>Lasiurus blossevillii</i>	SSC	11.02	0.00	0.37	0.47	0.00	0.00	0.00	0.21	0.00	6.52	5.42	0.00	8.19	0.00	0.04	32.22
Western spotted skunk ^{ll}	<i>Spilogale gracilis</i>	SSC	11.08	0.00	0.37	0.47	0.07	0.02	0.02	0.21	0.08	6.52	5.42	0.02	8.19	0.46	0.12	33.04

Common Name	Scientific Name	Status	Annual Grassland	Barren	Blue Oak Woodland	Douglas-Fir	Jeffrey Pine	Lodgepole Pine	Low Sage	Mixed Chaparral	Montane Chaparral	Montane Hardwood	Montane Hardwood- Conifer	Perennial Grassland	Ponderosa Pine	Red Fir	Sierran Mixed Conifer	Total
White-tailed jackrabbit	<i>Lepus townsendii</i>	SSC	0.00	0.00	0.00	0.00	0.07	0.02	0.02	0.00	0.00	0.00	0.00	0.02	0.00	0.17	0.00	0.30
Wolverine	<i>Gulo gulo</i>	FCT, FS, ST, SFP	0.00	0.02	0.00	0.00	0.07	0.02	0.00	0.00	0.08	0.00	0.00	0.02	0.00	0.46	0.08	0.75
Yuma myotis	<i>Myotis yumanensis</i>	FS	11.08	0.00	0.37	0.47	0.07	0.02	0.02	0.21	0.08	6.52	5.42	0.02	8.19	0.46	0.12	33.04
Not applicable	Not applicable	Total	11.08	0.98	0.37	0.47	0.07	0.02	0.02	0.21	0.08	6.52	5.42	0.02	8.19	0.46	0.12	34.02

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

^a This plant species does not occur in the Sierra Nevada Ecoregion in the GAI.

^b Ensatina: Only the yellow-blotched and large-blotched subspecies are considered special status, and they do not occur in the GAI.

^c California mountain kingsnake: Not special status.

^d Common gartersnake: Only the San Francisco subspecies and south coast population are considered special status, and they do not occur in the GAI.

^e Common sagebrush lizard: Only the northern subspecies is considered special status, and it does not occur in the GAI.

^f Gophersnake: Only the Santa Cruz Island subspecies is considered special status, and it does not occur in the GAI.

^g Northern rubber boa: Not special status.

^h Ring-necked snake: Only the regal, San Bernardino, and San Diego subspecies are considered special status, and they do not occur in the GAI.

ⁱ Striped racer: Only the Alameda subspecies is considered special status, and it does not occur in the GAI.

^j Western skink: Only the Coronado subspecies is considered special status, and it does not occur in the GAI.

^k Bell's sparrow: Only the San Clemente subspecies is considered special status, and it does not occur in the GAI.

^l Bewick's wren: Only the San Clemente subspecies is considered special status, and it does not occur in the GAI.

^m California quail: Only the Catalina subspecies is considered special status, and it does not occur in the GAI.

ⁿ California towhee: Only the Inyo subspecies is considered special status, and it does not occur in the GAI.

^o Great blue heron: This species is only on the CDFW Special Animals List as State Fire Sensitive.

^p Hutton's vireo: Only the Catalina subspecies is considered special status, and it does not occur in the GAI.

^q Osprey: This species is only on the CDFW Special Animals List as State Fire Sensitive.

^r Peregrine falcon: This species is only on the CDFW Special Animals List as State Fire Sensitive.

^s Red-winged blackbird: Only the Kern subspecies is considered special status, and it does not occur in the GAI.

^t Song sparrow: Only the Channel Island, Suisun, Alameda, and San Pablo subspecies and the Modesto population are considered special status, and none of them occur in the Sierra Nevada Ecoregion section of the GAI.

^u Sooty grouse: Only the Mount Pinos subspecies is considered special status, and it does not occur in the GAI.

^v Spotted owl: This is a duplicate for California spotted owl.

^w Spotted towhee: Only the San Clemente subspecies is considered special status, and it does not occur in the GAI.

^x Big-eared woodrat: Not special status.

^y Black-tailed jackrabbit: Only the San Diego subspecies appears on the CDFW Special Animals List and it does not occur in the GAI.

^z Broad-footed mole: Only the Alameda Island subspecies is considered special status, and it does not occur in the GAI.

^{aa} Brush rabbit: Only the riparian subspecies is considered special status, and it does not occur in the GAI.

^{bb} California pocket mouse: Only the Dulzura subspecies is considered special status, and it does not occur in the GAI.

^{cc} California vole: Only the Mohave River, San Pablo, Amargosa, south coast marsh, and Owens Valley subspecies are considered special status, and none of them occur in the GAI.

^{dd} Deer mouse: Only the Anacapa Island subspecies is considered special status, and it does not occur in the GAI.

^{ee} Heermann's kangaroo rat: Only the Morro Bay subspecies is considered special status, and it does not occur in the GAI.

^{ff} Lodgepole chipmunk: Only the Mount Pinos subspecies is considered special status, and it does not occur in the GAI.

^{gg} Mountain lion: Only the Yuma subspecies is considered special status, and it does not occur in the GAI.

^{hh} Northern flying squirrel: Only the San Bernardino subspecies is considered special status, and it does not occur in the GAI.

ⁱⁱ Ornate shrew: Only the Buena Vista Lake, Monterey, southern California saltmarsh, Suisun, and Santa Catalina subspecies are considered special status, and none of them occur in the GAI.

^{jj} Red fox: This is a duplicate for Sierra Nevada red fox.

^{kk} Vagrant shrew: Only the salt-marsh wandering subspecies is considered special status, and it does not occur in the GAI.

^{ll} Western spotted skunk: Only the Channel Islands subspecies is considered special status, and it does not occur in the GAI.

Table D-3. Complete SAMNA Results for the Sierra Nevada Foothills Ecoregion Section in the GAI, by Land Cover (acres)

Common Name	Scientific Name	Status	Annual Grassland	Blue Oak Woodland	Blue Oak-Foothill Pine	Mixed Chaparral	Montane Hardwood	Pasture	Riverine	Valley Foothill Riparian	Valley Oak Woodland	Total
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
Boggs Lake hedge-hyssop ^a	<i>Gratiola heterosepala</i>	FS, SE	11.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.94
Chinese Camp brodiaea ^a	<i>Brodiaea pallida</i>	FT, SE	11.94	0.00	0.00	0.00	0.74	0.00	0.00	0.00	0.00	12.68
El Dorado bedstraw	<i>Galium californicum</i> ssp. <i>sierrae</i>	FE, SR	0.00	0.00	0.00	0.28	0.74	0.00	0.00	0.00	0.00	1.02
lone buckwheat ^a	<i>Eriogonum apricum</i> var. <i>apricum</i>	FE, SE	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.00	0.00	0.28
lone manzanita	<i>Arctostaphylos myrtifolia</i>	FT	0.00	0.00	0.00	0.28	0.74	0.00	0.00	0.00	0.00	1.02
Irish Hill buckwheat	<i>Eriogonum apricum</i> var. <i>prostratum</i>	FE, SE	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.00	0.00	0.28
Layne's ragwort	<i>Packera layneae</i>	FT, SR	0.00	0.00	0.00	0.28	0.74	0.00	0.00	0.00	0.00	1.02
Pine Hill ceanothus	<i>Ceanothus roderickii</i>	FE, SR	0.00	0.00	0.00	0.28	0.74	0.00	0.00	0.00	0.00	1.02
Pine Hill flannelbush	<i>Fremontodendron decumbens</i>	FE, SR	0.00	0.00	0.00	0.28	0.74	0.00	0.00	0.00	0.00	1.02
Stebbins' morning-glory	<i>Calystegia stebbinsii</i>	FE, SE	0.00	0.00	0.00	0.28	0.74	0.00	0.00	0.00	0.00	1.02
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
Valley elderberry longhorn beetle	<i>Desmocerus californicus dimorphus</i>	FT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	0.00	0.75
Vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	FT	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.80
Vernal pool tadpole shrimp	<i>Lepidurus packardii</i>	FE	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11
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
California red-legged frog	<i>Rana draytonii</i>	FT, SSC	11.94	5.05	15.07	0.28	0.74	0.00	0.11	1.27	6.23	40.70
California tiger salamander	<i>Ambystoma californiense</i>	FE, FT, ST	9.59	4.63	13.44	0.00	0.00	0.00	0.00	0.75	3.34	31.75
Ensatina ^b	<i>Ensatina eschscholtzii</i>	FS	0.00	5.05	15.07	0.28	0.74	0.00	0.00	1.27	6.23	28.64
Foothill yellow-legged frog	<i>Rana boylei</i>	FCE, FCT, FS, SE, ST, SSC	11.94	5.05	15.07	0.28	0.74	0.00	0.11	1.27	6.23	40.70
Western spadefoot	<i>Spea hammondi</i>	FS, SSC	0.89	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.96
Reptiles	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
Blainville's horned lizard	<i>Phrynosoma blainvillii</i>	FS, SSC	11.94	5.05	15.07	0.28	0.00	0.00	0.00	1.27	6.23	39.84
California mountain kingsnake ^c	<i>Lampropeltis zonata</i>	None	11.94	5.05	15.07	0.28	0.74	0.00	0.00	1.27	6.23	40.58
Common gartersnake ^d	<i>Thamnophis sirtalis</i>	SSC	11.94	5.05	15.07	0.28	0.74	0.07	0.00	1.27	6.23	40.65
Giant gartersnake	<i>Thamnophis gigas</i>	FT, ST	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
Gophersnake ^e	<i>Pituophis catenifer</i>	None	11.94	5.05	15.07	0.28	0.74	0.07	0.00	1.27	6.23	40.65
Ring-necked snake ^f	<i>Diadophis punctatus</i>	FS, SSC	11.94	5.05	15.07	0.28	0.74	0.07	0.00	1.27	6.23	40.65
Striped racer ^g	<i>Coluber lateralis</i>	None	0.00	5.05	15.07	0.28	0.74	0.00	0.00	1.27	6.23	28.64
Western skink ^h	<i>Plestiodon skiltonianus</i>	FS	10.79	4.17	10.68	0.11	0.74	0.07	0.00	1.27	6.23	34.07

Common Name	Scientific Name	Status	Annual Grassland	Blue Oak Woodland	Blue Oak- Foothill Pine	Mixed Chaparral	Montane Hardwood	Pasture	Riverine	Valley Foothill Riparian	Valley Oak Woodland	Total
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
Bald eagle	<i>Haliaeetus leucocephalus</i>	FS, SE, SFP, SFS	11.94	5.05	15.07	0.28	0.74	0.00	0.11	1.27	6.23	40.70
Bell's sparrow ⁱ	<i>Artemisiospiza belli</i>	FT, SSC	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.00	0.00	0.28
Bewick's wren ^j	<i>Thryomanes bewickii</i>	SSC	0.00	5.05	15.07	0.28	0.74	0.00	0.00	1.27	6.23	28.64
Burrowing owl	<i>Athene cunicularia</i>	FS, SSC	11.94	5.05	15.07	0.28	0.00	0.07	0.00	1.27	6.23	39.91
California quail ^k	<i>Callipepla californica</i>	SSC	11.94	5.05	15.07	0.28	0.74	0.00	0.00	1.27	6.23	40.58
California spotted owl	<i>Strix occidentalis occidentalis</i>	FS, SSC	0.00	0.00	15.01	0.00	0.74	0.00	0.00	1.27	0.00	17.02
California towhee ^l	<i>Pipilo crissalis</i>	None	0.00	5.05	15.07	0.28	0.74	0.00	0.00	1.27	6.23	28.64
Golden eagle	<i>Aquila chrysaetos</i>	FS, SFS, SFP	11.94	5.05	15.07	0.28	0.74	0.07	0.00	1.27	6.23	40.65
Grasshopper sparrow	<i>Ammodramus savannarum</i>	SSC	11.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.94
Great blue heron ^m	<i>Ardea herodias</i>	SFS	11.94	5.05	15.07	0.00	0.74	0.00	0.11	1.27	6.23	40.42
Great egret ⁿ	<i>Ardea alba</i>	SFS	11.94	5.05	15.07	0.00	0.00	0.00	0.11	1.27	6.23	39.68
Greater white-fronted goose ^o	<i>Anser albifrons</i>	SSC	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
Hutton's vireo ^p	<i>Vireo huttoni</i>	SSC	0.00	5.05	15.07	0.28	0.74	0.00	0.00	1.27	6.23	28.64
Loggerhead shrike	<i>Lanius ludovicianus</i>	SE, SSC	11.94	5.05	15.07	0.28	0.74	0.00	0.00	1.27	6.23	40.58
Long-eared owl	<i>Asio otus</i>	SSC	11.94	5.05	15.07	0.28	0.74	0.07	0.00	1.27	6.23	40.65
Marsh wren ^q	<i>Cistothorus palustris</i>	SSC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.27	0.00	1.27
Modesto song sparrow	<i>Melospiza melodia mailliardi</i>	SSC	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
Northern goshawk	<i>Accipiter gentilis</i>	FS, SSC, SFS	0.00	0.00	0.89	0.00	0.00	0.00	0.00	0.00	2.54	3.43
Northern harrier	<i>Circus cyaneus</i>	SSC	11.94	5.05	15.07	0.28	0.74	0.00	0.11	1.27	6.23	40.70
Olive-sided flycatcher	<i>Contopus cooperi</i>	SSC	0.00	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.89
Oregon vesper sparrow	<i>Pooecetes gramineus affinis</i>	SSC	11.94	5.05	15.07	0.28	0.00	0.00	0.00	0.00	6.23	38.57
Osprey ^r	<i>Pandion haliaetus</i>	FS	11.94	5.05	15.07	0.28	0.74	0.00	0.11	1.27	6.23	40.70
Peregrine falcon ^s	<i>Falco peregrinus</i>	SFS, SFP	11.94	5.05	15.07	0.28	0.74	0.00	0.11	1.27	6.23	40.70
Purple martin	<i>Progne subis</i>	SSC	0.00	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.89
Redhead	<i>Aythya americana</i>	SSC	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.05
Red-winged blackbird ^t	<i>Agelaius phoeniceus</i>	SSC	11.94	0.00	0.00	0.00	0.00	0.00	0.00	1.27	0.00	13.22
Rufous-crowned sparrow ^u	<i>Aimophila ruficeps</i>	SSC	11.94	0.00	15.07	0.28	0.00	0.00	0.00	1.27	0.00	28.57
Sandhill crane	<i>Grus canadensis</i>	FS, ST, SSC, SFP	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
Savannah sparrow ^v	<i>Passerculus sandwichensis</i>	SE, SSC	11.94	5.05	15.07	0.28	0.00	0.07	0.00	1.27	6.23	39.91
Short-eared owl ^w	<i>Asio flammeus</i>	SSC	11.94	5.05	15.07	0.28	0.00	0.00	0.00	1.27	6.23	39.84

Common Name	Scientific Name	Status	Annual Grassland	Blue Oak Woodland	Blue Oak-Foothill Pine	Mixed Chaparral	Montane Hardwood	Pasture	Riverine	Valley Foothill Riparian	Valley Oak Woodland	Total
Song sparrow ^x	<i>Melospiza melodia</i>	SSC	11.94	5.05	15.07	0.28	0.74	0.00	0.11	1.27	6.23	40.70
Spotted owl ^y	<i>Strix occidentalis</i>	FT, FS, ST, SFS, SSC	0.00	0.00	15.01	0.00	0.74	0.00	0.00	1.27	0.00	17.02
Spotted towhee ^z	<i>Pipilo maculatus</i>	SSC	0.00	5.05	15.07	0.28	0.74	0.00	0.00	1.27	6.23	28.64
Swainson's hawk	<i>Buteo swainsoni</i>	FS, ST	0.89	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.98
Tricolored blackbird	<i>Agelaius tricolor</i>	FS, ST, SSC	11.94	0.00	0.00	0.00	0.00	0.00	0.00	1.27	0.00	13.22
Vaux's swift	<i>Chaetura vauxi</i>	SSC	0.00	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.89
Vesper sparrow ^{aa}	<i>Poocetes gramineus</i>	SSC	11.94	5.05	15.07	0.28	0.00	0.00	0.00	0.00	6.23	38.57
White-tailed kite	<i>Elanus leucurus</i>	FS, SFP	11.94	5.05	15.07	0.28	0.00	0.00	0.00	1.27	6.23	39.84
Yellow warbler	<i>Setophaga petechia</i>	SSC	0.00	5.05	15.07	0.28	0.74	0.00	0.00	1.27	6.23	28.64
Yellow-breasted chat	<i>Icteria virens</i>	SSC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.27	0.00	1.27
Yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>	SSC	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
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
American badger	<i>Taxidea taxus</i>	SSC	11.94	5.05	15.07	0.28	0.74	0.07	0.00	1.27	6.23	40.65
Big-eared woodrat ^{bb}	<i>Neotoma macrotis</i>	FS, SSC	0.00	5.05	15.07	0.28	0.74	0.00	0.00	1.27	6.23	28.64
Black-tailed jackrabbit ^{cc}	<i>Lepus californicus</i>	None	11.94	5.05	15.07	0.28	0.74	0.07	0.00	1.27	6.23	40.65
Broad-footed mole ^{dd}	<i>Scapanus latimanus</i>	SSC	11.94	5.05	15.07	0.00	0.74	0.07	0.00	1.27	6.23	40.37
Brush rabbit ^{ee}	<i>Sylvilagus bachmani</i>	FE, SE	11.94	5.05	15.07	0.28	0.74	0.07	0.00	1.27	6.23	40.65
California kangaroo rat ^{ff}	<i>Dipodomys californicus</i>	SSC	0.83	0.36	0.19	0.11	0.00	0.00	0.00	0.00	0.00	1.49
California pocket mouse ^{gg}	<i>Chaetodipus californicus</i>	SSC	11.94	5.05	15.07	0.28	0.74	0.00	0.00	0.00	6.23	39.31
California vole ^{hh}	<i>Microtus californicus</i>	FE, FS, SE, SSC	11.94	5.05	15.07	0.28	0.74	0.07	0.00	1.27	6.23	40.65
Deer mouse ⁱⁱ	<i>Peromyscus maniculatus</i>	SSC	11.94	5.05	15.07	0.28	0.74	0.07	0.00	1.27	6.23	40.65
Fringed myotis	<i>Myotis thysanodes</i>	FS	11.02	4.63	14.88	0.17	0.74	0.07	0.11	1.21	6.23	39.07
Heermann's kangaroo rat ^{jj}	<i>Dipodomys heermanni</i>	None	11.94	5.05	15.07	0.28	0.74	0.07	0.00	0.00	6.23	39.38
Mountain lion ^{kk}	<i>Puma concolor</i>	SSC	11.94	5.05	15.07	0.28	0.74	0.07	0.00	1.27	6.23	40.65
Ornate shrew ^{ll}	<i>Sorex ornatus</i>	FE, SSC	11.71	4.98	15.07	0.28	0.00	0.00	0.00	1.21	6.23	39.49
Pallid bat	<i>Antrozous pallidus</i>	FS, SSC	11.94	5.05	15.07	0.28	0.74	0.07	0.11	1.27	6.23	40.77
Red fox ^{mm}	<i>Vulpes vulpes</i>	FE, FS, ST	0.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.83
Ringtail	<i>Bassariscus astutus</i>	SFP	11.94	5.05	15.07	0.28	0.74	0.07	0.00	1.27	6.23	40.65
Sacramento Valley red fox ⁿⁿ	<i>Vulpes vulpes patwin</i>	None	0.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.83
Small-footed myotis	<i>Myotis ciliolabrum</i>	FS	11.05	4.63	15.01	0.28	0.74	0.07	0.11	1.21	6.23	39.33
Spotted bat	<i>Euderma maculatum</i>	FS, SSC	11.80	5.05	15.07	0.00	0.00	0.00	0.11	1.21	6.23	39.48
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	FS, SSC	11.94	5.05	15.07	0.28	0.74	0.07	0.11	1.27	6.23	40.77

Common Name	Scientific Name	Status	Annual Grassland	Blue Oak Woodland	Blue Oak- Foothill Pine	Mixed Chaparral	Montane Hardwood	Pasture	Riverine	Valley Foothill Riparian	Valley Oak Woodland	Total
Western mastiff bat	<i>Eumops perotis</i>	FS, SSC	11.94	5.05	15.07	0.28	0.74	0.07	0.00	1.27	6.23	40.65
Western red bat	<i>Lasiurus blossevillii</i>	SSC	11.94	5.05	15.07	0.28	0.74	0.07	0.11	1.27	6.23	40.77
Western spotted skunk ^{oo}	<i>Spilogale gracilis</i>	SSC	11.94	5.05	15.07	0.28	0.74	0.07	0.00	1.27	6.23	40.65
Yuma myotis	<i>Myotis yumanensis</i>	FS	11.94	5.05	15.07	0.28	0.74	0.07	0.11	1.27	6.23	40.77
Not applicable	Not applicable	Total	11.94	5.05	15.07	0.28	0.74	0.07	0.11	1.27	6.23	13.05

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

^a This plant species does not occur in the Sierra Nevada Ecoregion in the GAI.

^b Ensatina: Only the yellow-blotched and large-blotched subspecies are considered special status, and they do not occur in the GAI.

^c California mountain kingsnake: Not special status.

^d Common gartersnake: Only the San Francisco subspecies and south coast population are considered special status, and they do not occur in the GAI.

^e Gophersnake: Only the Santa Cruz Island subspecies is considered special status, and it does not occur in the GAI.

^f Ring-necked snake: Only the regal, San Bernardino, and San Diego subspecies are considered special status, and they do not occur in the GAI.

^g Striped racer: Only the Alameda subspecies is considered special status, and it does not occur in the GAI.

^h Western skink: Only the Coronado subspecies is considered special status, and it does not occur in the GAI.

ⁱ Bell's sparrow: Only the San Clemente subspecies is considered special status, and it does not occur in the GAI.

^j Bewick's wren: Only the San Clemente subspecies is considered special status, and it does not occur in the GAI.

^k California quail: Only the Catalina subspecies is considered special status, and it does not occur in the GAI.

^l California towhee: Only the Inyo subspecies is considered special status, and it does not occur in the GAI.

^m Great blue heron: This species is only on the CDFW Special Animals List as State Fire Sensitive.

ⁿ Great egret: This species is only on the CDFW Special Animals List as State Fire Sensitive.

^o Greater white-fronted goose: Only the tule subspecies is considered special status, and it does not occur in the GAI.

^p Hutton's vireo: Only the Catalina subspecies is considered special status, and it does not occur in the GAI.

^q Marsh wren: Only the Clark's subspecies is considered special status, and it does not occur in the GAI.

^r Osprey: This species is only on the CDFW Special Animals List as State Fire Sensitive.

^s Peregrine falcon: This species is only on the CDFW Special Animals List as State Fire Sensitive.

^t Red-winged blackbird: Only the Kern subspecies is considered special status, and it does not occur in the GAI.

^u Rufous-crowned sparrow: Only the Santa Cruz Island subspecies is considered special status, and it does not occur in the GAI.

^v Savannah sparrow: Only the Belding's, Bryant's, and large-billed subspecies are considered special status, and they do not occur in the GAI.

^w Short-eared owl: This species is only considered special status in its nesting range, and it does not nest in the Sierra Nevada Foothill Ecoregion section of the GAI.

^x Song sparrow: This is a duplicate for Modesto song sparrow.

^y Spotted owl: This is a duplicate for California spotted owl.

^z Spotted towhee: Only the San Clemente subspecies is considered special status, and it does not occur in the GAI.

^{aa} Vesper sparrow: This is a duplicate for Oregon vesper sparrow.

^{bb} Big-eared woodrat: Not special status.

^{cc} Black-tailed jackrabbit: Only the San Diego subspecies appears on the CDFW Special Animals List and it does not occur in the GAI.

^{dd} Broad-footed mole: Only the Alameda Island subspecies is considered special status, and it does not occur in the GAI.

^{ee} Brush rabbit: Only the riparian subspecies is considered special status, and it does not occur in the GAI.

^{ff} California kangaroo rat: Only the Marysville subspecies is considered special status, and it does not occur in the GAI.

^{gg} California pocket mouse: Only the Dulzura subspecies is considered special status, and it does not occur in the GAI.

^{hh} California vole: Only the Mohave River, San Pablo, Amargosa, south coast marsh, and Owens Valley subspecies are considered special status, and none of them occur in the GAI.

ⁱⁱ Deer mouse: Only the Anacapa Island subspecies is considered special status, and it does not occur in the GAI.

^{jj} Heermann's kangaroo rat: Only the Morro Bay subspecies is considered special status, and it does not occur in the GAI.

^{kk} Mountain lion: Only the Yuma subspecies is considered special status, and it does not occur in the GAI.

^{ll} Ornate shrew: Only the Buena Vista Lake, Monterey, southern California saltmarsh, Suisun, and Santa Catalina subspecies are considered special status, and none of them occur in the GAI.

^{mmm} Red fox: Only the Sierra Nevada subspecies is considered special status, and it does not occur in the Sierra Nevada Foothills Ecoregion section of the GAI.

ⁿⁿ Sacramento Valley red fox: While this subspecies appears on the CDFW Special Animals List, it is not considered special status and is not tracked in the CNDDDB.

^{oo} Western spotted skunk: Only the Channel Islands subspecies is considered special status, and it does not occur in the GAI.

APPENDIX E: HYDROLOGIC UNITS

Sub-basin Descriptions

Two sub-basins overlap the GAI: Upper Cosumnes sub-basin and Upper Mokelumne sub-basin. A description of each sub-basin is provided in the following sections. A crosswalk between the HUC-8 sub-basins and HUs is provided in Table E-1 at the end of the Crosswalk: HUC-8s to HUs section.

Upper Cosumnes Sub-basin

The Upper Cosumnes sub-basin drains an area of 607,874 acres (950 square miles) and includes 1,499 rivers and streams that traverse 1,566 miles. As noted in Table E-1, the Upper Cosumnes sub-basin includes portions of the American River, Middle Sierra, North Valley Floor, Sacramento Delta, San Joaquin Delta, and Valley-American HUs. Descriptions of these HUs are provided below and may include features that occur outside of the Upper Cosumnes sub-basin or GAI.

American River HU

The American River HU is associated with the American River. The American River has headwaters within the El Dorado National Forest in the Sierra Nevada. Consisting of three forks—the North, Middle, and South—the American River is a tributary to the Rubicon River, Duncan Creek, Long Canyon Creek, and Silver Creek. Several reservoirs are also located along the American River, including French Meadows, Hell Hole, Union Valley, Ice House, Lake Valley, Loon Lake, Silver Lake, Slab Creek, and Stumpy Meadows. Once past the various impoundments, the American River ultimately drains into the Sacramento River (Sacramento River Watershed Program 2023). The part of the American River HU that lies within the Upper Cosumnes sub-basin includes portions of the South Fork American River and Foothill Drain hydrologic areas.

Middle Sierra HU

The part of the Middle Sierra HU that lies within the Upper Cosumnes sub-basin includes portions of the Cosumnes, Sutter Creek, and Upper Mokelumne hydrologic areas.

North Valley Floor HU

The North Valley Floor HU is part of the San Joaquin hydrologic basin. The part of the North Valley Floor HU that lies within the Upper Cosumnes sub-basin includes portions of the Lower Cosumnes-Dry and Lower Mokelumne hydrologic areas.

Sacramento Delta HU

The Sacramento Delta HU includes the Sacramento River, Steamboat Slough, and Prospect Slough. The Sacramento River originates within the eastern slopes of the Coast Range, Mount Shasta, the western slopes of the southernmost region of the Cascades, and the northern portion of the Sierra Nevada (Rivers for Change 2014). The river then meets the San Joaquin River to form the Sacramento Delta before flowing out to the Pacific Ocean. The part of the Sacramento Delta HU that lies within the Upper Cosumnes sub-basin is undefined.

San Joaquin Delta HU

The part of the San Joaquin Delta HU that lies within the Upper Cosumnes sub-basin is undefined.

Valley-American HU

The Valley-American HU is associated with the Lower American and Pleasant Grove watersheds, which outlet to the American, Sacramento, and Feather Rivers (EPA n.d.). The Lower American River has headwaters just below Nimbus Dam and flows through the American River Parkway to the confluence with the Sacramento River (California Wilderness Coalition 2020). The Pleasant Grove watershed has headwaters within the foothills of the Sierra Nevada and flows east, draining into Pleasant Grove Creek Canal, ultimately reaching a confluence with the Sacramento River (Placer County 2006). The part of the Valley-American HU that lies within the Upper Cosumnes HU includes portions of the Morrison Creek and Coon-American hydrologic areas.

Upper Mokelumne Sub-basin

The Upper Mokelumne sub-basin drains an area of 810,441 acres (1,266 square miles) and includes 1,918 rivers and streams that traverse 1,750 miles. As noted in Table E-1, the Upper Mokelumne sub-basin includes portions of the American River, East Fork Carson River, Lower Calaveras, Middle Sierra, North Valley Floor, Sacramento Delta, San Joaquin Delta, Stanislaus River, Valley-American, and West Fork Carson River HUs. Descriptions of these HUs are provided below and may include features that occur outside of the Upper Mokelumne sub-basin or GAI.

East Fork Carson River HU

The East Fork Carson River HU is associated with the Carson River watershed. The East Fork Carson River originates in the Carson-Iceberg Wilderness in the Sierra Nevada. Melting snow and springs flow northeastward where the East Fork Carson River converges with the West Fork before flowing out of the Upper Carson sub-basin and eventually reaching its terminus in the Carson Sink. Several tributaries drain into the East Fork, including Bryant, Indian, Mountaineer, Leviathan, Pleasant, Hot Springs, Murry Canyon, Silver, Wolf, Silver King, and Poison Flat Creeks (Water Education Foundation 2006). The part of the East Fork Carson River HU that lies within the Upper Mokelumne sub-basin includes portions of the Markleeville hydrologic area.

Lower Calaveras HU

The Lower Calaveras HU is associated with the Calaveras River Basin. The Lower Calaveras River watershed occurs below New Hogan Reservoir and splits into the Old Calaveras Channel and Mormon Slough/Stockton Diverting Canal before draining into the San Joaquin River (Calaveras County Water District 2016). The part of the Lower Calaveras HU that lies within the Upper Mokelumne sub-basin is undefined.

Middle Sierra HU

The Middle Sierra HU is part of the San Joaquin hydrologic basin. The part of the Middle Sierra HU that lies within the Upper Mokelumne sub-basin includes portions of the Camp Seco and Upper Mokelumne hydrologic areas.

San Joaquin Delta HU

The San Joaquin Delta HU includes the San Joaquin, Middle, and Old Rivers. The San Joaquin River originates in the high Sierra Nevada and flows westward for approximately 100 miles before turning northward for approximately 260 miles where it joins the Sacramento River. The waters confluence with the Sacramento River and form the San Joaquin Delta before flowing out to the Pacific Ocean (EPA 2020). The part of the San Joaquin Delta HU that lies within the Upper Mokelumne sub-basin is undefined.

Stanislaus River HU

The Stanislaus River HU is associated with the 113-mile-long Stanislaus River. Headwaters are located within the Sierra Nevada Foothills. The Stanislaus River ultimately drains into the San Joaquin River. Several dams are found throughout the length of the river, including Donnell's Dam, forming Donell Lake; Beardsley Dam, forming Beardsley Lake; New Melones Dam, forming New Melones Lake; and Tulloch Dam, forming Tulloch Reservoir (NMFS 2014). The part of the Stanislaus River HU that lies within the Upper Mokelumne sub-basin includes portions of the North Fork Stanislaus and Clark Fork hydrologic areas.

Upper Calaveras HU

The Upper Calaveras HU is associated with the Calaveras River Basin. The upper river basin originates in the headwaters of the Sierra Nevada above New Hogan Reservoir. The two main forks, the Calaveras River North and South Forks, drain several smaller tributaries such as Esperanza, Jesus Maria, Calaveritas, San Antonio, and San Domingo Creeks before converging and draining into New Hogan Dam (Calaveras County Water District 2021). The part of the Upper Calaveras HU that lies within the Upper Mokelumne sub-basin includes portions of the North Fork Calaveras and South Fork Calaveras hydrologic areas.

West Fork Carson River HU

The West Fork Carson River HU originates within a section of the Mokelumne Wilderness in the Sierra Nevada. Alpine runoff flows northward where tributaries such as Horsethief Canyon, Willow, Red Lake, and Forestdale Creeks flow into the West Fork Carson River before reaching Brockliss Slough (Water Education Foundation 2006). The part of the West Fork Carson River HU that lies within the Upper Mokelumne sub-basin includes portions of the Upper West Fork Carson hydrologic area.

Crosswalk: HUC-8s to HUs

The SAMNA Reporting Tool expresses the landscape in terms of USGS HUC-8 sub-basins (Caltrans 2024; USGS 2014). However, SWRCB considers beneficial uses in

terms of HUs (California Department of Water Resources 2016). Table E-1 provides a crosswalk between the HUC-8 and HU classification systems for the GAI.

Table E-1. Crosswalk Table of HUC-8 Sub-basins with HUs in the GAI

HUC-8 Number	HUC-8 Name	HUC-8 Acreage ^a	HU Number	HU Name	HU Acreage ^a
18040013	Upper Cosumnes	810,441	514	American River	1,426,353
18040013	Upper Cosumnes	810,441	532	Middle Sierra	561,688
18040013	Upper Cosumnes	810,441	533	Middle Sierra	614,915
18040013	Upper Cosumnes	810,441	531	North Valley Floor	759,546
18040013	Upper Cosumnes	810,441	510	Sacramento Delta	488,596
18040013	Upper Cosumnes	810,441	544	San Joaquin Delta	433,311
18040013	Upper Cosumnes	810,441	519	Valley-American	1,254,833
18040012	Upper Mokelumne	607,874	514	American River	1,426,353
18040012	Upper Mokelumne	607,874	632	East Fork Carson River	222,427
18040012	Upper Mokelumne	607,874	571	Lower Calaveras	8,477
18040012	Upper Mokelumne	607,874	532	Middle Sierra	561,688
18040012	Upper Mokelumne	607,874	533	Middle Sierra	614,915
18040012	Upper Mokelumne	607,874	531	North Valley Floor	759,546
18040012	Upper Mokelumne	607,874	510	Sacramento Delta	488,596
18040012	Upper Mokelumne	607,874	544	San Joaquin Delta	433,311
18040012	Upper Mokelumne	607,874	534	Stanislaus River	594,377
18040012	Upper Mokelumne	607,874	535	Stanislaus River	421,187
18040012	Upper Mokelumne	607,874	533	Upper Calaveras	614,915
18040012	Upper Mokelumne	607,874	519	Valley-American	1,254,833
18040012	Upper Mokelumne	607,874	633	West Fork Carson River	67,763

Source: Caltrans (2024)

^a Numbers were rounded to the nearest whole number.

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APPENDIX F: LIST OF 303(d) IMPAIRED WATERS

Section 303(d) of the CWA requires that every 2 years, each state shall submit 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. Waterbodies in the GAI that are included on the Section 303(d) list of impaired waters, their impairments, and whether TMDLs have been established are provided in Table F-1 (SWRCB 2021).

Table F-1. Impaired Waters in the GAI

Sub-basin	Impaired Water	Impairment	TMDL Status	Relevant to RAMNA? ^a
San Joaquin Delta	Delta Waterways (central portion)	DDT	Required, not established yet	No
San Joaquin Delta	Delta Waterways (eastern portion)	DDT	Required, not established yet	No
San Joaquin Delta	Potato Slough, Little (San Joaquin County)	Toxicity	Required, not established yet	No
Upper Cosumnes	Cosumnes River, Lower (below Michigan Bar; partly in Delta Waterways, eastern portion)	Indicator bacteria	Required, not established yet	No
Upper Cosumnes	Laguna Creek (tributary to Cosumnes River, Sacramento County)	Toxicity ^b	Required, not established yet	No
Upper Mokelumne	Amador Lake	pH (high)	Required, not established yet	No
Upper Mokelumne	Bear River (from Allen to Upper Bear River Reservoir, Amador County)	pH (low)	Required, not established yet	No
Upper Mokelumne	Bear River (Lower Bear River Reservoir to Mokelumne River, North Fork, Amador County)	Copper	Required, not established yet	No
Upper Mokelumne	Brack Tract Drain, at Woodbridge Road (San Joaquin County)	Arsenic	Required, not established yet	No
Upper Mokelumne	Camanche Reservoir	Zinc	Required, not established yet	No
Upper Mokelumne	Delta Waterways (northern portion)	Invasive species	Required, not established yet	No
Upper Mokelumne	Meadows Slough (Sacramento County)	Mercury	Required, not established yet	No

Sub-basin	Impaired Water	Impairment	TMDL Status	Relevant to RAMNA? ^a
Upper Mokelumne	Mokelumne River, Lower (in Delta Waterways, eastern portion)	Zinc	Required, not established yet	No
Upper Mokelumne	Pardee Reservoir	Mercury	Required, not established yet	No
Upper Mokelumne	Rattlesnake Creek (at confluence with Mokelumne River, North Fork)	Indicator bacteria	Required, not established yet	Yes

Source: SWRCB (2021)

Note: DDT = dichlorodiphenyl-trichloroethane

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

^b Refers to toxicity to aquatic organisms

References

SWRCB (State Water Resources Control Board). 2021. "2018 California Integrated Report (Clean Water Act Section 303(d) List and 305(b) Report)." Accessed December 2024.
https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html.

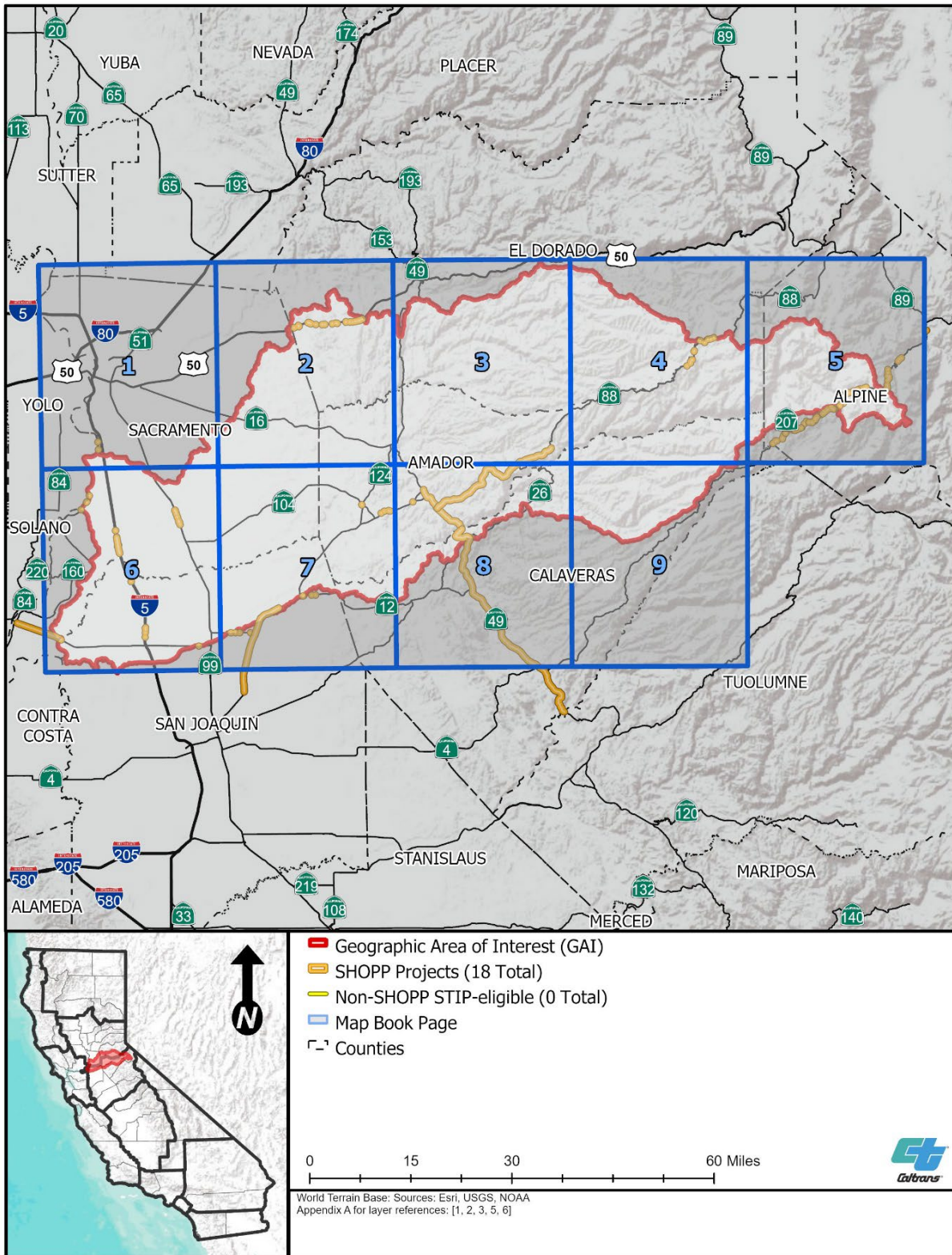
APPENDIX G: AQUATIC RESOURCE LOCATIONS

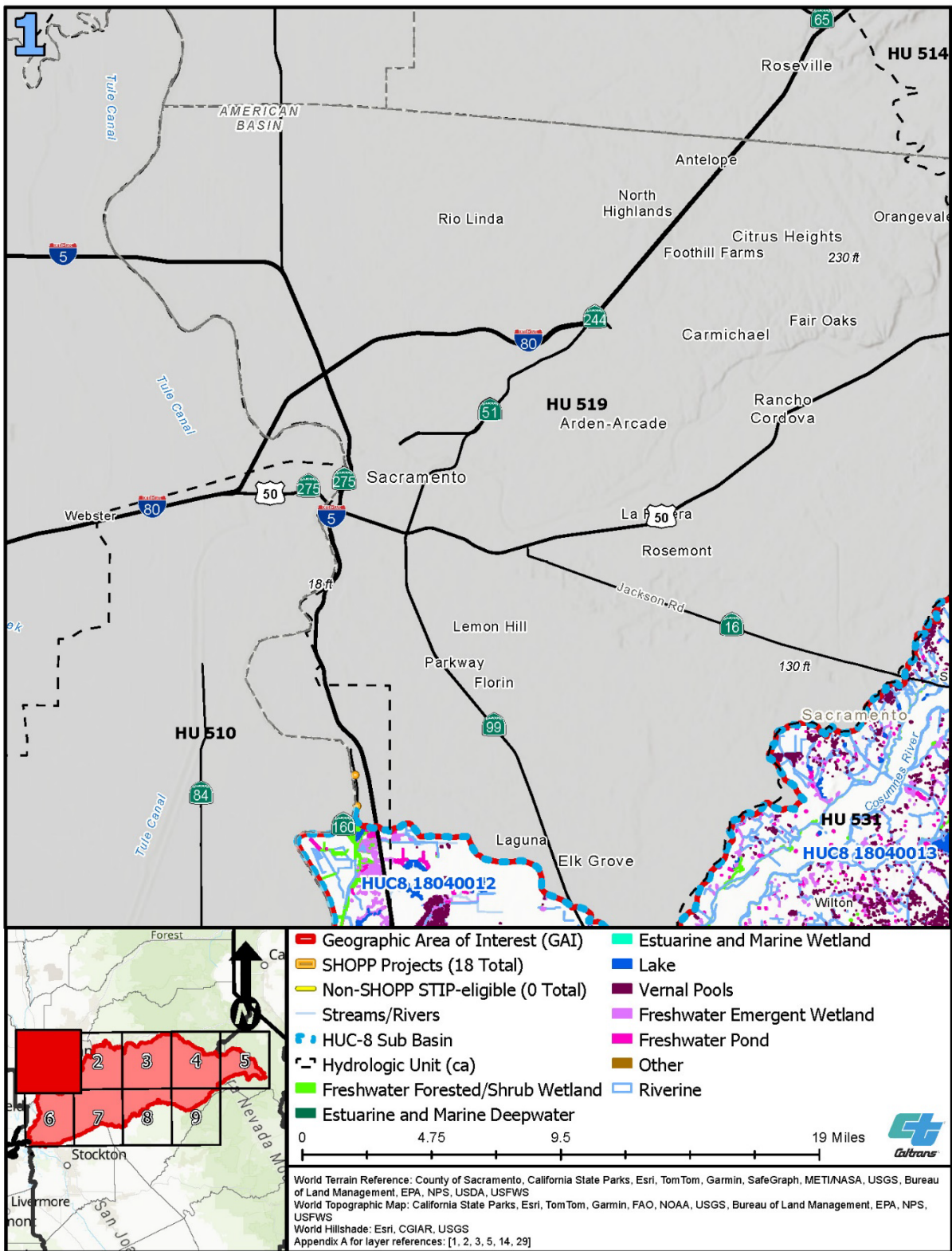
Aquatic resource locations are shown by HUC-8 sub-basin and HU in the following maps, which also include major landmarks for perspective. These locations were excerpted from the SAMNA Reporting Tool's water and wetland layers (Caltrans 2024a, 2024b). HUs are described in Appendix E, *Hydrologic Units*, which includes a crosswalk table of HUC-8 subbasins and HUs. These nine maps correspond with the land cover maps in Appendix C, *Land Cover Types*.

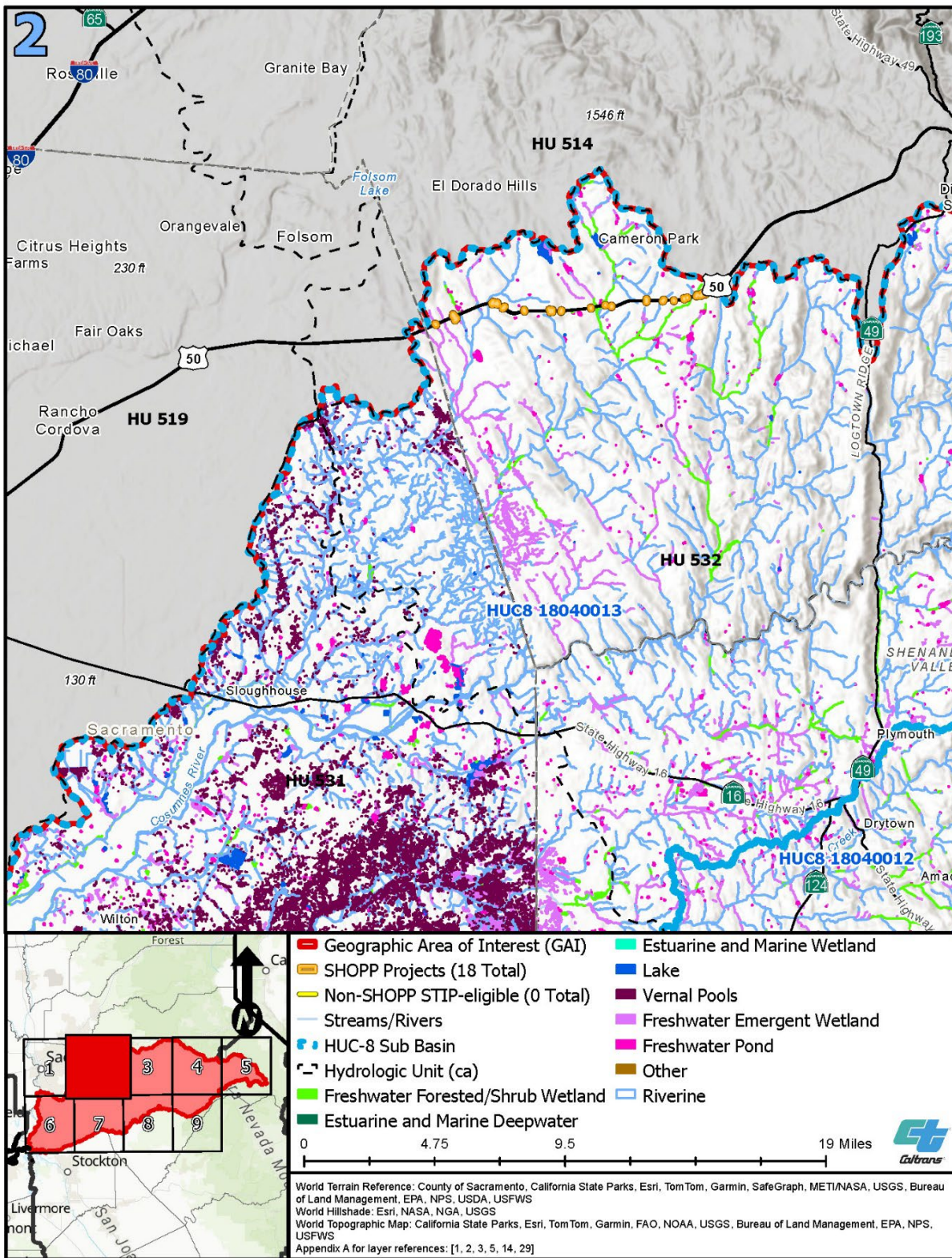
Few sources of information are known to be available that can be used to describe existing and relevant wetland, riparian, and littoral resources. The FWS (2021) National Wetlands Inventory and the SFEI (2018) California Aquatic Resource Inventory are the only known datasets that include the distribution, extent, and types of aquatic resources in the GAI, and the SAMNA Reporting Tool relies upon them (Caltrans 2024a, 2024b). Note that Chapter 5, *Modeled Estimated Impacts*, discusses SHOPP project impacts on areas of potential riparian function that were estimated using the statewide riparian landcover dataset; however, those data were not used in maps for this RAMNA.

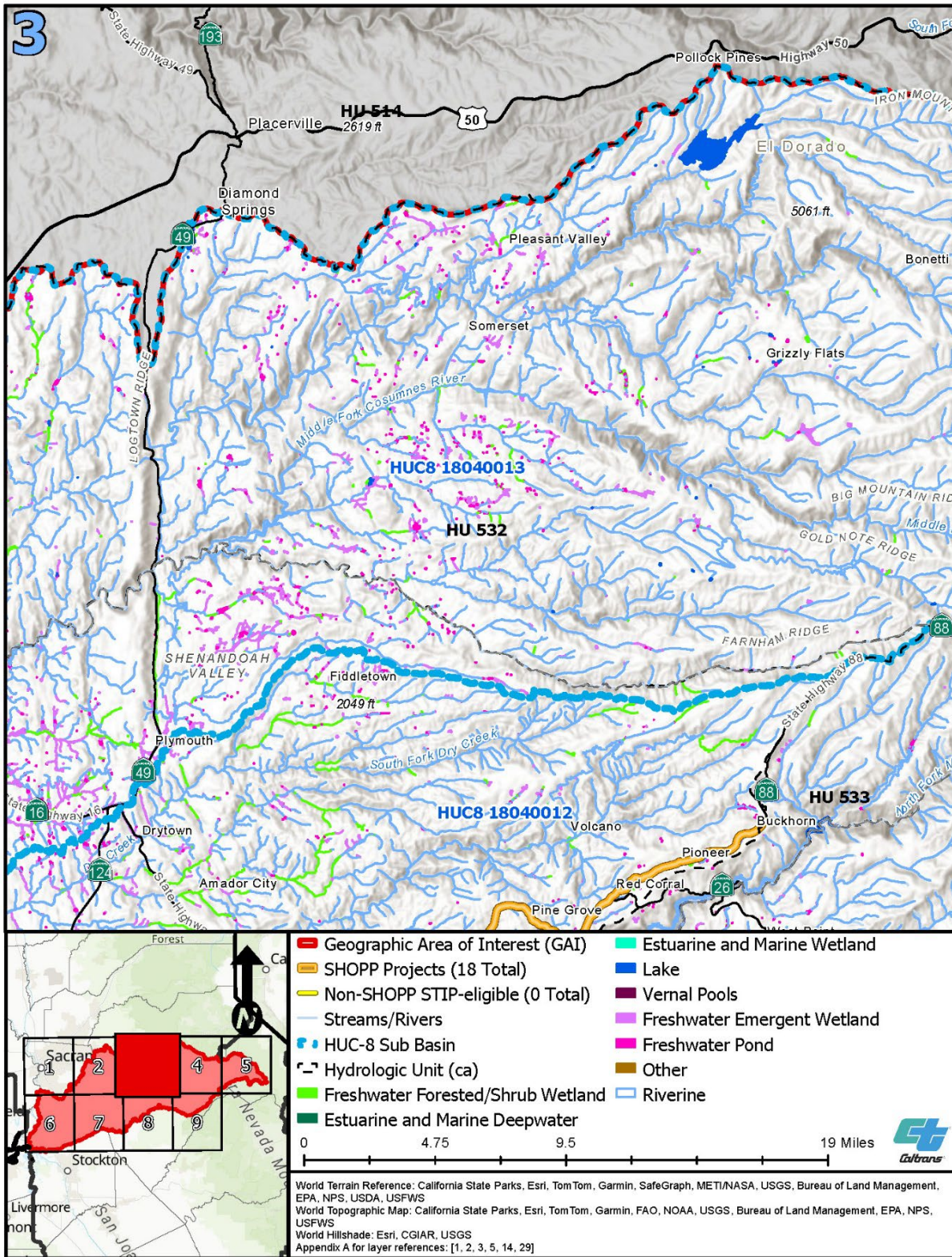
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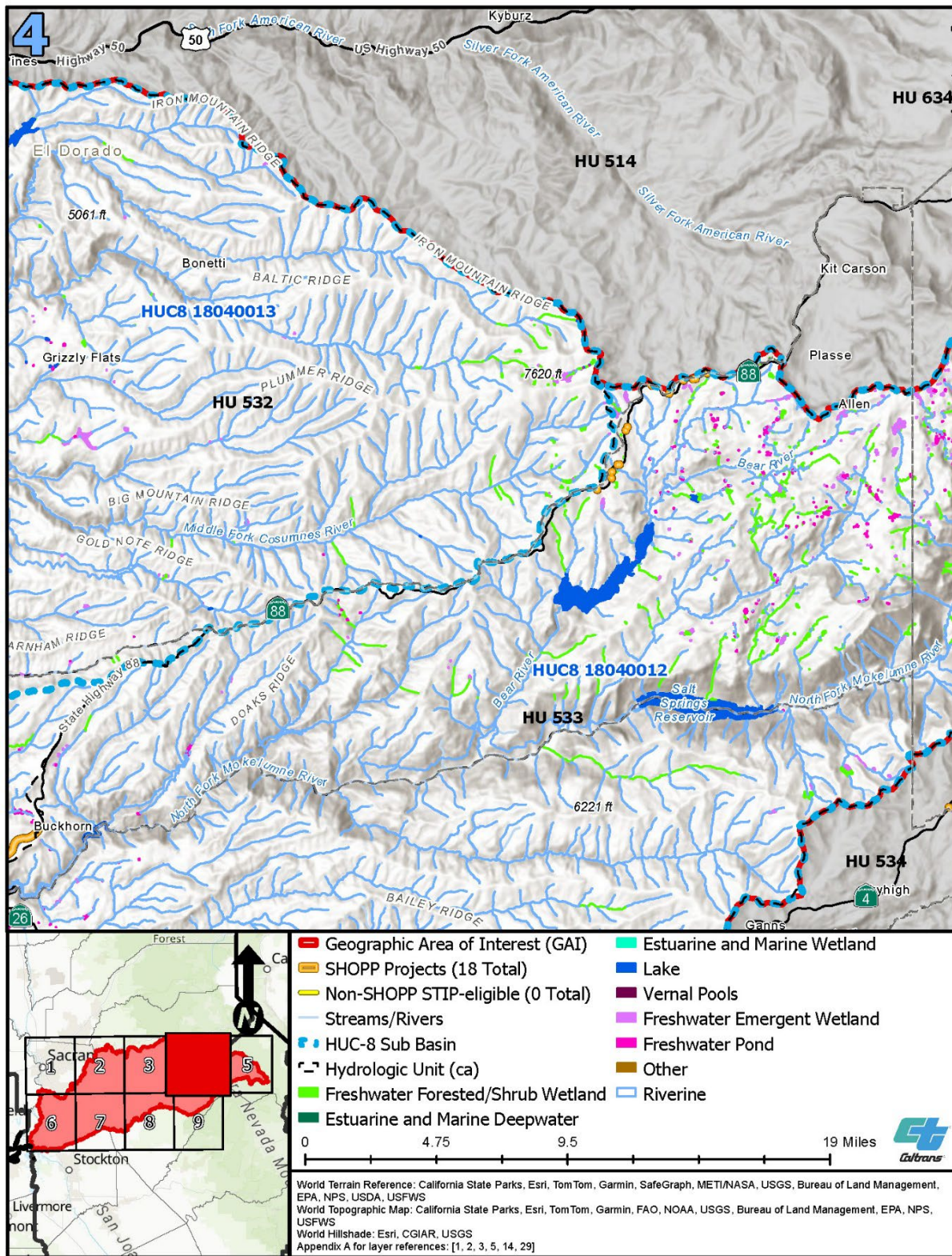
- Caltrans (California Department of Transportation). 2024a. "Waters_D03/D10 in Caltrans District 3 Geospatial Data for the Advance Mitigation Needs Assessment for the Third Quarter of FY 2023/2024" (data file). Accessed October 16, 2024. <https://dot.ca.gov/programs/environmental-analysis/biology/advancemitigation>
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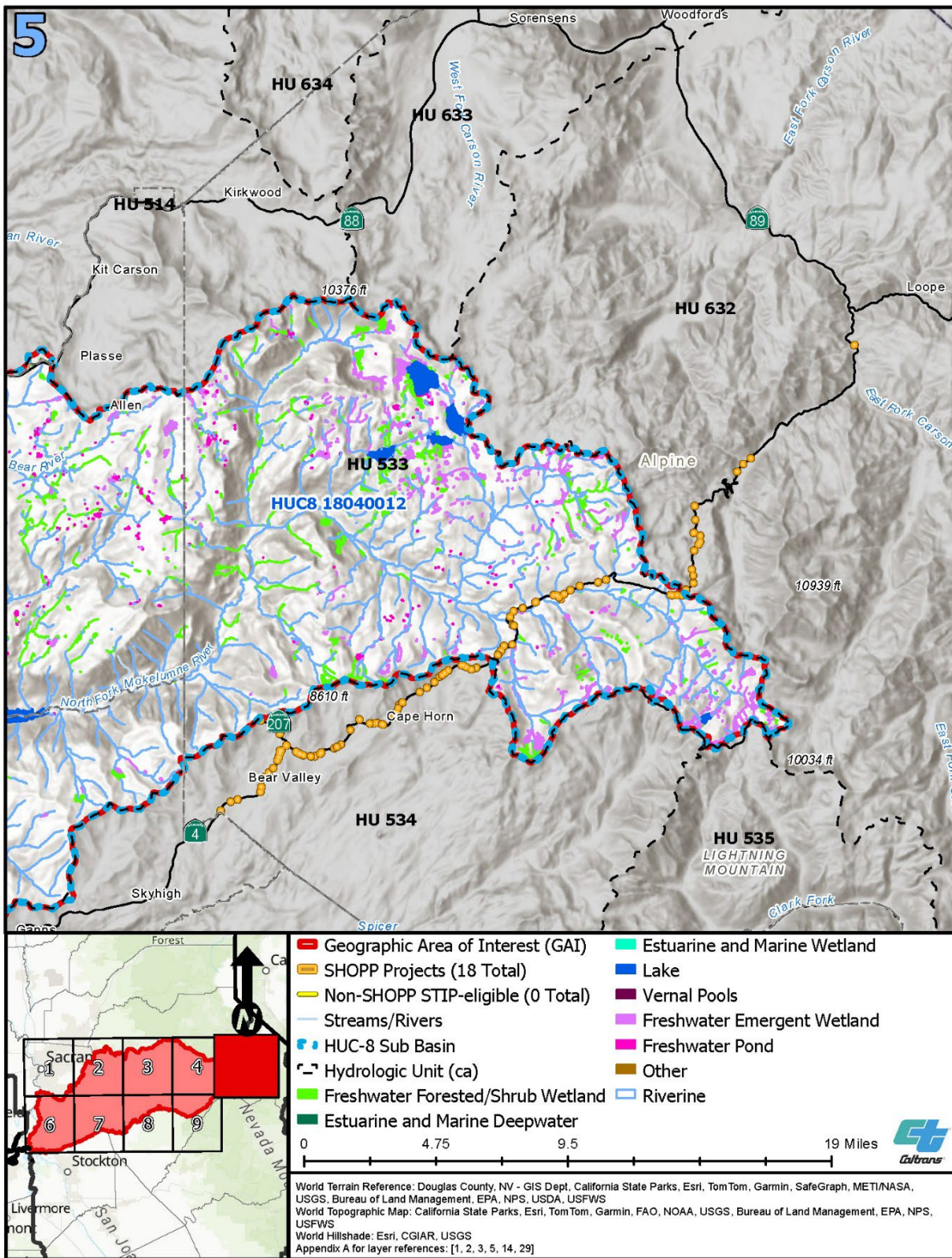


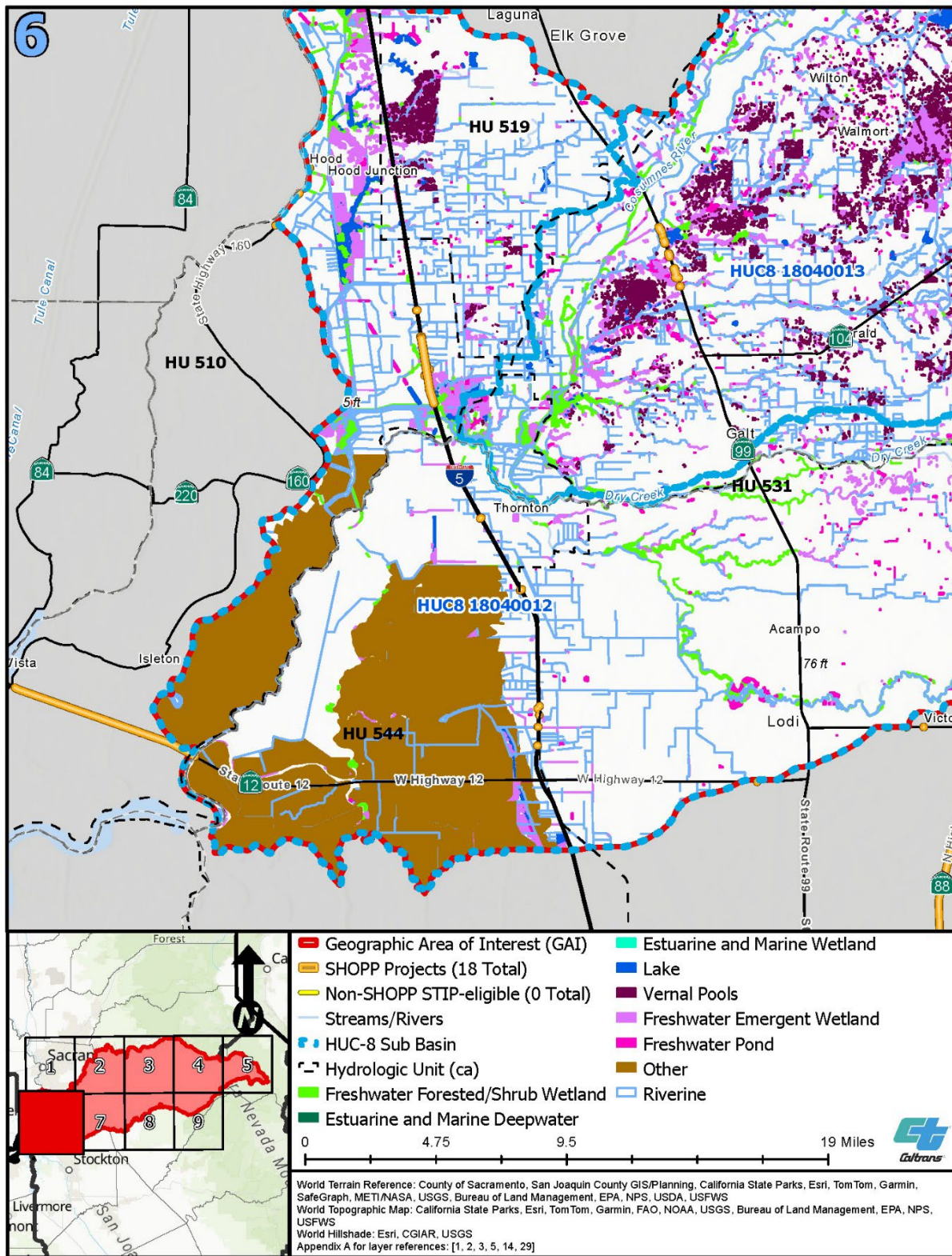


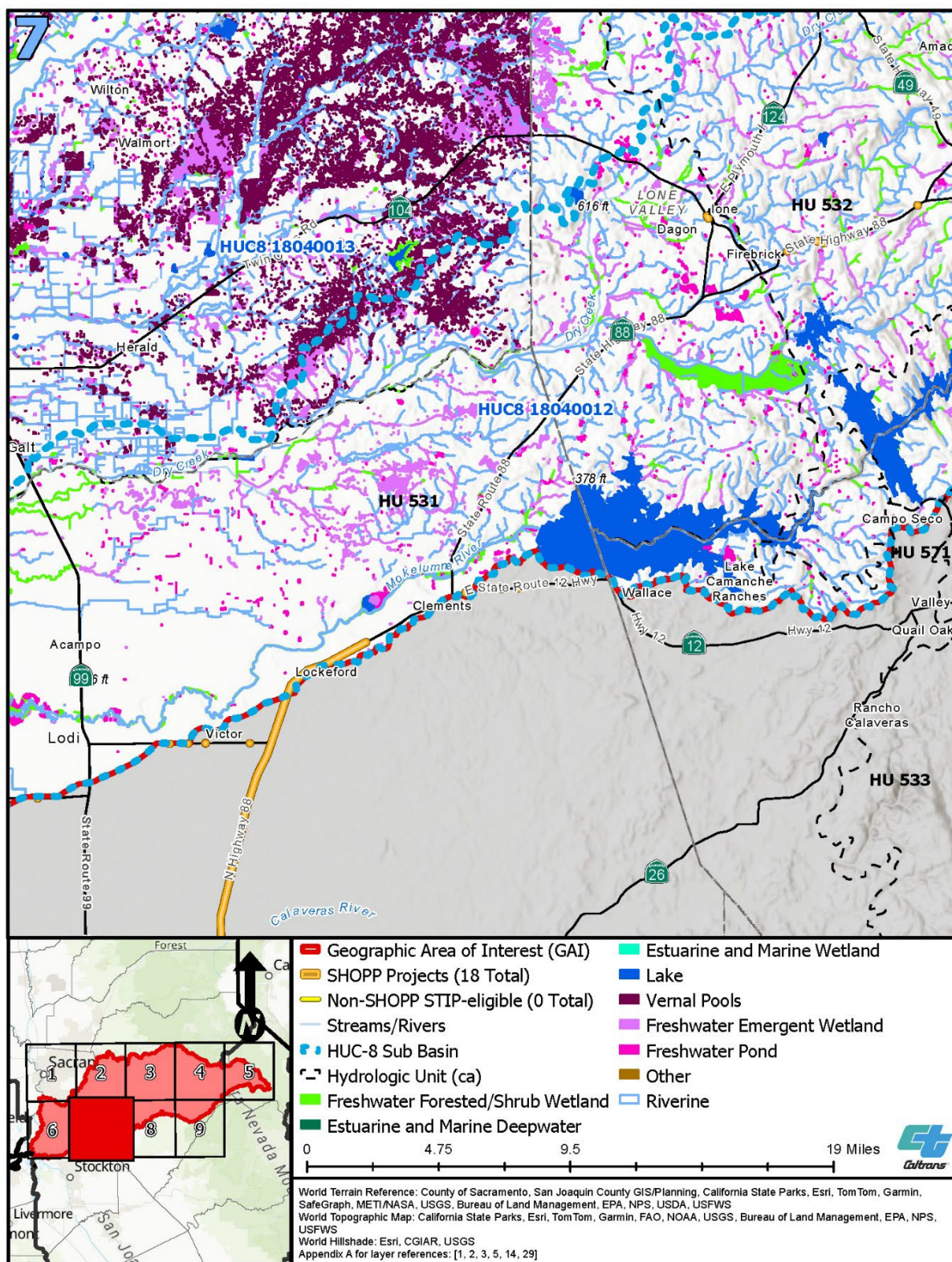


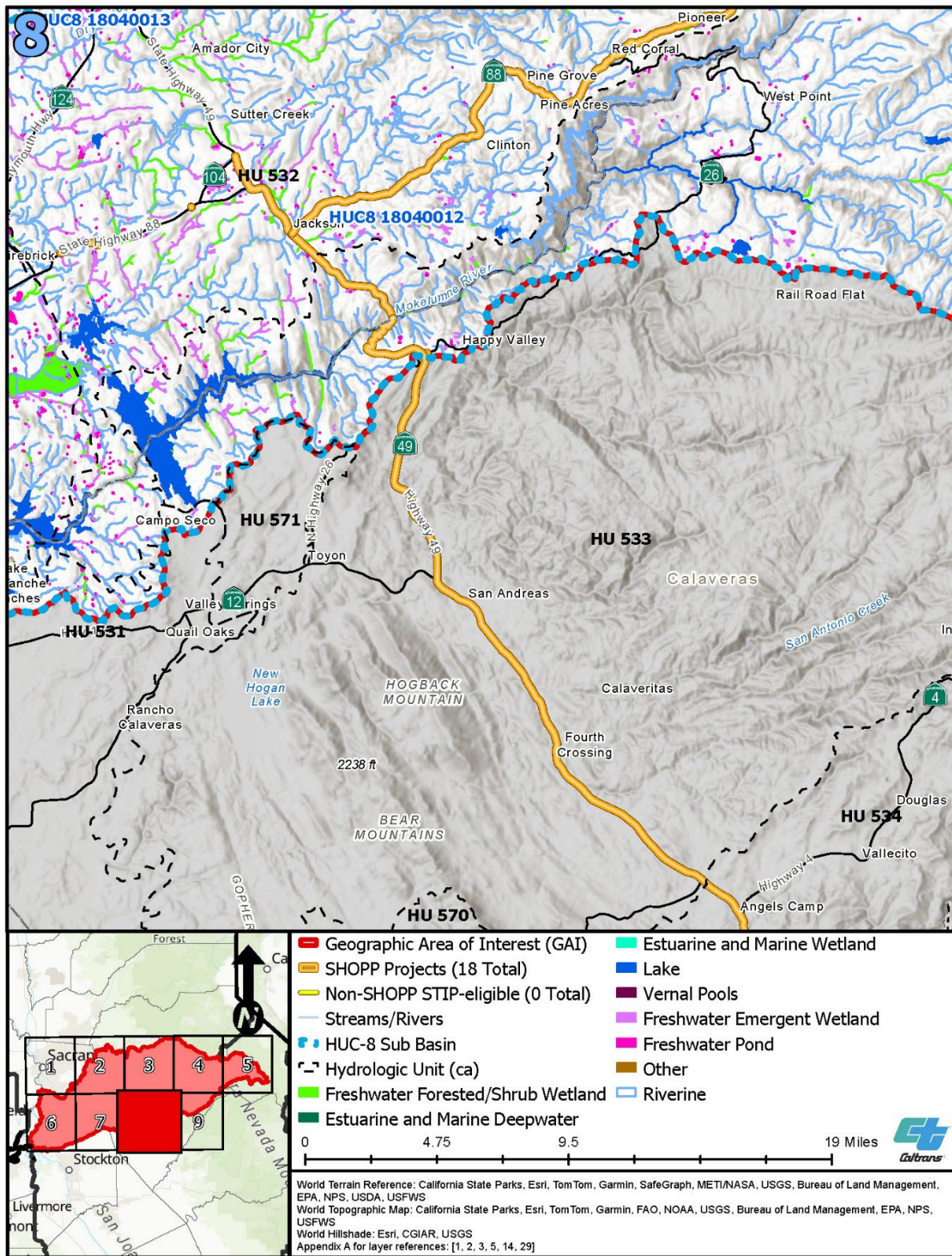


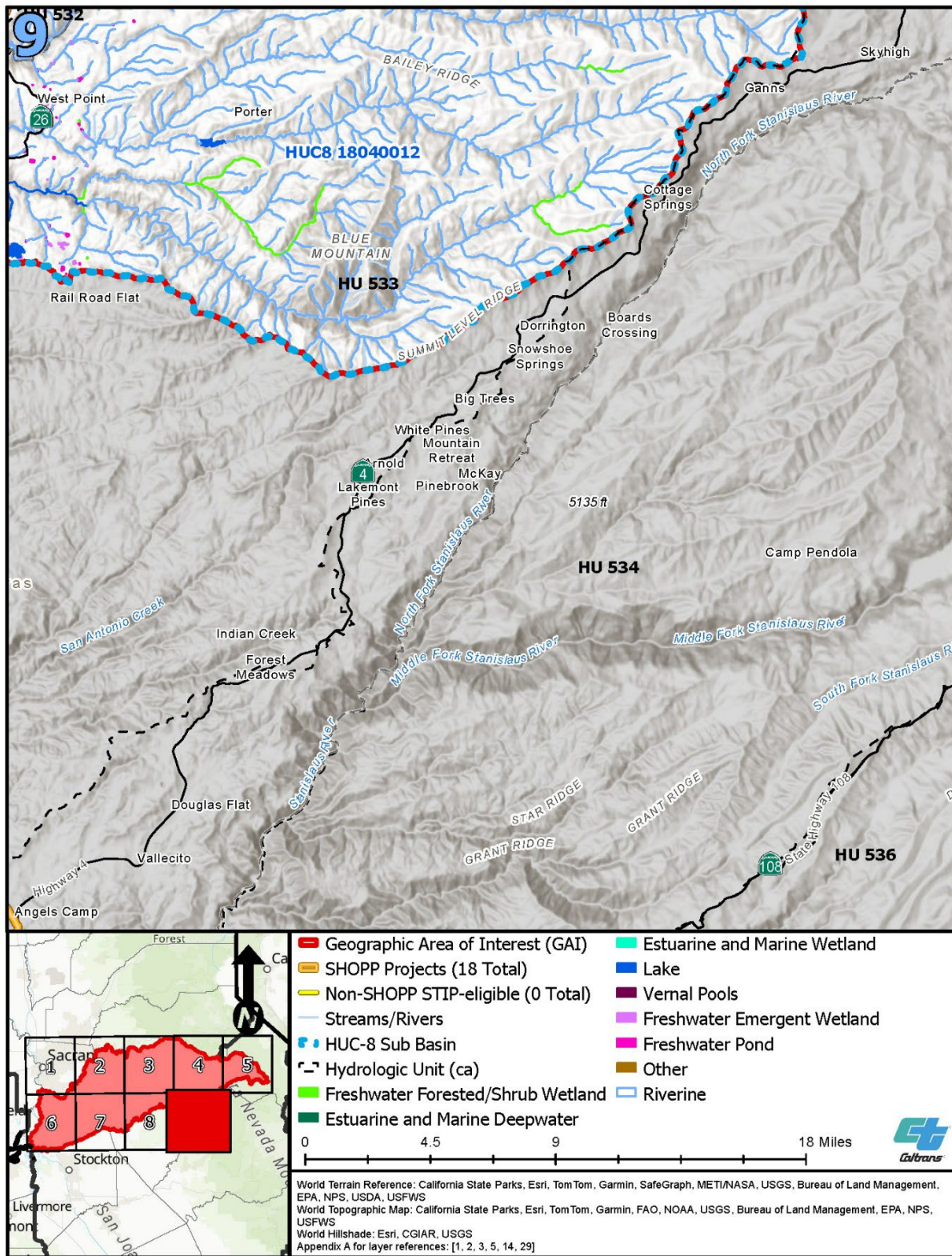












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APPENDIX H: CONSERVATION AND MITIGATION BANK SERVICE AREAS

Conservation and mitigation bank service areas that overlap the GAI are shown on the following figures. These figures are organized by the resource for which credits are available, and are presented in the following order:

Service Areas for Species of Mitigation Need:

- Figure H-1. California Red-legged Frog Bank Service Areas (Map 1)
- Figure H-2. California Red-legged Frog Bank Service Areas (Map 2)
- Figure H-3. Swainson's Hawk Bank Service Areas (Map 1)
- Figure H-4. Swainson's Hawk Bank Service Areas (Map 2)
- Figure H-5. Valley Elderberry Longhorn Beetle Bank Service Areas
- Figure H-6. Fish Species Bank Service Areas (Map 1)
- Figure H-7. Fish Species Bank Service Areas (Map 2)
- Figure H-8. Fish Species Bank Service Areas (Map 3)
- Figure H-9. Fish Species Bank Service Areas (Map 4)
- Figure H-10. Fish Species Bank Service Areas (Map 5)
- Figure H-11. Fish Species Bank Service Areas (Map 6)
- Figure H-12. Fish Species Bank Service Areas (Map 7)

Service Areas for Other Species:

- Figure H-13. California Tiger Salamander Bank Service Areas (Map 1)
- Figure H-14. California Tiger Salamander Bank Service Areas (Map 2)
- Figure H-15. California Tiger Salamander Bank Service Areas (Map 3)
- Figure H-16. California Tiger Salamander Bank Service Areas (Map 4)
- Figure H-17. Burrowing Owl Bank Service Areas (Map 1)
- Figure H-18. Burrowing Owl Bank Service Areas (Map 2)
- Figure H-19. Tricolored Blackbird Bank Service Areas
- Figure H-20. San Joaquin Kit Fox Bank Service Areas
- Figure H-21. Native Grassland Bank Service Areas

Service Areas for Aquatic Resources:

- Figure H-22. Wetland and Aquatic Resources Bank Service Areas (Map 1)
- Figure H-23. Wetland and Aquatic Resources Bank Service Areas (Map 2)
- Figure H-24. Wetland and Aquatic Resources Bank Service Areas (Map 3)
- Figure H-25. Wetland and Aquatic Resources Bank Service Areas (Map 4)
- Figure H-26. Wetland and Aquatic Resources Bank Service Areas (Map 5)
- Figure H-27. Wetland and Aquatic Resources Bank Service Areas (Map 6)
- Figure H-28. Wetland and Aquatic Resources Bank Service Areas (Map 7)

Because individual conservation and mitigation banks often offer credits for more than one species or resource, each with a separate service area, banks may be listed on multiple maps. Refer to Table 4-3 in Chapter 4, *Existing Mitigation Opportunities*, of the RAMNA main text for a full list of conservation and mitigation banks in the GAI.

Figure H-1. California Red-legged Frog Bank Service Areas (Map 1)

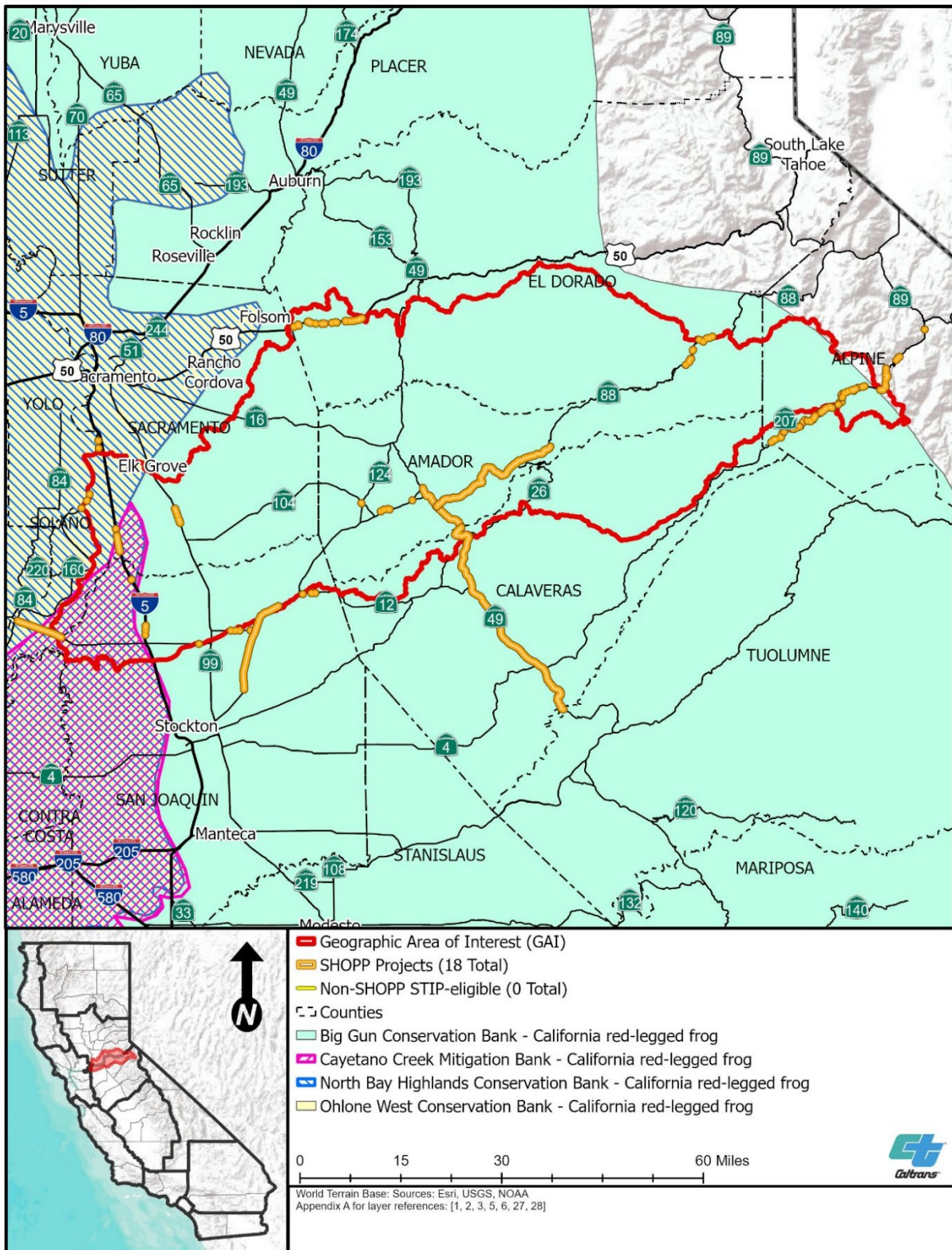


Figure H-2. California Red-legged Frog Bank Service Areas (Map 2)

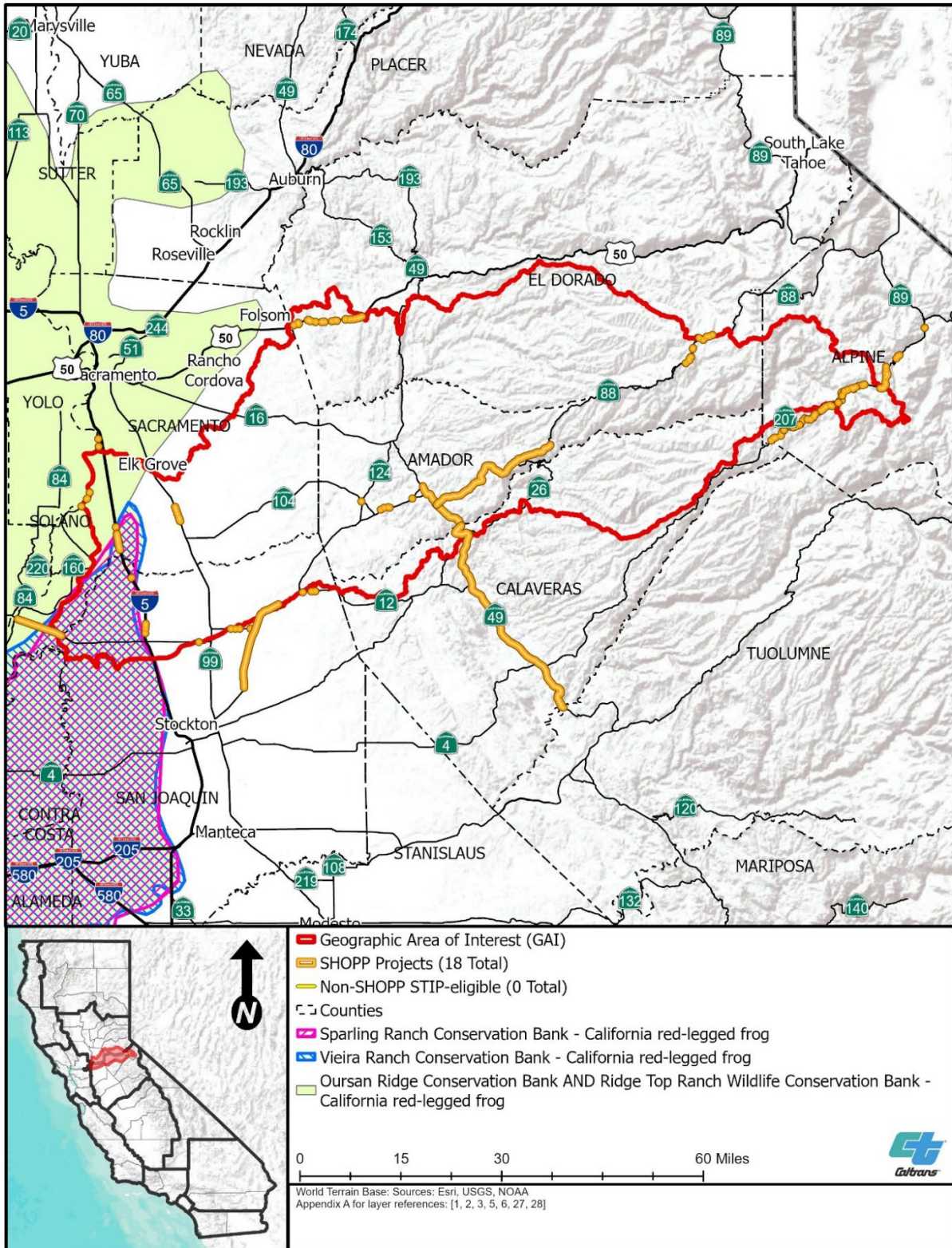


Figure H-3. Swainson's Hawk Bank Service Areas (Map 1)

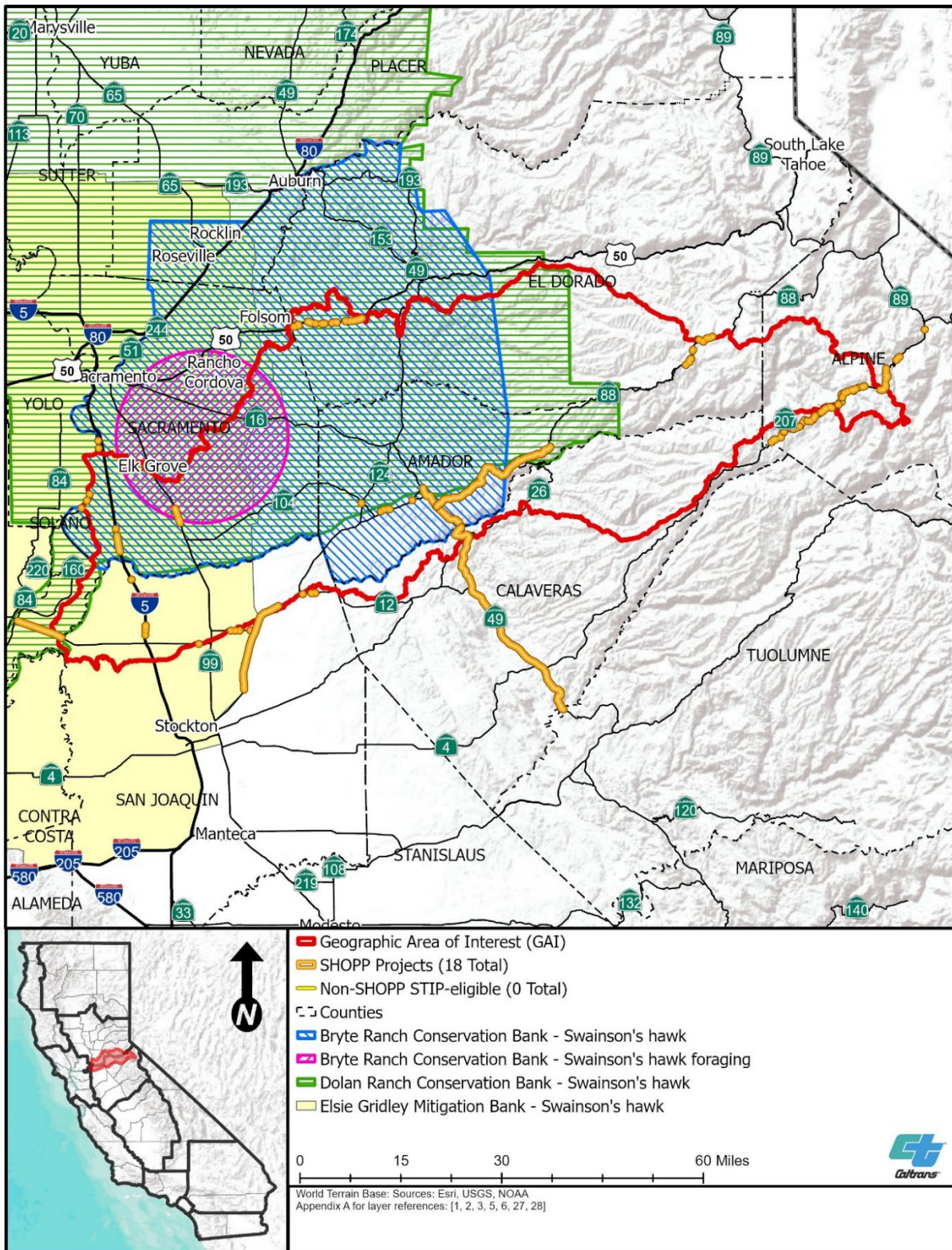


Figure H-5. Valley Elderberry Longhorn Beetle Bank Service Areas

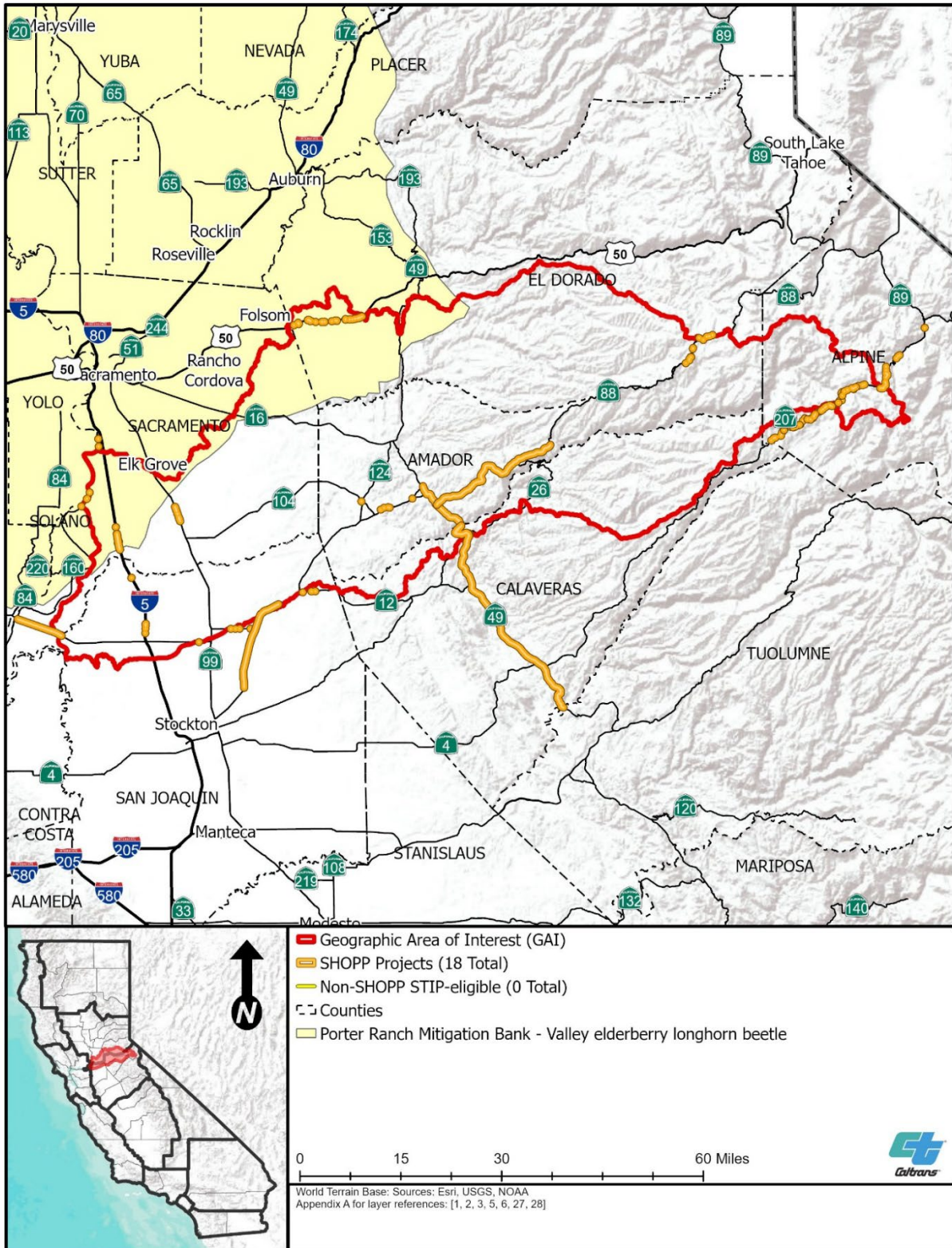


Figure H-6. Fish Species Bank Service Areas (Map 1)

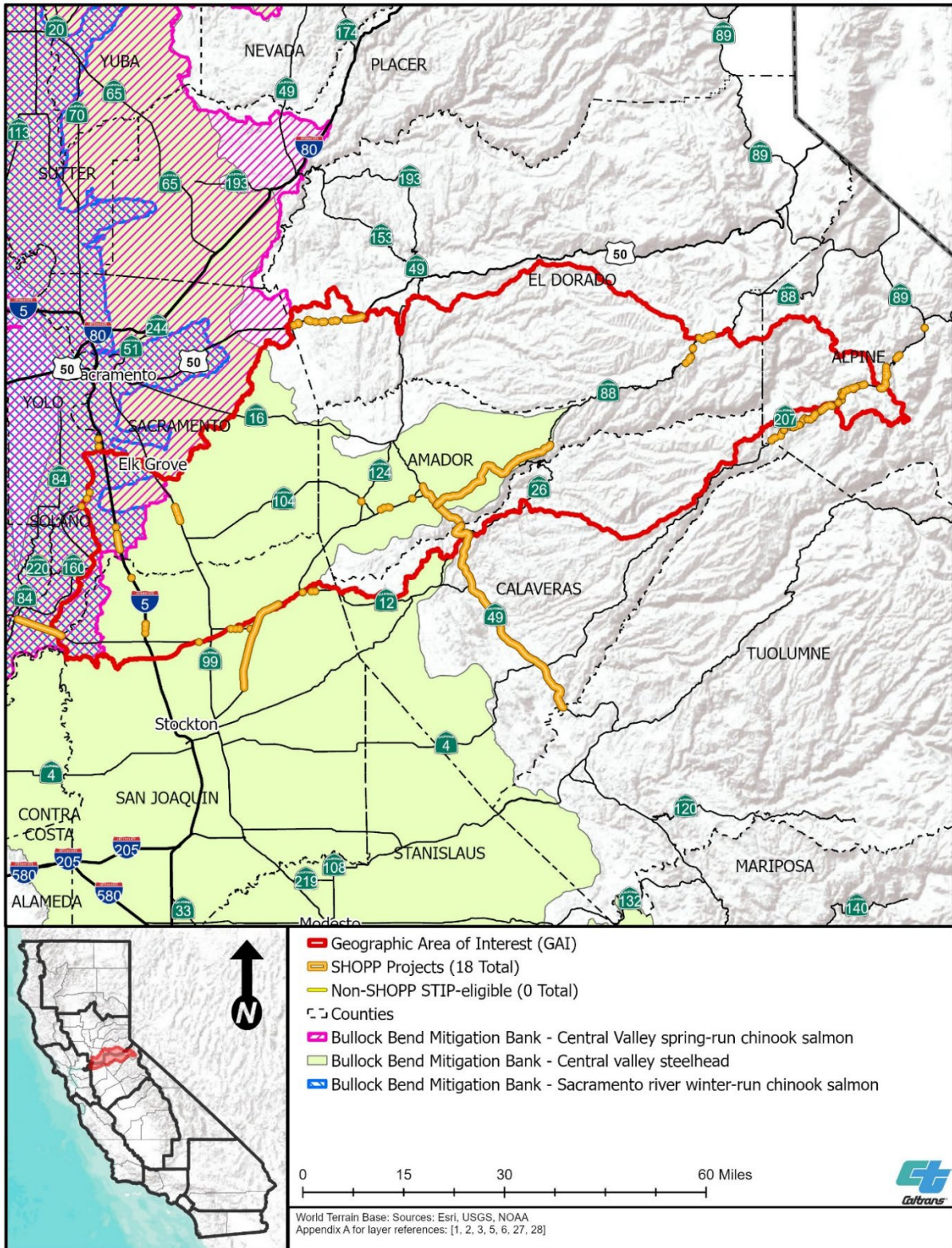


Figure H-7. Fish Species Bank Service Areas (Map 2)

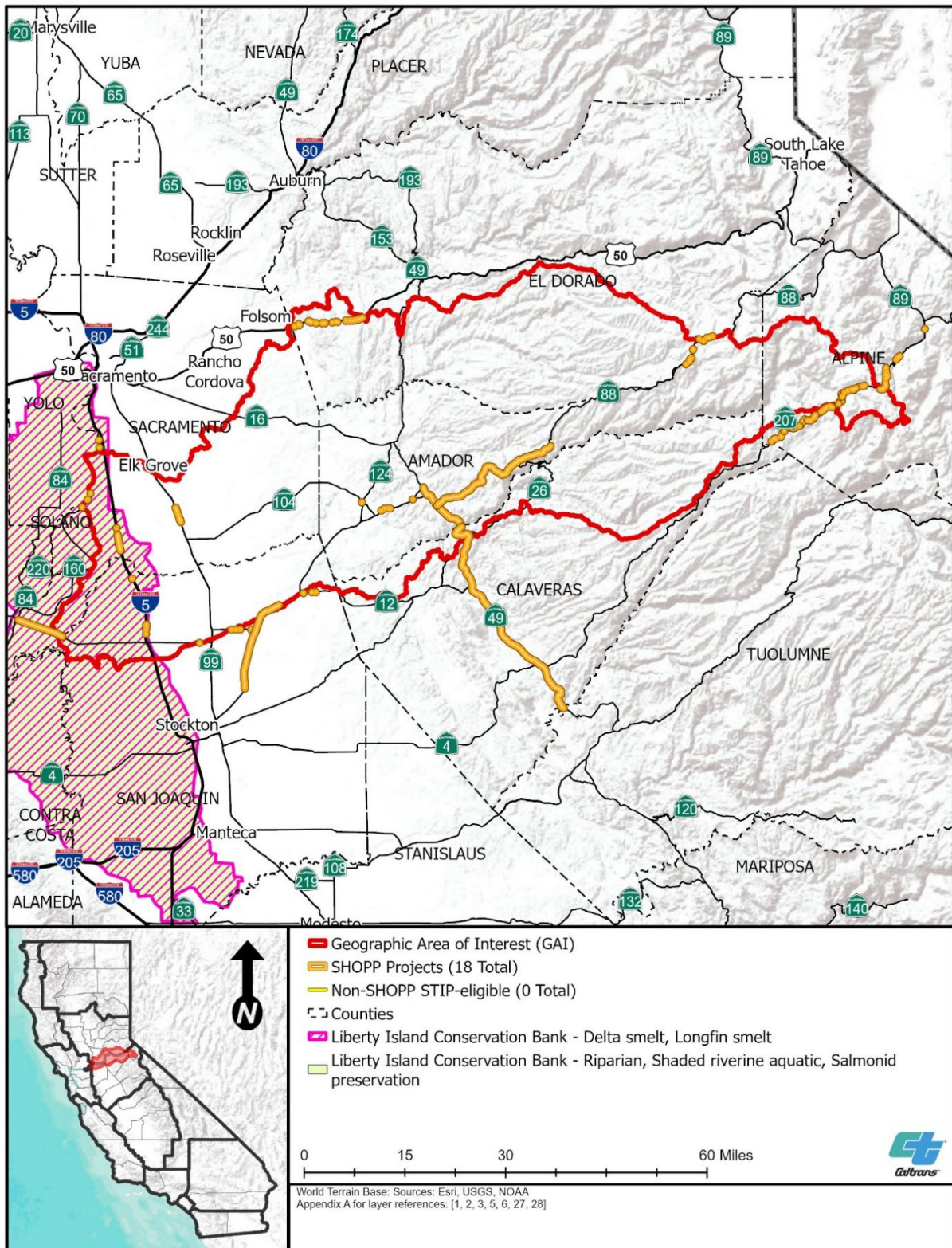


Figure H-8. Fish Species Bank Service Areas (Map 3)

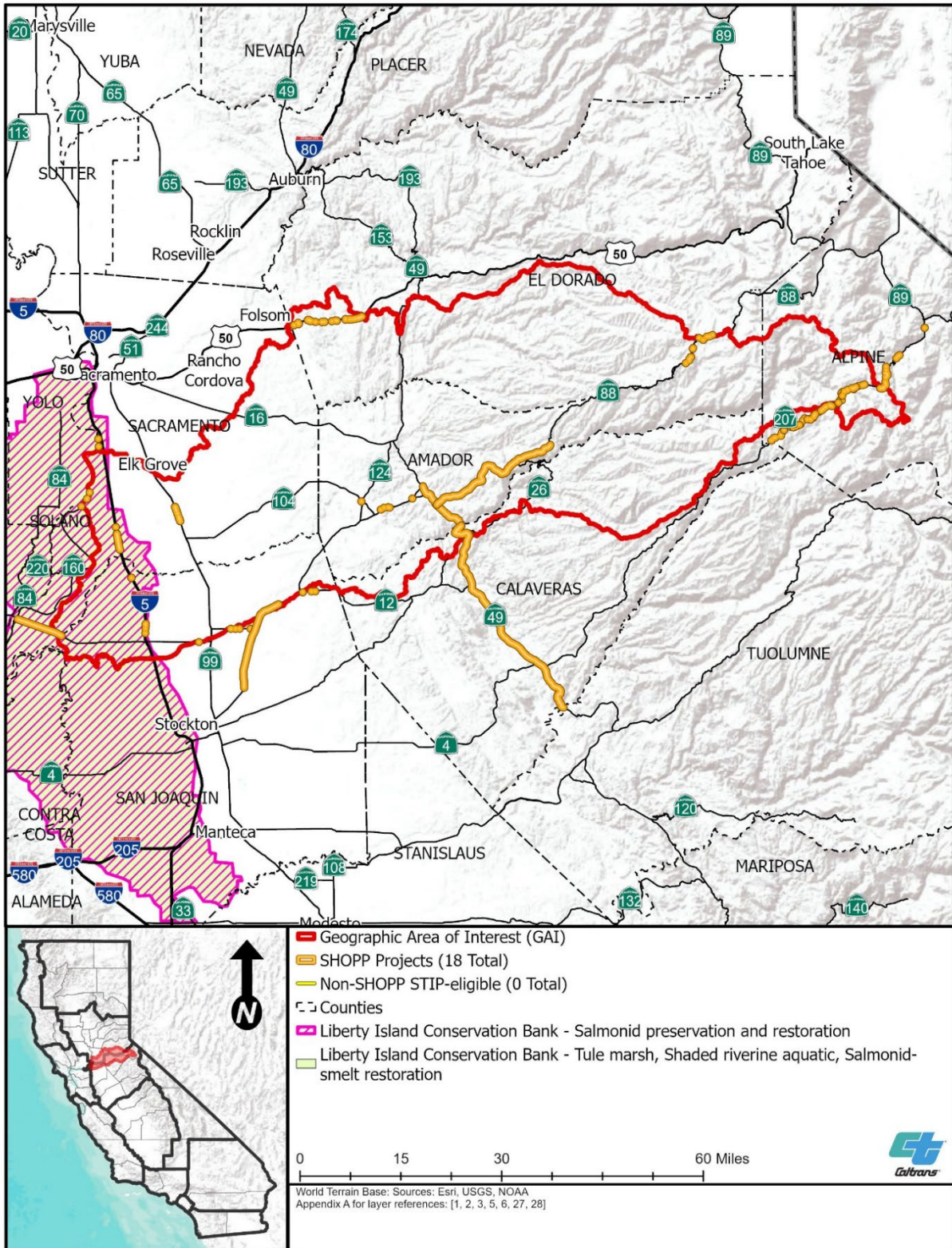


Figure H-9. Fish Species Bank Service Areas (Map 4)

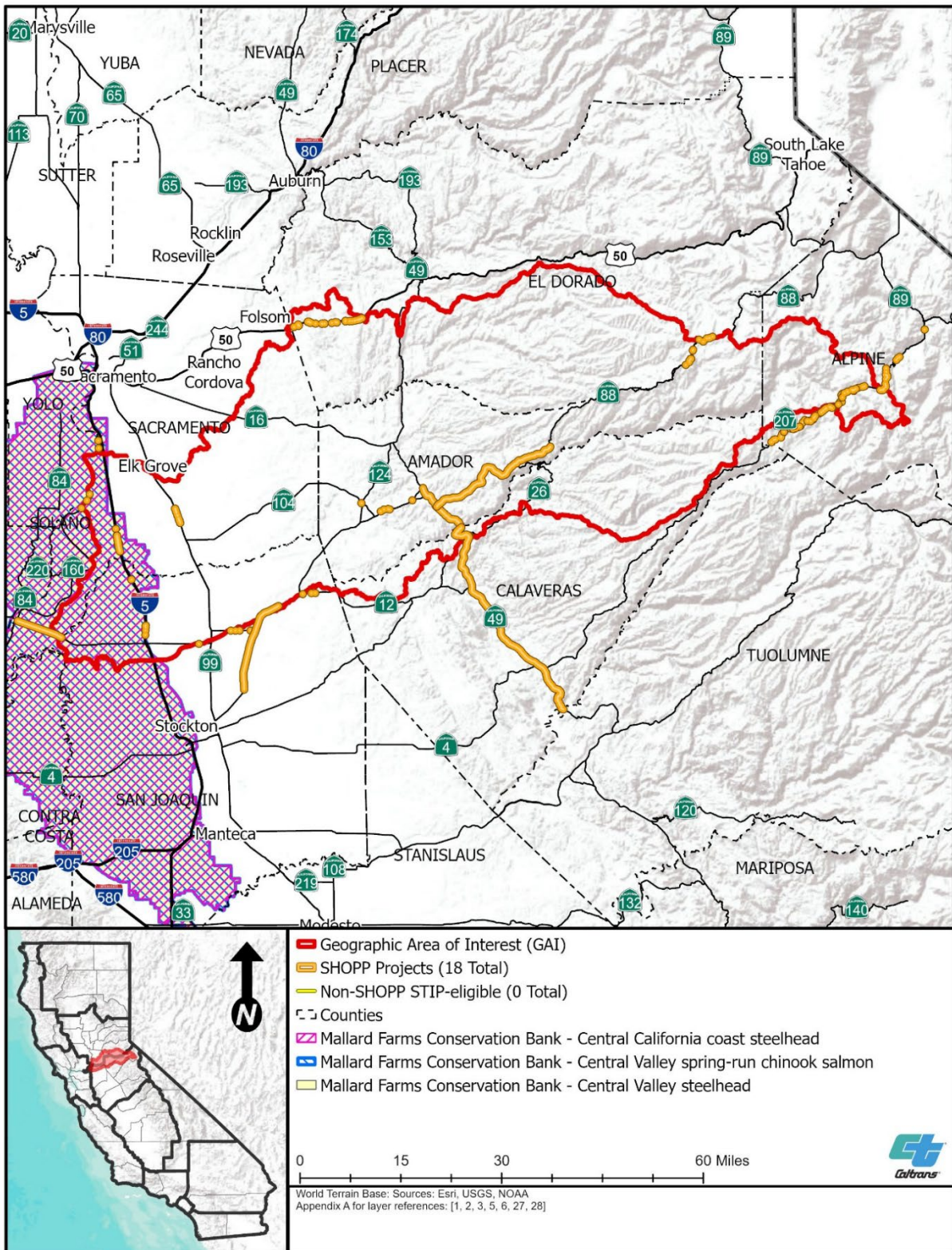


Figure H-11. Fish Species Bank Service Areas (Map 6)

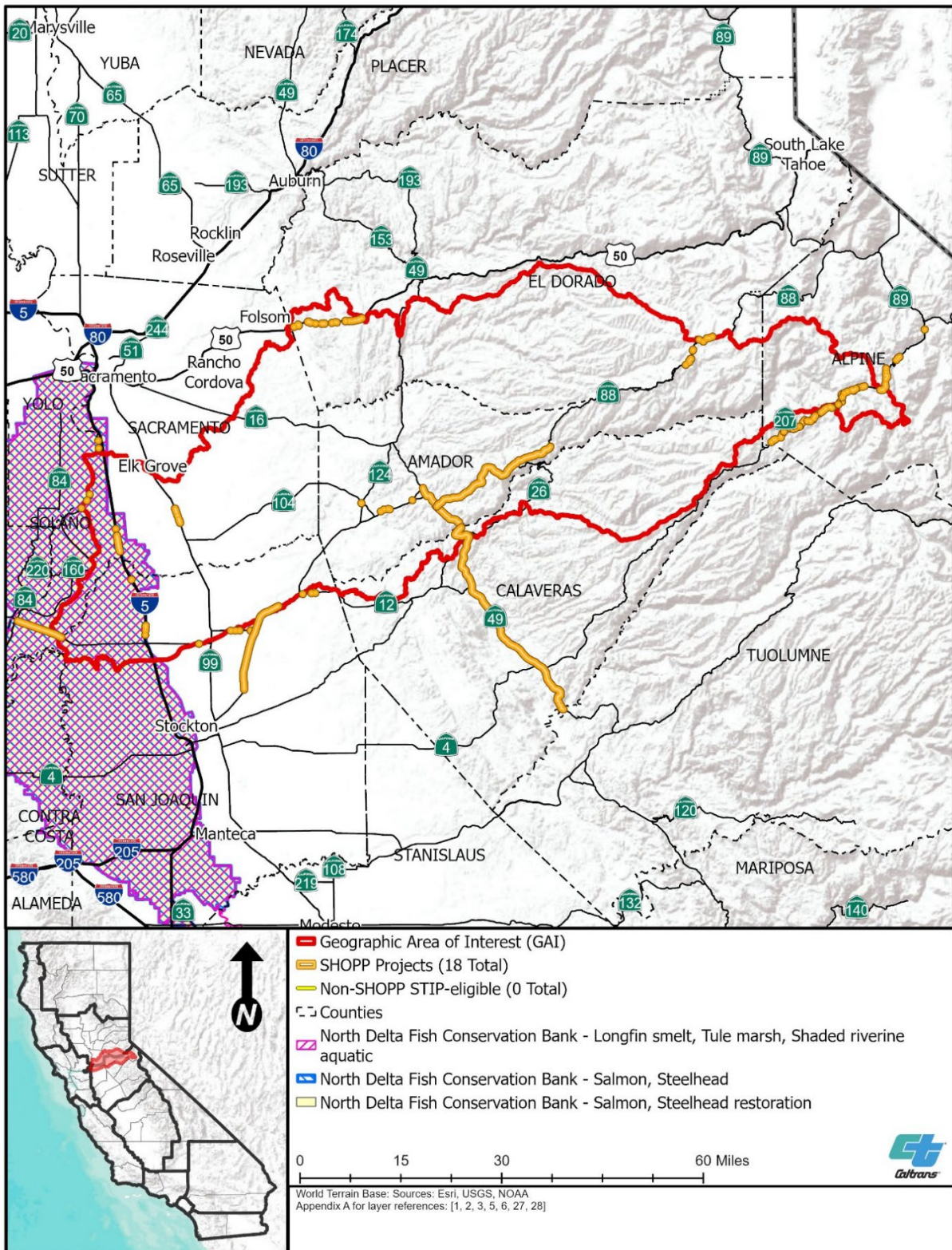


Figure H-12. Fish Species Bank Service Areas (Map 7)

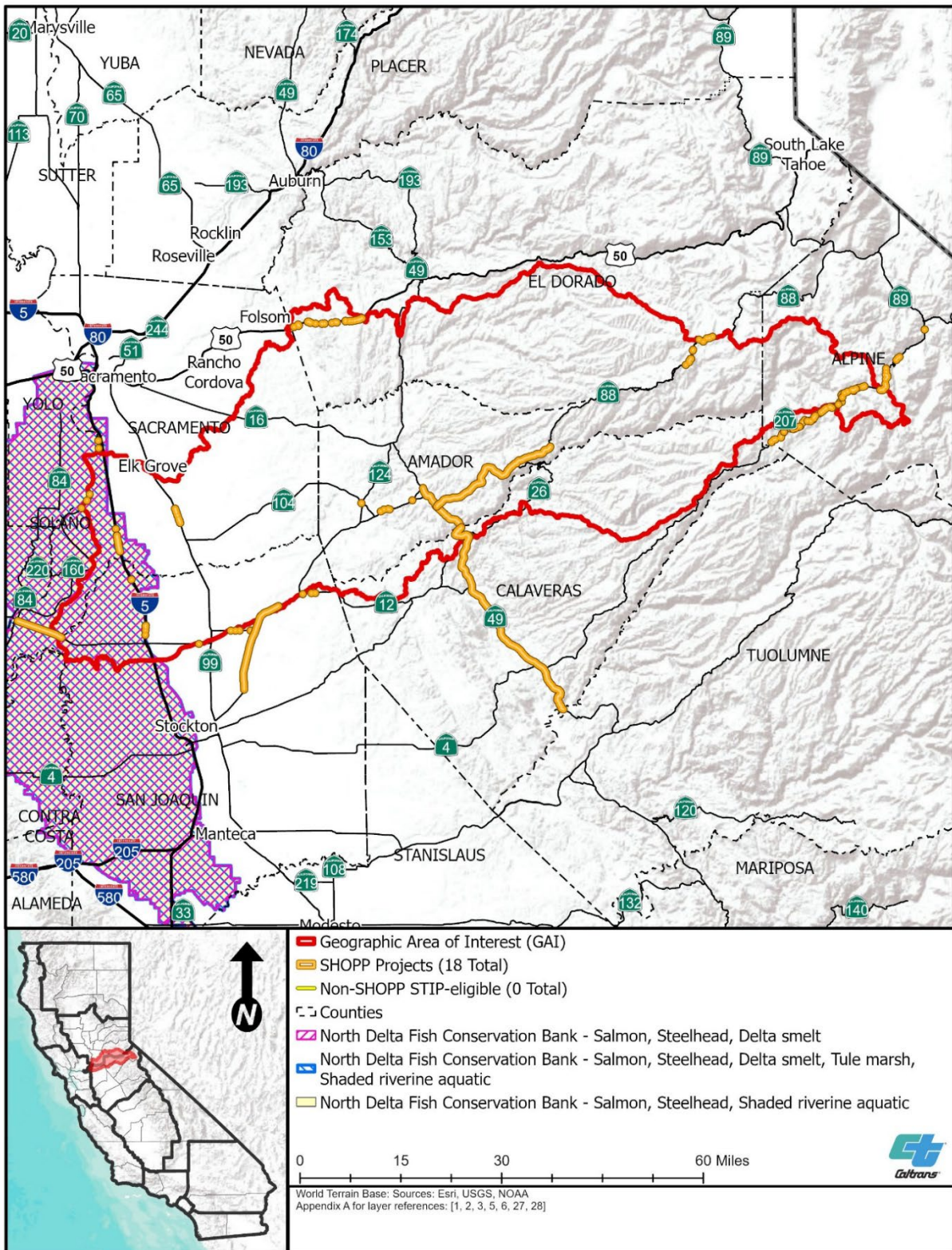


Figure H-13. California Tiger Salamander Bank Service Areas (Map 1)

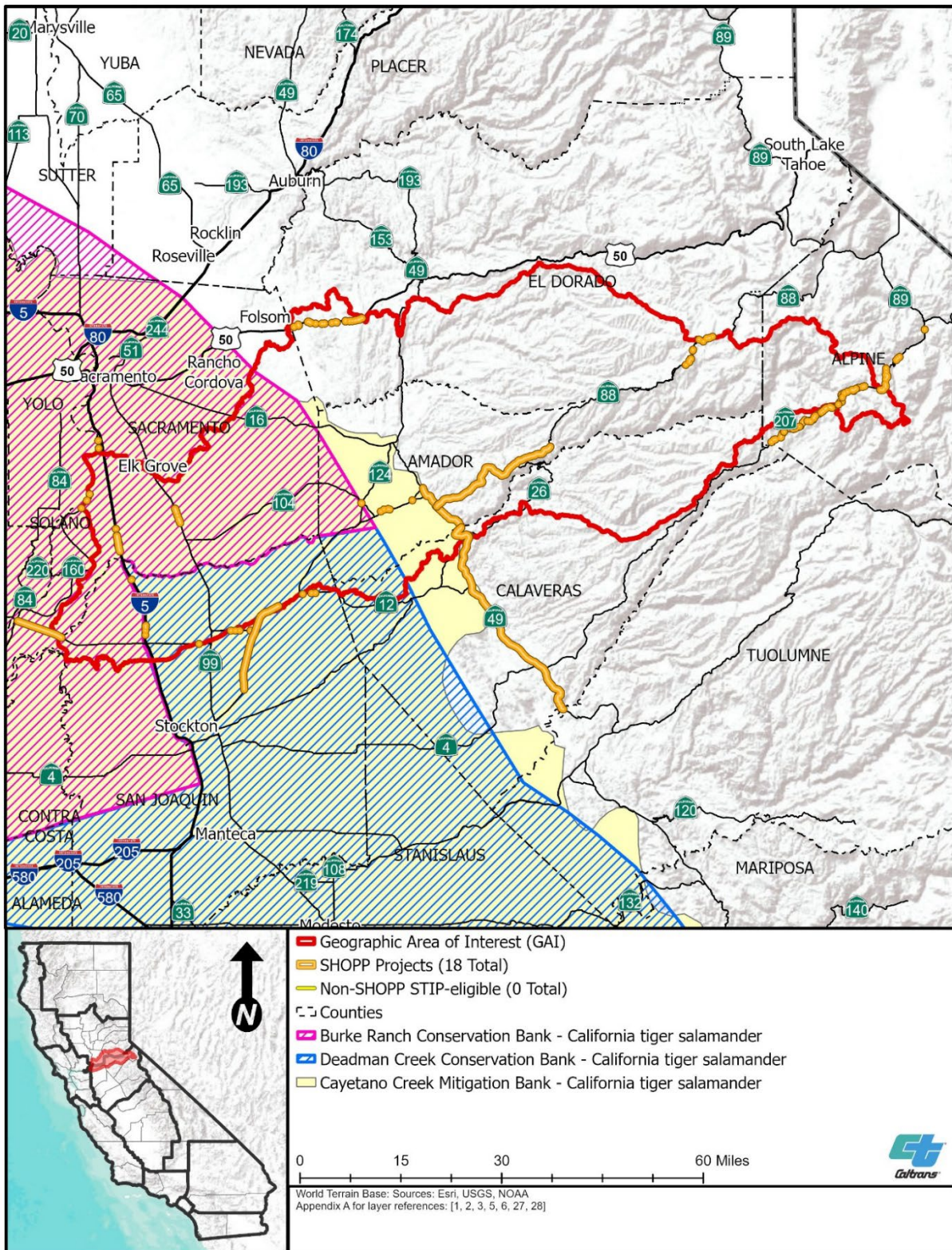


Figure H-14. California Tiger Salamander Bank Service Areas (Map 2)

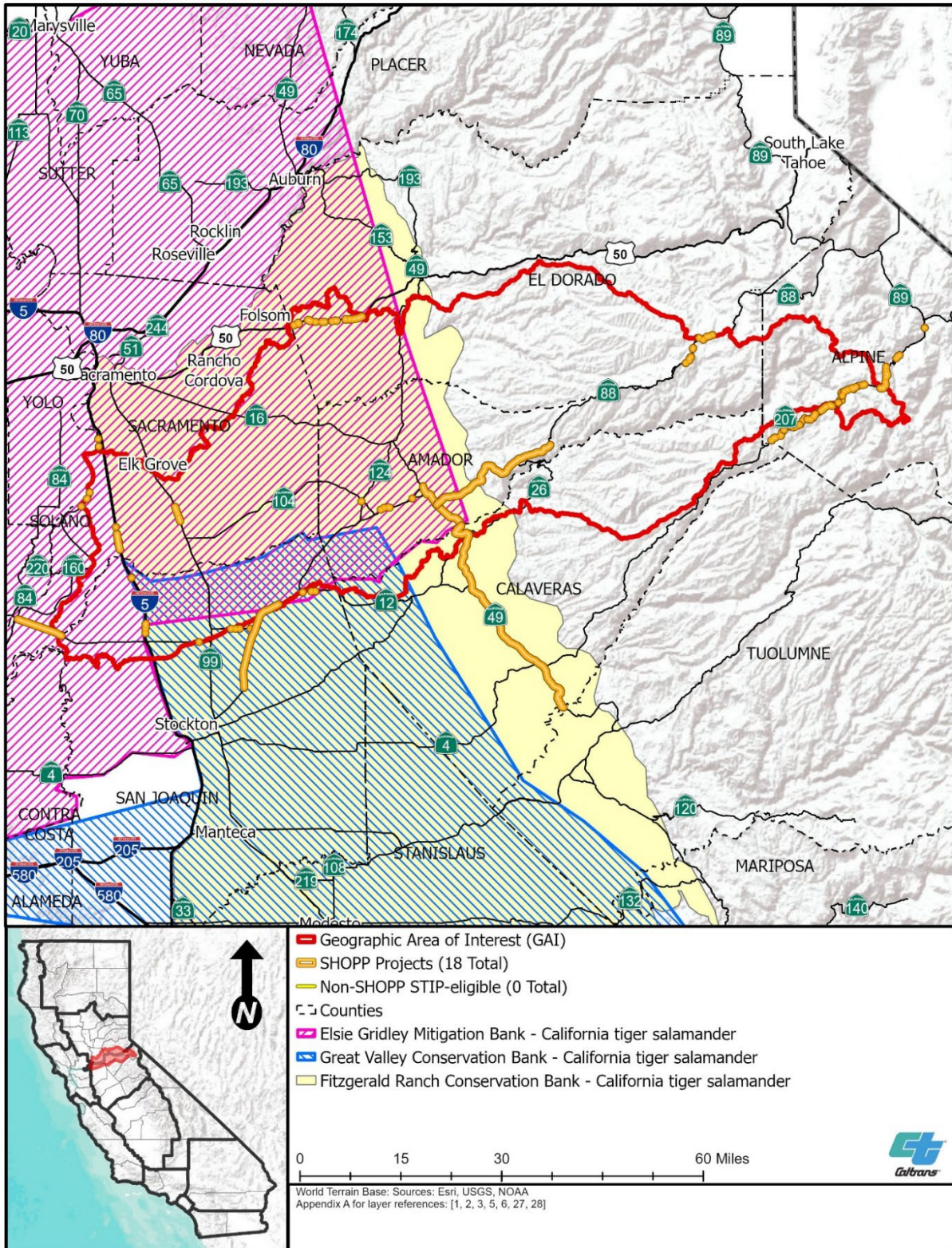


Figure H-15. California Tiger Salamander Bank Service Areas (Map 3)

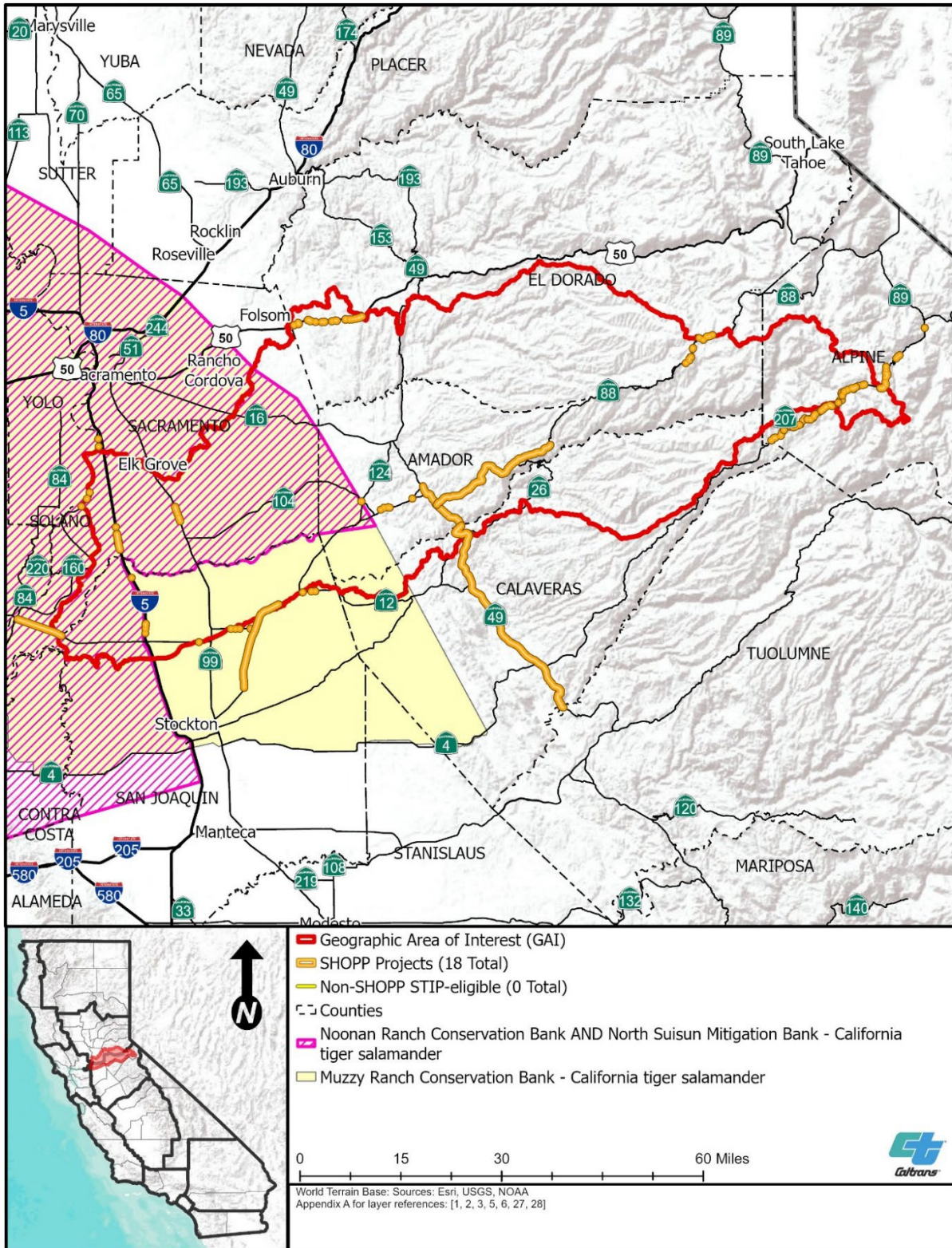


Figure H-16. California Tiger Salamander Bank Service Areas (Map 4)

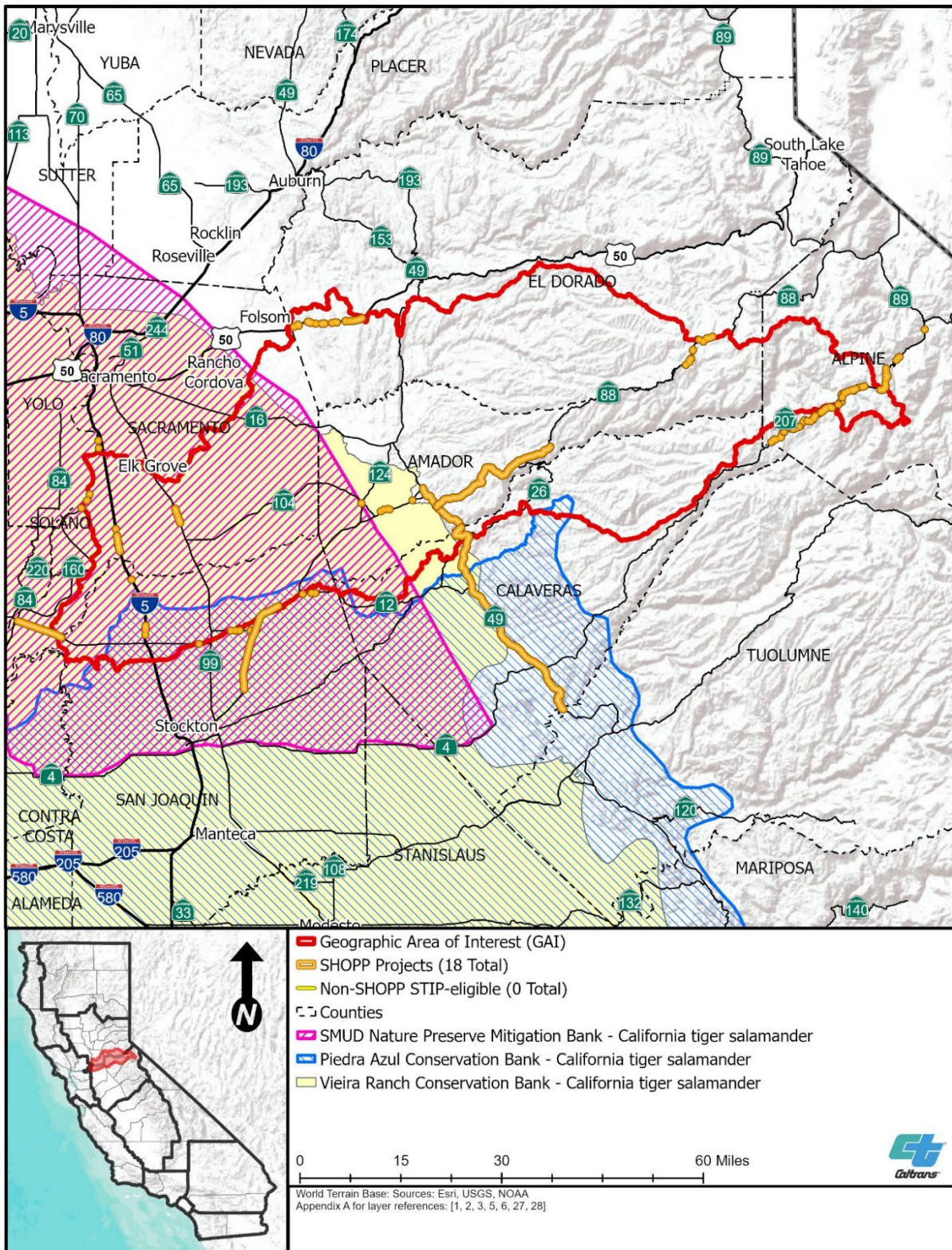


Figure H-19. Tricolored Blackbird Bank Service Areas

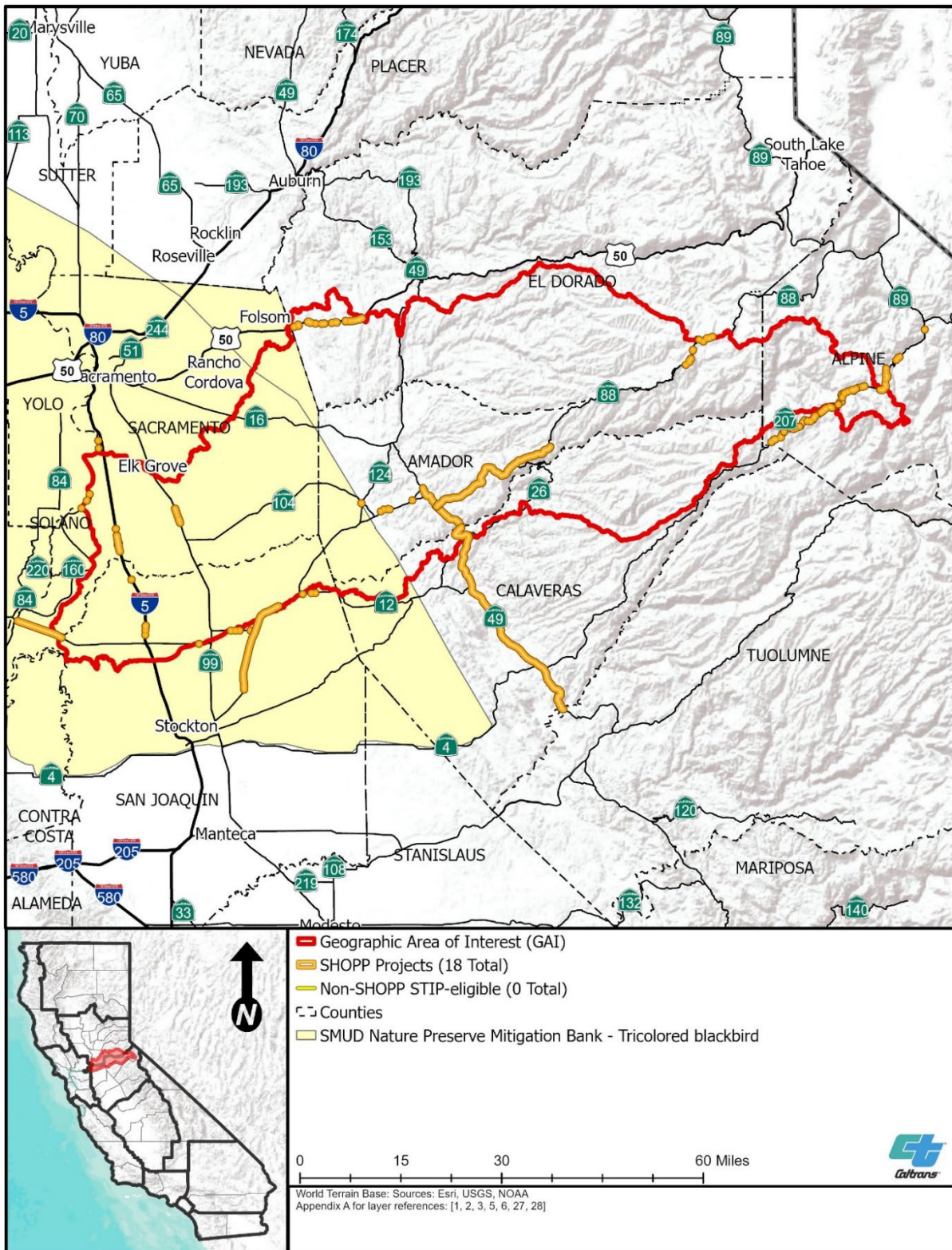


Figure H-20. San Joaquin Kit Fox Bank Service Areas

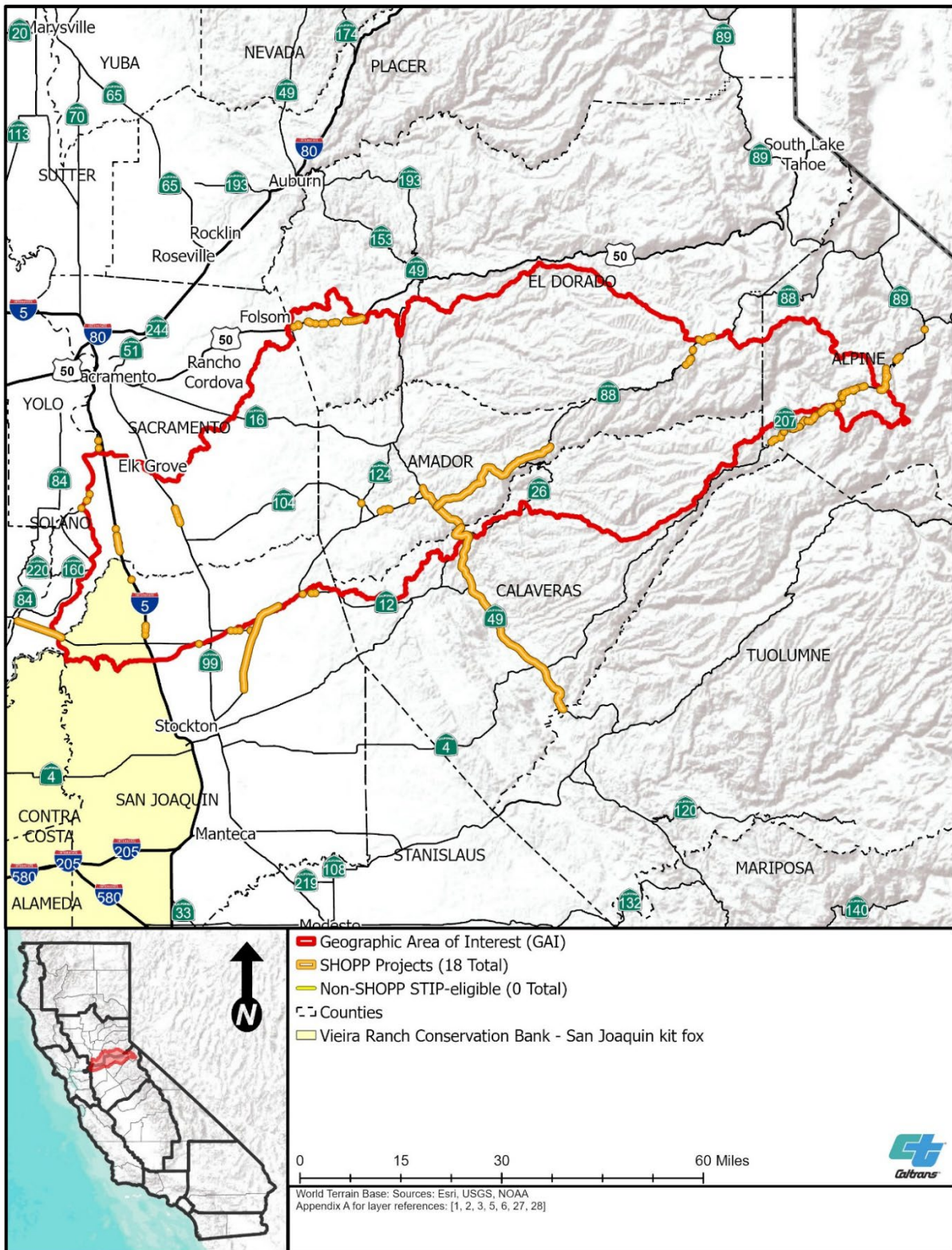


Figure H-21. Native Grassland Bank Service Areas

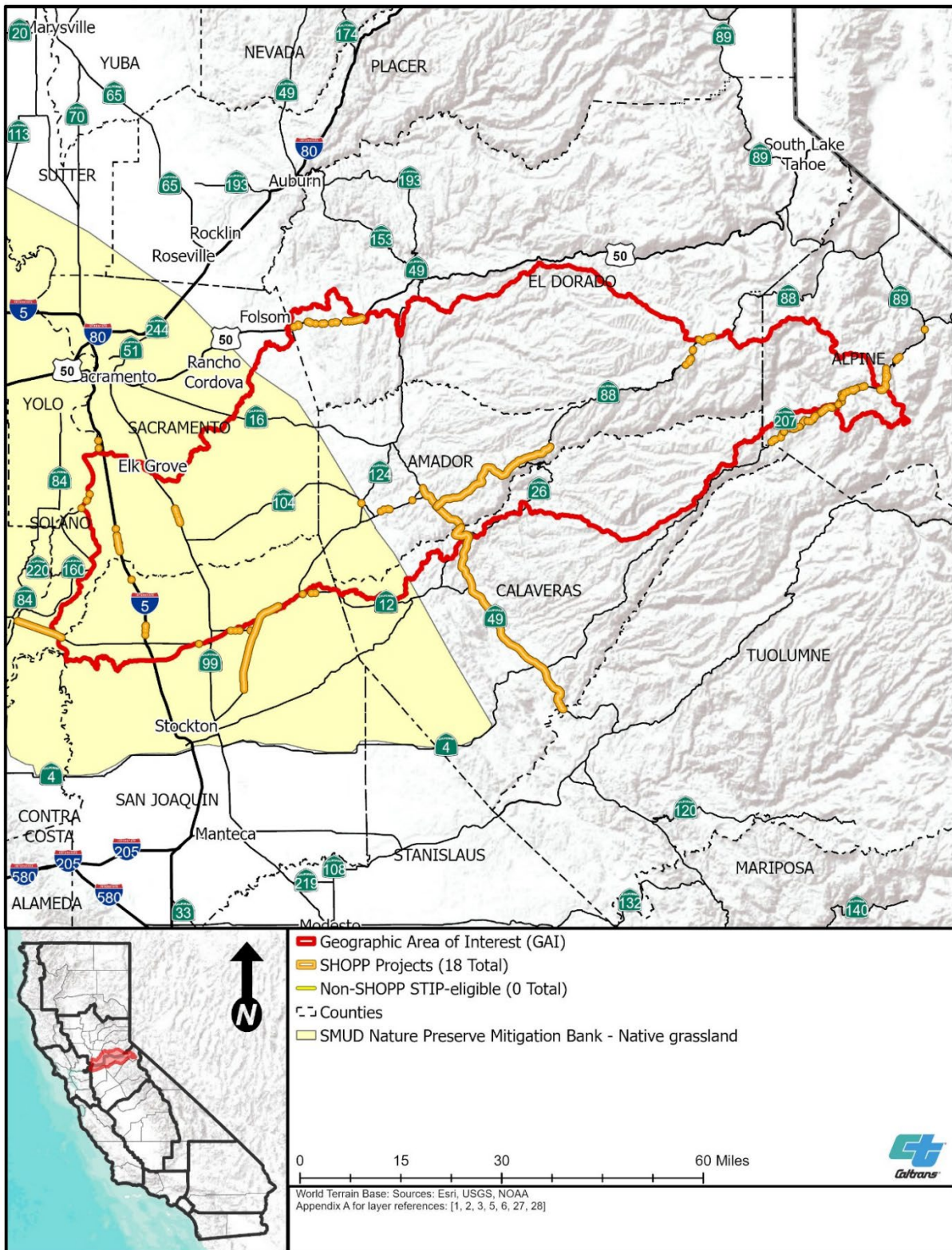


Figure H-22. Wetland and Aquatic Resources Bank Service Areas (Map 1)

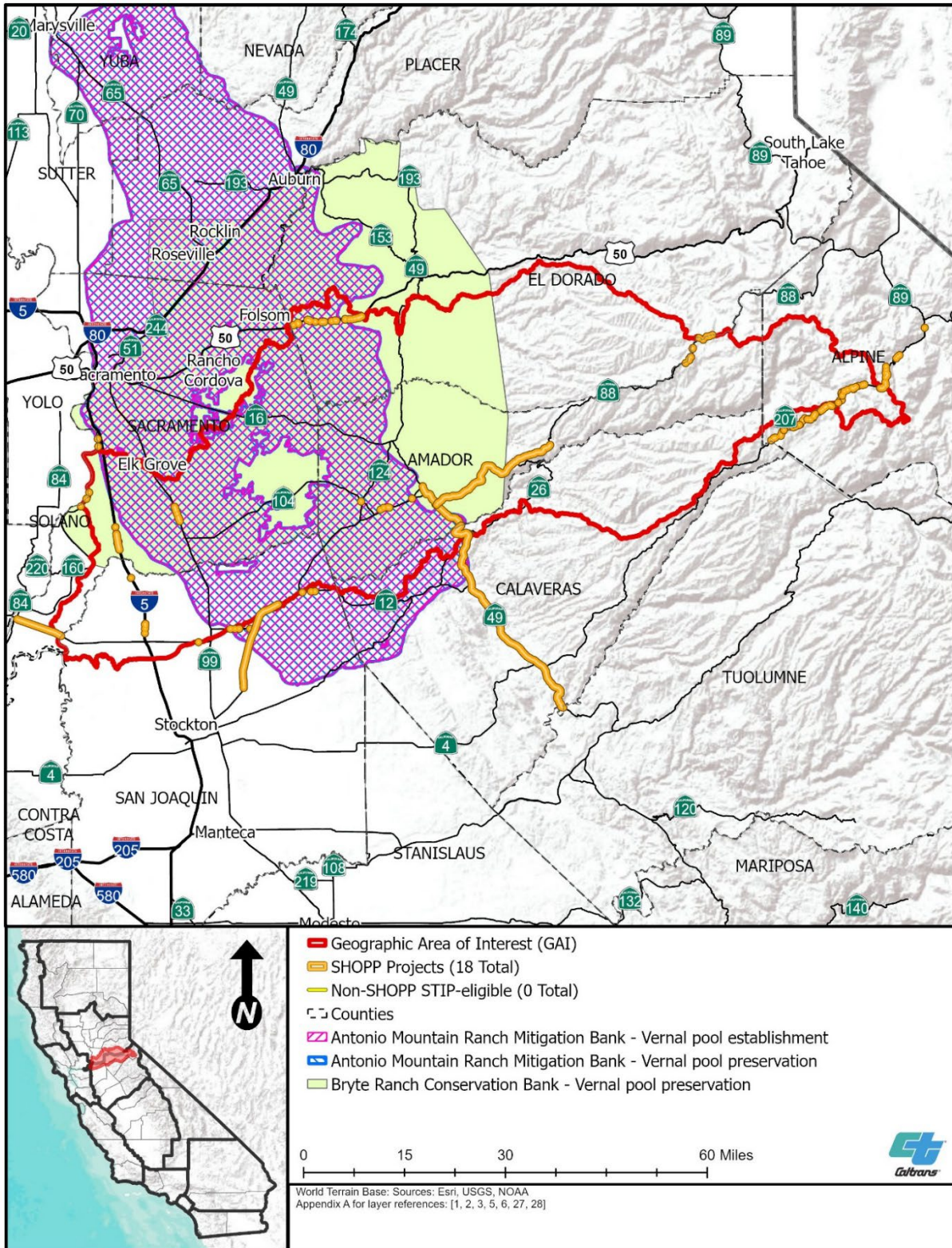


Figure H-23. Wetland and Aquatic Resources Bank Service Areas (Map 2)

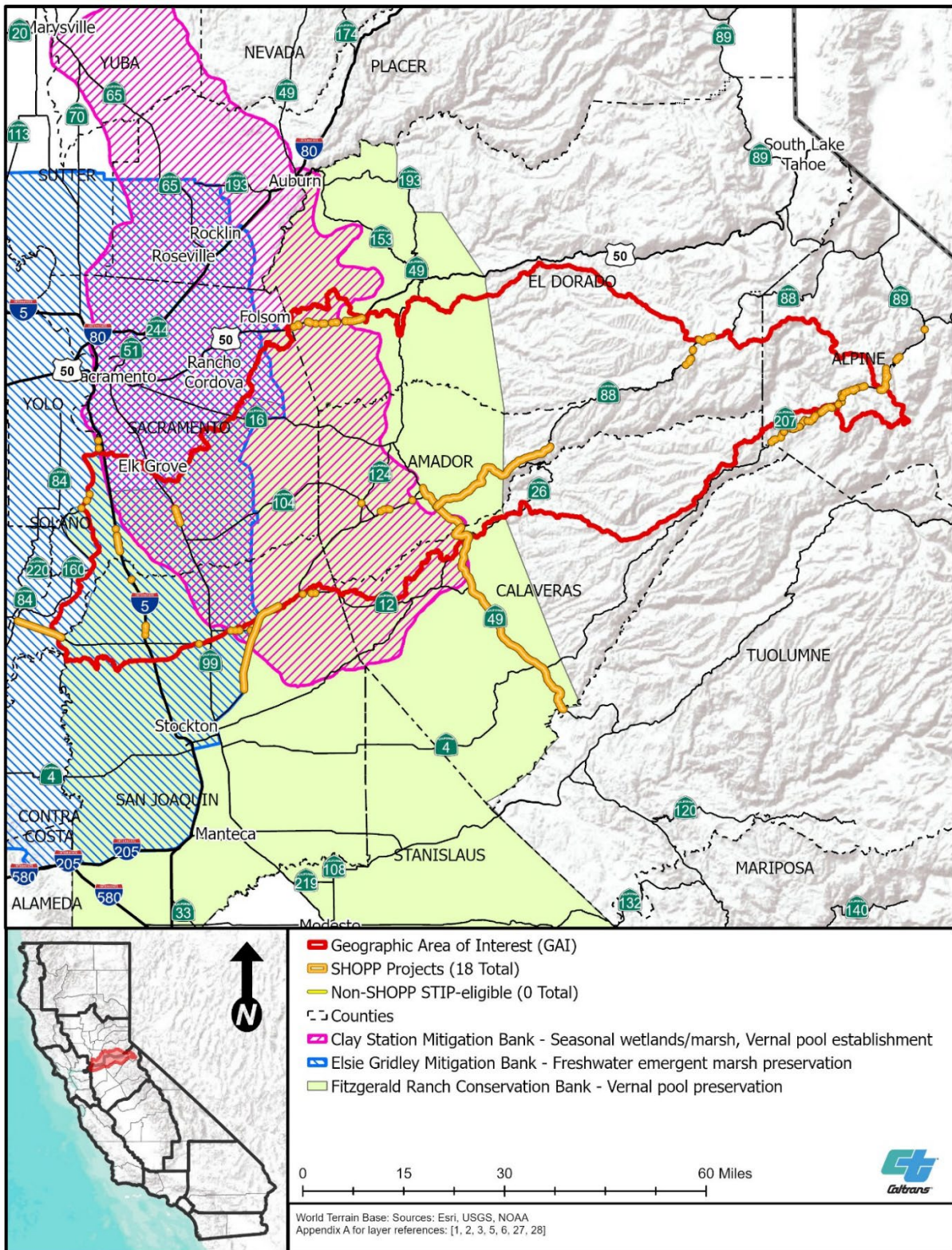


Figure H-24. Wetland and Aquatic Resources Bank Service Areas (Map 3)

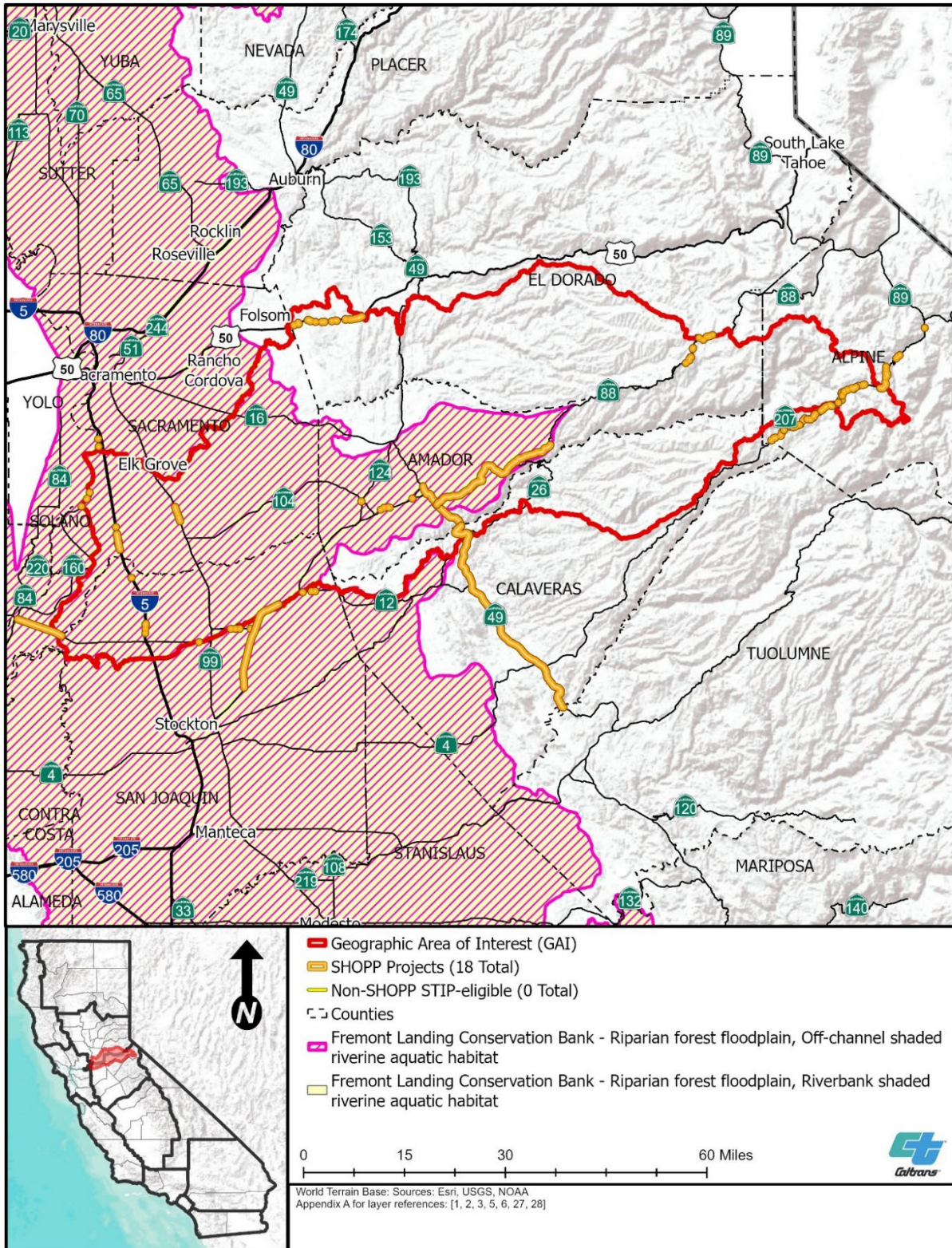


Figure H-26. Wetland and Aquatic Resources Bank Service Areas (Map 5)

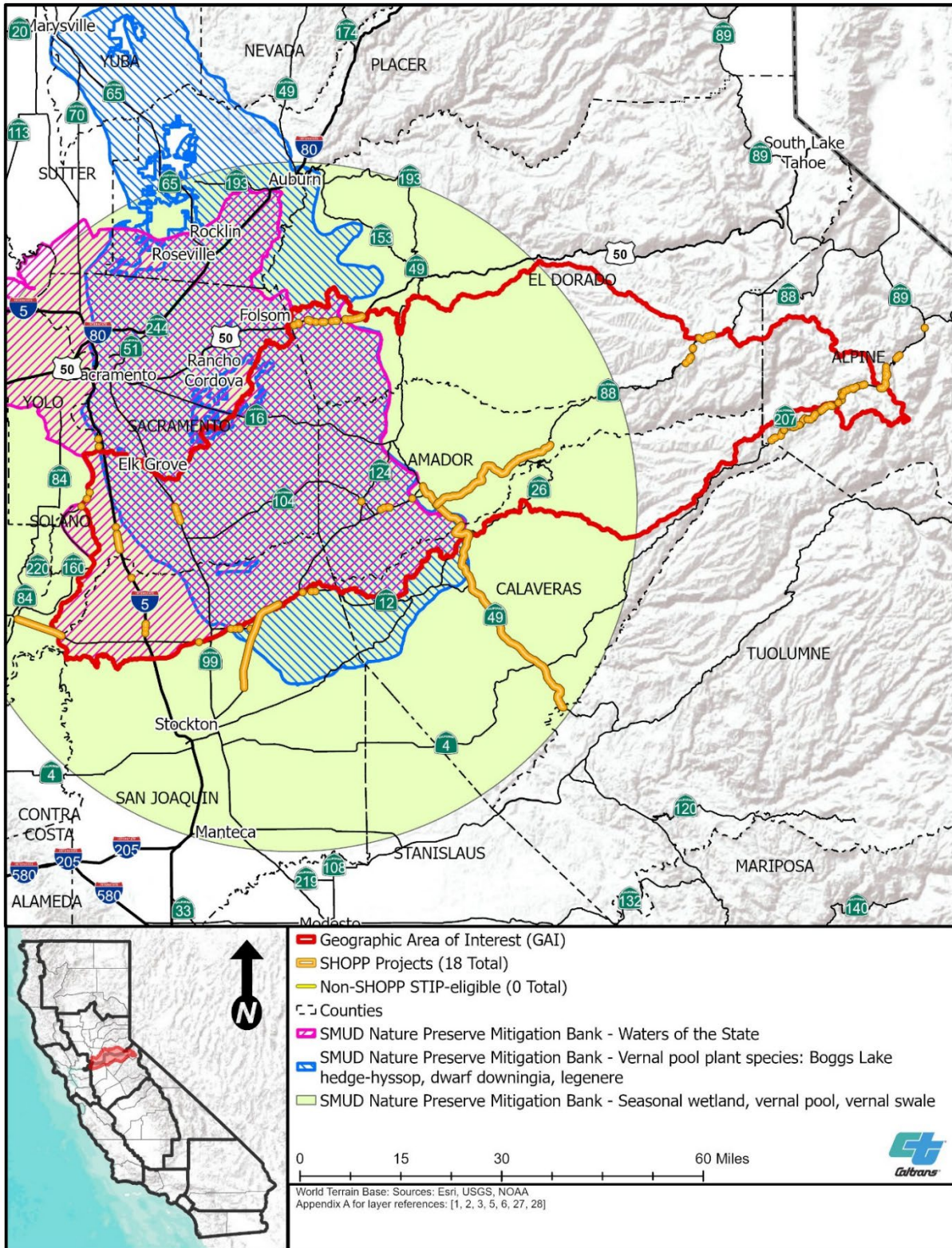


Figure H-28. Wetland and Aquatic Resources Bank Service Areas (Map 7)

