



ADVANCE MITIGATION PROGRAM

**Big – Navarro – Garcia, Upper Eel,
and Russian Sub-basins**

**Regional Advance Mitigation
Needs Assessment**

Appendices

Version 1.0

**Establishing Caltrans' Need for Advance Mitigation
for Caltrans Districts 1 and 4 for the
Big – Navarro – Garcia, Upper Eel, and Russian Sub-basins
forecast fiscal years 2021/2022 to 2030/2031**

California Department of Transportation – District 1

October 2023

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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 1 RAMNA GIS Sources

ID	GIS Layer	Source Agency	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	2021/2022 Q2	11/23/2022	Caltrans System Planning
3	STIP	California Transportation Commission	2021/2022 Q2	11/23/2022	Caltrans System Planning
4	Ecoregion Section	USFS	1/26/2021	1/26/2021	https://data.fs.usda.gov/geodata/edw/datasets.php?xmlKeyword=Ecomap
5	Watershed Boundary Dataset (GAI)	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	12/1/2020	2/2/2021	http://www.calands.org/cced
8	California Protected Areas Holdings	California Protected Areas Database	2/10/2021	2/10/2021	https://www.calands.org/get-data/
9	Tribal Land Boundaries	Bureau of Indian Affairs	5/16/2017	10/11/2018	https://hub.arcgis.com/items/2e915ef3df48422283e5b2c7d89dfcba
10	U.S. Military Installations	U.S. Census Bureau	12/1/2017	10/11/2018	https://www2.census.gov/geo/tiger/TIGER20/MIL/
11	Farmland Mapping & Monitoring Program	California Department of Conservation	6/7/2016	4/27/2021	https://gis.conservation.ca.gov/portal/home/item.html?id=16689151f4d240d2a16232ea650a6c62
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 Agency	Source Date	Download Date	Website
13	Vegetation D01/D04 in Caltrans District 1 Geospatial Data for the Advance Mitigation Needs Assessment for the Second Quarter of FY 2021/2022	SAMNA	1/1/2017	11/23/2022	https://dot.ca.gov/programs/environmental-analysis/biology/advancemitigation
14	Waters and Wetlands D01/D04 in Caltrans District 1 Geospatial Data for the Advance Mitigation Needs Assessment for the Second Quarter of FY 2021/2022	SAMNA	1/1/2017	11/23/2022	https://dot.ca.gov/programs/environmental-analysis/biology/advancemitigation
15	USFWS Critical Habitat	FWS	12/9/2022	1/5/2023	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?5.66.18
17	Natural Landscape Blocks – CEHC	CDFW	10/1/2017	10/17/2018	https://map.dfg.ca.gov/metadata/ds0621.html?5.66.18
18	Potential Riparian Connections – CEHC	CDFW	3/1/2010	10/17/2018	https://map.dfg.ca.gov/metadata/ds0622.html?5.66.18
19	National Flood Hazard Layer	Federal Emergency Management Agency	12/7/2021	12/7/2021	https://www.fema.gov/national-flood-hazard-layer-nfhl
20	CalWater Hydrologic Areas	California Department of Forestry and Fire Protection	11/1/2016	10/19/2018	https://frap.fire.ca.gov/mapping/gis-data/
21	National Wild and Scenic Rivers	USFS	3/2/2016	8/4/2021	https://www.rivers.gov/mapping-gis.php
22	Terrestrial Connectivity – ACE [ds2734]	CDFW	8/28/2019	9/25/2019	https://map.dfg.ca.gov/metadata/ds2734.html?5.80.28
23	SWAP Terrestrial Targets – 2015	CDFW	2/1/2018	10/29/2018	https://map.dfg.ca.gov/metadata/ds1966.html?5.66.18

ID	GIS Layer	Source Agency	Source Date	Download Date	Website
24	Aquatic Biodiversity Summary – ACE [ds2768]	CDFW	2/22/2018	7/3/2019	https://map.dfg.ca.gov/metadata/ds2768.html?5.80.28I
25	Calfish Passage Assessment Database (“PAD”)	Calfish	10/3/2019	12/15/2019	https://map.dfg.ca.gov/metadata/ds0069.html?5.84.18vo
26	Terrestrial Biodiversity Summary – ACE [ds2739]	CDFW	2/24/2020	7/3/2019	https://map.dfg.ca.gov/metadata/ds2739.html?5.80.28I
27	Corps Regulatory In-lieu Fee & Bank Information Tracking System	Mitigation Service Banks	Not available	1/28/2019	https://ribits.ops.usace.army.mil/ords/f?p=107:2:.....
28	CDFW Approved Mitigation Service Areas	Mitigation Service Banks	7/23/2018	1/28/2019	https://map.dfg.ca.gov/metadata/ds2782.html?5.76.22
29	National Hydrology Dataset 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://osfm.fire.ca.gov/divisions/community-wildfire-preparedness-and-mitigation/wildland-hazards-building-codes/fire-hazard-severity-zones-maps/
31	Coastal Zone and LCP	CCC	3/1/2018	3/1/2018	https://www.coastal.ca.gov/maps/czb/ ; https://www.coastal.ca.gov/maps/lcp/
32	Essential Fish Habitat – West Coast	NOAA Fisheries	3/10/2021	5/25/2022	https://www.fisheries.noaa.gov/resource/map/essential-fish-habitat-mapper
33	Essential Fish Habitat – Habitat Areas of Particular Concern	NOAA Fisheries	3/10/2021	5/25/2022	https://www.fisheries.noaa.gov/resource/map/essential-fish-habitat-mapper
34	Areas of Special Biological Significance	SWRCB	1/1/2005	10/15/2020	https://www.waterboards.ca.gov/water_issues/programs/ocean/asbs_map.shtml
35	Bank Swallow Range – CWHR B342 (ds606)	CDFW	2/1/2016	4/6/2023	https://map.dfg.ca.gov/metadata/DS0606.html

ID	GIS Layer	Source Agency	Source Date	Download Date	Website
36	Critical Habitat – Maps and GIS Data (West Coast Region)	NOAA Fisheries	12/21/2021	4/4/2022	https://www.fisheries.noaa.gov/resource/map/critical-habitat-maps-and-gis-data-west-coast-region
37	Linkage Design for the California Bay Area Linkage Network [ds852]	CDFW	4/23/2014	1/25/2022	https://map.dfg.ca.gov/metadata/DS0852.html
38	Landscape Blocks for the California Bay Area Linkage Network [ds853]	CDFW	4/24/2014	1/25/2022	https://map.dfg.ca.gov/metadata/DS0853.html

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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 2021/22 to 2030/31 (Caltrans 2021). 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 33 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 to replace/install culverts. See Table 1 of Caltrans 2021 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 1 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). 2021. *State Highway Operation and Protection Program Ten-Year Project Book Fiscal Years 2021/22–2030/31*. State Highway Operation and Protection Program Fiscal Year 2021/22 (Quarter 2). September. Sacramento, California.

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	Begin Mile	End Mile	Activity
17981	Russian	Northern California Coast	2021/22	4	Marin	101	15.57	15.57	Proactive Safety
9132	Big-Navarro-Garcia	Northern California Coast	2029/30	1	Mendocino	1	42.4	43.3	Bridge
9133	Big-Navarro-Garcia	Northern California Coast	2022/23	1	Mendocino	1	43.3	44.2	Bridge
13550	Big-Navarro-Garcia	Northern California Coast	2021/22	1	Mendocino	1	31.35	31.35	Bridge
17110	Big-Navarro-Garcia	Northern California Coast	2023/24	1	Mendocino	1	59.7	59.7	Bridge
18136	Big-Navarro-Garcia	Northern California Coast	2021/22	1	Mendocino	1	R65.13	65.49	Safety – SI
18672	Russian	Northern California Coast Ranges	2024/25	1	Mendocino	101	9.9	11.2	Mobility – ADA
18673	Upper Eel	Northern California Coast Ranges	2023/24	1	Mendocino	162	R0	25.7	Pavement
18674	Russian	Northern California Coast Ranges	2022/23	1	Mendocino	101	R33.73	R43.20	Pavement
19035	Big-Navarro-Garcia	Northern California Coast	2021/22	1	Mendocino	20	19.1	19.6	Safety – SI
19166	Upper Eel	Northern California Coast Ranges	2021/22	1	Mendocino	162	8.2	8.2	Bridge
20270	Big-Navarro-Garcia	Northern California Coast	2029/30	1	Mendocino	1	0	105.5	Drainage
21052	Big-Navarro-Garcia	Northern California Coast	2021/22	1	Mendocino	20	20	20.3	Safety – SI

ID Number	HUC-8	Ecoregion Section	Advertised Year	Caltrans District	County	Route	Begin Mile	End Mile	Activity
21336	Upper Eel	Northern California Coast Ranges	2022/23	1	Mendocino	101	63.9	R104.5	Drainage
21336	Upper Eel	Northern California Coast Ranges	2022/23	1	Mendocino	271	0.01	0.01	Drainage
22124	Big-Navarro-Garcia	Northern California Coast	2027/28	1	Mendocino	128	0	50.5	Drainage
22124	Big-Navarro-Garcia	Northern California Coast Ranges	2027/28	1	Mendocino	128	0	50.5	Drainage
22124	Russian	Northern California Coast Ranges	2027/28	1	Mendocino	128	0	50.5	Drainage
22253	Upper Eel	Northern California Coast Ranges	2023/24	1	Mendocino	101	41.2	R42.8	Safety – Monitoring
22342	Big-Navarro-Garcia	Northern California Coast	2021/22	1	Mendocino	1	51.87	51.87	Bridge
22659	Upper Eel	Northern California Coast	2024/25	1	Mendocino	101	50.7	52.2	Safety – Monitoring
22659	Upper Eel	Northern California Coast Ranges	2024/25	1	Mendocino	101	50.7	52.2	Safety – Monitoring
22718	Russian	Northern California Coast Ranges	2023/24	1	Mendocino	101	R9.5	10.8	Safety – SI
23146	Big-Navarro-Garcia	Northern California Coast	2021/22	1	Mendocino	20	19.1	20.3	Reactive Safety
11283	Russian	Northern California Coast	2023/24	4	Sonoma	116	19.9	33.37	Proactive Safety
13338	Russian	Northern California Coast	2021/22	4	Sonoma	12	11	T17.4	Pavement
13918	Russian	Northern California Coast	2023/24	4	Sonoma	1	0	58.58	Reactive Safety

ID Number	HUC-8	Ecoregion Section	Advertised Year	Caltrans District	County	Route	Begin Mile	End Mile	Activity
17509	Russian	Northern California Coast	2023/24	4	Sonoma	1	0.97	28.73	Drainage
17981	Russian	Northern California Coast	2021/22	4	Sonoma	101	16.54	19	Proactive Safety
18831	Russian	Northern California Coast	2023/24	4	Sonoma	101	22.81	32.79	Proactive Safety
20462	Russian	Northern California Coast	2023/24	4	Sonoma	1	19.2	21.8	Drainage
21302	Russian	Northern California Coast	2023/24	4	Sonoma	12	19.83	19.83	Reactive Safety
22016	Russian	Northern California Coast	2029/30	4	Sonoma	1	0	58.58	Drainage
22024	Russian	Northern California Coast	2028/29	4	Sonoma	116	5.4	31.5	Drainage
22025	Russian	Northern California Coast Ranges	2030/31	4	Sonoma	128	1.1	9.5	Drainage
22026	Russian	Northern California Coast	2029/30	4	Sonoma	128	11.4	24.3	Drainage
22026	Russian	Northern California Coast Ranges	2029/30	4	Sonoma	128	11.4	24.3	Drainage
22379	Russian	Northern California Coast	2029/30	4	Sonoma	101	15.53	15.63	Proactive Safety
22674	Russian	Northern California Coast	2030/31	4	Sonoma	116	18.66	18.66	Proactive Safety

Source: Caltrans 2021

Notes: L = left, R = right, SI = safety improvement, ADA = American Disabilities Act

APPENDIX C: LOCAL COASTAL PROGRAMS

The Coastal Act allows any local government to develop a Local Coastal Program (“LCP”), which is a planning and regulatory tool used to guide and permit development¹ in a local government’s coastal zone. LCPs contain policies that determine the use and conservation of coastal resources by specifying the appropriate location, type, and scale of development. An LCP generally consists of one or more land use plans (“LUPs”) and implementation plans. LCP jurisdictions and associated LCP plans in the GAI are listed by HUC-8 in Table C-1. Certified LCPs were excerpted from the CCC’s LCP areas maps by county (CCC 2021). A key map is provided after Table C-1 that references mapbook pages. These zoomed-in mapbook pages include LCP areas, segments, areas of deferred certification (“ADCs”), and other uncertified areas (“UAs”) within the coastal zone in the GAI. LCPs also address some specific aquatic resources in the coastal zone. Locations of aquatic resources, excerpted from the SAMNA Reporting Tool’s water and wetland layers, are shown by HUC-8 sub-basin in Appendix H (Caltrans 2021a, 2021b).

LCPs convey some general restoration/conservation goals, but they do not necessarily reflect current priorities or targeted goals and should not be interpreted as a conclusive guide to CCC’s or a local government’s conservation goals and objectives. However, LCPs include relevant information to consider while scoping and planning an advance mitigation project, including:

- Conservation and restoration policies
- Any specific areas that have been prioritized for restoration or conservation, which may provide useful targets for advance mitigation projects
- Definitions or maps of ESHAs. Enhancement or expansion of existing ESHAs could offer a significant mitigation opportunity. However, for some advance mitigation proposals (for example, those that involve substantial disruption of existing habitat), it may be important to avoid areas of existing ESHAs to prevent ESHA removal or habitat type conversion. ESHA determinations are made on a case-by-case basis, so not all ESHAs are necessarily captured in the LCP.
- Policies on allowable uses in ESHAs
- Land use designations (for example, agricultural, industrial, residential development) that could conflict with habitat projects, making certain areas infeasible for mitigation projects

It will be important to consult with CCC and local government staff in interpreting LCP goals and policies when scoping advance mitigation projects.

¹ Development is defined broadly under Public Resources Code Section 30106 and includes many habitat restoration activities.

References

- Caltrans. 2021a. "Waters_ D2/D1 in Caltrans District 2 Geospatial Data for the Advance Mitigation Needs Assessment for the Second Quarter of FY 2021/2022" (data file). Accessed November 23, 2022. <https://dot.ca.gov/programs/environmental-analysis/biology/advancemitigation>.
- Caltrans. 2021b. "Wetlands_ D2/D1 in Caltrans District 2 Geospatial Data for the Advance Mitigation Needs Assessment for the Second Quarter of FY 2021/2022" (data file). Accessed November 23, 2022. <https://dot.ca.gov/programs/environmental-analysis/biology/advancemitigation>.
- CCC (California Coastal Commission). 2021. "Maps: Local Coast Program Areas." Accessed August 15, 2022. <https://www.coastal.ca.gov/maps/lcp/>.

Table C-1. Local Coastal Programs in the GAI

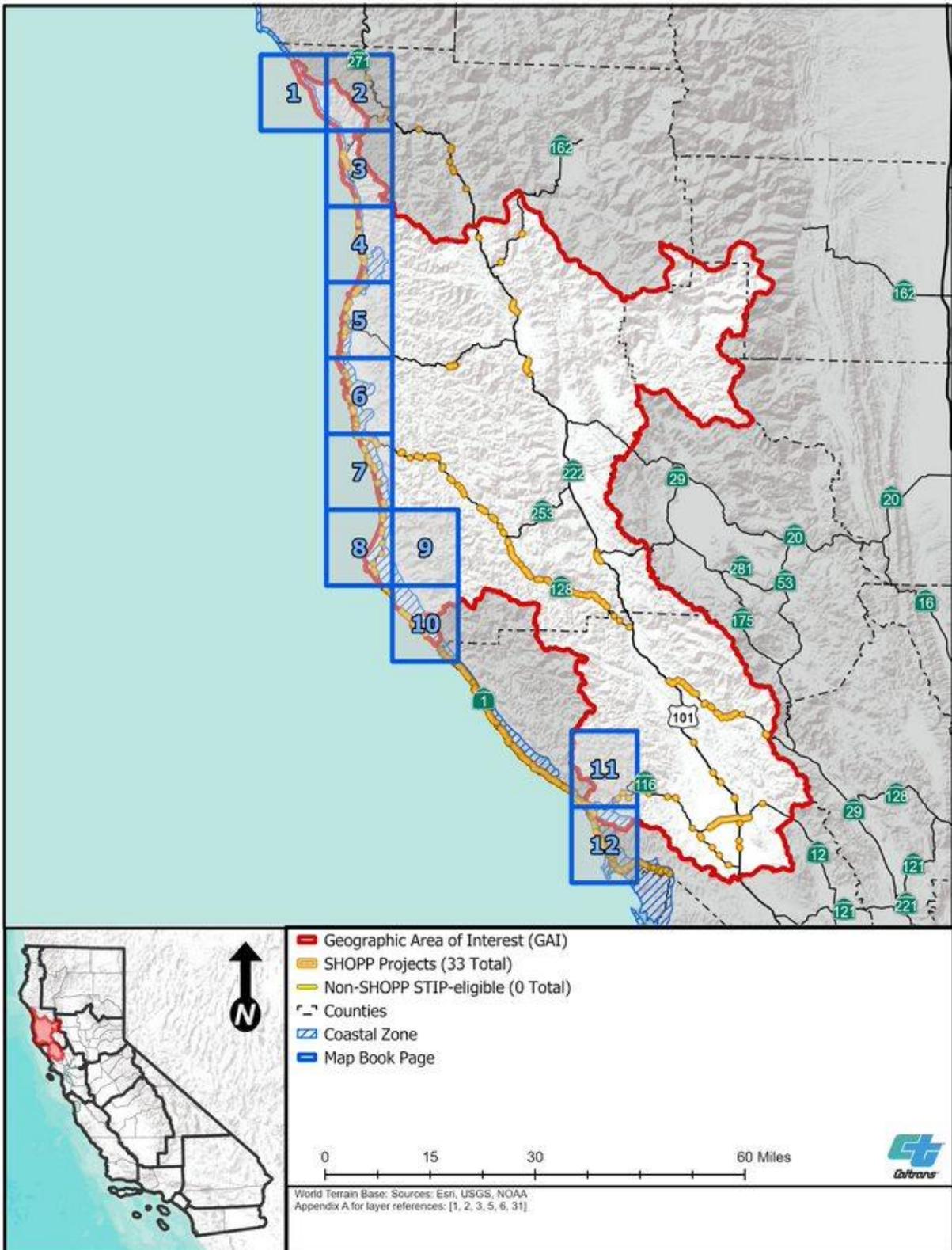
Mapbook Grid Number	HUC-8 Name	LCP Jurisdiction	LCP/LUP/ General Plan Name	Description	Status	Segments/ Areas Identified on Maps	UAs and ADCs ^a	Federal or State Lands not Included in LCP	Website	Total Acres of LCP ^a
1–10	Big-Navarro-Garcia	Mendocino County	<i>The County of Mendocino General Plan, Coastal Element</i> (1985, revised 1991)	LCP for Mendocino County. Restricts development within wetland portions of the Ten Mile River and Big River to wetland restoration, nature study, and salmon restoration projects. Establishes a buffer area with a width of 100 feet from environmentally sensitive habitat areas, only decreased to 50 feet with permission from CDFW and County Planning staff. Restricts development from riparian corridors or where riparian vegetation occurs.	Certified	Mendocino County – County Balance; Mendocino County – Pygmy Forest	None	King Range National Conservation Area Point Cabrillo Light Station Manchester Band of Indians – Point Arena Rancheria	https://www.mendocinocounty.org/government/planning-building-services/plans/coastal-element	153,887
5	Big-Navarro-Garcia	City of Fort Bragg	<i>Fort Bragg Coastal General Plan</i> (2008)	LCP for the City of Fort Bragg. Requires a minimum 100-foot-wide buffer area between development and environmentally sensitive habitat areas, no less than 30 feet in width, with permission from proper agencies.	Certified	City of Fort Bragg	None	None	https://www.city.fortbragg.com/departments/community-development/general-plan-zoning-information/local-coastal-program/-folder-116	941
6	Big-Navarro-Garcia	Mendocino County	<i>Mendocino Town Plan: Coastal Element</i> (2017)	LCP for the Town of Mendocino.	Certified	Mendocino County – Town	None	None	https://www.mendocinocounty.org/government/planning-building-services/plans/coastal-element	670
8	Big-Navarro-Garcia	City of Point Arena	<i>City of Point Arena General Plan/Local Coastal Plan</i> (1995, revised 2006)	LCP for the City of Point Arena. Requires a 100-foot buffer between development and environmentally sensitive habitat areas. Restricts development of road crossings across Arena Creek. In addition, requires a 500-foot riparian setback area within Point Arena Mountain Beaver habitat.	Certified	City of Point Arena	None	USCG – Point Arena Coast Guard Reservation	https://pointarena.ca.gov/documents/general-planlocal-coastal-plan/	775
10–12	Russian	Sonoma County	<i>County of Sonoma Local Coastal Program</i> (2001)	LCP for Sonoma County. Requires a 100-foot buffer between development and riparian habitat. Restricts new development within 600 feet of a heron rookery.	Certified	Sonoma County	None	None	https://permitsonoma.org/longrangeplans/adoptedlong-rangeplans/currentlocalcoastalplan	55,913

Source: CCC (2021)

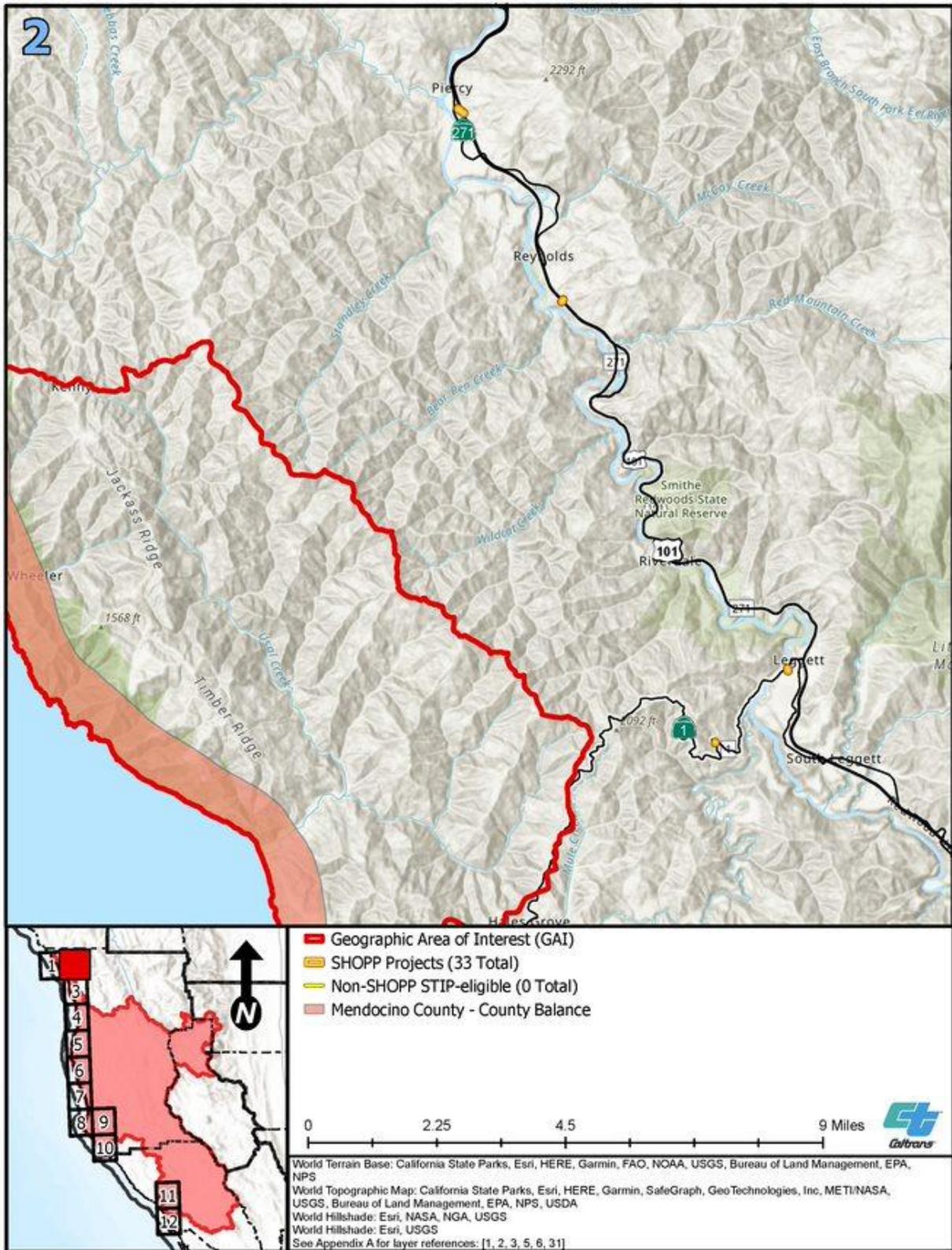
^a ADC: Refers to a geographic area that has not been officially segmented for purposes of LCP preparation and, during certification review of the LCP, was not certified. A UA may be an area that was created through annexation or was subsequently identified but may not have been included in any LCP segment. The CCC retains permit authority until an LCP is effectively certified for these areas.

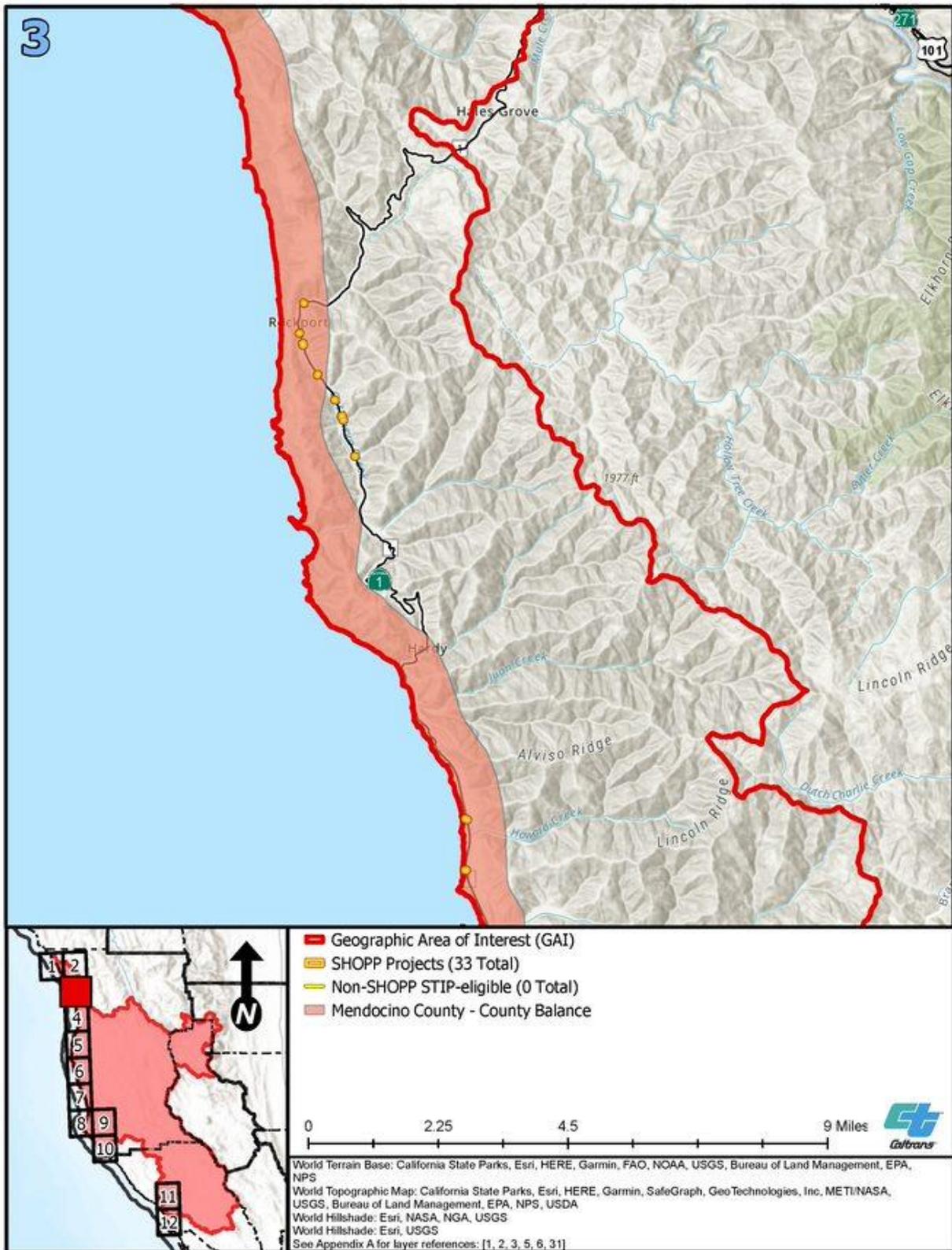
^b Numbers were rounded to the nearest whole number. Excludes ADCs, federal lands, and state lands.

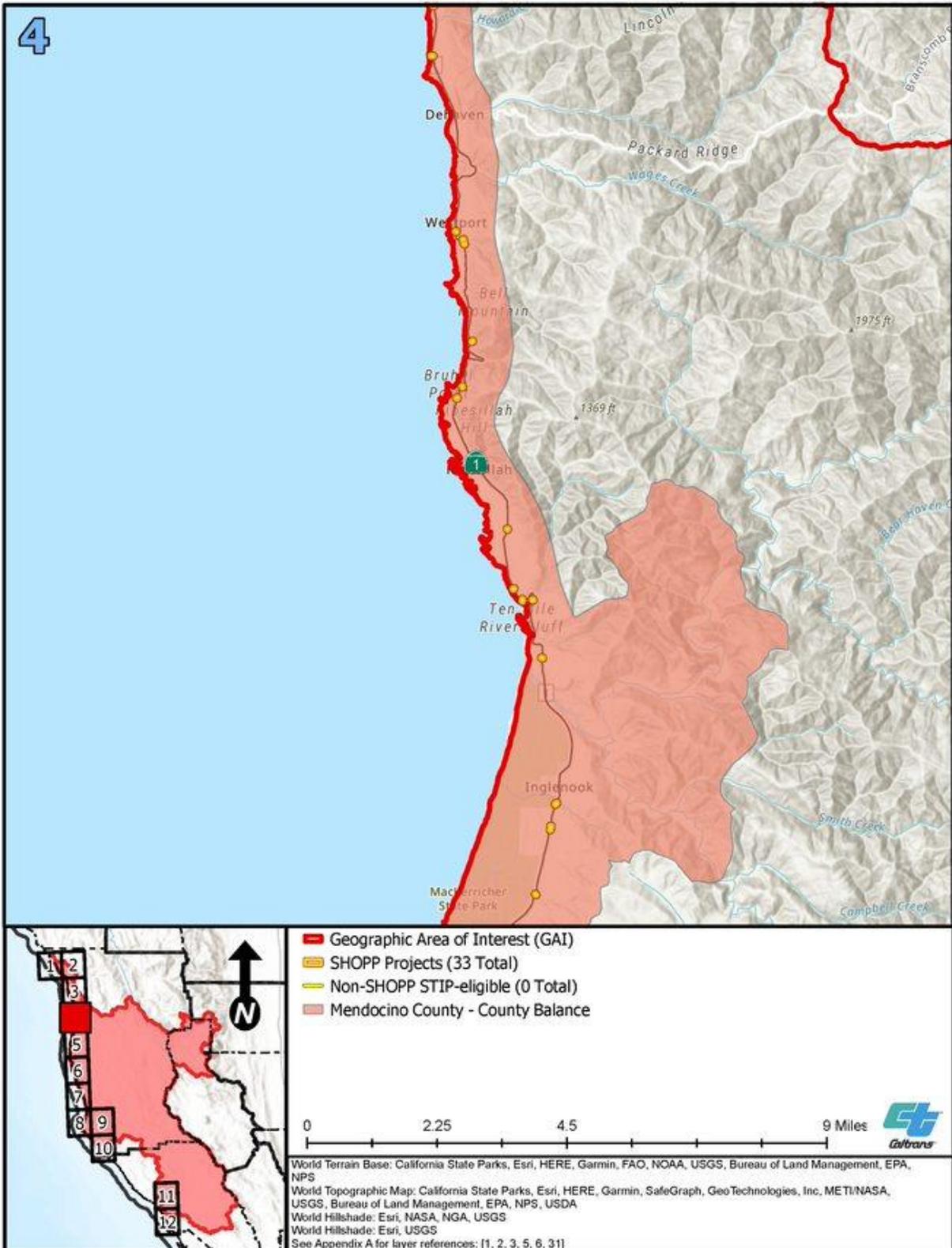
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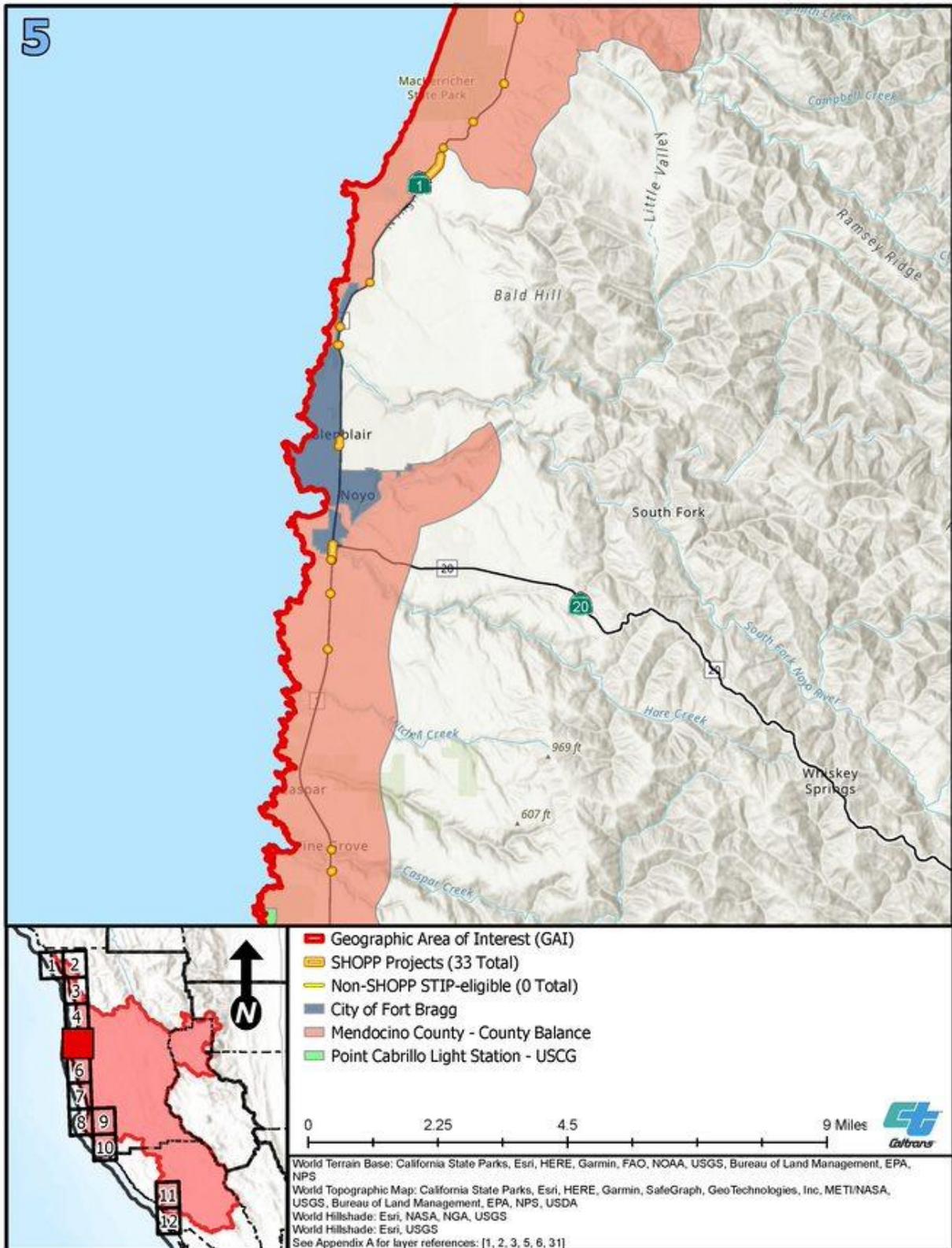


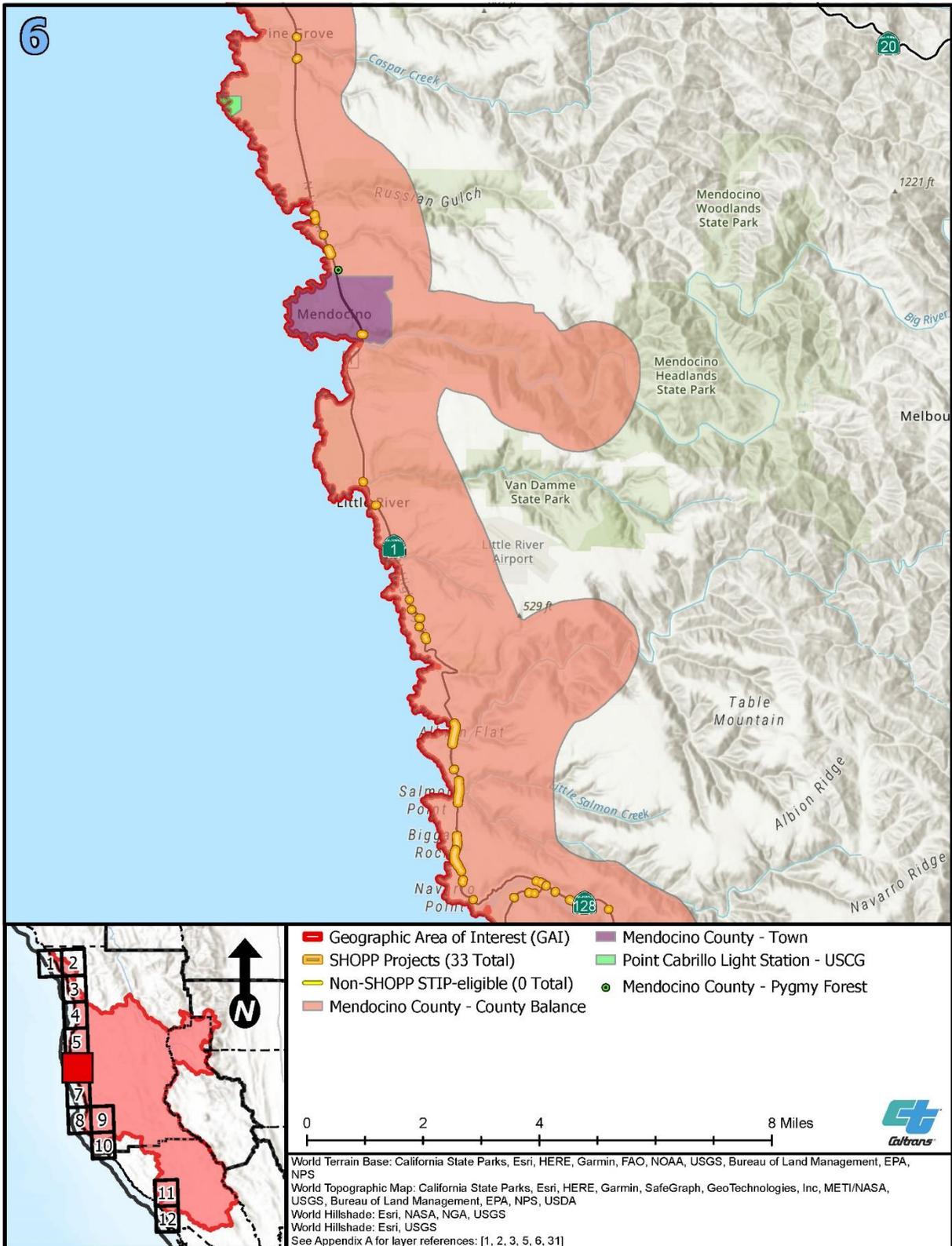






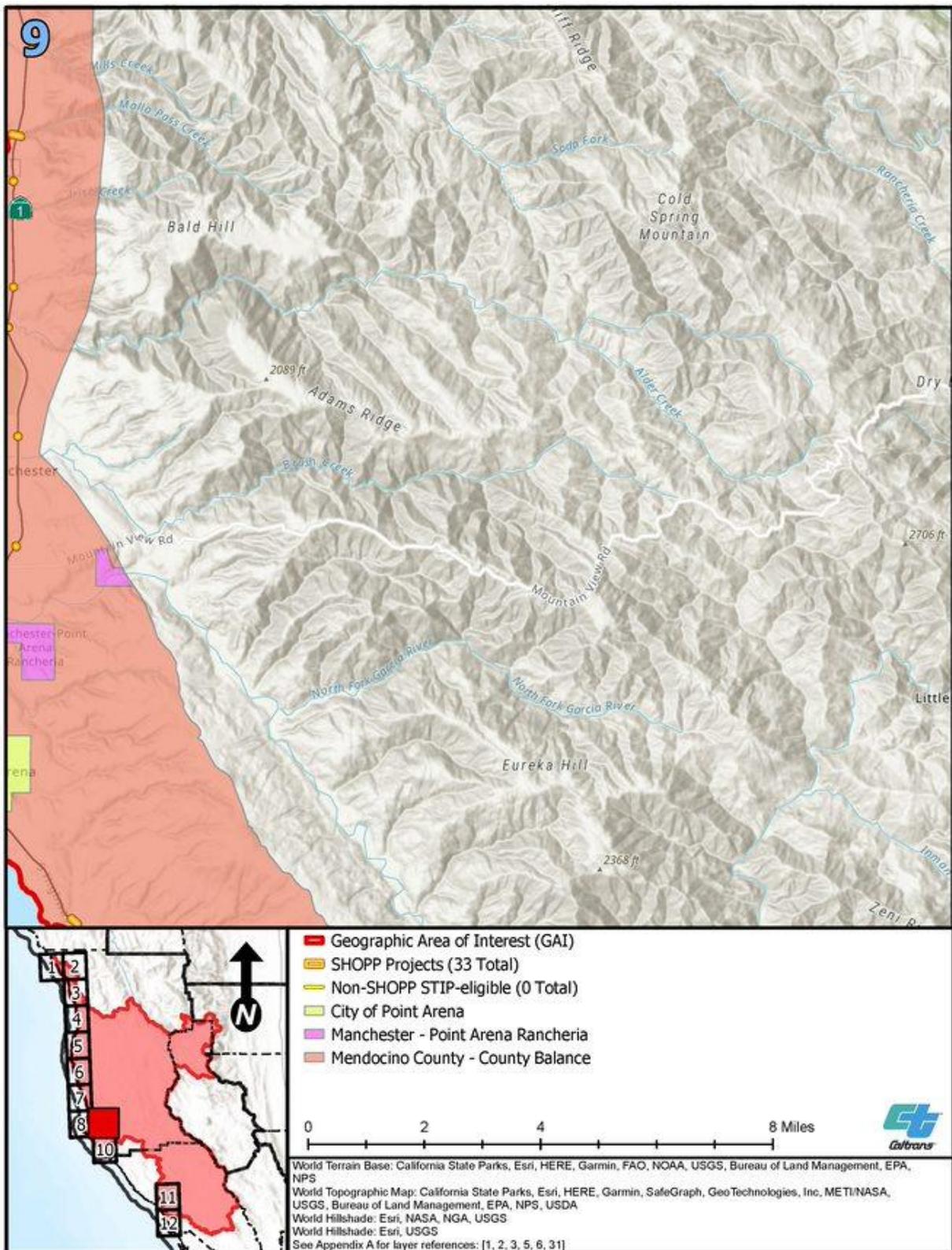


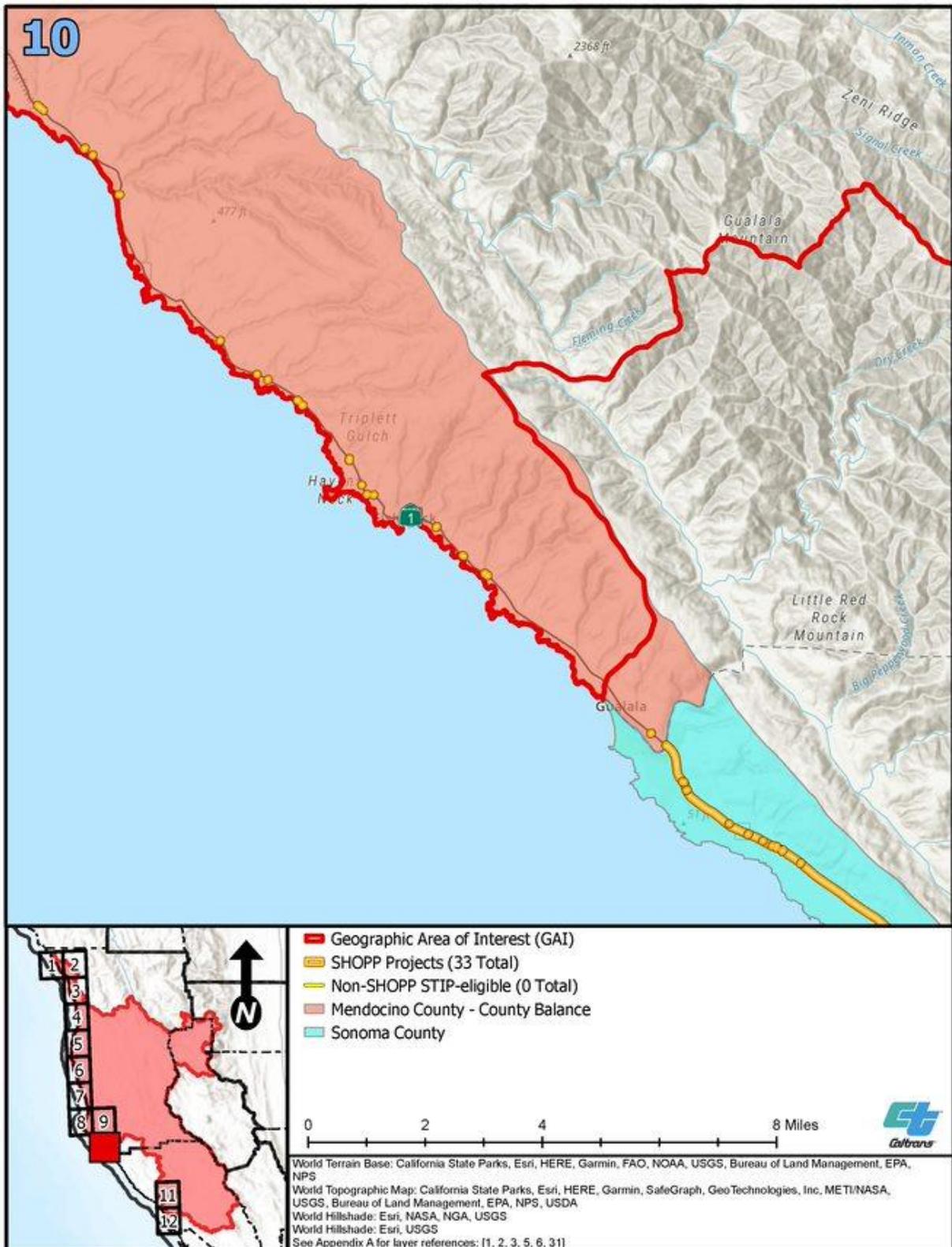


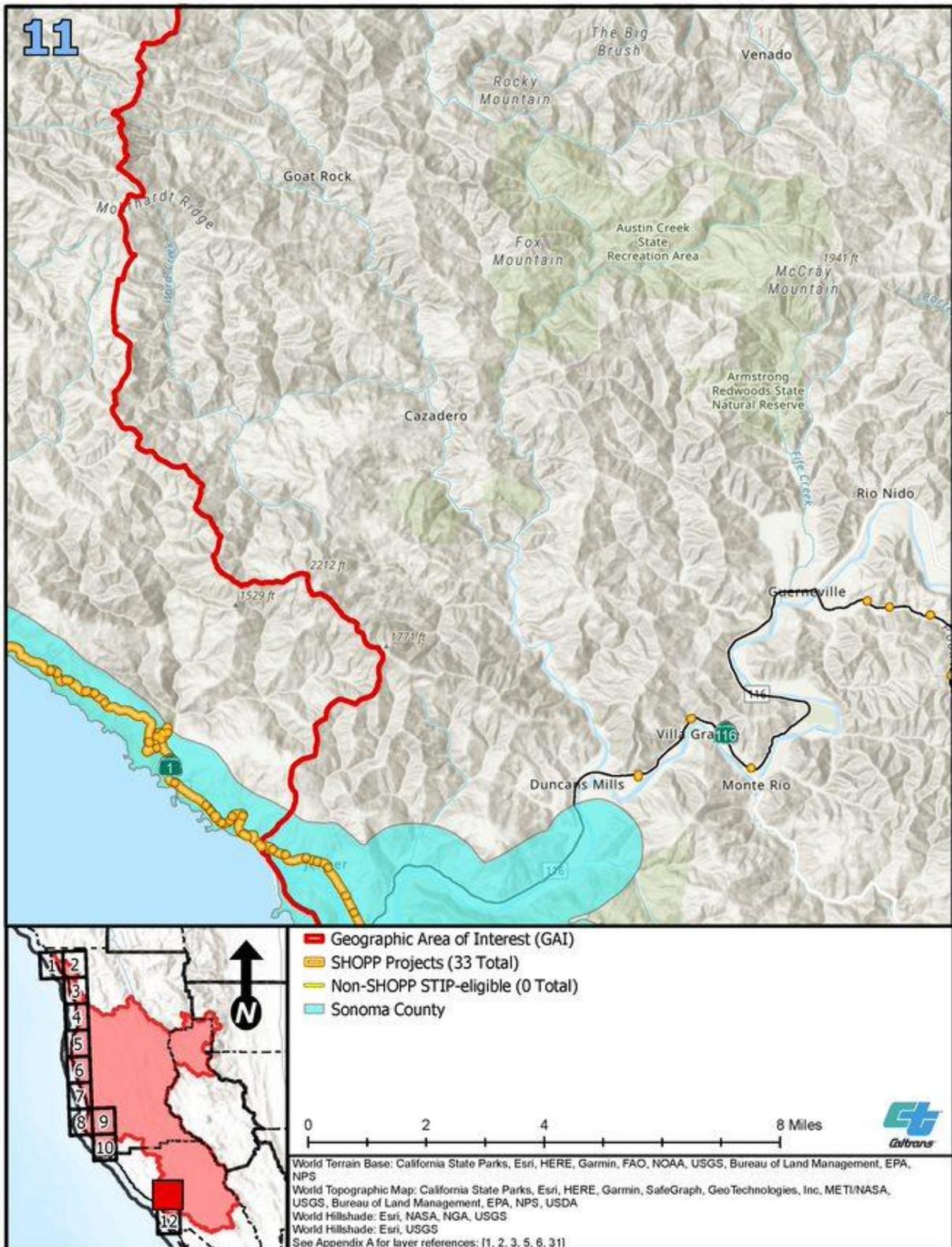


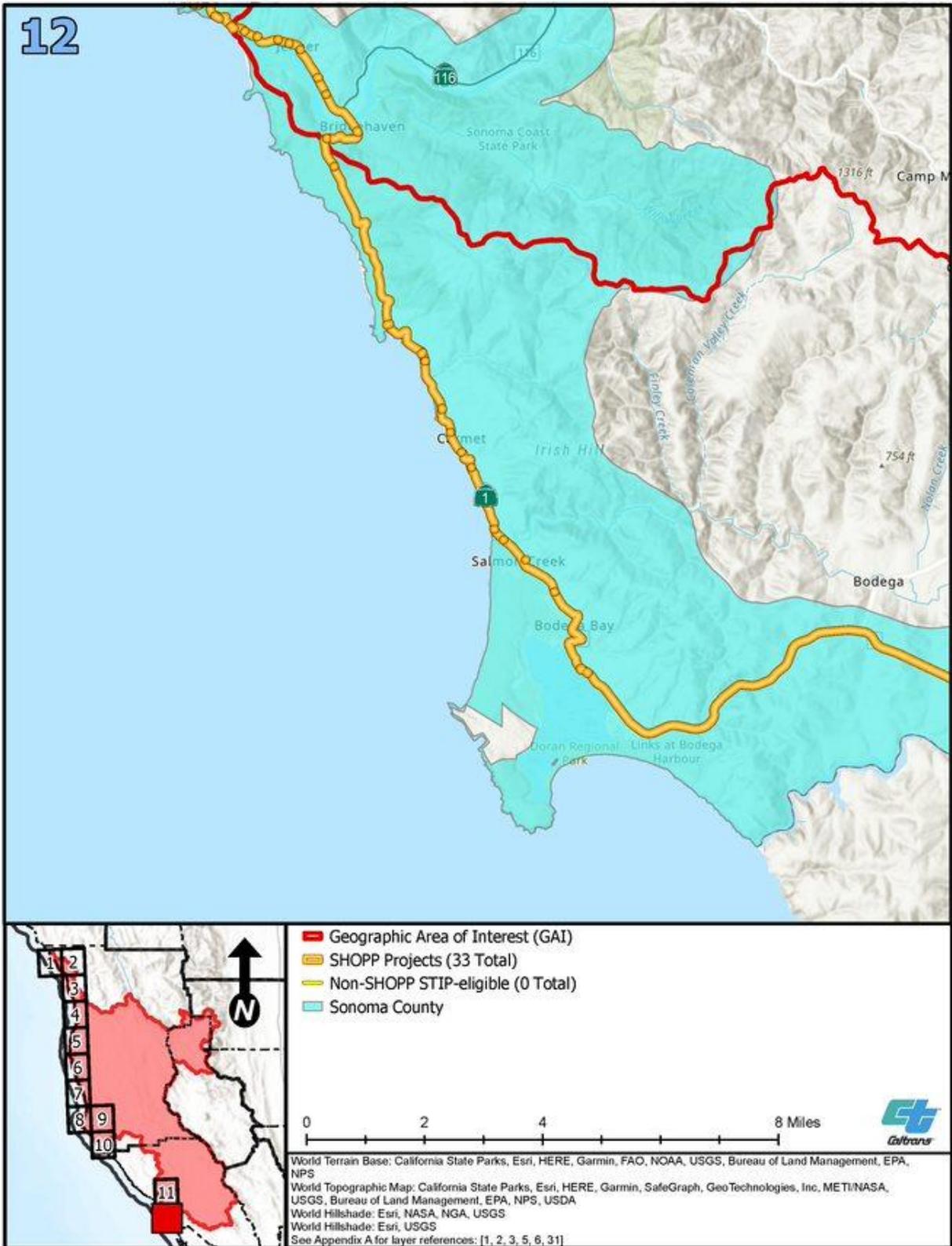












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APPENDIX D: LAND COVER TYPES

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 2021, 2023). A general description of each land cover type found in the GAI is provided below; complete descriptions can be found in Mayer and Laudenslayer (1988). Table 2-3 in the main text indicates the acreages of each habitat type that are mapped in the Northern California Coast and Northern California Coast Range Ecoregion Sections.

A key map, provided after the list of habitat types, references mapbook pages, including zoomed-in views of locations in the GAI and mapped land cover types (page D-3). These 18 maps correspond with the aquatic resources maps in Appendix H.

Tree-dominated Habitats: Tree-dominated habitats have at least 10 percent total tree canopy crown closure. In the GAI, tree-dominated habitats include blue oak woodland, blue oak-foothill pine, closed-cone pine-cypress, coastal oak woodland, Douglas fir, eucalyptus, Jeffrey pine, Klamath mixed conifer, montane hardwood, montane hardwood-conifer, montane riparian, ponderosa pine, red fir, redwood, Sierran mixed conifer, valley foothill riparian, valley oak woodland, and white fir.

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, mixed chaparral, and montane chaparral.

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.

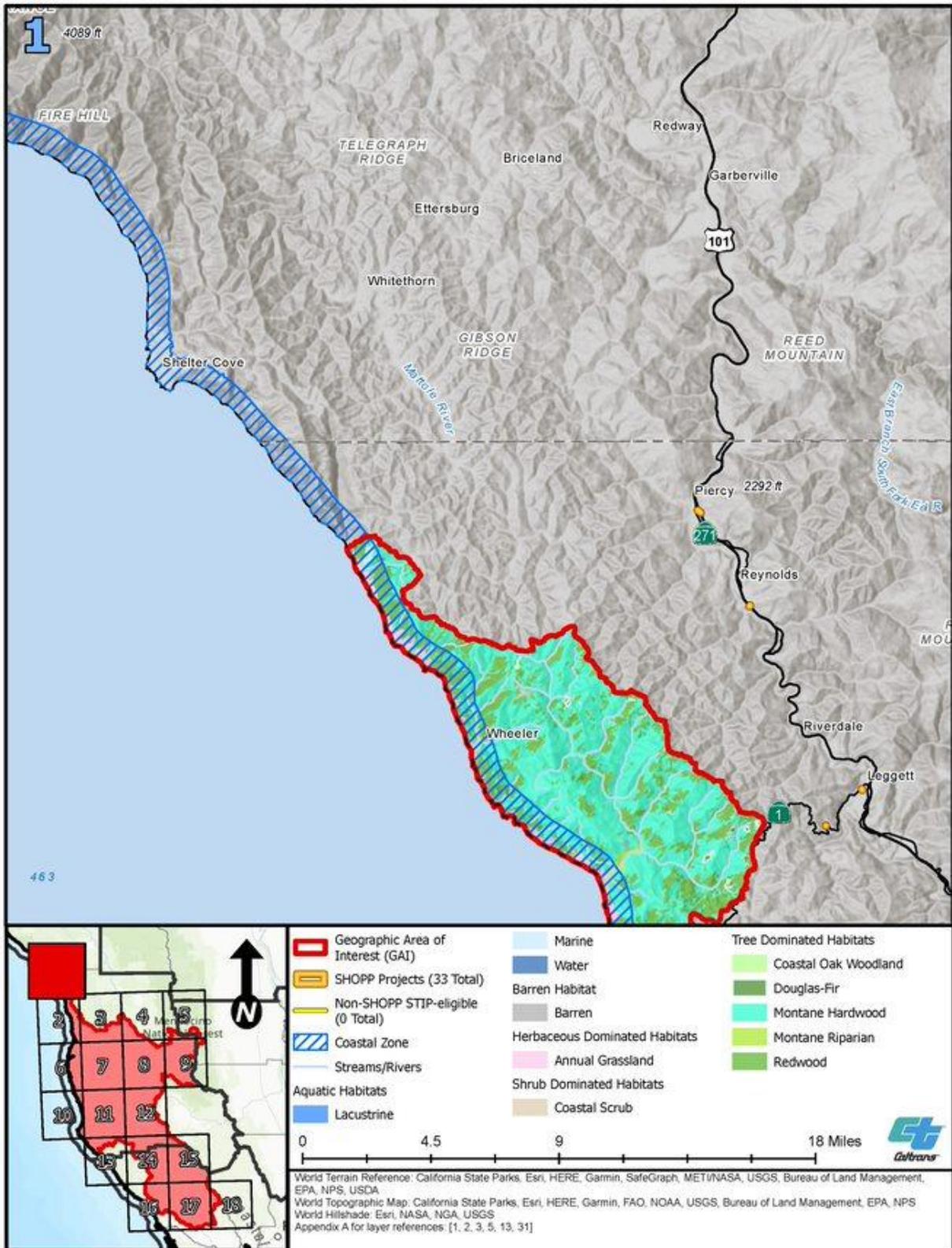
Aquatic Habitats: Aquatic habitats have at least 98 percent total cover by open water and no more than 2 percent total cover by vegetation in the continually exposed shore zone. In the GAI, aquatic habitats include estuarine, lacustrine, marine, and riverine.

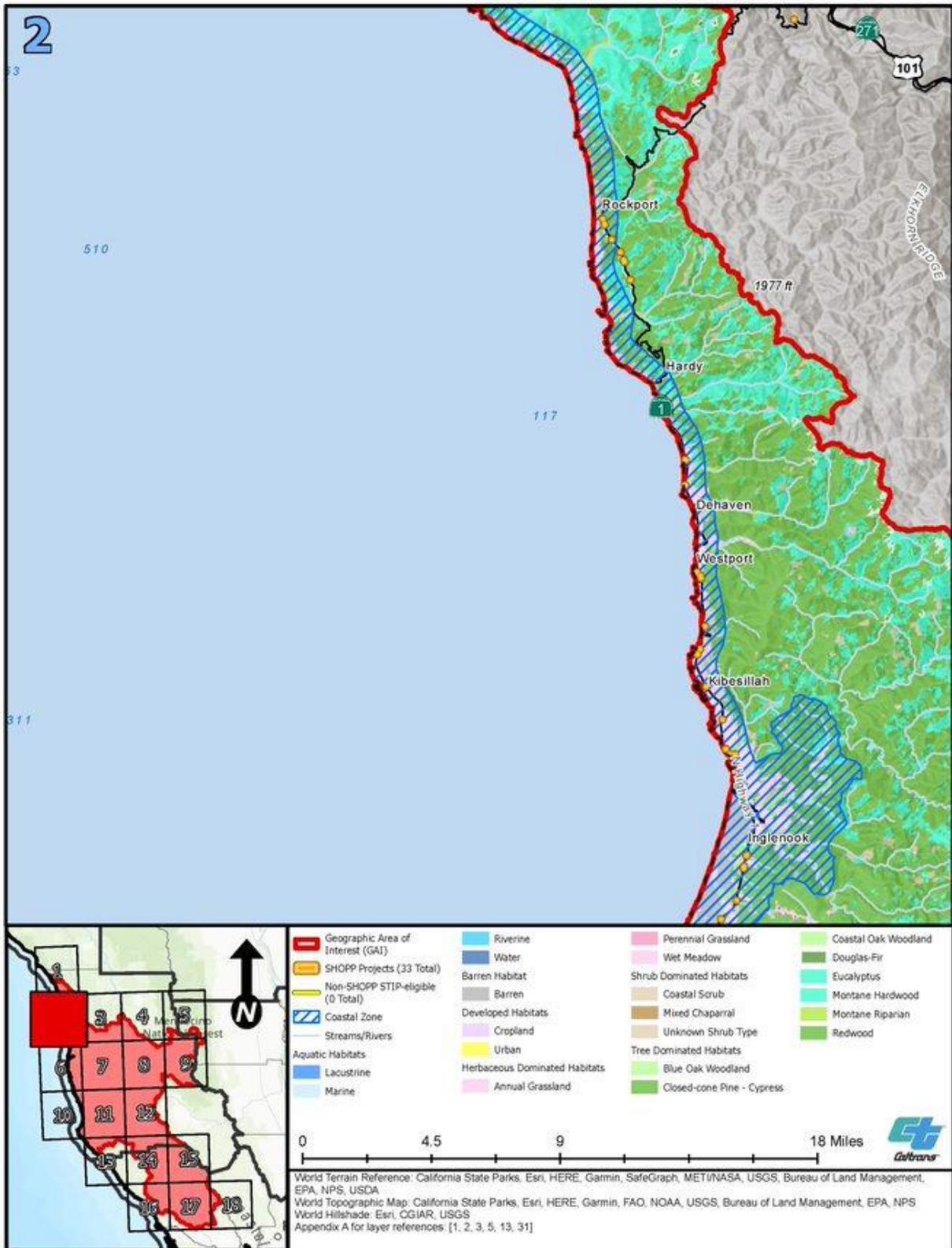
Developed Habitats: Developed habitats have at least 2 percent total cover by non-wildland vegetation grown for food, fiber, or landscaping, and do not meet criteria for any wildland habitat. In the GAI, developed habitats include cropland, deciduous orchard, orchard-vineyard, rice, urban, and vineyard.

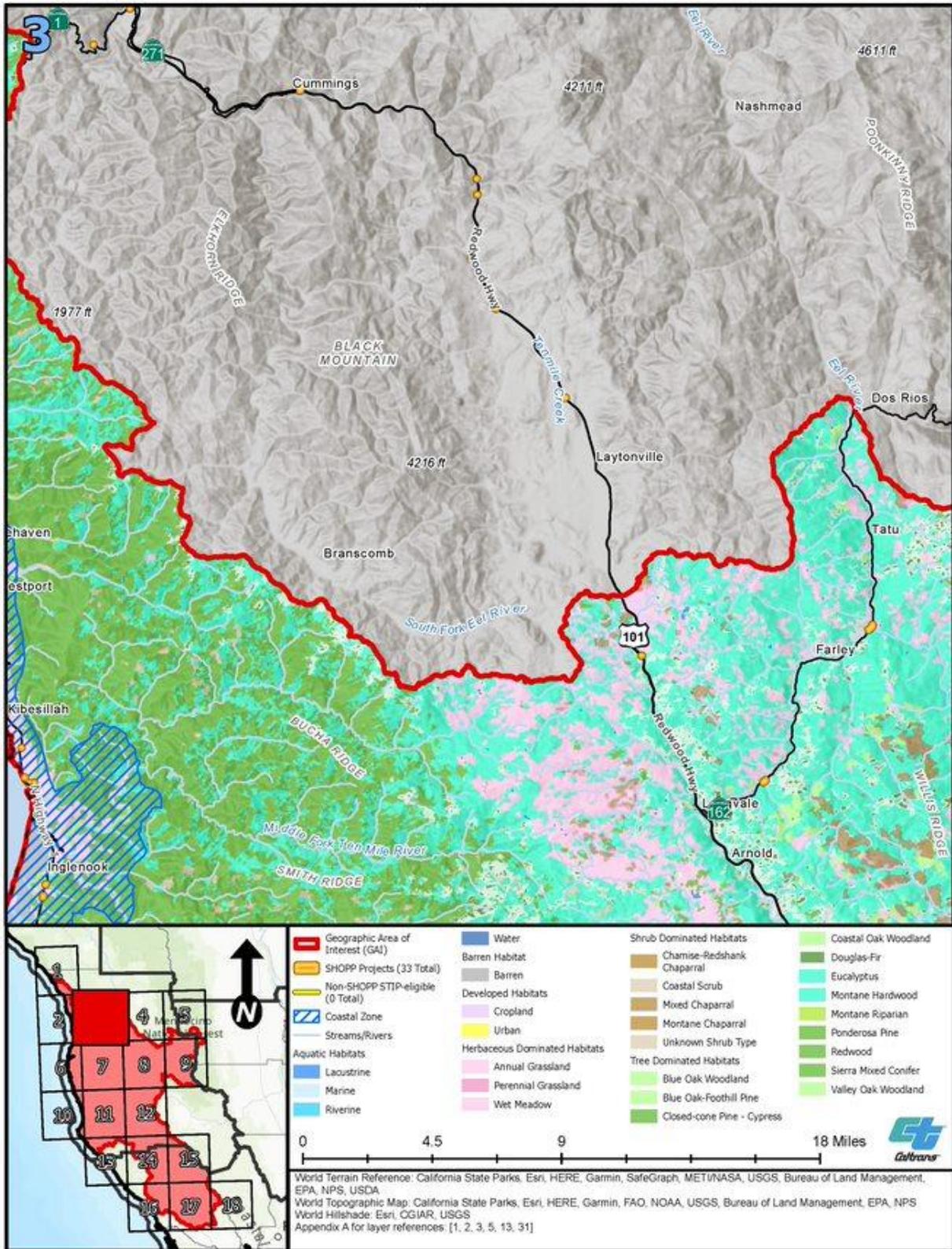
Non-vegetated Habitats: Non-vegetated habitats include barren areas, characterized by less than 2 percent cover by herbaceous species. In the GAI, non-vegetated habitats consist of barren areas.

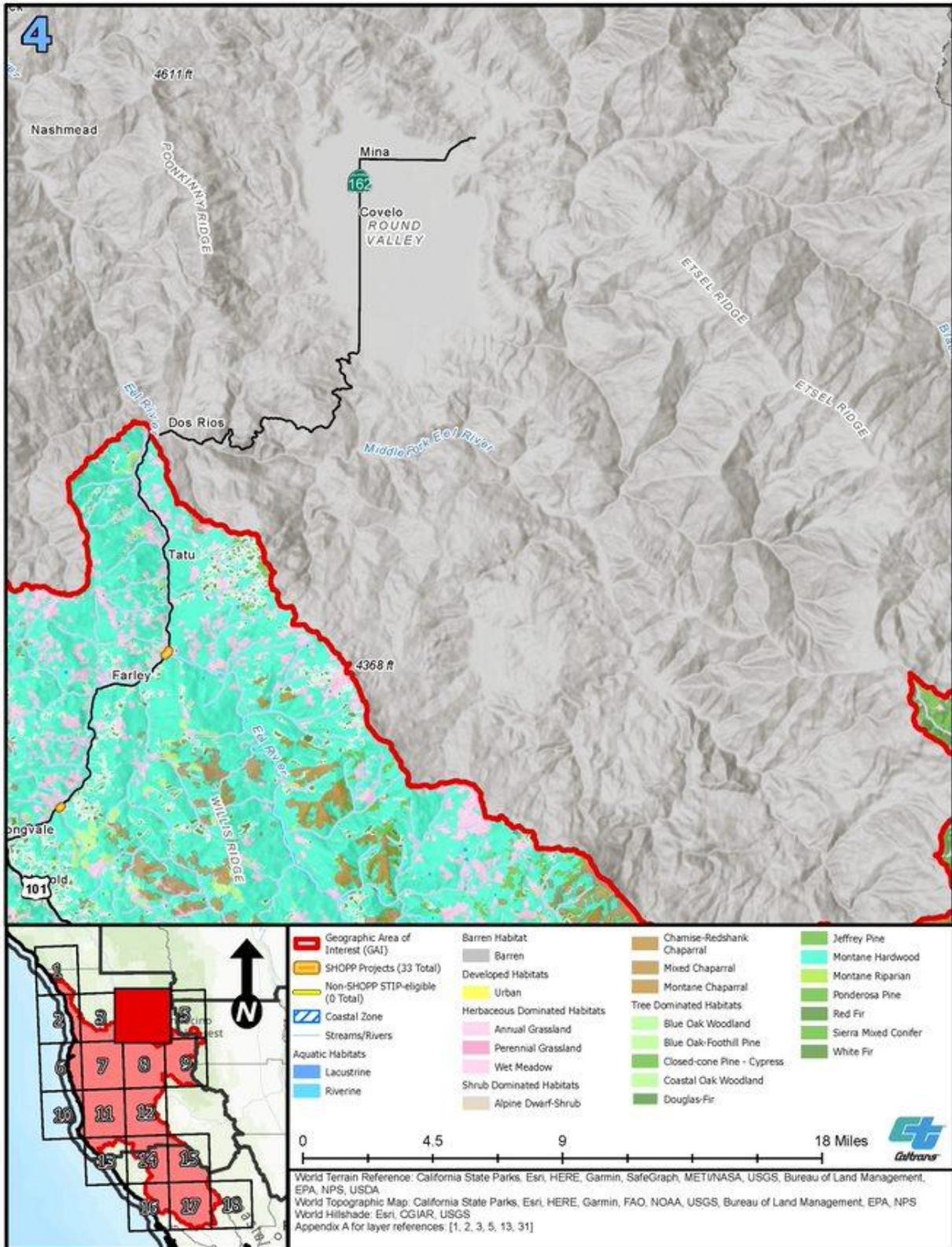
References

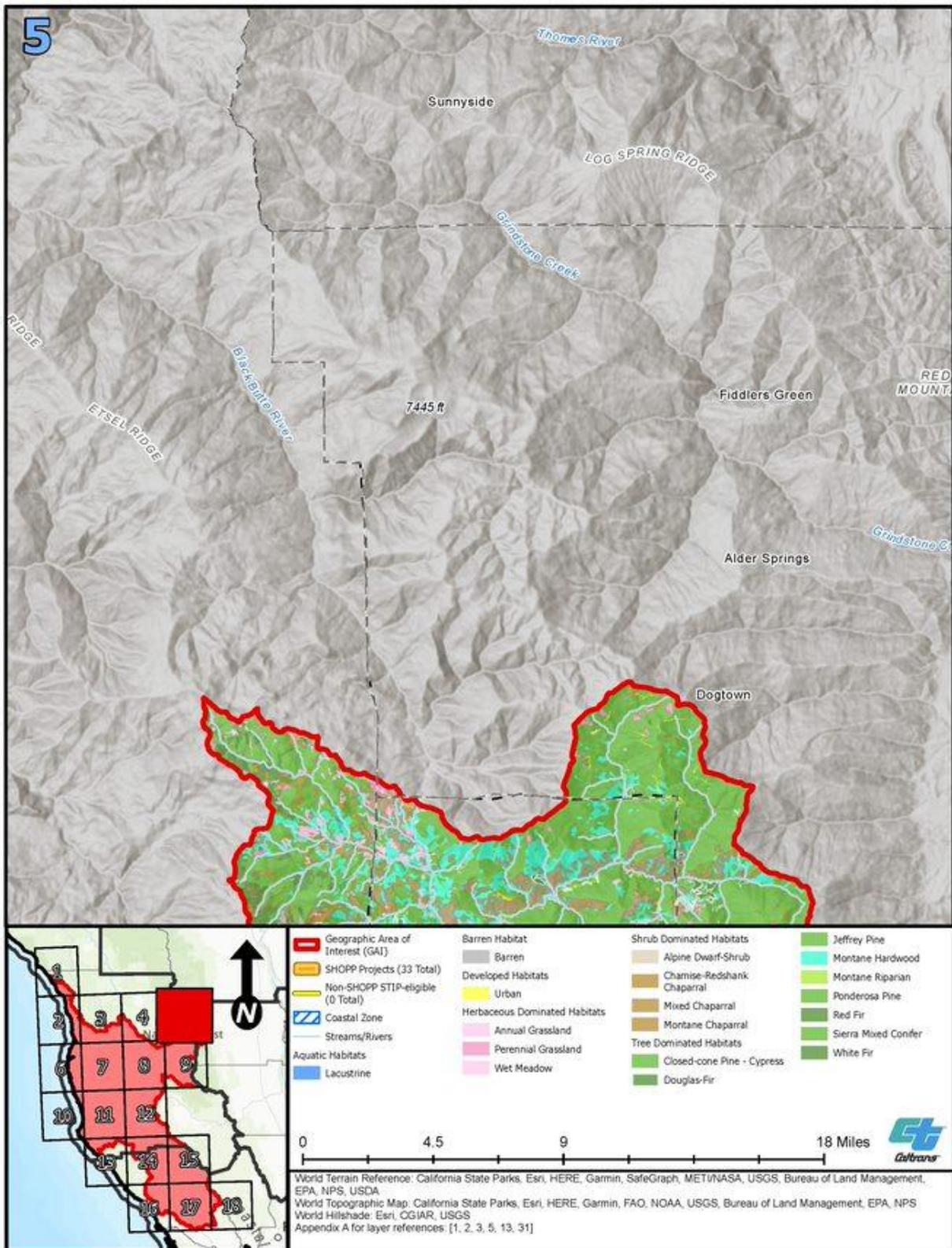
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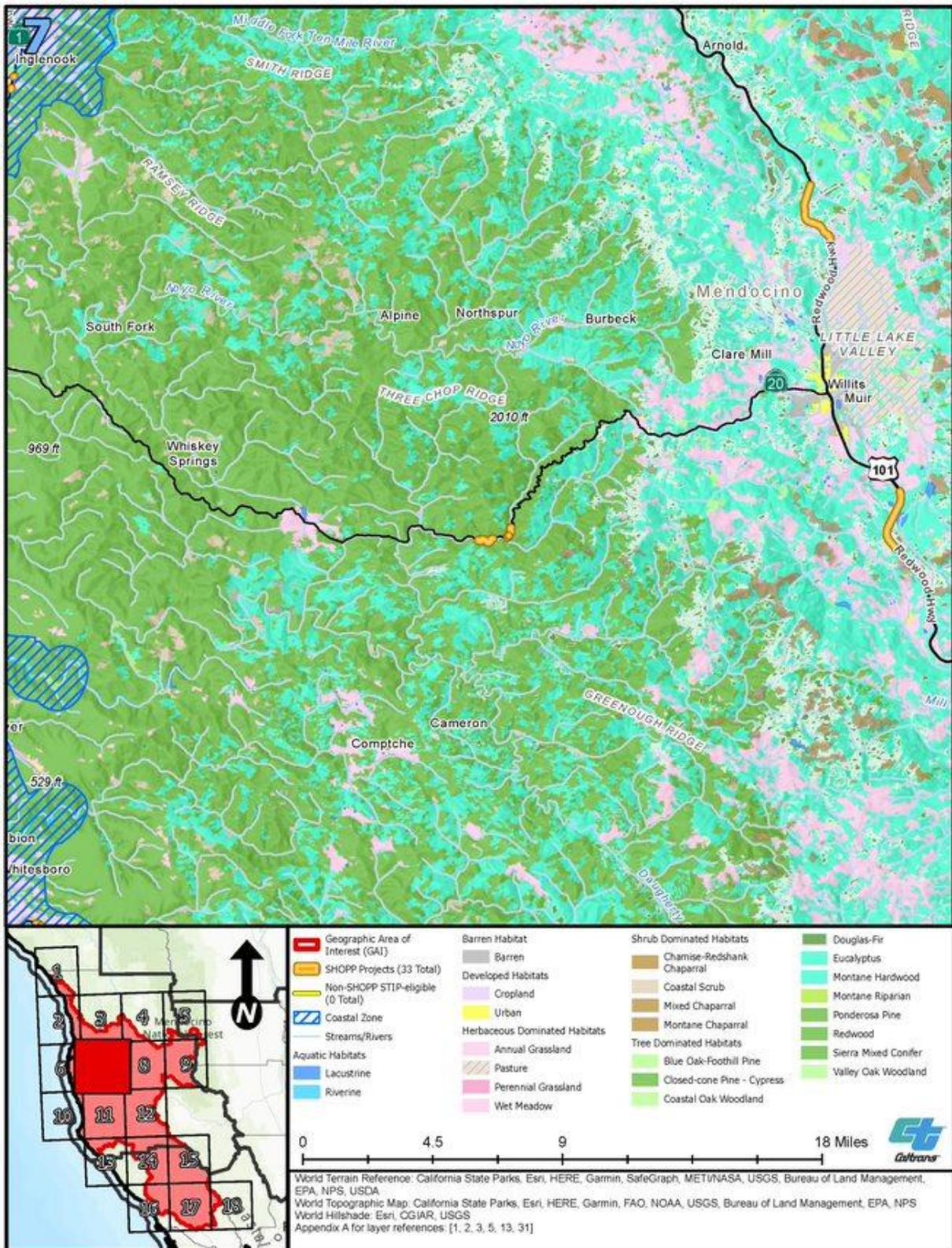


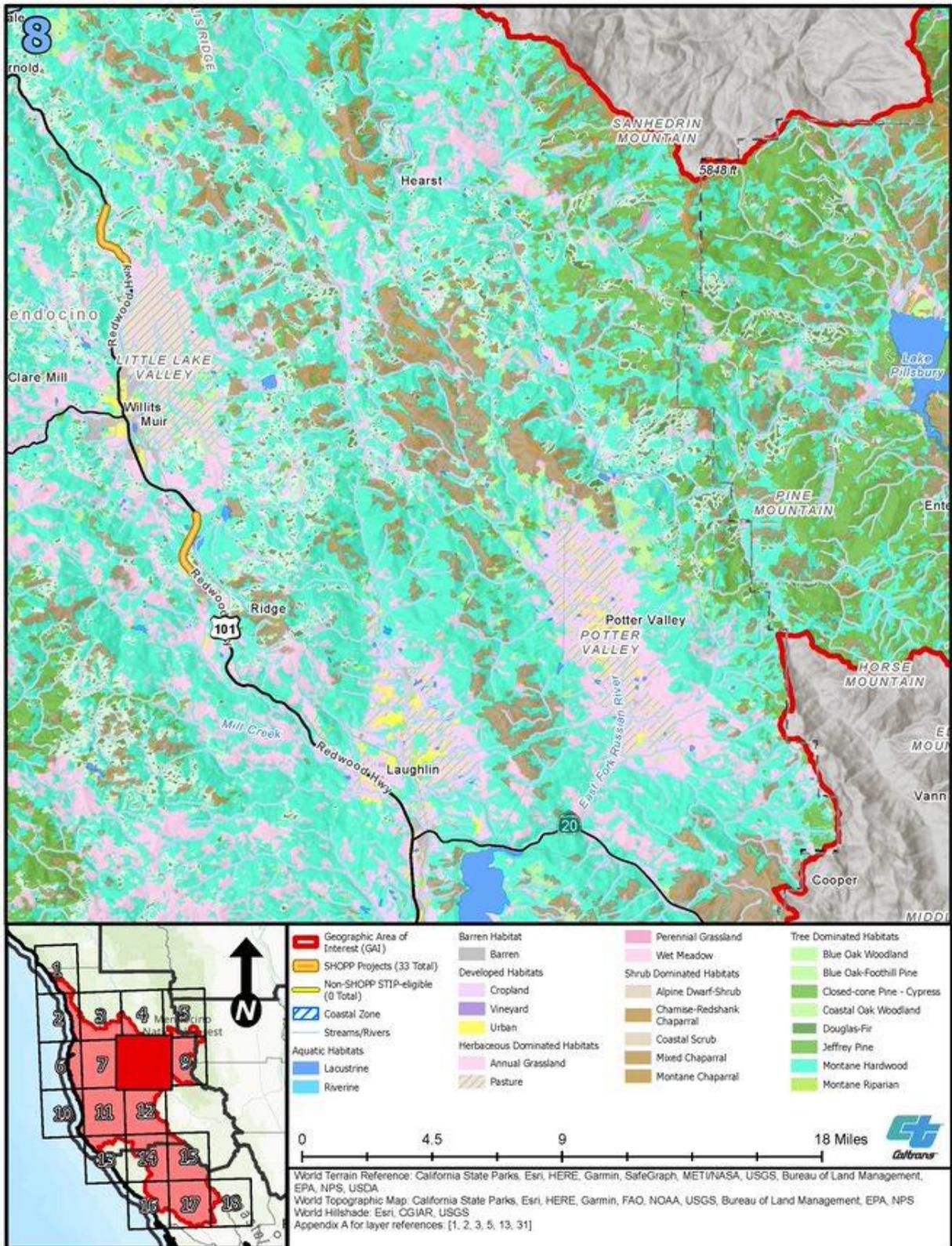


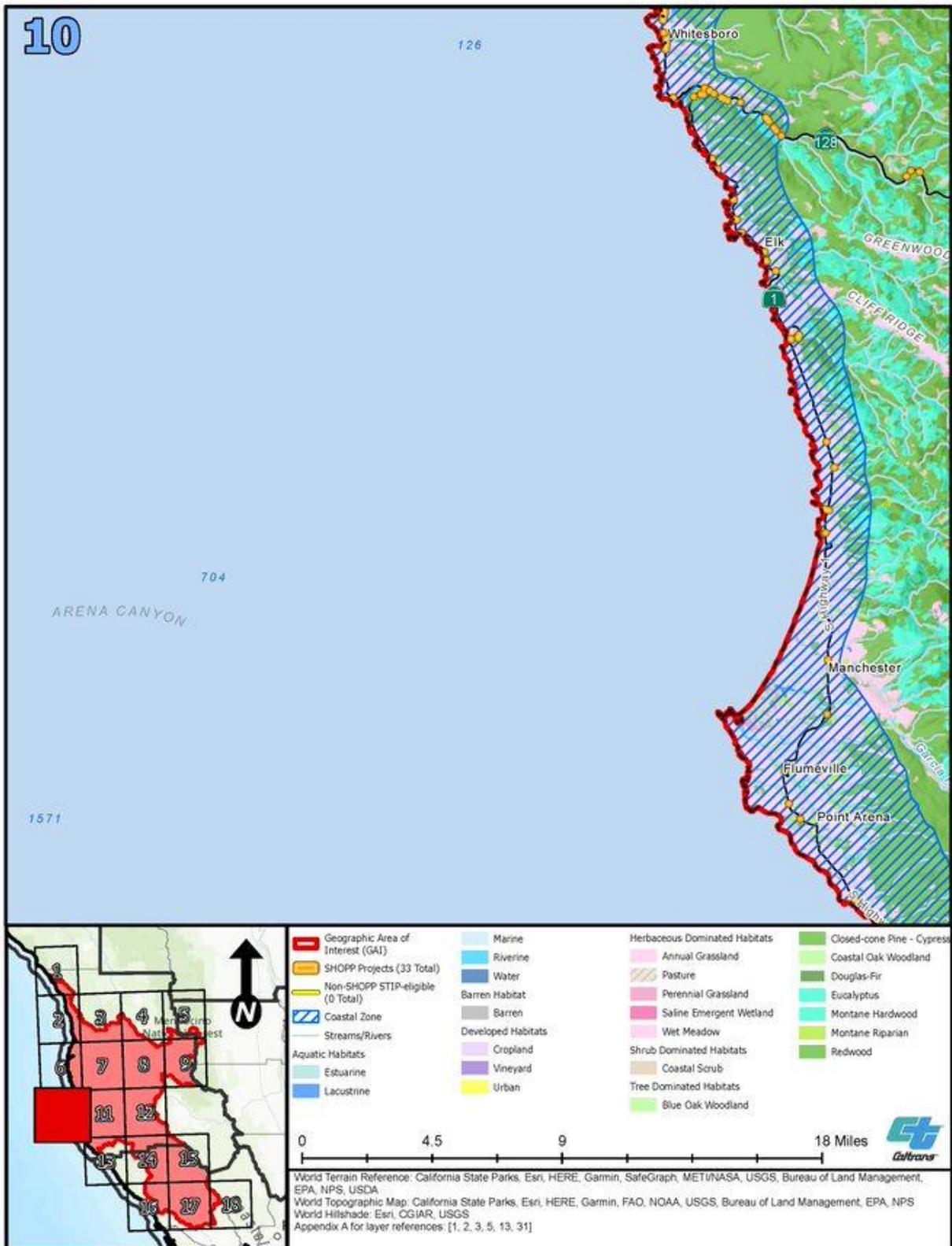


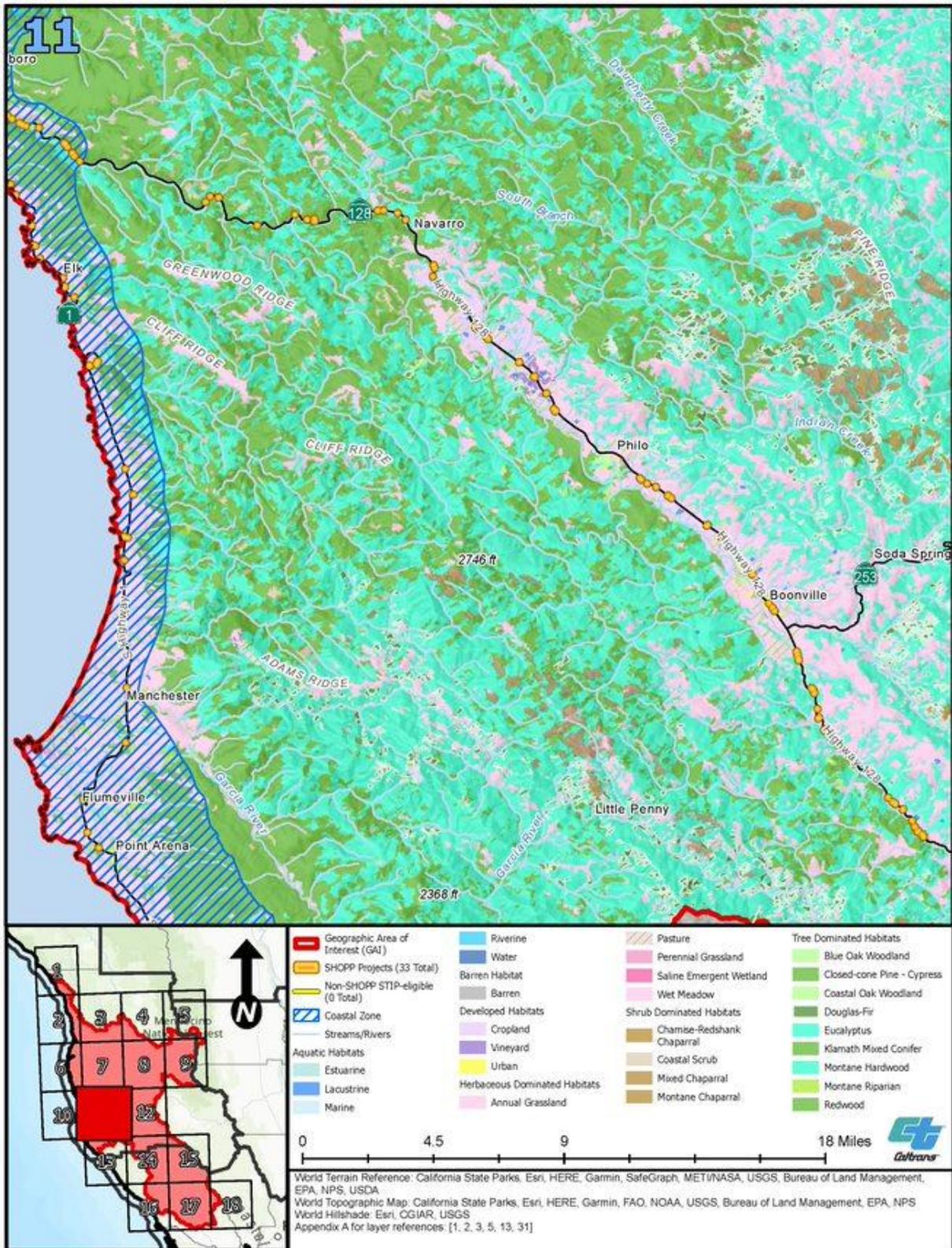


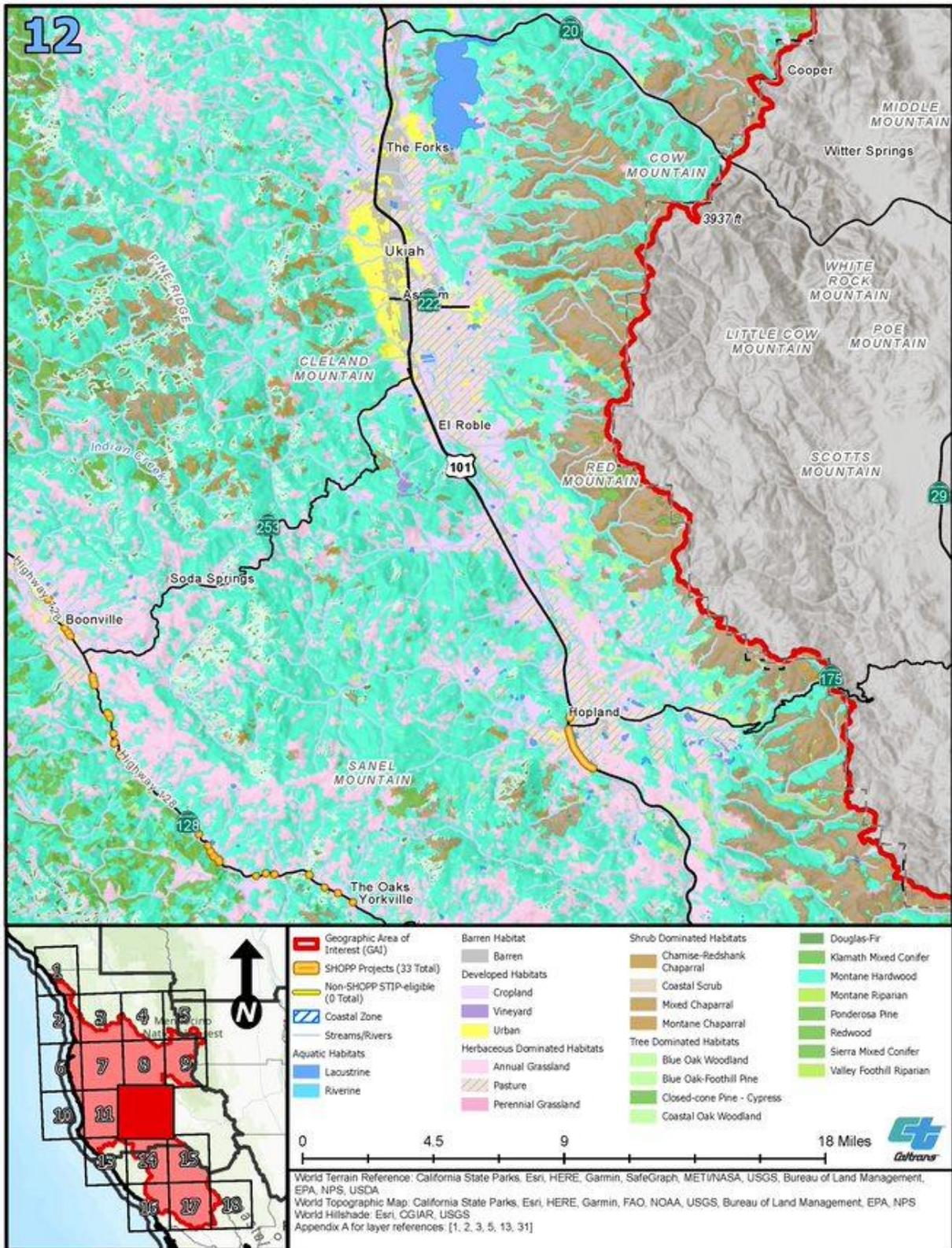


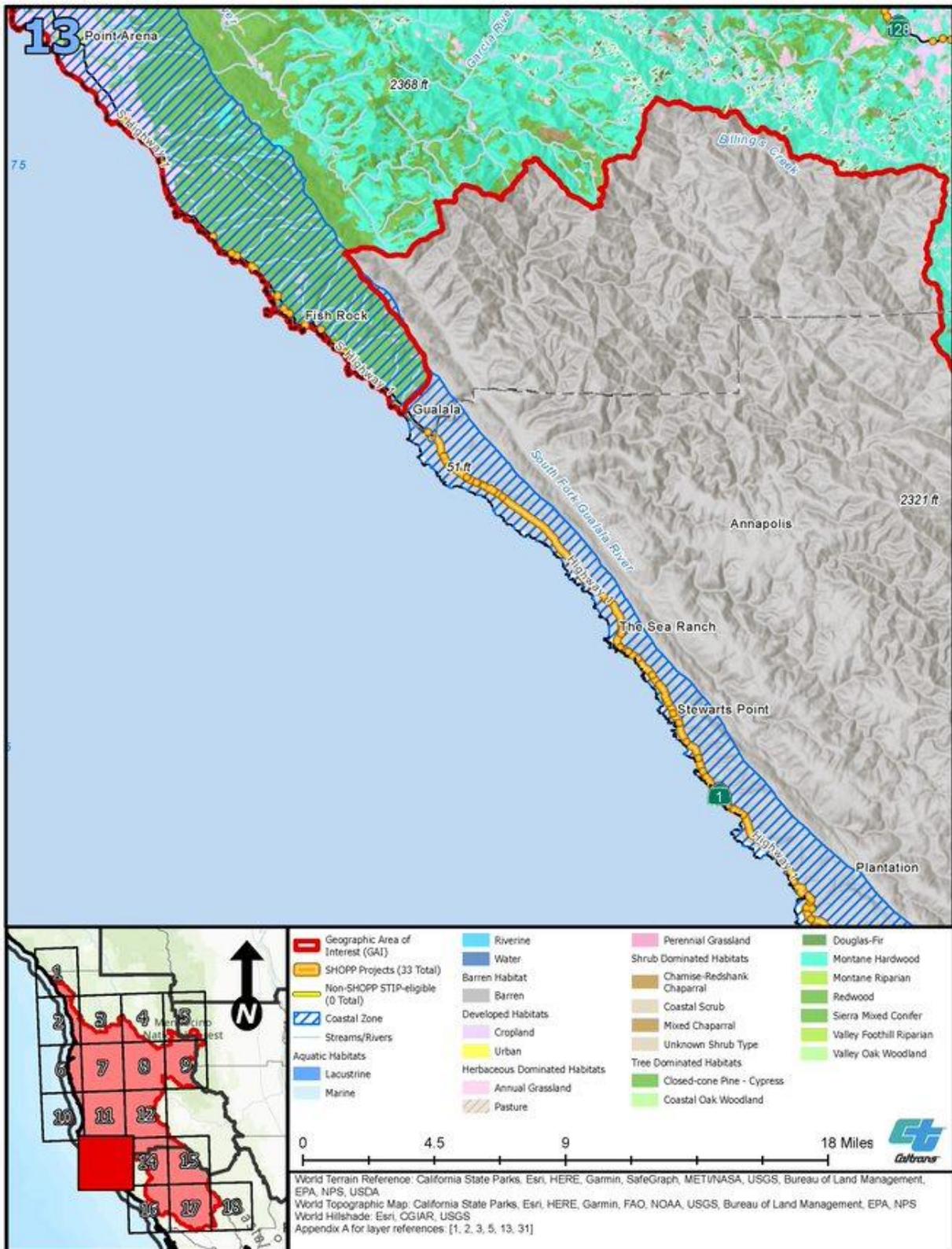


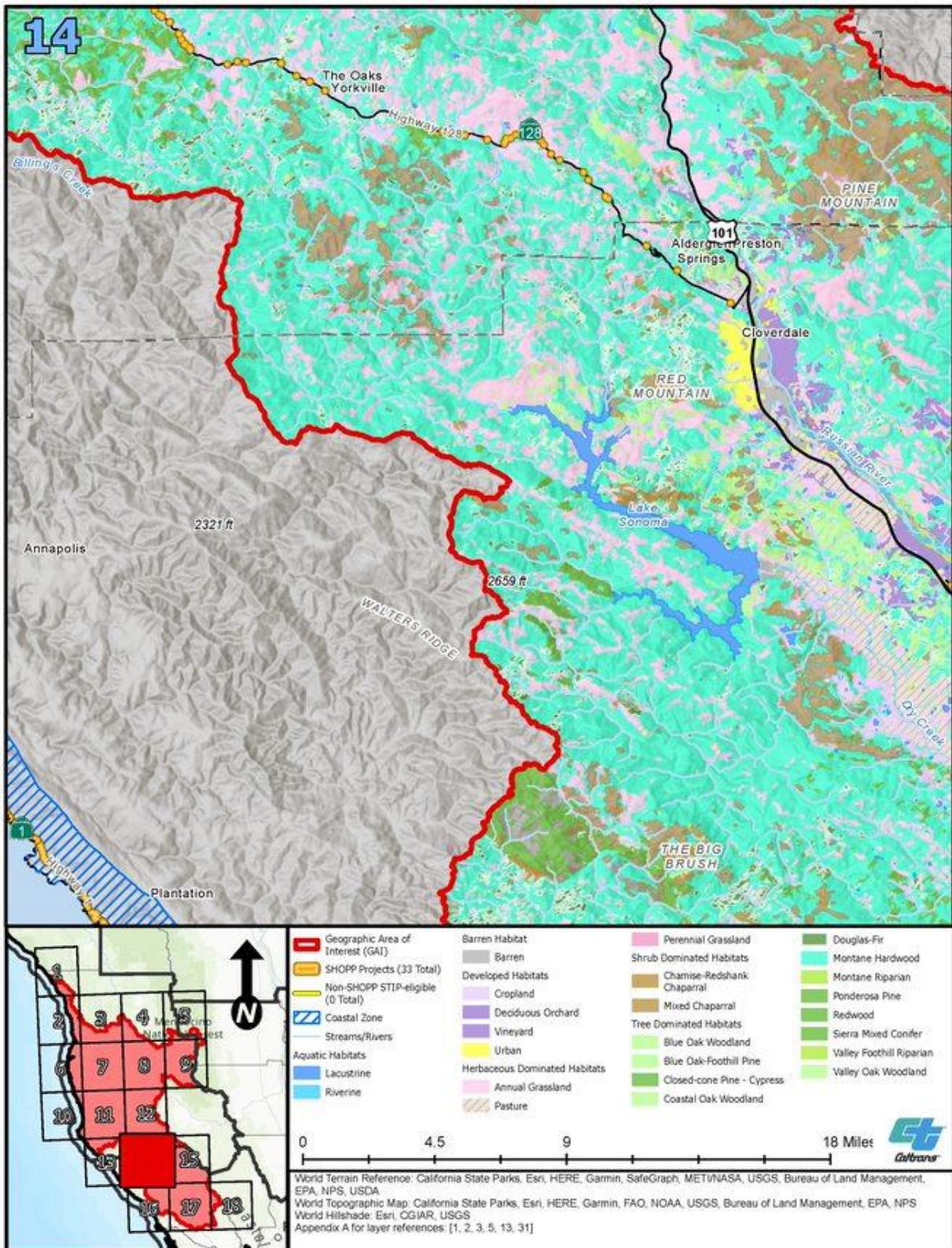


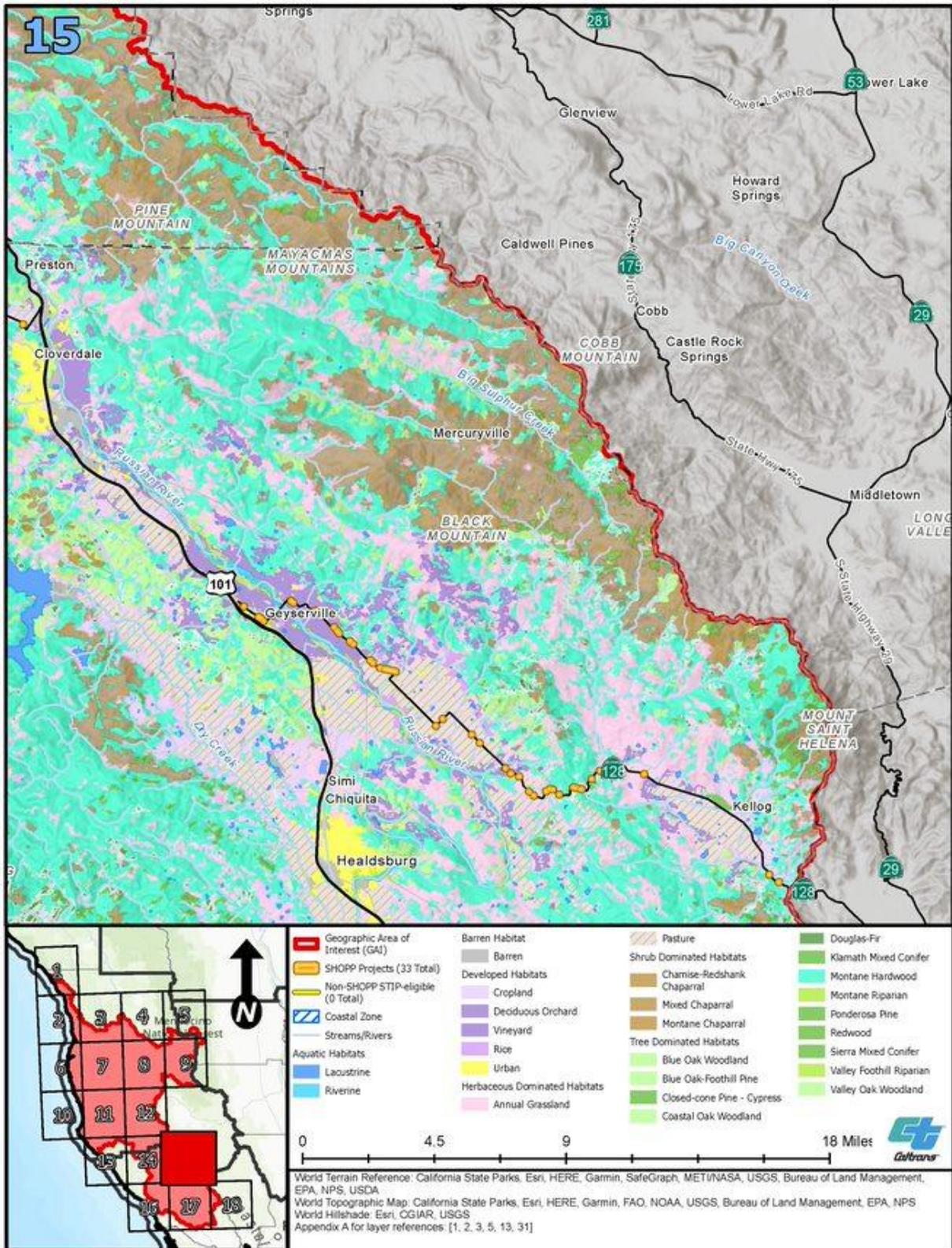


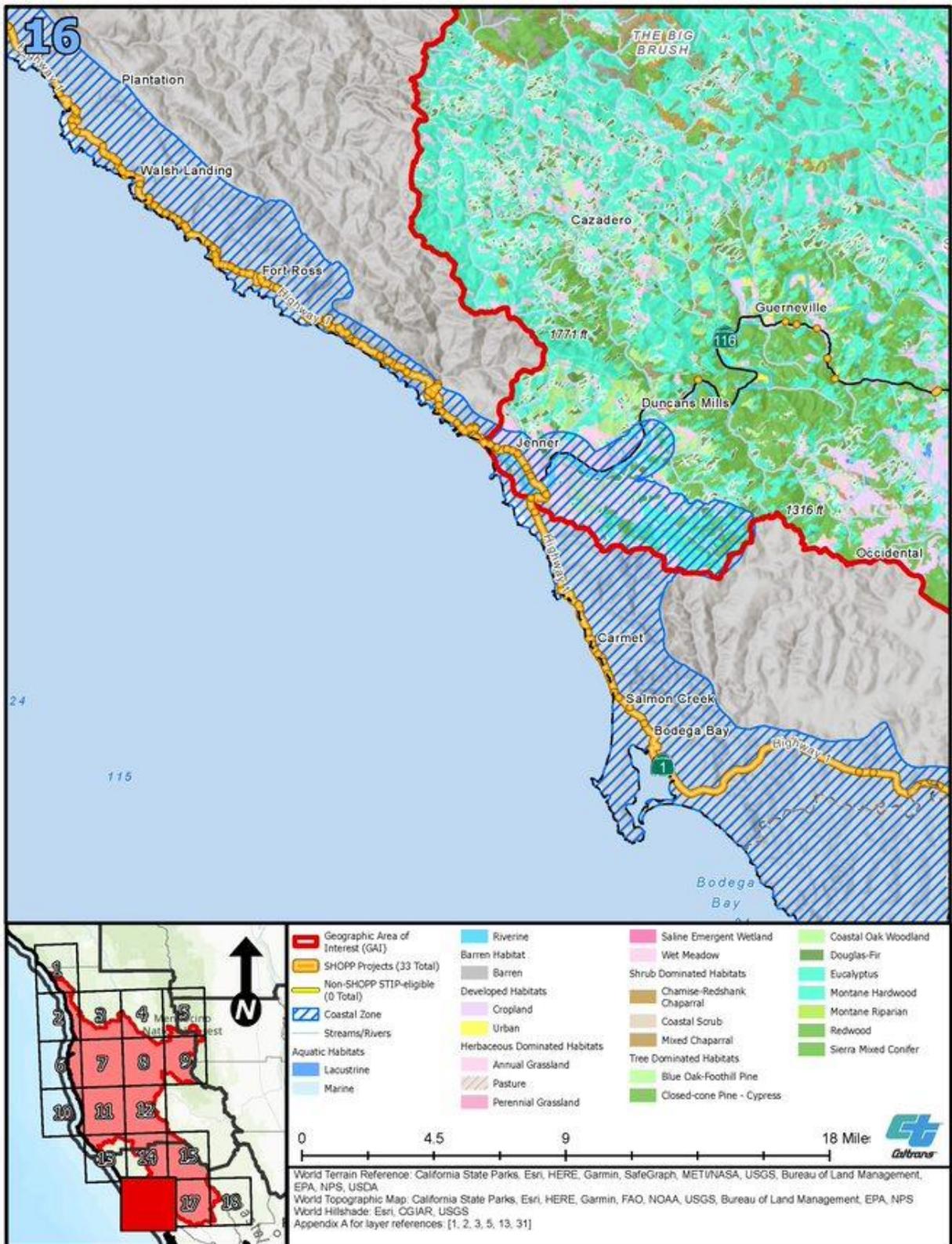


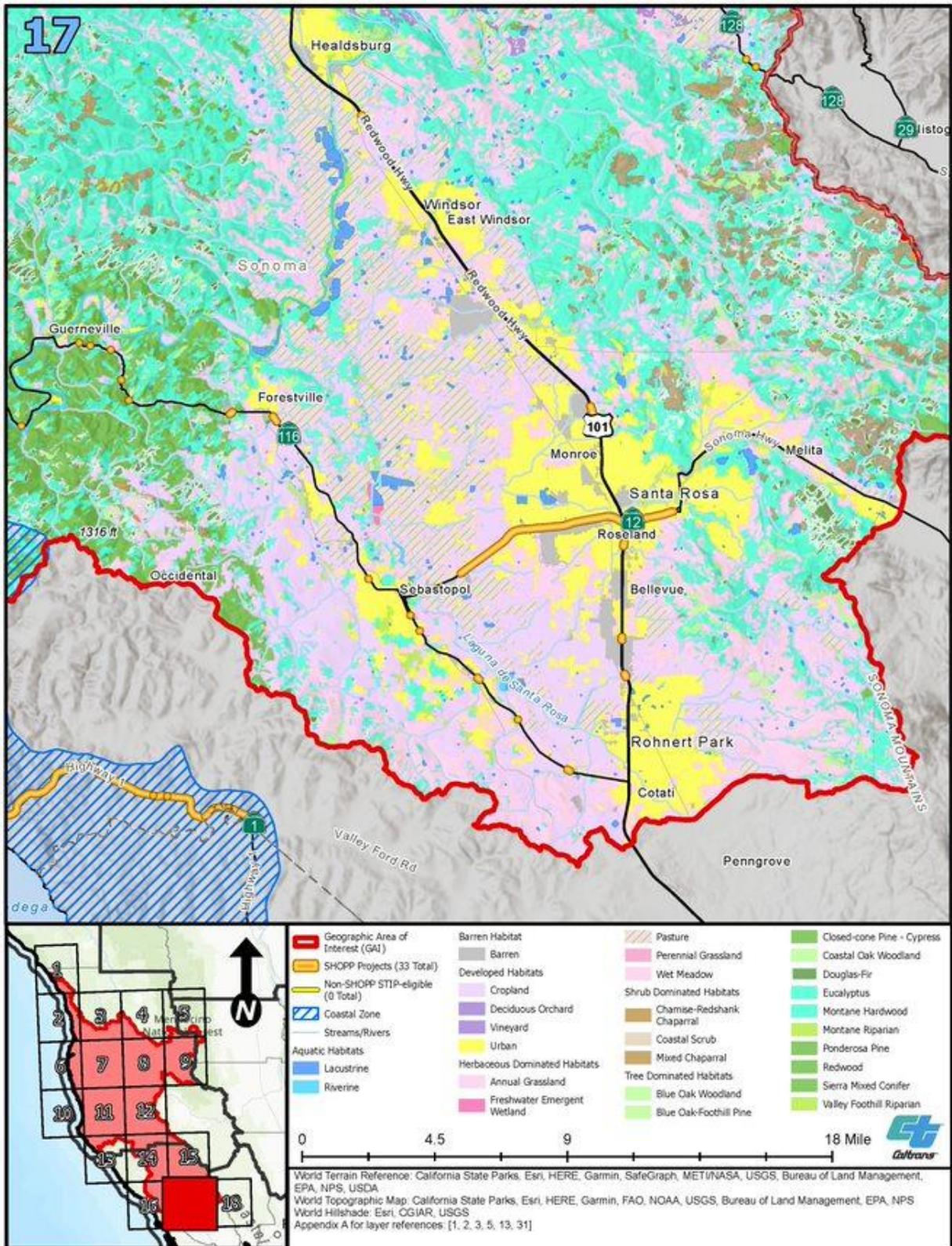


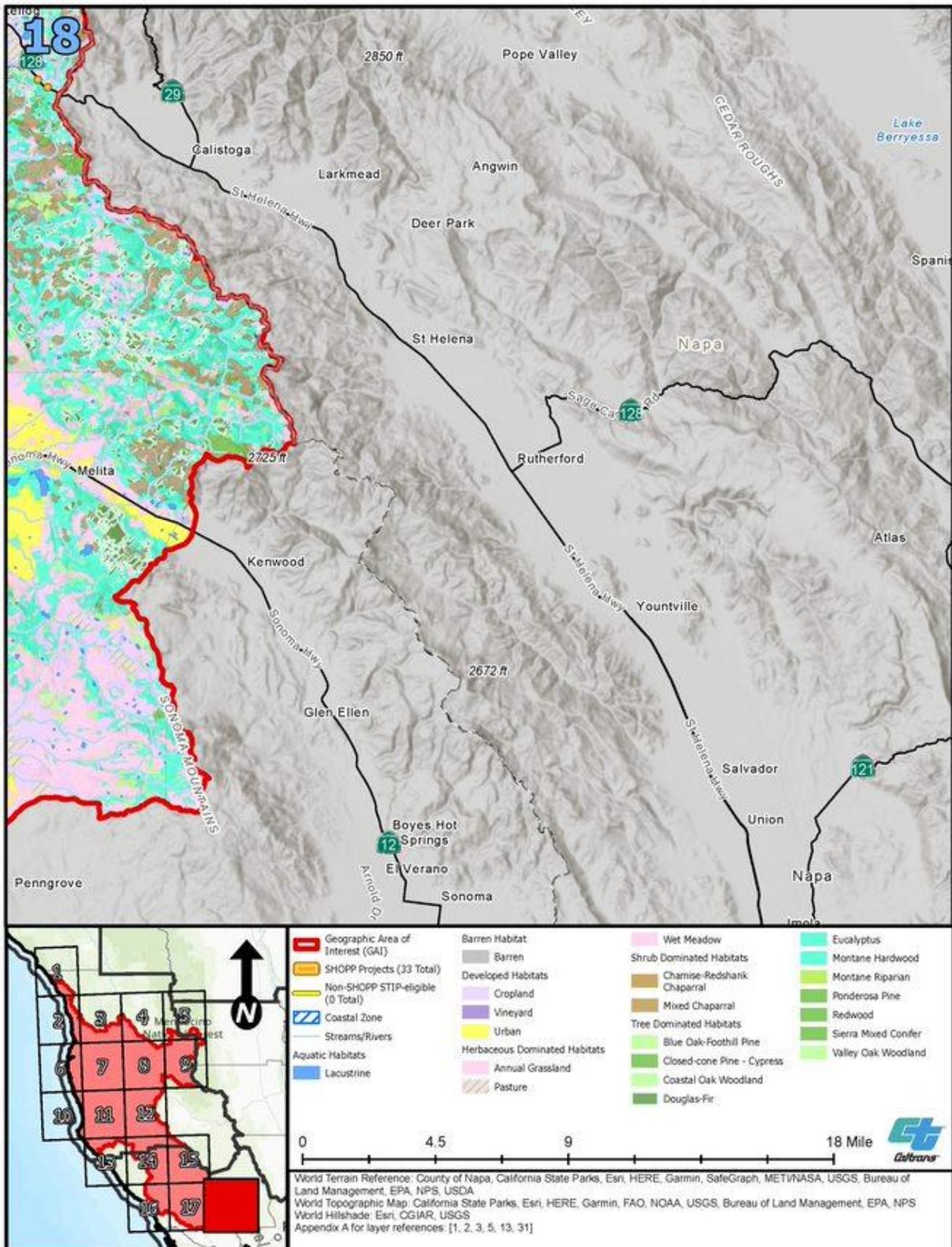












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APPENDIX E: COMPLETE SAMNA SPECIES RESULTS

Complete terrestrial species SAMNA results for the GAI are provided in Tables E-1 and E-2, which include SAMNA results for the portions of the Northern California Coast Ecoregion Section (starts on page E-3) and Northern California Coast Ranges Ecoregion Section (starts on page E-9) within the GAI. The table lists 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 2023). 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 not 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 was 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 the table. Total habitat impacts in the bottom row of the table indicate the total anticipated impacts for each habitat type. These totals are not additive across all special-

¹ For plants, this includes CNPS 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 National Park Service documents.

status species because each habitat type may provide suitable habitat for more than one special-status species or subspecies.

Habitats referenced in Tables E-1 and E-2 are mapped in Appendix D. The species of mitigation need for this GAI include Southern Oregon/Northern California ESU coho salmon (*Oncorhynchus kisutch*), Central California Coast ESU coho salmon, Northern California DPS steelhead – summer run (*O. mykiss*), and bank swallow (*Riparia riparia*). 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 to improve the conservation benefits of compensatory mitigation in the GAI. However, because no impacts are forecast for bank swallow, there are no co-benefiting special-status terrestrial species.

References

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- 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 E-1. Complete SAMNA Results for the Northern California Coast Ecoregion Section in the GAI, by Land Cover (acres)

Common Name	Scientific Name	Status	Annual Grassland	Barren	Closed Cone Pine-Cypress	Coastal Scrub	Douglas Fir	Montane Hardwood	Montane Hardwood-Conifer	Montane Riparian	Pasture	Redwood	Riverine	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
Baker's meadowfoam	<i>Limnanthes bakeri</i>	SR	0.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.59
Beach layia	<i>Layia carnosa</i>	FT, SE	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
Bensoniella ^a	<i>Bensoniella oregona</i>	FS, SR	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.14
Clara Hunt's milk-vetch	<i>Astragalus claranus</i>	FE, SE	0.59	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.72
Contra Costa goldfields	<i>Lasthenia conjugens</i>	FE	4.91	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00	5.04
Howell's spineflower	<i>Chorizanthe howellii</i>	FE, ST	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
Kellogg's buckwheat ^a	<i>Eriogonum kelloggii</i>	FS, SE	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.14
Loch Lomond button-celery ^a	<i>Eryngium constancei</i>	FE, SE	0.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.59
Macdonald's rockcress ^a	<i>Arabis macdonaldiana</i>	FE, SE	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.14
Many-flowered navarretia	<i>Navarretia leucocephala</i> ssp. <i>pliantha</i>	FE, SE	0.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.59
Menzies' wallflower	<i>Erysimum menziesii</i>	FE, SE	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
Milo Baker's lupine ^a	<i>Lupinus milo-bakeri</i>	ST	0.59	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.72
Napa blue grass ^a	<i>Poa napensis</i>	FE, SE	0.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.59
Pitkin marsh lily	<i>Lilium pardalinum</i> ssp. <i>pitkinense</i>	FE, SE	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.12
Point Reyes blennosperma	<i>Blennosperma nanum</i> var. <i>robustum</i>	SR	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
Roderick's fritillary	<i>Fritillaria roderickii</i>	SE	4.91	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00
Sebastopol meadowfoam	<i>Limnanthes vinculans</i>	FE, SE	0.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.59
Sonoma sunshine	<i>Blennosperma bakeri</i>	FE, SE	0.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.59
Tidestrom's lupine	<i>Lupinus tidestromii</i>	FE, SE	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
Two-fork clover	<i>Trifolium amoenum</i>	FE	0.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.59
Vine Hill clarkia	<i>Clarkia imbricata</i>	FE, SE	0.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.59
Western lily ^a	<i>Lilium occidentale</i>	FE, SE	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08

Common Name	Scientific Name	Status	Annual Grassland	Barren	Closed Cone Pine-Cypress	Coastal Scrub	Douglas Fir	Montane Hardwood	Montane Hardwood-Conifer	Montane Riparian	Pasture	Redwood	Riverine	Total
Invertebrates	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
Behren's silverspot butterfly	<i>Speyeria zerene behrensii</i>	FE	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33
Myrtle's silverspot butterfly	<i>Speyeria zerene myrtleae</i>	FE	0.00	11.25	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.26
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
California newt ^b	<i>Taricha torosa</i>	None	3.47	0.00	0.00	0.00	0.07	0.00	0.12	0.27	0.00	0.00	0.08	4.00
California red-legged frog	<i>Rana draytonii</i>	FT, SSC	0.97	0.00	0.37	0.08	0.00	0.00	0.00	0.73	0.00	0.01	0.00	2.17
Coastal tailed frog	<i>Ascaphus truei</i>	SSC	0.00	0.00	0.00	0.07	0.35	0.00	0.14	1.02	0.00	13.82	0.08	15.48
Ensatina ^c	<i>Ensatina eschscholtzii</i>	FS	0.00	0.00	0.79	0.08	0.35	0.12	0.14	1.11	0.00	13.84	0.00	16.43
Foothill yellow-legged frog	<i>Rana boylei</i>	SSC	4.91	0.00	0.79	0.08	0.35	0.12	0.14	1.11	0.00	13.84	0.08	21.42
Northern red-legged frog	<i>Rana aurora</i>	FS, SSC	3.61	0.00	0.42	0.00	0.00	0.00	0.13	0.38	0.00	13.36	0.00	17.90
Southern torrent salamander	<i>Rhyacotriton variegatus</i>	FS, SSC	0.00	0.00	0.00	0.00	0.00	0.00	0.13	1.02	0.00	13.84	0.08	15.07
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
California mountain kingsnake ^d	<i>Lampropeltis zonata</i>	None	0.32	0.00	0.00	0.00	0.07	0.10	0.01	0.00	0.00	0.00	0.00	0.50
Common gartersnake ^e	<i>Thamnophis sirtalis</i>	SSC	4.91	0.00	0.79	0.08	0.35	0.12	0.14	1.11	0.02	13.84	0.00	21.37
Common sagebrush lizard ^f	<i>Sceloporus graciosus</i>	None	0.00	0.00	0.00	0.00	0.35	0.12	0.14	0.00	0.00	0.00	0.00	0.62
Gophersnake	<i>Pituophis catenifer</i>	None	4.91	0.00	0.79	0.08	0.35	0.12	0.14	1.11	0.02	13.84	0.00	21.37
Northern rubber boa	<i>Charina bottae</i>	None	0.00	0.00	0.79	0.00	0.35	0.12	0.14	1.03	0.00	13.84	0.00	16.27
Ring-necked snake ^g	<i>Diadophis punctatus</i>	FS, SSC	4.91	0.00	0.79	0.08	0.35	0.12	0.14	1.11	0.02	0.00	0.00	7.53
Striped racer ^h	<i>Coluber lateralis</i>	None	0.00	0.00	0.00	0.00	0.07	0.10	0.01	0.08	0.00	0.00	0.00	0.26
Western skink ⁱ	<i>Plestiodon skiltonianus</i>	FS	4.91	0.00	0.79	0.08	0.35	0.12	0.14	1.11	0.02	13.84	0.00	21.37
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
American white pelican ^j	<i>Pelecanus erythrorhynchos</i>	SSC	0.00	60.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.52
Ashy storm-petrel ^k	<i>Oceanodroma homochroa</i>	FS, SSC	0.00	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.34
Bald eagle	<i>Haliaeetus leucocephalus</i>	FS, SE, SFP, SFS	4.91	78.24	0.00	0.08	0.35	0.12	0.14	1.11	0.00	13.84	0.08	98.87

Common Name	Scientific Name	Status	Annual Grassland	Barren	Closed Cone Pine-Cypress	Coastal Scrub	Douglas Fir	Montane Hardwood	Montane Hardwood-Conifer	Montane Riparian	Pasture	Redwood	Riverine	Total
Bewick's wren ^l	<i>Thryomanes bewickii</i>	SSC	0.00	0.00	0.00	0.08	0.35	0.12	0.14	1.11	0.00	13.84	0.00	15.64
Black storm-petrel ^m	<i>Oceanodroma melania</i>	SSC	0.00	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.34
Bryant's savannah sparrow	<i>Passerculus sandwichensis alaudinus</i>	SSC	4.91	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.02	0.00	0.00	5.02
Burrowing owl	<i>Athene cunicularia</i>	FS, SSC	4.84	74.97	0.00	0.08	0.00	0.00	0.00	0.00	0.02	0.00	0.00	79.92
California quail ⁿ	<i>Callipepla californica</i>	None	4.91	0.00	0.79	0.08	0.35	0.12	0.14	1.11	0.00	13.84	0.00	21.35
California towhee ^o	<i>Pipilo crissalis</i>	None	0.00	0.00	0.79	0.08	0.00	0.12	0.14	1.11	0.00	0.00	0.00	2.25
Common yellowthroat ^p	<i>Geothlypis trichas</i>	SSC	4.91	0.00	0.00	0.00	0.00	0.00	0.00	1.11	0.00	0.00	0.00	6.02
Fork-tailed storm-petrel ^q	<i>Oceanodroma furcata</i>	FS, SSC	0.00	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.34
Golden eagle	<i>Aquila chrysaetos</i>	FS, SFS, SFP	4.91	78.24	0.00	0.08	0.35	0.12	0.14	1.11	0.02	13.84	0.00	98.82
Grasshopper sparrow	<i>Ammodramus savannarum</i>	SSC	4.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.91
Great blue heron	<i>Ardea herodias</i>	SFS	4.91	0.00	0.79	0.08	0.35	0.12	0.14	1.11	0.00	13.84	0.08	21.42
Great egret	<i>Ardea alba</i>	SFS	4.17	0.00	0.79	0.00	0.00	0.00	0.00	0.42	0.00	0.59	0.08	6.03
Hutton's vireo ^r	<i>Vireo huttoni</i>	SSC	0.00	0.00	0.79	0.08	0.35	0.12	0.14	1.11	0.00	13.84	0.00	16.43
Loggerhead shrike	<i>Lanius ludovicianus</i>	SSC	4.84	77.80	0.79	0.08	0.00	0.12	0.04	1.11	0.00	0.00	0.00	84.78
Long-eared owl	<i>Asio otus</i>	SSC	4.91	0.00	0.00	0.00	0.00	0.12	0.14	1.11	0.02	0.00	0.00	6.31
Marbled murrelet	<i>Brachyramphus marmoratus</i>	FT, SE, SFS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.14
Marsh wren ^s	<i>Cistothorus palustris</i>	SSC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.11	0.00	0.00	0.00	1.11
Mountain plover ^t	<i>Charadrius montanus</i>	FS, SSC	0.02	1.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.38
Northern goshawk	<i>Accipiter gentilis</i>	FS, SSC, SFS	0.00	0.00	0.00	0.00	0.35	0.12	0.12	0.00	0.00	13.08	0.00	13.67
Northern harrier	<i>Circus hudsonius</i>	SSC	4.91	77.61	0.79	0.08	0.35	0.12	0.14	1.03	0.00	13.84	0.08	98.95
Northern spotted owl	<i>Strix occidentalis caurina</i>	FT, ST, SFS	0.00	0.00	0.00	0.00	0.35	0.12	0.14	0.74	0.00	13.47	0.00	14.82
Olive-sided flycatcher	<i>Contopus cooperi</i>	SSC	0.00	0.00	0.00	0.00	0.35	0.12	0.14	1.11	0.00	13.84	0.00	15.56
Osprey	<i>Pandion haliaetus</i>	FS	4.91	78.24	0.79	0.00	0.35	0.12	0.14	1.11	0.00	13.84	0.08	99.58
Peregrine falcon	<i>Falco peregrinus</i>	SFS, SFP	4.91	78.24	0.79	0.08	0.35	0.12	0.14	1.11	0.00	13.84	0.08	99.66

Common Name	Scientific Name	Status	Annual Grassland	Barren	Closed Cone Pine-Cypress	Coastal Scrub	Douglas Fir	Montane Hardwood	Montane Hardwood-Conifer	Montane Riparian	Pasture	Redwood	Riverine	Total
Purple martin	<i>Progne subis</i>	SSC	4.91	0.00	0.79	0.00	0.35	0.12	0.14	1.11	0.00	13.84	0.08	21.34
Red-winged blackbird ^u	<i>Agelaius phoeniceus</i>	SSC	4.91	0.00	0.00	0.08	0.00	0.00	0.00	1.11	0.00	0.00	0.00	6.11
Rufous-crowned sparrow ^v	<i>Aimophila ruficeps</i>	SSC	0.39	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40
Savannah sparrow	<i>Passerculus sandwichensis</i>	SSC	4.91	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.02	0.00	0.00	5.02
Short-eared owl	<i>Asio flammeus</i>	SSC	4.52	0.00	0.00	0.08	0.00	0.00	0.03	1.11	0.00	0.77	0.00	6.51
Snowy plover	<i>Charadrius nivosus</i>	FT, SSC	0.00	23.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.22
Song sparrow ^w	<i>Melospiza melodia</i>	SSC	4.91	0.00	0.79	0.08	0.35	0.12	0.14	1.11	0.00	13.84	0.08	21.42
Sooty grouse ^x	<i>Dendragapus fuliginosus</i>	SSC	0.79	0.00	0.00	0.00	0.35	0.12	0.14	0.68	0.00	13.25	0.00	15.33
Spotted owl	<i>Strix occidentalis</i>	FT, ST, SFS	0.00	0.00	0.00	0.00	0.35	0.12	0.14	0.74	0.00	13.47	0.00	14.82
Spotted towhee ^y	<i>Pipilo maculatus</i>	SSC	0.00	0.00	0.79	0.08	0.35	0.12	0.14	1.11	0.00	13.84	0.00	16.43
Tricolored blackbird	<i>Agelaius tricolor</i>	FS, ST, SSC	3.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.84
Vaux's swift	<i>Chaetura vauxi</i>	SSC	0.00	0.00	0.79	0.00	0.35	0.12	0.14	1.03	0.00	13.84	0.08	16.35
White-tailed kite	<i>Elanus leucurus</i>	FS, SFP	4.91	78.24	0.00	0.08	0.00	0.00	0.00	0.00	0.00	13.84	0.00	97.07
Yellow warbler	<i>Setophaga petechia</i>	SSC	0.00	0.00	0.79	0.08	0.35	0.12	0.14	1.11	0.00	13.84	0.00	16.43
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
American badger	<i>Taxidea taxus</i>	SSC	4.91	78.24	0.79	0.08	0.35	0.12	0.14	1.11	0.02	13.84	0.00	99.61
Black-tailed jackrabbit ^z	<i>Lepus californicus</i>	None	4.91	0.00	0.79	0.08	0.35	0.12	0.14	1.11	0.02	13.84	0.00	21.37
Broad-footed mole ^{aa}	<i>Scapanus latimanus</i>	SSC	4.91	0.00	0.00	0.08	0.35	0.12	0.14	1.11	0.02	13.84	0.00	20.58
Brush rabbit ^{bb}	<i>Sylvilagus bachmani</i>	FE, SE	4.91	0.00	0.00	0.08	0.35	0.12	0.14	1.11	0.02	13.84	0.00	20.58
California kangaroo rat ^{cc}	<i>Dipodomys californicus</i>	SSC	0.39	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.49
California sea-lion	<i>Zalophus californianus</i>	None	0.00	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.34
California vole ^{dd}	<i>Microtus californicus</i>	FE, FS, SE, SSC	4.65	0.00	0.00	0.08	0.35	0.12	0.12	1.07	0.02	13.82	0.00	20.24
Deer mouse ^{ee}	<i>Peromyscus maniculatus</i>	SSC	4.91	78.24	0.79	0.08	0.35	0.12	0.14	1.11	0.02	13.84	0.00	99.61
Dusky-footed woodrat ^{ff}	<i>Neotoma fuscipes</i>	FE, SSC	0.00	0.00	0.79	0.08	0.35	0.12	0.14	1.11	0.00	13.84	0.00	16.43

Common Name	Scientific Name	Status	Annual Grassland	Barren	Closed Cone Pine-Cypress	Coastal Scrub	Douglas Fir	Montane Hardwood	Montane Hardwood-Conifer	Montane Riparian	Pasture	Redwood	Riverine	Total
Fisher	<i>Pekania pennanti</i>	FS, SSC	0.00	0.00	0.00	0.00	0.35	0.00	0.14	1.03	0.00	13.84	0.00	15.36
Fringed myotis	<i>Myotis thysanodes</i>	FS	4.91	78.24	0.79	0.08	0.35	0.12	0.14	1.11	0.02	13.84	0.08	99.68
Harbor seal	<i>Phoca vitulina</i>	None	0.00	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.34
Long-eared myotis	<i>Myotis evotis</i>	FS	0.00	78.24	0.79	0.08	0.35	0.12	0.14	1.11	0.02	13.84	0.08	94.77
Mountain beaver ^{gg}	<i>Aplodontia rufa</i>	FE, SSC	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.24
Mountain lion ^{hh}	<i>Puma concolor</i>	SSC	4.91	0.00	0.79	0.08	0.35	0.12	0.14	1.11	0.02	13.84	0.00	21.37
Northern (steller) sea-lion	<i>Eumetopias jubatus</i>	SSC	0.00	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.34
Northern elephant seal	<i>Mirounga angustirostris</i>	None	0.00	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.34
Northern flying squirrel	<i>Glaucomys sabrinus</i>	None	0.00	0.00	0.00	0.00	0.31	0.02	0.14	1.02	0.00	13.84	0.00	15.33
Northern fur-seal	<i>Callorhinus ursinus</i>	None	0.00	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.34
Northern river otter ⁱⁱ	<i>Lontra canadensis</i>	SSC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.03	0.00	0.00	0.08	1.11
Ornate shrew ^{jj}	<i>Sorex ornatus</i>	FE, SSC	0.11	0.00	0.00	0.01	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.21
Pacific jumping mouse ^{kk}	<i>Zapus trinotatus</i>	SCC	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.02	13.84	0.00	13.99
Pallid bat	<i>Antrozous pallidus</i>	FS, SSC	4.91	78.24	0.00	0.08	0.35	0.12	0.14	1.11	0.02	13.84	0.08	98.89
Point Arena mountain beaver	<i>Aplodontia rufa nigra</i>	FE, SSC	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.24
Ringtail	<i>Bassariscus astutus</i>	SFP	4.91	78.24	0.79	0.08	0.35	0.12	0.14	1.11	0.02	13.84	0.00	99.61
Sonoma red tree vole	<i>Arborimus pomo</i>	SSC	0.00	0.00	0.00	0.00	0.35	0.00	0.14	0.00	0.00	13.84	0.00	14.33
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	FS, SSC	4.91	78.24	0.00	0.08	0.35	0.12	0.14	1.11	0.02	13.84	0.08	98.89
Vagrant shrew ^{ll}	<i>Sorex vagrans</i>	SSC	4.56	0.00	0.00	0.08	0.00	0.00	0.03	1.03	0.00	0.90	0.00	6.61
Western red bat	<i>Lasiurus blossevillii</i>	SSC	4.91	0.00	0.00	0.08	0.35	0.12	0.14	1.11	0.02	13.84	0.08	20.65
Western spotted skunk ^{mmm}	<i>Spilogale gracilis</i>	SSC	4.91	0.00	0.79	0.08	0.35	0.12	0.14	1.11	0.02	13.84	0.00	21.37
Yuma myotis	<i>Myotis yumanensis</i>	FS	4.91	0.00	0.79	0.08	0.35	0.12	0.14	1.11	0.02	13.84	0.08	21.44
Total	Not applicable	Not applicable	4.91	78.24	0.79	0.08	0.35	0.12	0.14	1.11	0.02	13.84	0.08	99.68

Notes: FE = federally endangered; FS = federally 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

^aPlant species does not occur in the Northern California Coast Ecoregion Section in the GAI.

- ^b California newt: Only the Coast Range population (*Taricha torosa torosa*) is special status, and it does not occur in the GAI (only occurs from Monterey County south).
- ^c Ensatina: Only the yellow-blotched subspecies (*Ensatina eschscholtzii croceater*) and large-blotched subspecies (*E. e. klauberi*) are special status and they do not occur in the GAI (neither occurs north of Kern County).
- ^d California mountain kingsnake: following recent taxonomic rearrangements, there are currently no special-status kingsnakes.
- ^e Common gartersnake: Only the San Francisco subspecies (*Thamnophis sirtalis tetrataenia*) and south coast population (*T. s. pop. 1*) are special status, and they do not occur in the GAI.
- ^f Common sagebrush lizard: Only the northern subspecies (*Sceloporus graciosus graciosus*) is considered special status, and it does not occur in the GAI (restricted to the Great Basin).
- ^g Ring-necked snake: Only the regal (Great Basin), San Bernardino, and San Diego subspecies are considered special status and they do not occur in the GAI.
- ^h Striped racer: Only the Alameda subspecies (*Coluber lateralis eurysanthus*) is considered special status and it does not occur in the GAI (restricted to the East Bay Area).
- ⁱ Western skink: Only the Coronado subspecies (*Plestiodon skiltonianus interparietalis*) is special status and it does not occur in the GAI (restricted to San Diego and Riverside Counties).
- ^j American white pelican: Only considered special status in breeding range, and GAI is not within the known breeding range of the species (northeastern part of the state from Siskiyou County to Tahoe Basin).
- ^k Ashy storm-petrel: Only nests offshore and would not be subject to impacts from transportation projects.
- ^l Bewick's wren: Only the San Clemente subspecies (*Thryomanes bewickii leucophrys*) is considered special status, and it does not occur in the GAI (endemic to San Clemente Island).
- ^m Black storm-petrel: Only nests offshore and would not be subject to impacts from transportation projects.
- ⁿ California quail: Only the Catalina subspecies (*Callipepla californica catalinensis*) is considered special status, and it does not occur in the GAI (endemic to the Channel Islands).
- ^o California towhee: Only the Inyo subspecies (*Pipilo crissalis eremophilus*) is considered special status and it does not occur in the GAI (endemic to the Channel Islands).
- ^p Common yellowthroat: Only the San Francisco/saltmarsh subspecies (*Geothlypis trichas sinuosa*) is considered special status, and it does not occur in the GAI (occurs in Sonoma County but only in the far southern parts of the county near San Pablo Bay).
- ^q Fork-tailed storm-petrel: Only nests offshore and would not be subject to impacts from transportation projects.
- ^r Hutton's vireo: Only the Catalina subspecies (*Vireo huttoni unitti*) is considered special status and it does not occur in the GAI (endemic to the Channel Islands).
- ^s Marsh wren: Only the Clark's subspecies (*Cistothorus palustris clarkae*) is considered special status and it does not occur in the GAI (does not occur north of Los Angeles County).
- ^t Mountain plover: Does not regularly occur in the GAI. Winters in the Central Valley and is only a rare visitor to the GAI.
- ^u Red-winged blackbird: Only the Kern subspecies (*Agelaius phoeniceus aciculatus*) is considered special status and it does not occur in the GAI (endemic to Kern County).
- ^v Rufous-crowned sparrow: Only the Santa Cruz Island subspecies (*Aimophila ruficeps obscura*) is considered special status and it does not occur in the GAI (endemic to the Channel Islands).
- ^w Song sparrow: There are 5 subspecies which are considered special status but none of them occur in the GAI. The San Pablo (*Melospiza melodia samuelis*) subspecies occurs the closest in southern Sonoma County, but it does not occur north of Petaluma.
- ^x Sooty grouse: Only the Mount Pinos subspecies (*Dedragapus fuliginosus howardi*) is considered special status and it does not occur in the GAI (does not occur north of Inyo County).
- ^y Spotted towhee: Only the San Clemente subspecies (*Pipilo maculatus clementae*) is considered special status and it does not occur in the GAI (endemic to the Channel Islands).
- ^z Black-tailed jackrabbit: Only the San Diego subspecies (*Lepus californicus bennettii*) is considered special status and it does not occur in the GAI (does not occur north of Los Padres National Forest).
- ^{aa} Broad-footed mole: Only the Alameda Island subspecies (*Scapanus latimanus parvus*) is special status and it does not occur in the GAI (endemic to Alameda Island).
- ^{bb} Brush rabbit: Only the riparian subspecies (*Sylvilagus bachmani riparius*) is special status and it does not occur in the GAI (restricted to San Joaquin and Stanislaus Counties).
- ^{cc} California kangaroo rat: Only the Marysville subspecies (*Dipodomys californicus eximius*) is special status and it does not occur in the GAI (restricted to the Sutter Buttes).
- ^{dd} California vole: There are 6 special-status subspecies of California vole, none of which occur in the GAI.
- ^{ee} Deer mouse: There are 2 special-status subspecies, neither of which occur in the GAI (restricted to the Channel Islands).
- ^{ff} Dusky-footed woodrat: Only the San Francisco subspecies (*Neotoma fuscipes annectens*) and the riparian subspecies (*N. f. riparia*) are considered special status and neither occur within the GAI (endemic to the Bay Area and Central Valley, respectively).
- ^{gg} Mountain beaver: Only the Point Arena mountain beaver (*Aplodontia rufia nigra*), included in a separate row, occurs in the GAI.
- ^{hh} Mountain lion: Only the Yuma subspecies (*Puma concolor browni*) is considered special status and it does not occur in the GAI (restricted to the Lower Colorado River Valley).
- ⁱⁱ Northern river otter: Only the southwestern subspecies (*Lontra canadensis sonora*) is considered special status and it does not occur in the GAI (formerly occurred in southeasternmost California along the Colorado River, but not observed there since the 1930s, and now considered likely extirpated from the state).
- ^{jj} Ornate shrew: There are 5 special-status subspecies and none occur in the GAI.
- ^{kk} Pacific jumping mouse: Only the Point Reyes subspecies (*Zapus trinotatus orarius*) is considered special status and it does not occur in the GAI (endemic to Marin County).
- ^{ll} Vagrant shrew: Only the salt-marsh wandering subspecies (*Sorex vagrans halicoetes*) and Monterey subspecies (*S. v. paludivagus*) are special status and neither occur in the GAI (endemic to the Bay Area and central California coast, respectively).
- ^{mmm} Western spotted skunk: Only the Channel Islands subspecies (*Spilogale gracilis amphiala*) is special status and it does not occur in the GAI (endemic to Channel Islands).

Table E-2. Complete SAMNA Results for the Northern California Coast Ranges Ecoregion Section in the GAI, by Land Cover (acres)

Common Name	Scientific Name	Status	Annual Grassland	Barren	Coastal Oak Woodland	Douglas Fir	Montane Hardwood	Montane Hardwood-Conifer	Pasture	Redwood	Vineyard	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
Baker's meadowfoam	<i>Limnanthes bakeri</i>	SR	2.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.71
Bensoniella ^a	<i>Bensoniella oregona</i>	FS, SR	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.28
Boggs Lake hedge-hyssop	<i>Gratiola heterosepala</i>	FS, SE	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
Burke's goldfields	<i>Lasthenia burkei</i>	FE, SE	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
Calistoga popcornflower	<i>Plagiobothrys strictus</i>	FE, ST	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
Clara Hunt's milk-vetch	<i>Astragalus claranus</i>	FE, SE	2.73	0.00	0.00	0.00	1.12	0.00	0.00	0.00	0.00	3.85
Contra Costa goldfields	<i>Lasthenia conjugens</i>	FE	2.71	0.00	0.00	0.00	1.12	0.00	0.00	0.00	0.00	3.83
Few-flowered navarretia ^a	<i>Navarretia leucocephala</i> ssp. <i>pauciflora</i>	FE, FS, ST	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
Geysers panicum	<i>Panicum acuminatum</i> var. <i>thermale</i>	SE	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
Indian Valley brodiaea ^a	<i>Brodiaea rosea</i>	FS, SE	0.05	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.30
Keck's checkerbloom ^a	<i>Sidalcea keckii</i>	FE	0.05	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.30
Kellogg's buckwheat ^a	<i>Eriogonum kelloggii</i>	FS, SE	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.28
Lake County stonecrop ^a	<i>Sedella leiocarpa</i>	FE, SE	0.05	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.30
Lake County western flax	<i>Hesperolinon didymocarpum</i>	SE	0.05	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.30
Loch Lomond button-celery	<i>Eryngium constancei</i>	FE, SE	2.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.73
Macdonald's rockcress	<i>Arabis macdonaldiana</i>	FE, SE	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.28
Many-flowered navarretia	<i>Navarretia leucocephala</i> ssp. <i>plieantha</i>	FE, SE	2.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.73
Milo Baker's lupine	<i>Lupinus milo-bakeri</i>	ST	2.71	0.00	0.00	0.00	1.12	0.00	0.00	0.00	0.00	3.83
Napa blue grass ^a	<i>Poa napensis</i>	FE, SE	2.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.71
Pitkin marsh lily	<i>Lilium pardalinum</i> ssp. <i>pitkinense</i>	FE, SE	0.00	0.00	0.00	0.00	1.12	0.00	0.00	0.00	0.00	1.12
Roderick's fritillary	<i>Fritillaria roderickii</i>	SE	2.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.73
Sebastopol meadowfoam	<i>Limnanthes vinculans</i>	FE, SE	2.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.71
Slender Orcutt grass ^a	<i>Orcuttia tenuis</i>	FT, SE	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05

Common Name	Scientific Name	Status	Annual Grassland	Barren	Coastal Oak Woodland	Douglas Fir	Montane Hardwood	Montane Hardwood-Conifer	Pasture	Redwood	Vineyard	Total
Sonoma sunshine	<i>Blennosperma bakeri</i>	FE, SE	2.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.71
Tiburon paintbrush ^a	<i>Castilleja affinis</i> var. <i>neglecta</i>	FE, ST	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
Two-fork clover	<i>Trifolium amoenum</i>	FE	2.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.73
Vine Hill clarkia	<i>Clarkia imbricata</i>	FE, SE	2.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.71
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 newt ^b	<i>Taricha torosa</i>	None	2.73	0.00	0.09	1.14	0.00	0.28	0.00	0.00	0.00	4.23
California red-legged frog	<i>Rana draytonii</i>	FT, SSC	0.30	0.00	0.05	0.02	0.40	0.02	0.00	0.01	0.00	0.80
Coastal tailed frog	<i>Ascaphus truei</i>	SSC	0.00	0.00	0.00	1.11	0.00	0.26	0.00	0.00	0.00	1.37
Ensatina ^c	<i>Ensatina eschscholtzii</i>	FS	0.00	0.00	0.09	1.14	1.12	0.28	0.00	0.01	0.00	2.64
Foothill yellow-legged frog	<i>Rana boylei</i>	SSC	2.73	0.00	0.09	1.14	1.12	0.28	0.00	0.01	0.00	5.36
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
California mountain kingsnake ^d	<i>Lampropeltis zonata</i>	None	2.73	0.00	0.09	1.14	1.12	0.28	0.00	0.01	0.00	5.36
Common gartersnake ^e	<i>Thamnophis sirtalis</i>	SSC	2.73	0.00	0.09	1.14	1.12	0.28	0.23	0.01	0.07	5.66
Common sagebrush lizard ^f	<i>Sceloporus graciosus</i>	FS	0.00	0.00	0.00	1.14	1.12	0.28	0.00	0.00	0.00	2.54
Gophersnake	<i>Pituophis catenifer</i>	None	2.73	0.00	0.09	1.14	1.12	0.28	0.23	0.01	0.07	5.66
Northern rubber boa	<i>Charina bottae</i>	None	0.00	0.00	0.00	1.14	1.12	0.28	0.00	0.01	0.00	2.55
Ring-necked snake ^g	<i>Diadophis punctatus</i>	FS, SSC	2.73	0.00	0.09	1.14	1.12	0.28	0.23	0.00	0.00	5.58
Striped racer ^h	<i>Coluber lateralis</i>	None	0.00	0.00	0.09	1.14	1.12	0.28	0.00	0.00	0.00	2.63
Western skink ⁱ	<i>Plestiodon skiltonianus</i>	FS	2.73	0.00	0.09	1.14	1.12	0.28	0.23	0.01	0.07	5.66
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
American white pelican ^l	<i>Pelecanus erythrorhynchos</i>	SSC	0.00	1.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.73
Bald eagle	<i>Haliaeetus leucocephalus</i>	FS, SE, SFP, SFS	2.73	17.16	0.09	1.14	1.12	0.28	0.00	0.01	0.00	22.53
Bewick's wren ^k	<i>Thryomanes bewickii</i>	SSC	0.00	0.00	0.09	1.14	1.12	0.28	0.00	0.01	0.00	2.64
Bryant's savannah sparrow	<i>Passerculus sandwichensis alaudinus</i>	SSC	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25

Common Name	Scientific Name	Status	Annual Grassland	Barren	Coastal Oak Woodland	Douglas Fir	Montane Hardwood	Montane Hardwood-Conifer	Pasture	Redwood	Vineyard	Total
Burrowing owl	<i>Athene cunicularia</i>	FS, SSC	2.73	17.16	0.09	0.00	0.00	0.00	0.23	0.00	0.00	20.21
California quail ^l	<i>Callipepla californica</i>	SSC	2.73	0.00	0.09	1.14	1.12	0.28	0.00	0.01	0.07	5.43
California towhee ^m	<i>Pipilo crissalis</i>	None	0.00	0.00	0.09	0.00	1.12	0.28	0.00	0.00	0.00	1.49
Common yellowthroat ⁿ	<i>Geothlypis trichas</i>	SSC	2.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.73
Golden eagle	<i>Aquila chrysaetos</i>	FS, SFS, SFP	2.73	17.16	0.09	1.14	1.12	0.28	0.23	0.01	0.00	22.75
Grasshopper sparrow	<i>Ammodramus savannarum</i>	SSC	2.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.73
Great blue heron	<i>Ardea herodias</i>	SFS	2.73	0.00	0.09	1.14	1.12	0.28	0.00	0.01	0.00	5.36
Hutton's vireo ^o	<i>Vireo huttoni</i>	SSC	0.00	0.00	0.09	1.14	1.12	0.28	0.00	0.01	0.00	2.64
Loggerhead shrike	<i>Lanius ludovicianus</i>	SSC	2.73	17.16	0.09	0.00	1.12	0.28	0.00	0.00	0.07	21.45
Long-eared owl	<i>Asio otus</i>	SSC	2.73	0.00	0.09	0.00	1.12	0.28	0.23	0.00	0.00	4.45
Northern goshawk	<i>Accipiter gentilis</i>	FS, SSC, SFS	0.00	0.00	0.04	1.14	0.78	0.28	0.00	0.01	0.00	2.25
Northern harrier	<i>Circus hudsonius</i>	SSC	2.73	17.16	0.09	1.14	1.12	0.28	0.00	0.01	0.07	22.59
Northern spotted owl	<i>Strix occidentalis caurina</i>	FT, ST, SFS	0.00	0.00	0.04	0.13	0.56	0.12	0.00	0.01	0.00	0.87
Olive-sided flycatcher	<i>Contopus cooperi</i>	SSC	0.00	0.00	0.00	1.14	1.12	0.28	0.00	0.01	0.00	2.55
Osprey	<i>Pandion haliaetus</i>	FS	2.73	17.16	0.09	1.14	1.12	0.28	0.00	0.01	0.00	22.53
Peregrine falcon	<i>Falco peregrinus</i>	SFS, SFP	2.73	17.16	0.09	1.14	1.12	0.28	0.00	0.01	0.00	22.53
Purple martin	<i>Progne subis</i>	SSC	2.73	0.00	0.09	1.14	1.12	0.28	0.00	0.01	0.00	5.36
Red-winged blackbird ^p	<i>Agelaius phoeniceus</i>	SSC	2.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.73
Rufous-crowned sparrow ^q	<i>Aimophila ruficeps</i>	SSC	2.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.73
Savannah sparrow	<i>Passerculus sandwichensis</i>	SE, SSC	2.73	0.00	0.09	0.00	0.00	0.00	0.23	0.00	0.07	3.11
Song sparrow ^r	<i>Melospiza melodia</i>	SSC	2.73	0.00	0.09	1.14	1.12	0.28	0.00	0.01	0.00	5.36
Sooty grouse ^s	<i>Dendragapus fuliginosus</i>	SSC	0.25	0.00	0.00	0.03	0.15	0.05	0.00	0.00	0.00	0.48
Spotted owl	<i>Strix occidentalis</i>	FT, FS, ST, SFS, SSC	0.00	0.00	0.04	0.13	0.56	0.12	0.00	0.01	0.00	0.87
Spotted towhee ^t	<i>Pipilo maculatus</i>	SSC	0.00	0.00	0.09	1.14	1.12	0.28	0.00	0.01	0.00	2.64

Common Name	Scientific Name	Status	Annual Grassland	Barren	Coastal Oak Woodland	Douglas Fir	Montane Hardwood	Montane Hardwood-Conifer	Pasture	Redwood	Vineyard	Total
Tricolored blackbird	<i>Agelaius tricolor</i>	FS, ST, SSC	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
Vaux's swift	<i>Chaetura vauxi</i>	SSC	0.00	0.00	0.09	1.14	1.12	0.28	0.00	0.01	0.00	2.64
White-tailed kite	<i>Elanus leucurus</i>	FS, SFP	2.73	17.16	0.09	0.00	0.00	0.00	0.00	0.01	0.07	20.05
Yellow warbler	<i>Setophaga petechia</i>	SSC	0.00	0.00	0.09	1.14	1.12	0.28	0.00	0.01	0.00	2.64
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	2.73	17.16	0.09	1.14	1.12	0.28	0.23	0.01	0.07	22.82
Black-tailed jackrabbit ^u	<i>Lepus californicus</i>	None	2.73	0.00	0.09	1.14	1.12	0.28	0.23	0.01	0.07	5.66
Broad-footed mole ^v	<i>Scapanus latimanus</i>	SSC	2.73	0.00	0.09	1.14	1.12	0.28	0.23	0.01	0.07	5.66
Brush rabbit ^w	<i>Sylvilagus bachmani</i>	FE, SE	2.73	0.00	0.09	1.14	1.12	0.28	0.23	0.01	0.07	5.66
California kangaroo rat ^x	<i>Dipodomys californicus</i>	SSC	2.73	0.00	0.09	0.00	1.12	0.00	0.00	0.00	0.07	4.01
California vole ^y	<i>Microtus californicus</i>	FE, FS, SE, SSC	2.73	0.00	0.09	1.14	1.12	0.28	0.23	0.01	0.07	5.66
Deer mouse ^z	<i>Peromyscus maniculatus</i>	SSC	2.73	17.16	0.09	1.14	1.12	0.28	0.23	0.01	0.07	22.82
Dusky-footed woodrat ^{aa}	<i>Neotoma fuscipes</i>	FE, SSC	0.00	0.00	0.09	1.14	1.12	0.28	0.00	0.01	0.00	2.64
Fisher	<i>Pekania pennanti</i>	FS, SSC	0.00	0.00	0.00	1.14	0.00	0.28	0.00	0.01	0.00	1.43
Fringed myotis	<i>Myotis thysanodes</i>	FS	2.73	17.16	0.09	1.14	1.12	0.28	0.23	0.01	0.00	22.75
Long-eared myotis	<i>Myotis evotis</i>	FS	0.00	17.16	0.09	1.14	1.12	0.28	0.23	0.01	0.07	20.09
Mountain lion ^{bb}	<i>Puma concolor</i>	SSC	2.73	0.00	0.09	1.14	1.12	0.28	0.23	0.01	0.07	5.66
Northern flying squirrel	<i>Glaucomys sabrinus</i>	None	0.00	0.00	0.00	0.13	0.13	0.10	0.00	0.00	0.00	0.36
Ornate shrew ^{cc}	<i>Sorex ornatus</i>	FE, SSC	0.02	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.07
Pacific jumping mouse ^{dd}	<i>Zapus trinotatus</i>	SCC	0.00	0.00	0.00	0.01	0.00	0.02	0.12	0.01	0.00	0.17
Pallid bat	<i>Antrozous pallidus</i>	FS, SSC	2.73	17.16	0.09	1.14	1.12	0.28	0.23	0.01	0.07	22.82
Ringtail	<i>Bassariscus astutus</i>	SFP	2.73	17.16	0.09	1.14	1.12	0.28	0.23	0.01	0.07	22.82
Sonoma red tree vole	<i>Arborimus pomo</i>	SSC	0.00	0.00	0.00	1.14	0.00	0.28	0.00	0.01	0.00	1.43
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	FS, SSC	2.73	17.16	0.09	1.14	1.12	0.28	0.23	0.01	0.07	22.82

Common Name	Scientific Name	Status	Annual Grassland	Barren	Coastal Oak Woodland	Douglas Fir	Montane Hardwood	Montane Hardwood-Conifer	Pasture	Redwood	Vineyard	Total
Western red bat	<i>Lasiurus blossevillii</i>	SSC	2.73	0.00	0.09	1.14	1.12	0.28	0.23	0.01	0.00	5.59
Western spotted skunk ^{ee}	<i>Spilogale gracilis</i>	SSC	2.73	0.00	0.09	1.14	1.12	0.28	0.23	0.01	0.07	5.66
Yuma myotis	<i>Myotis yumanensis</i>	FS	2.73	0.00	0.09	1.14	1.12	0.28	0.23	0.01	0.07	5.66
Total	Not applicable	Not applicable	2.73	17.16	0.09	1.14	1.12	0.28	0.23	0.01	0.07	22.82

Notes: FE = federally endangered; FS = federally 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 Plant species does not occur in the Northern California Coast Ranges Ecoregion Section in the GAI.

^b California newt: Only the Coast Range population is special status, and it does not occur in the GAI (only occurs from Monterey County south).

^c Ensatina: Only the yellow-blotched subspecies (*Ensatina eschscholtzii croceater*) and large-blotched subspecies (*E. e. klauberi*) are special status and they do not occur in the GAI (neither occurs north of Kern County).

^d California mountain kingsnake: Following recent taxonomic rearrangements, there are currently no special-status kingsnakes.

^e Common gartersnake: Only the San Francisco subspecies (*Thamnophis sirtalis tetrataenia*) and south coast population (*T. s. pop. 1*) are special status, and they do not occur in the GAI.

^f Common sagebrush lizard: Only the northern subspecies (*Sceloporus graciosus graciosus*) is considered special status, and it does not occur in the GAI (restricted to the Great Basin).

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

^h Striped racer: Only the Alameda subspecies (*Coluber lateralis euryxanthus*) is considered special status and it does not occur in the GAI (restricted to the East Bay Area).

ⁱ Western skink: Only the Coronado subspecies (*Plestiodon skiltonianus interparietalis*) is special status and it does not occur in the GAI (restricted to San Diego and Riverside Counties).

^j American white pelican: Only considered special status in breeding range, and GAI is not within the known breeding range of the species (northeastern part of the state from Siskiyou County to Tahoe Basin).

^k Bewick's wren: Only the San Clemente subspecies (*Thryomanes bewickii leucophrys*) is considered special status, and it does not occur in the GAI (endemic to San Clemente Island).

^l California quail: Only the Catalina subspecies (*Callipepla californica catalinensis*) is considered special status, and it does not occur in the GAI (endemic to the Channel Islands).

^m California towhee: Only the Inyo subspecies (*Pipilo crissalis eremophilus*) is considered special status and it does not occur in the GAI (endemic to the Channel Islands).

ⁿ Common yellowthroat: Only the San Francisco/saltmarsh subspecies (*Geothlypis trichas sinuosa*) is considered special status, and it does not occur in the GAI (occurs in Sonoma County but only in the far southern parts of the county near San Pablo Bay).

^o Hutton's vireo: Only the Catalina subspecies (*Vireo huttoni unitti*) is considered special status and it does not occur in the GAI (endemic to the Channel Islands).

^p Red-winged blackbird: Only the Kern subspecies (*Agelaius phoeniceus aciculatus*) is considered special status and it does not occur in the GAI (endemic to Kern County).

^q Rufous-crowned sparrow: Only the Santa Cruz Island subspecies (*Aimophila ruficeps obscura*) is considered special status and it does not occur in the GAI (endemic to the Channel Islands).

^r Song sparrow: There are 5 subspecies which are considered special status but none of them occur in the GAI. The San Pablo (*Melospiza melodia samuelis*) subspecies occurs the closest in southern Sonoma County, but it does not occur north of Petaluma.

^s Sooty grouse: Only the Mount Pinos subspecies (*Dedragapus fuliginosus howardi*) is considered special status and it does not occur in the GAI (does not occur north of Inyo County).

^t Spotted towhee: Only the San Clemente subspecies (*Pipilo maculatus clementae*) is considered special status and it does not occur in the GAI (endemic to the Channel Islands).

^u Black-tailed jackrabbit: Only the San Diego subspecies (*Lepus californicus bennettii*) is considered special status and it does not occur in the GAI (does not occur north of Los Padres National Forest).

^v Broad-footed mole: Only the Alameda Island subspecies (*Scapanus latimanus parvus*) is special status and it does not occur in the GAI (endemic to Alameda Island).

^w Brush rabbit: Only the riparian subspecies (*Sylvilagus bachmani riparius*) is special status and it does not occur in the GAI (restricted to San Joaquin and Stanislaus Counties).

^x California kangaroo rat: Only the Marysville subspecies (*Dipodomys californicus eximius*) is special status and it does not occur in the GAI (restricted to the Sutter Buttes).

^y California vole: There are 6 special-status subspecies of California vole, none of which occur in the GAI.

^z Deer mouse: There are 2 special-status subspecies, neither of which occur in the GAI (restricted to the Channel Islands).

^{aa} Dusky-footed woodrat: Only the San Francisco subspecies (*Neotoma fuscipes annectens*) and the riparian subspecies (*N. f. riparia*) are considered special status and neither occur within the GAI (endemic to the Bay Area and Central Valley, respectively).

^{bb} Mountain lion: Only the Yuma subspecies (*Puma concolor browni*) is considered special status and it does not occur in the GAI (restricted to the Lower Colorado River Valley).

^{cc} Ornate shrew: There are 5 special-status subspecies and none occur in the GAI.

^{dd} Pacific jumping mouse: Only the Point Reyes subspecies (*Zapus trinotatus orarius*) is considered special status and it does not occur in the GAI (endemic to Marin County).

^{ee} Western spotted skunk: Only the Channel Islands subspecies (*Spilogale gracilis amphiala*) is special status and it does not occur in the GAI (endemic to Channel Islands).

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APPENDIX F: HYDROLOGIC UNITS

Sub-basin Descriptions

Three sub-basins comprise the GAI. 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 F-1 at the end of this appendix.

Big-Navarro-Garcia Sub-basin

Within the GAI, the Big-Navarro-Garcia sub-basin drains an area of 800,371 acres (1,251 square miles) and includes 1,387 rivers and streams that traverse 1,630 miles. As noted in Table F-1, the Big-Navarro-Garcia sub-basin includes portions of the Cape Mendocino, Eel River, Mendocino Coast, and Russian River HUs.

The very southern portion of the Cape Mendocino HU is located within the GAI and is associated with the Mattole River watershed. The Mattole River watershed is bounded by the Bear River watershed to the north, the Eel River to the east, and the King Range to the west (North Coast RWQCB 2017a).

The Eel River HU is associated with the Eel River watershed. The Eel River flows north through the Coast Range and eventually out to the Pacific Ocean south of Humboldt Bay (Water Education Foundation 2023). The part of the Eel River HU that lies within the GAI includes part of the South Fork Eel River and Upper Main Eel River hydrologic areas.

The Mendocino Coast HU consists of coastal streams in Mendocino and northern Sonoma Counties that drain into the Pacific Ocean from the Usal Creek drainage in the north to the Russian Gulch drainage to the south. The part of the Mendocino Coast HU that lies within the GAI includes portions of the Albion River, Big River, Garcia River, Gualala River, Navarro River, Noyo River, Point Arena, and Rockport hydrologic areas (North Coast RWQCB 2001).

The Russian River HU is associated with the Russian River watershed in Mendocino and Sonoma Counties, bounded by the Coast Ranges on both the east and west. The mainstem of the Russian River is approximately 110 miles long and flows south from Redwood and Potter Valleys to its confluence with Mark West Creek, eventually draining into the Pacific Ocean at Jenner (North Coast RWQCB 2017b). The part of the Russian River HU that lies within the GAI includes portions of the Middle Russian River and Upper Russian River hydrologic areas.

Russian Sub-basin

Within the GAI, the Russian sub-basin drains an area of 950,363 acres (1,485 square miles) and includes 1,493 rivers and streams that traverse 1,805 miles. As noted in Table F-1, the Russian sub-basin includes portions of the Bodega, Cache Creek, Eel River, Mendocino Coast, Putah Creek, Russian River, and San Pablo HUs. Descriptions of the Eel River, Mendocino Coast, and Russian River HUs are provided in the Big-Navarro-Garcia sub-basin section.

The Bodega HU consists of coastal streams that flow from the Coast Range and drain into the Pacific Ocean south of the Russian River. Main watersheds include the Salmon, Americano, and Stemple Creeks, including their related estuaries (North Coast RWQCB 2023). Only the northern edge of the Bodega HU is located within the GAI and includes portions of the Estero Americano, Estero San Antonio, and Salmon Creek hydrologic areas.

The Cache Creek HU is associated with the Cache Creek watershed located within Lake County. Water flows from Clear Lake southeast, eventually draining into the Yolo Bypass of the Sacramento River (Sacramento River Watershed Program 2023a). Only the western edge of the Cache Creek HU is located within the GAI and includes a portion of the Upper Cache Creek hydrologic area.

The part of the Eel River HU that lies within the GAI includes a portion of the Upper Main Eel River hydrologic area.

The part of the Mendocino Coast HU that lies within the GAI includes portions of the Big River, Gualala River, Navarro River, and Russian Gulch hydrologic areas.

The Putah Creek HU is associated with the Putah Creek watershed located within Lake County. Water flows from its headwaters in the Mayacamas Mountains within the Coast Ranges and merges with Butts Creek before emptying into Lake Berryessa in Napa County. Water flows out of Lake Berryessa through Monticello Dam, eventually draining into the Yolo Bypass (Sacramento River Watershed Program 2023b). Only the western edge of the Putah Creek HU is located within the GAI and includes a portion of the Upper Putah Creek hydrologic area.

The part of the Russian River HU that lies within the GAI includes portions of the Lower Russian River, Middle Russian River, and Upper Russian River hydrologic areas.

The San Pablo HU is associated with the San Pablo Creek and San Pablo Bay watersheds within Marin County (CDFW 2013). Only the northern edge of the HU is located within the GAI and includes portions of the Napa River, Petaluma River, and Sonoma Creek hydrologic areas.

Upper Eel Sub-basin

Within the GAI, the Upper Eel sub-basin drains an area of 453,810 acres (709 square mile) and includes 1,272 rivers and streams that traverse 1,137 miles. As noted in Table F-1, the Upper Eel sub-basin includes portions of the Cache Creek, Eel River, Mendocino Coast, Russian River, and Stony Creek HUs. Descriptions of the Eel River, Mendocino Coast, and Russian River HUs are provided in the Big-Navarro-Garcia sub-basin section. A description of the Cache Creek HU is provided in the Russian sub-basin section.

The part of the Cache Creek HU that lies within the GAI includes portions of the North Fork Cache Creek and Upper Cache Creek hydrologic areas.

The part of the Eel River HU that lies within the GAI includes portions of the Middle Fork Eel River, Middle Main Eel River, South Fork Eel River, and Upper Main Eel River hydrologic areas.

The part of the Mendocino Coast HU that lies within the GAI includes portions of the Big River, Noyo River, and Rockport hydrologic areas.

The part of the Russian River HU that lies within the GAI includes a portion of the Upper Russian River hydrologic area.

The Stony Creek HU is associated with the Stony Creek watershed that spans Glenn, Colusa, Tehama, and Lake Counties. Water flows from the East Park and Stony Gorge Reservoirs, eventually draining into Black Butte Dam until draining into the Sacramento River (Sacramento River Watershed Program 2023c). Only the western edge of the HU is located within the GAI and includes portions of the Fouts Springs and Western Glenn hydrologic areas.

Crosswalk: HUC-8s to HUs

The SAMNA Reporting Tool expresses the landscape in terms of USGS HUC-8 sub-basins (Caltrans 2021; USGS 2014). However, SWRCB considers beneficial uses in terms of HUs (California Department of Water Resources 2016). Table F-1 provides a crosswalk between the HUC-8 and HU classification systems for the GAI.

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

HUC-8 #	HUC-8 Name	HUC-8 Acreage ^a	HU #	HU Name	HU Acreage ^a
18010108	Big-Navarro-Garcia	1,025,621	112	Cape Mendocino	3
18010108	Big-Navarro-Garcia	1,025,621	111	Eel River	66
18010108	Big-Navarro-Garcia	1,025,621	112	Eel River	36
18010108	Big-Navarro-Garcia	1,025,621	113	Mendocino Coast	425,091
18010108	Big-Navarro-Garcia	1,025,621	114	Mendocino Coast	375,069
18010108	Big-Navarro-Garcia	1,025,621	114	Russian River	69
18010110	Russian	950,365	115	Bodega	96
18010110	Russian	950,365	514	Cache Creek	192
18010110	Russian	950,365	112	Eel River	89
18010110	Russian	950,365	113	Mendocino Coast	41
18010110	Russian	950,365	114	Mendocino Coast	264
18010110	Russian	950,365	512	Putah Creek	55
18010110	Russian	950,365	114	Russian River	949,338
18010110	Russian	950,365	206	San Pablo	289
18010103	Upper Eel	453,810	513	Cache Creek	17

HUC-8 #	HUC-8 Name	HUC-8 Acreage ^a	HU #	HU Name	HU Acreage ^a
18010103	Upper Eel	453,810	514	Cache Creek	22
18010103	Upper Eel	453,810	111	Eel River	119
18010103	Upper Eel	453,810	112	Eel River	453,357
18010103	Upper Eel	453,810	113	Mendocino Coast	108
18010103	Upper Eel	453,810	114	Russian River	57
18010103	Upper Eel	453,810	522	Stony Creek	129

Source: Caltrans 2021

^a Numbers were rounded to the nearest whole number.

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APPENDIX G: LIST OF 303(d) IMPAIRED WATERS

Section 303(d) of the CWA requires that every 2 years, each state submit to EPA a list of rivers, lakes, and reservoirs in the state for which pollution control or requirements have failed to 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 G-1 (SWRCB 2021).

Table G-1. Impaired Waters in the GAI

Sub-basin	Impaired Water	Impairment	TMDL Status	Relevant to RAMNA? ^a
Big-Navarro-Garcia	Albion River	Sediment	Being addressed by EPA-approved TMDL	Yes
Big-Navarro-Garcia	Berry Gulch	Temperature	Required, not established yet	Yes
Big-Navarro-Garcia	Big River	Temperature	Required, not established yet	Yes
Big-Navarro-Garcia	Big River Beach at Mendocino Beach	Indicator bacteria	Required, not established yet	No
Big-Navarro-Garcia	Caspar Headlands State Beach	Indicator bacteria	Required, not established yet	No
Big-Navarro-Garcia	Garcia River	Sediment	Being addressed by EPA-approved TMDL	Yes
Big-Navarro-Garcia	Greenwood State Beach	Indicator bacteria	Required, not established yet	No
Big-Navarro-Garcia	Hare Creek Beach	Indicator bacteria	Required, not established yet	No
Big-Navarro-Garcia	MacKerricher State Park (near Mill Creek)	Indicator bacteria	Required, not established yet	No
Big-Navarro-Garcia	MacKerricher State Park (near Virgin Creek)	Indicator bacteria	Required, not established yet	No
Big-Navarro-Garcia	Navarro River	Indicator bacteria	Required, not established yet	No
Big-Navarro-Garcia	Navarro River Delta	Sediment	Being addressed by EPA-approved TMDL	Yes
Big-Navarro-Garcia	Noyo River	Temperature	Required, not established yet	Yes
Big-Navarro-Garcia	Pudding Creek	Temperature	Required, not established yet	Yes
Big-Navarro-Garcia	Pudding Creek Beach	Indicator bacteria	Required, not established yet	No

Sub-basin	Impaired Water	Impairment	TMDL Status	Relevant to RAMNA? ^a
Big-Navarro-Garcia	Russian Gulch	Indicator bacteria	Required, not established yet	No
Big-Navarro-Garcia	Ten Mile River	Sediment	Required, not established yet	Yes
Big-Navarro-Garcia	Van Damme State Park (beach area)	Indicator bacteria	Required, not established yet	No
Russian	Austin Creek	Sediment	Required, not established yet	Yes
Russian	Big Sulphur Creek	Sediment	Required, not established yet	Yes
Russian	Coyote Valley	Sediment	Required, not established yet	Yes
Russian	Forsythe Creek	Temperature	Required, not established yet	Yes
Russian	Geyserville	Salinity	Required, not established yet	Yes
Russian	Green Valley Creek	Nutrients (dissolved oxygen)	Required, not established yet	Yes
Russian	Guerneville	Temperature	Required, not established yet	Yes
Russian	Lake Mendocino	Metals (mercury)	Required, not established yet	Yes
Russian	Lake Sonoma	Metals (mercury)	Required, not established yet	Yes
Russian	Mainstem Laguna de Santa Rosa	Metals (mercury)	Required, not established yet	Yes
Russian	Mainstem Mark West Creek downstream of confluence with Laguna de Santa Rosa	Metals (manganese)	Required, not established yet	Yes
Russian	Mainstem Mark West Creek upstream of confluence with Laguna de Santa Rosa	Sediment	Required, not established yet	Yes
Russian	Mainstem Santa Rosa Creek	Sediment	Required, not established yet	Yes
Russian	Navarro River	Sediment	Being addressed by EPA-approved TMDL	Yes
Russian	Spring Lake (Santa Rosa Creek Reservoir)	Metals (mercury)	Required, not established yet	Yes

Sub-basin	Impaired Water	Impairment	TMDL Status	Relevant to RAMNA?^a
Russian	Tributaries to Laguna de Santa Rosa (except Santa Rosa Creek and its tributaries)	Indicator bacteria	Required, not established yet	No
Russian	Tributaries to Mark West Creek (except Windsor Creek and its tributaries)	Temperature	Required, not established yet	Yes
Russian	Tributaries to Santa Rosa Creek	Sediment	Required, not established yet	Yes
Russian	Ukiah	Temperature	Required, not established yet	Yes
Russian	Warm Springs	Temperature	Required, not established yet	Yes
Russian	Windsor Creek and its tributaries	Temperature	Required, not established yet	Yes
Upper Eel	Lake Pillsbury	Metals (mercury)	Required, not established yet	Yes
Upper Eel	Upper Main, including Tomki Creek	Metals (aluminum)	Required, not established yet	Yes

Source: SWRCB (2021)

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

References

SWRCB (State Water Resources Control Board). 2021. "2018 California Integrated Report (Clean Water Act Section 303(d) List and 305(b) Report)." Accessed January 21, 2023.

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APPENDIX H: AQUATIC RESOURCE LOCATIONS

Aquatic resource locations are shown by HUC-8 sub-basin and HU on 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 2021a, 2021b). Hydrologic units are described in Appendix F, which includes a crosswalk table of HUC-8 subbasins and HUs. These 18 maps correspond with the land cover maps in Appendix D.

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 National Wetlands Inventory (2021) and the San Francisco Estuary Institute California Aquatic Resource Inventory (2018) are the only known datasets that include the distribution, extent, and types of aquatic resources in the GAI, and the SAMNA Reporting Tool relies on them (Caltrans 2021a, 2021b).

References

- Caltrans (California Department of Transportation). 2021a. "Waters_ D2/D1 in Caltrans District 1 Geospatial Data for the Advance Mitigation Needs Assessment for the Second Quarter of FY 2021/2022" (data file). Accessed November 23, 2022. <https://dot.ca.gov/programs/environmental-analysis/biology/advancemitigation>.
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- FWS (U.S. Fish and Wildlife Service). 2021. "National Wetlands Inventory. Wetlands Mapper." Accessed January 6, 2023. <https://www.fws.gov/wetlands/data/mapper.html>.
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