ADVANCE MITIGATION PROGRAM
Mojave Desert Ecoregion Section
Regional Advance Mitigation Needs Assessment

Appendices

Version 1.0

Establishing Caltrans' Need for Advance Mitigation for the Mojave Desert Section, forecast fiscal years 2017/2018 to 2026/2027

California Department of Transportation – District 8 with support from District 9, District 7

August 2020

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APPENDICES

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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 8 RAMNA GIS Sources

ID	GIS Layer	Source Agency	Source Date	Download Date	Website
1	State Highway Network	Caltrans	8/1/2018	10/11/2018	http://www.dot.ca.gov/hq/tsip/gis/datalibrary/Metadata/NHS.html
2	SHOPP	Caltrans	2/27/2019	2/27/2019	Caltrans System Planning
3	STIP	California Transportation Commission	3/18/2019	3/18/2019	Caltrans System Planning
4	Mojave Ecoregion Section (GAI)	USFS	5/1/2017	10/18/2018	https://data.fs.usda.gov/geodata/edw/datasets.php?xmlKeyword=Ecomap
5	Mojave Ecoregion Subsections	USFS	5/1/2017	10/17/2018	https://data.fs.usda.gov/geodata/edw/datasets.php?xmlKeyword=Ecomap
6	Desert Tortoise Connectivity	BLM and The Wildlands Conservancy	11/1/2014	10/30/2018	https://map.dfg.ca.gov/metadata/ds0844.html?5.66.18
7	Landscape Blocks for the California Desert Linkage Network	BLM and The Wildlands Conservancy	3/2/2014	10/17/2018	https://map.dfg.ca.gov/metadata/ds0823.html?5.66.18
8	Linkage Design for the California Desert Linkage Network	BLM and The Wildlands Conservancy	3/1/2014	10/17/2018	https://map.dfg.ca.gov/metadata/ds0822.html?5.66.18
9	Tribal Land Boundaries	U.S. Bureau of Indian Affairs	5/16/2017	10/11/2018	https://hub.arcgis.com/items/2e915ef3df48422283e5b2c7d89dfcba
10	ACE Climate Resilience	CDFW	2/22/2018	10/17/2018	https://map.dfg.ca.gov/metadata/ds2738.html?5.66.18
11	CEHC	CDFW	10/1/2017	10/17/2018	Layer is a merge of Essential Connectivity Areas and Landscape Blocks.
12	Essential Connectivity Areas – CEHC	CDFW	1/1/2014	10/17/2018	https://map.dfg.ca.gov/metadata/ds0620.html?5.66.18

ID	GIS Layer	Source Agency	Source Date	Download Date	Website
13	Natural Landscape Blocks – CEHC	CDFW	10/1/2017	10/17/2018	https://map.dfg.ca.gov/metadata/ds0621.html?5.66.18
14	Potential Riparian Connections – CEHC	CDFW	3/1/2010	10/17/2018	https://map.dfg.ca.gov/metadata/ds0622.html?5.66.18
15	SWAP Terrestrial Targets – 2015	CDFW	2/1/2018	10/29/2018	https://map.dfg.ca.gov/metadata/ds1966.html?5.66.18
16	SWAP Terrestrial Targets – 2015 (Shadscale-Saltbush Scrub)	CDFW	2/2/2018	10/29/2018	https://map.dfg.ca.gov/metadata/ds1966.html?5.66.18
17	CalWater Hydrologic Areas	California Department of Water Resources	11/1/2016	10/19/2018	https://catalog.data.gov/dataset/calwater-2-233fac
18	California Conservation Easements	California Protected Areas Database	12/1/2016	10/11/2018	http://www.calands.org/cced
19	California Protected Areas Holdings (Federal Owned)	California Protected Areas Database	8/1/2017	10/11/2018	http://www.calands.org/data
20	California Protected Areas Holdings (State/County/City/ Other Owned)	California Protected Areas Database	8/1/2017	10/11/2018	http://www.calands.org/data
21	U.S. Military Installments	U.S. Census Bureau	12/1/2017	10/11/2018	https://www.census.gov/cgi-bin/geo/shapefiles/index.php
22	County Boundaries	U.S. Census Bureau	7/8/2016	10/11/2018	https://data.ca.gov/dataset/ca-geographic-boundaries
24	County Parcels (Inyo, San Bernardino, Los Angeles, Riverside)	Inyo, San Bernardino, Los Angeles, Riverside Counties	4/30/2019	4/30/2019	Parcel data are distributed by the Department of Technology to internal Caltrans users through an FTP.
23	USFWS Critical Habitat	FWS	10/1/2018	10/1/2018	https://ecos.fws.gov/ecp/report/table/critical-habitat.html

ID	GIS Layer	Source Agency	Source Date	Download Date	Website
25	Desert Tortoise Recovery Areas	FWS	Not available	3/18/2019	https://www.fws.gov/nevada/desert_tortoise/dtro/index.html
26	National Hydrology Dataset & National Watershed Boundary Dataset	USGS	9/26/2014	10/19/2018	https://www.usgs.gov/core-science-systems/ngp/national-hydrography
27	Corps Regulatory In-Lieu Fee & Bank Information Tracking System	Mitigation Service Banks	Not available	1/28/2019	https://ribits.usace.army.mil/ribits_apex/f?p=107:2
28	CDFW Approved Mitigation Service Areas	CDFW	7/23/2018	1/28/2019	https://map.dfg.ca.gov/metadata/ds2659.html?5.80.28l
29	Black Mountain Conservation Bank	Mitigation Service Banks	Not published	1/28/2019	https://www.wildlandsinc.com/banks/black-mountain-conservation-bank-2/
30	Conservation Plan Boundaries, Natural Community Conservation Plan (NCCP)/ Habitat Conservation Plan (HCP)	CDFW, FWS	12/12/2017	1/28/2019	https://map.dfg.ca.gov/metadata/ds0760.html?5.80.28l
31	Vegetation D7/D8/D9 in Caltrans District 8 Geospatial Data for the Advance Mitigation Needs Assessment for the Second Quarter of FY 2017/2018	SAMNA	1/1/2017	2/6/2019	http://www.dot.ca.gov/env/advancemitigation/
32	Wetlands D7/D8/D9 in Caltrans District 8 Geospatial Data for the Advance Mitigation Needs Assessment for the Second Quarter of FY 2017/2018	SAMNA	1/1/2017	2/6/2019	http://www.dot.ca.gov/env/advancemitigation/
33	National Flood Hazard Layer	Federal Emergency Management Agency	6/29/2018	9/25/2019	https://www.fema.gov/national-flood-hazard-layer-nfhl

ID	GIS Layer	Source Agency	Source Date	Download Date	Website
34	RCIS Draft Boundaries	CDFW	9/10/2019	9/25/2019	—
35	Terrestrial Connectivity – ACE [ds2734]	CDFW	8/28/2019	9/25/2019	https://map.dfg.ca.gov/metadata/ds2734.html?5.80.28l
36	Terrestrial Biodiversity Summary – ACE [ds2739]	CDFW	2/22/2018	7/3/2019	https://map.dfg.ca.gov/metadata/ds2739.html?5.80.28l
37	Aquatic Biodiversity Summary – ACE [ds2768]	CDFW	2/22/2018	7/3/2019	https://map.dfg.ca.gov/metadata/ds2768.html?5.80.28l
38	California Desert Conservation Area (CDCA) Plan Area	Desert Renewable Energy Conservation Plan (DRECP)	9/1/2016	4/27/2020	https://drecp.databasin.org/datasets/c9c8208ef09e48249c9cf989b0aa2e1d
39	BLM National Designated Areas of Critical Environmental Concern	United States Bureau of Land Management	4/10/2020	4/28/2020	https://landscape.blm.gov/geoportal/catalog/search/search.page
40	Wilderness Areas	Wilderness Connect (University of Montana)	7/22/2009	7/30/2020	https://wilderness.net/visit-wilderness/gis-gps.php

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APPENDIX B: ECOREGION SUBSECTION DESCRIPTIONS

This RAMNA uses the USFS ecosystem classification and mapping hierarchy to describe the GAI. Documented by Cleland et al. (2007), 16 subsections occur in the GAI—that is, the portion of the Mojave Desert Ecoregion Section in California. Each subsection's brief description, from Cleland et al. (2007), is provided in Table B-1.

Table B-1. Ecoregion Subsection Descriptions

Subsection	Code[a]	Brief Description	Acreage[b]	Subsection as Percentage of GAI
Owens Valley	322Aa	Consists of the alluvial plain in the southern part of Owens Valley, from Poverty Hill south to Rose Valley. It includes the Owens River, which drains to Owens Lake, a mostly dry lakebed. The climate is hot and dry. Shrublands predominate in this area, with mixed saltbush and greasewood series on basin fill, sagebrush and hop-sage series on alluvial fans, black bush and sagebrush series occurring at higher elevations, and creosote bush series south of Owens Lake.	694,480	2.8%
Death Valley	322Ab	Consists of the alluvial plain of Death Valley, from Sand Spring south-southeast to the drainage divide between Death Valley and Silurian Valley. It has a very hot, arid climate. Amargosa River is the largest stream draining into Death Valley, and it remains dry most of the year. Shrublands predominate in this area, with desert-holly series on the fans, creosote bush series higher on the fans, and allscale series at the southern end of the valley. Brittlebush series and white bursage series are common in washes on the fans, with iodine bush series and saltgrass series in the washes. Mesquite series and arrow weed series can be found around the edges of the saltmarshes.	1,304,242	5.3%

Subsection	Code[a]	Brief Description	Acreage[b]	Subsection as Percentage of GAI
Amargosa Desert-Pahrump Valley	322Ac	Consists of the alluvial plains of the Amargosa Desert, Sarcobatus Flat, Stewart Valley, Pahrump Valley, Mesquite Valley, and California Valley. There are a few moderately steep hills protruding through the alluvial plain. It has a hot and arid climate. Runoff drains internally or to the Amargosa River. There are streams that remain dry most of the year, and temporary ponding occurs on playas or dry lake beds. Creosote bush series predominates, with Joshua tree series occurring on alluvial plains, mixed saltbush series on basin floors, iodine bush series and saltgrass series on wet basin-fill and lacustrine deposits, and greasewood series in riparian areas and around saltmarsh.	677,677	2.7%
Funeral Mountains-Greenwater Valley	322Ad	Includes the Funeral Mountains, Black Mountains, Greenwater Range, Resting Spring Range, and Nopah Range between Death Valley and the Armargosa Desert and Pahrump Valley. It includes a part of the Amargosa River valley and all of Greenwater and Chicago Valleys. The climate is hot to very hot and arid. Drainage flows to Death Valley from the west-southwest sides of the Funeral Mountains or through the Amargosa River in Greenwater Valley. The predominant natural communities in the area include creosote bush series on fans and lower mountain slopes, shadscale series and blackbush on higher-elevation mountain slopes, mixed saltbush series on the basin floor, iodine bush series and saltgrass series on wet basin-fill and lacustrine deposits, and greasewood series in riparian areas and around saltmarsh.	1,293,509	5.2%
Panamint Valley	322Ae	Consists of the alluvial plain of Panamint Valley, between the Argus and Panamint Ranges. It has a hot and arid climate. Drainage is internal with no outlet for surface water, but there is temporary ponding on playas or dry lake beds. The predominant natural plant communities in the area include creosote bush series low on fans, shadscale series high on fans with mixed saltbush series on the basin floor, iodine bush series and saltgrass series on wet basin-fill and lacustrine deposits, and greasewood series in riparian areas and around saltmarsh.	385,422	1.6%

Subsection	Code[a]	Brief Description	Acreage[b]	Subsection as Percentage of GAI
Searles Valley-Owlshead Mountains	322Af	Includes the Slate Range, El Paso Mountains, Quail Mountains, Owlshead Mountains, southern ends of the Argus and Panamint Ranges, Searles Valley, Long Valley, and the southern end of Panamint Valley. It has a hot, arid climate. Drainage occurs from Searles Valley on the west, Panamint Valley through the middle of the area, and through Long Valley to Death Valley on the east. Predominant natural plant communities include creosote bush series on fans and lower mountains, shadscale series on higher mountain slopes with blackbush series on high mountain slopes, mixed saltbush series on the basin floor, iodine bush series and saltgrass series on wet basin-fill and lacustrine deposits, and greasewood series in riparian areas and around saltmarsh.	1,281,498	5.2%
High Desert Plains and Hills	322Ag	Consists of the western Mojave Desert, which is mostly alluvial plain and pediment, with relatively small areas of hills and low mountains. It includes Indian Wells Valley north of the Garlock Fault; otherwise, it is between the Garlock Fault on the north and northwest, the San Andreas Fault on the southwest, the Mojave River on the southeast, and about the Harper Valley Fault on the northeast. It has a hot, arid climate. All drainage is internal to closed basins in the Mojave Desert. Predominant natural plant communities include creosote bush series on hills, pediments, and fans, with Joshua tree series on pediments and fans; California juniper series above 3,000 feet near the San Andreas Fault; mixed saltbush series on the basin floor; iodine bush series and saltgrass series on basin-fill and lacustrine deposits; and greasewood series in riparian areas and around saltmarsh.	4,684,058	18.9%

Subsection	Code[a]	Brief Description	Acreage[b]	Subsection as Percentage of GAI
Mojave Valley-Granite Mountains	322Ah	Consists of about half upland, including pediments, and half alluvial plain. There are many small mountain ranges and hills with many different orientation patterns. The subsection is bounded by the Garlock Fault Zone on the north, Avawatz Mountains on the northeast, Silurian Valley (outside of this subsection) on the east, the Soda Mountains on the southeast, Mojave Valley on the south, Harper Valley Fault on the southwest, and Rand Mountains on the west. It has a hot, arid climate. All drainage is internal to closed basins in the Mojave Desert. The Mojave River drains toward Cronese Valley or toward Soda Lake. Predominant natural plant communities include creosote bush series on hills, pediments, and fans, with Joshua tree series on pediments and fans, and black bush series at higher elevations, particularly in the Avawatz. Mixed saltbush series occurs on the basin floor, iodine bush series and saltgrass series on wet basin-fill and lacustrine deposits, greasewood series in riparian areas and around saltmarsh, and catclaw acacia series along the Mojave River.	2,983,681	12.0%
Silurian Valley-Devil's Playground	322Ai	Includes the alluvial plain of the Silurian Valley, from where the Amargosa River enters it on the north to where the Mojave River enters it on the south, and the Devil's Playground just southeast of Silurian Valley and up Kelso Wash toward Ivanpah Valley. Drainage is internal to closed basins in Silurian Valley or in Death Valley. During wet years, water from the Mojave River may reach Soda Lake. There are a few hills protruding through the alluvial plain. It has a very hot, arid climate. Predominant natural plant communities include creosote bush series on hills and fans, with mixed saltbush series on the basin floor, iodine bush series and saltgrass series on wet basin-fill and lacustrine deposits, and desert sand-verbena series on stabilized dunes.	992,801	4.0%

Subsection	Code[a]	Brief Description	Acreage[b]	Subsection as Percentage of GAI
Kingston Range-Valley Wells	322Aj	Includes mountains, hills, pediments, and high alluvial plains between Silurian Valley and Devil's Playground on the west and southwest, California Valley on the northwest, Pahrump Valley on the north, Mesquite Valley and Ivanpah Fault on the northeast, and Ivanpah Valley on the southeast, plus the southern part of the Spring Mountains. The subsection is on about half upland and half alluvial plain. Most of the runoff drains to closed basins around the subsection. It has a hot, arid climate that is moderated by elevation on the higher mountains. Creosote bush series predominates on fans, with shadscale series on lower mountain slopes, singleleaf pinyon series on higher mountain slopes, white fir series on the highest mountains, Joshua tree series on alluvial plains, and black bush series on mountain slopes.	1,344,097	5.4%
Ivanpah Valley	322Ak	Consists of the alluvial plain of Ivanpah Valley. There are a few moderately steep hills protruding through the alluvial plain. It has a hot, arid climate. The predominant natural plant communities include creosote bush series with Joshua tree series on alluvial plains, mixed saltbush series on basin floors, iodine bush series and saltgrass series on wet basin-fill and lacustrine deposits, and greasewood series in riparian areas and around saltmarsh.	448,598	1.8%
Providence Mountains-Lanfair Valley	322Al	Includes Lanfair Valley, the mountains surrounding it, the upper part of Fenner Valley, the mountains on the east and west sides of Fenner Valley, Granite Mountain, and Bristol Mountain. The subsection is about half upland and half alluvial plain. Drainage is mostly internal, but the southern end drains through Kelso Wash to Silurian Valley. It has a hot, arid climate that is moderated by elevation on the higher mountains. Predominant plant communities include creosote bush series on fans and lower mountain slopes, singleleaf pinyon on higher mountain slopes, and white fir series on the highest mountains, with Joshua tree series on alluvial plains and black bush series on mountain slopes.	2,129,857	8.6%

Subsection	Code[a]	Brief Description	Acreage[b]	Subsection as Percentage of GAI
Piute Valley-Sacramento Mountains	322Am	Includes Piute Valley, Dead Mountains, upper part of Ward Valley, Sacramento Mountains, Chemehuevi Valley, Whipple Mountains, and Turtle Mountains. The subsection is about half upland and half alluvial plain. Most of the runoff drains through Piute Wash, Chemehuevi Valley, or Vidal Valley to the Colorado River. It has a hot to very hot, arid climate that is moderated by elevation on the higher mountains. Predominant plant communities include creosote bush series and creosote bush-white bursage series, with black bush series on higher mountain slopes and tamarisk series in riparian areas along the Colorado River.	1,617,942	6.5%
Lucerne-Johnson Valleys and Hills	322An	Includes mountains, hills, pediments, and alluvial plain north of the San Bernardino and Bighorn Mountains and the Pinto Mountain Fault, from the Mojave River east to the linear depression (subsection 322Ao) that stretches from Troy Lake southeast to Cadiz Lake and beyond. The area of pediment and alluvial plain is greater than that of mountains and hills. All drainage is internal and there is temporary ponding on playas or dry lake beds. It has a hot, arid climate. Predominant natural plant communities include creosote bush series and big galleta series with Joshua tree series on pediments and fans, Indian ricegrass series on aeolian sand, California juniper series above 3,000 feet near the San Andreas Fault, black bush series on higher mountains, mixed saltbush series on basin floors, and iodine bush series and saltbush series on wet basin-fill and lacustrine deposits.	2,163,795	8.7%
Bullion Mountains-Bristol Lake	322Ao	Includes alluvial fans, basin floor, volcanic flows, and mountains and hills in a linear depression that stretches from Troy Lake southeast to Bristol Lake and beyond, plus the lower part of Fenner Valley. Drainage is internal and there is temporary ponding on playas or dry lake beds. It has a very hot, arid climate. Predominant natural plant communities include creosote bush series and creosote bush-white bursage series, with mixed saltbush series on basin floors and iodine bush series and saltgrass series on wet basin-fill and lacustrine deposits.	1,751,773	7.1%

Subsection	Code[a]	Brief Description	Acreage[b]	Subsection as Percentage of GAI
Pinto Basin and Mountains	322Ap	Consists of steep mountains and broad valleys west of the northwest-trending Little San Bernardino Mountains. It includes the Pinto Basin, Pleasant Valley, and the Pinto, Coxcomb, Eagle, Hexie, and Cottonwood Mountains. Runoff drains to Chuckawalla Valley, and there is temporary ponding on playas and dry lake beds. It has a hot to very hot, arid climate. Predominant natural plant communities include creosote bush series and creosote bush-white bursage series, with California juniper on higher mountains, Joshua tree series on pediments and fans, and fan palm series in riparian areas near the southern edge of the subsection.	1,007,505	4.1%
		Total	**24,760,935**	**100%**

Source: Griffith et al. (2016)
[a] USFS ecological unit subsection codes
[b] Numbers were rounded to the nearest whole number.

References

Cleland, D. T., Freeouf, J. A., Keys, Jr., J. E., Nowacki, G.J., Carpenter, C.A., McNab, W. H. 2007. *Ecological Subregions: Sections and Subsections of the Conterminous United States* [1:3,500,000] [CDROM]. Gen. Tech. Report WO-76D. Washington, D.C.: USDA, USFS.

Griffith, G. E., J. M. Omernik, D. W. Smith, T. D. Cook, E. Tallyn, K. Moseley, and C. B. Johnson. 2016. “Ecoregions of California (poster).” USGS Open-File Report 2016-1021. Accessed October 2019. https://www.calflora.org/entry/help/epa-er4.html.

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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 2017, 2019). A general description of each land cover type found in the GAI is provided below, and complete descriptions can be found in Mayer and Laudenslayer (1988). Table C-1 indicates which USFS subsections of the Mojave Desert Ecoregion Section these habitat types occur in. Habitat locations by subsection number are provided in the maps at the end of this appendix.

Land cover types that occur in the GAI, based on the SAMNA Reporting Tool, are generally described below (CDFW 2019). Table C-1 indicates which subecoregion each of these habitat types occurs in.

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-foothill pine, blue oak woodland, coastal oak woodland, desert riparian, Joshua tree, juniper, montane hardwood-conifer, montane hardwood, montane riparian, pinyon-juniper, palm oasis, valley oak woodland, and valley foothill riparian, which are found in all 16 subecoregions.

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 alkali desert scrub, bitterbrush, chamise-redshank chaparral, coastal scrub, desert scrub, desert succulent shrub, desert wash, low sage, mixed chaparral, montane chaparral, and sagebrush, which are found in all 16 subecoregions.

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 10 of the 16 subecoregions.

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, riverine, and open water, which are found in 13 of the 16 subecoregions.

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 agriculture, cropland, deciduous orchards, evergreen orchards, irrigated hayfields, irrigated row and field crops, vineyards, and urban areas, which are found in 15 of the 16 subecoregions.

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, which are found in all 16 subecoregions.

References

Caltrans. 2017. "Vegetation_D8 in Caltrans District 8 Geospatial Data for the Advance Mitigation Needs Assessment for the Second Quarter of FY 2017/2018" (data file). Accessed February 6, 2019. http://www.dot.ca.gov/env/advancemitigation/.

———. 2019. *Statewide Advance Mitigation Needs Assessment Report*. State Highway Operation and Protection Program Ten-Year Project Book Second Quarter 2017/2018 Fiscal Year. Caltrans Headquarters Office of Strategic Biological Planning, Advance Mitigation and Innovation, Division of Environmental Analysis. May. Sacramento, California.

CDFW. 2019. California Wildlife Habitat Relationships (CWHR) System, supported by the California Interagency Wildlife Task Group and maintained by CDFW. Database Version 9.0.

Mayer, Kenneth E., and William 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. https://www.wildlife.ca.gov/Data/CWHR/Wildlife-Habitats.

Table C-1. Land Cover Types in the Mojave Desert Ecoregion, by Ecoregion Subsection

Land Cover Type	Amargosa Desert-Pahrump Valley Sub-ecoregion (322Ac)	Bullion Mountains-Bristol Lake Sub-ecoregion (322Ao)	Death Valley Sub-ecoregion (322Ab)	Funeral Mountains-Greenwater Valley Sub-ecoregion (322Ad)	High Desert Plains and Hills Sub-ecoregion (322Ag)	Ivanpah Valley Sub-ecoregion (322Ak)	Kingston Range-Valley Wells Sub-ecoregion (322Aj)	Lucerne-Johnson Valleys and Hills Sub-ecoregion (322An)	Mojave Valley-Granite Mountains Sub-ecoregion (322Ah)	Owens Valley Sub-ecoregion (322Aa)	Panamint Valley Sub-ecoregion (322Ae)	Pinto Basin and Mountains Sub-ecoregion (322Ap)	Piute Valley-Sacramento Mountains Sub-ecoregion (322Am)	Providence Mountains-Lanfair Valley Sub-ecoregion (322Al)	Searles Valley-Owlshead Mountains Sub-ecoregion (322Af)	Silurian Valley-Devil's Playground Sub-ecoregion (322Ai)
Tree-dominated Habitats	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
Aspen	NP	NP	NP	NP	NP	NP	NP	NP	NP	Present	NP	NP	NP	NP	NP	NP
Blue Oak-Foothill Pine	NP	NP	NP	NP	Present	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
Blue Oak Woodland	NP	NP	NP	NP	Present	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
Coastal Oak Woodland	NP	NP	NP	NP	Present	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
Desert Riparian	Present	Present	NP	NP	Present	NP	Present	Present	Present	Present	NP	Present	Present	NP	Present	Present
Eastside Pine	NP	NP	NP	NP	Present	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
Joshua Tree	Present	NP	Present	Present	Present	Present	Present	Present	Present	Present	NP	Present	Present	Present	Present	Present
Juniper	NP	NP	NP	NP	Present	Present	Present	Present	NP	NP	Present	Present	NP	Present	NP	NP
Montane Hardwood-Conifer	NP	NP	NP	NP	Present	NP	NP	NP	NP	Present	NP	NP	NP	NP	NP	NP
Montane Hardwood	NP	NP	NP	NP	Present	NP	NP	NP	NP	Present	NP	NP	NP	NP	NP	NP
Montane Riparian	NP	NP	NP	NP	Present	NP	NP	NP	NP	Present	NP	NP	NP	NP	NP	NP
Pinyon-Juniper	NP	NP	NP	NP	Present	Present	Present	Present	NP	Present	NP	Present	NP	Present	Present	Present
Palm Oasis	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	Present	NP	NP	NP	NP
Valley Oak Woodland	NP	NP	NP	NP	Present	NP	NP	NP	NP	Present	NP	NP	NP	NP	NP	NP
Valley Foothill Riparian	NP	NP	NP	NP	Present	NP	NP	Present	Present	Present	NP	NP	NP	NP	Present	NP
Shrub-dominated Habitats	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
Alkali Desert Scrub	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present		Present	Present	Present	Present
Bitterbrush	NP	NP	NP	NP	Present	NP	NP	Present		Present	NP	NP	NP	NP	NP	NP

Land Cover Type	Amargosa Desert-Pahrump Valley Sub-ecoregion (322Ac)	Bullion Mountains-Bristol Lake Sub-ecoregion (322Ao)	Death Valley Sub-ecoregion (322Ab)	Funeral Mountains-Greenwater Valley Sub-ecoregion (322Ad)	High Desert Plains and Hills Sub-ecoregion (322Ag)	Ivanpah Valley Sub-ecoregion (322Ak)	Kingston Range-Valley Wells Sub-ecoregion (322Aj)	Lucerne-Johnson Valleys and Hills Sub-ecoregion (322An)	Mojave Valley-Granite Mountains Sub-ecoregion (322Ah)	Owens Valley Sub-ecoregion (322Aa)	Panamint Valley Sub-ecoregion (322Ae)	Pinto Basin and Mountains Sub-ecoregion (322Ap)	Piute Valley-Sacramento Mountains Sub-ecoregion (322Am)	Providence Mountains-Lanfair Valley Sub-ecoregion (322Al)	Searles Valley-Owlshead Mountains Sub-ecoregion (322Af)	Silurian Valley-Devil's Playground Sub-ecoregion (322Ai)
Chamise-Redshank Chaparral	NP[a]	NP	NP	NP	Present	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
Chamise-Redshank Chaparral; Mixed Chaparral	NP	NP	NP	NP	Present	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
Coastal Scrub	NP	NP	NP	NP	Present	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
Desert Scrub	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present
Desert Scrub; Desert Wash	Present	Present	NP	Present	Present	NP	Present	Present	Present	NP	NP	Present	NP	Present	Present	Present
Desert Scrub; Perennial Grassland	NP	NP	NP	NP	Present	NP	NP	NP	Present	NP	NP	NP	NP	NP	NP	NP
Desert Succulent Shrub	Present	Present	NP	Present	Present	Present	Present	Present	Present	NP	NP	Present	Present	Present	NP	Present
Desert Succulent Shrub; Desert Wash	Present	NP	NP	NP	Present	NP	Present	Present	NP	NP	NP	NP	NP	NP	Present	NP
Desert Wash	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present
Low Sage	NP	NP	NP	NP		NP	NP	NP	NP	Present	NP	NP	NP	NP	NP	NP
Mixed Chaparral	NP	NP	NP	NP	Present	NP	NP	Present	NP	Present	NP	Present	NP	NP	NP	NP
Montane Chaparral	NP	NP	NP	NP	Present	NP	NP	Present	NP	Present	NP	NP	NP	NP	NP	NP
Sagebrush	Present	NP	NP	Present	Present	Present	Present	Present	Present	Present	NP	NP	NP	Present	Present	NP
Herbaceous-dominated Habitats	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
Annual Grassland	Present	Present	NP	NP	Present	NP	Present	Present	Present	Present	NP	NP	NP	NP	Present	Present
Fresh Emergent Wetland	NP	NP	NP	NP	Present	NP	NP	Present	Present	Present	NP	NP	Present	NP	NP	Present
Pasture	NP	NP	NP	NP	Present	NP	NP	NP	NP	Present	NP	NP	NP	NP	NP	NP
Perennial Grassland	NP	NP	NP	NP	Present	NP	NP	NP	NP	Present	NP	NP	NP	NP	NP	NP

Land Cover Type	Amargosa Desert-Pahrump Valley Sub-ecoregion (322Ac)	Bullion Mountains-Bristol Lake Sub-ecoregion (322Ao)	Death Valley Sub-ecoregion (322Ab)	Funeral Mountains-Greenwater Valley Sub-ecoregion (322Ad)	High Desert Plains and Hills Sub-ecoregion (322Ag)	Ivanpah Valley Sub-ecoregion (322Ak)	Kingston Range-Valley Wells Sub-ecoregion (322Aj)	Lucerne-Johnson Valleys and Hills Sub-ecoregion (322An)	Mojave Valley-Granite Mountains Sub-ecoregion (322Ah)	Owens Valley Sub-ecoregion (322Aa)	Panamint Valley Sub-ecoregion (322Ae)	Pinto Basin and Mountains Sub-ecoregion (322Ap)	Piute Valley-Sacramento Mountains Sub-ecoregion (322Am)	Providence Mountains-Lanfair Valley Sub-ecoregion (322Al)	Searles Valley-Owlshead Mountains Sub-ecoregion (322Af)	Silurian Valley-Devil's Playground Sub-ecoregion (322Ai)
Saline Emergent Wetland	Present	NP	NP	NP	Present	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
Wet Meadow	NP	NP	NP	NP	Present	NP	NP	NP	NP	Present	NP	NP	NP	NP	NP	NP
Aquatic Habitats	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
Lacustrine	NP	Present	Present	Present	Present	Present	Present	Present	Present	Present	NP	Present	Present	Present	Present	NP
Riverine	NP	NP	NP	NP	Present	NP	NP	Present	NP	Present	NP	NP	Present	NP	NP	NP
Water	NP	NP	Present	Present	NP	Present	Present	NP	NP	Present	NP	Present	Present	Present	Present	NP
Developed Habitats	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
Agriculture	NP	Present	NP	Present	NP	NP	NP	NP	Present	NP	NP	NP	NP	NP	NP	NP
Cropland	NP	NP	NP	NP	NP	NP	NP	NP	NP	Present	NP	NP	NP	NP	NP	NP
Cropland; Barren	NP	Present	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
Deciduous Orchard; Vineyard	NP	Present	NP	NP	Present	NP	NP	Present	Present	NP	NP	NP	NP	NP	NP	NP
Evergreen Orchard	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	Present	NP	NP	NP
Irrigated Row and Field Crops	Present	Present	NP	NP	Present	NP	NP	Present	Present	NP	NP	NP	Present	NP	NP	NP
Irrigated Hayfield	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	Present	NP	NP	NP
Urban	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	NP	Present	Present	Present	Present	Present
Non-vegetated Habitats	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
Barren	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present

Sources: Caltrans 2017, 2019
[a] NP = not present

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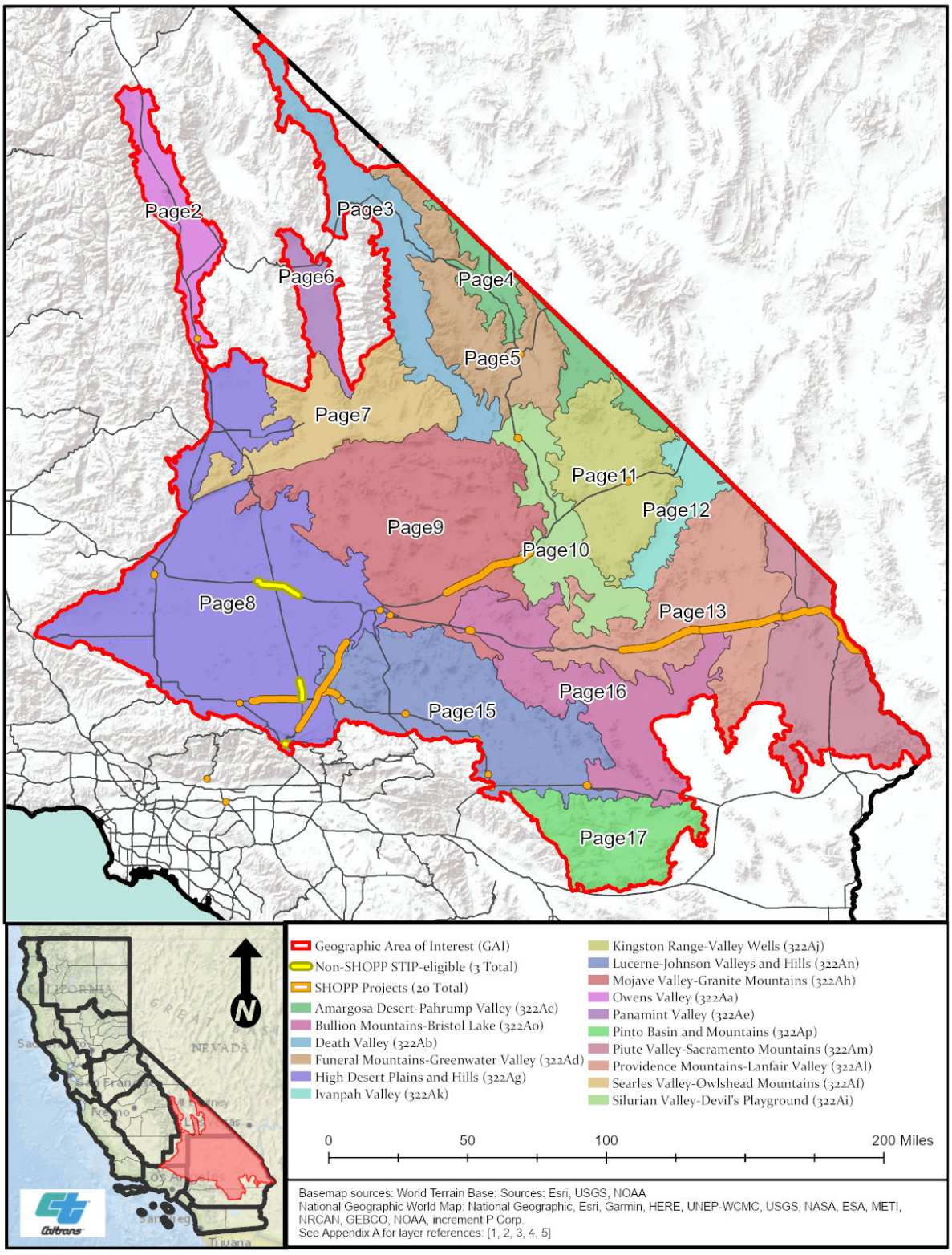
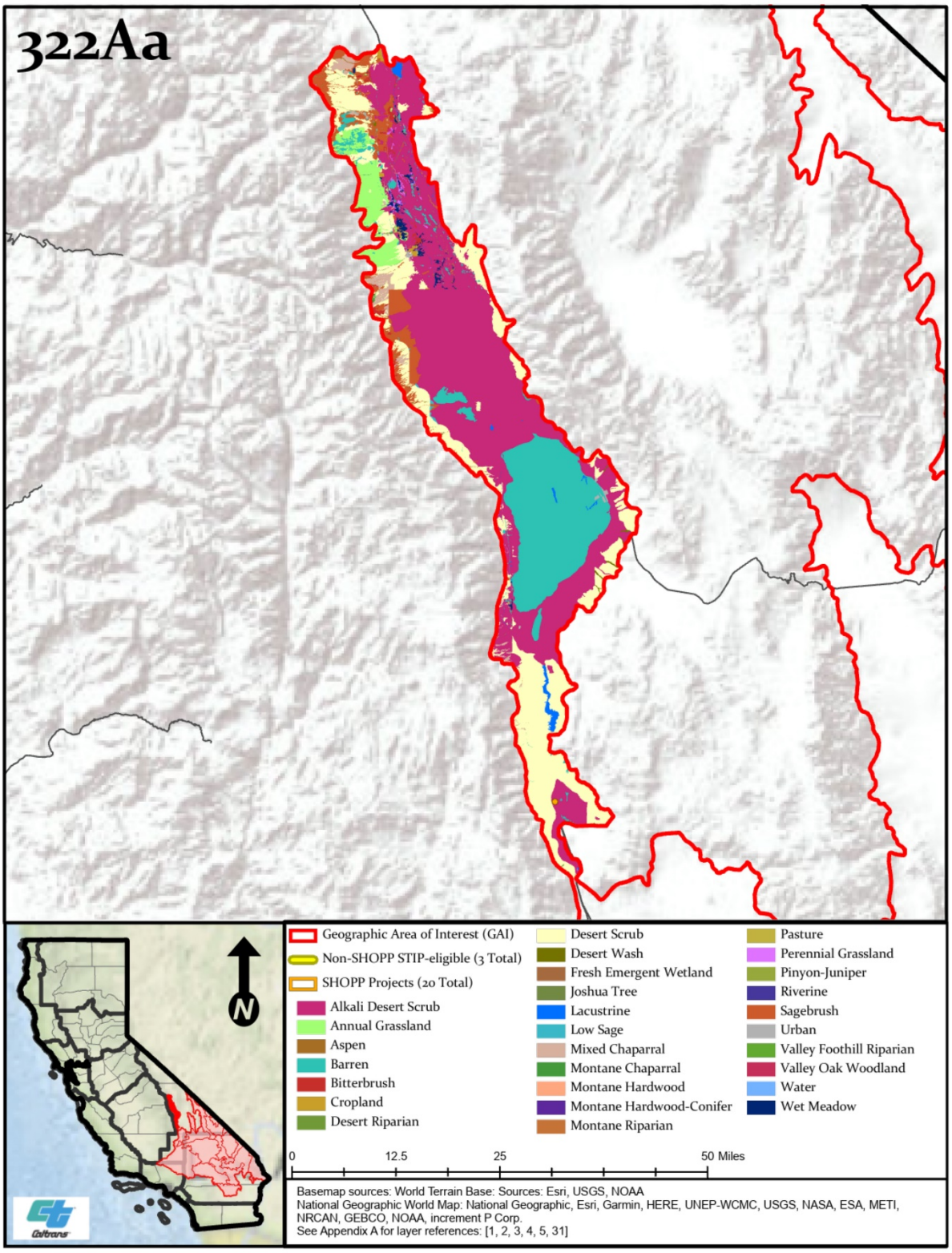
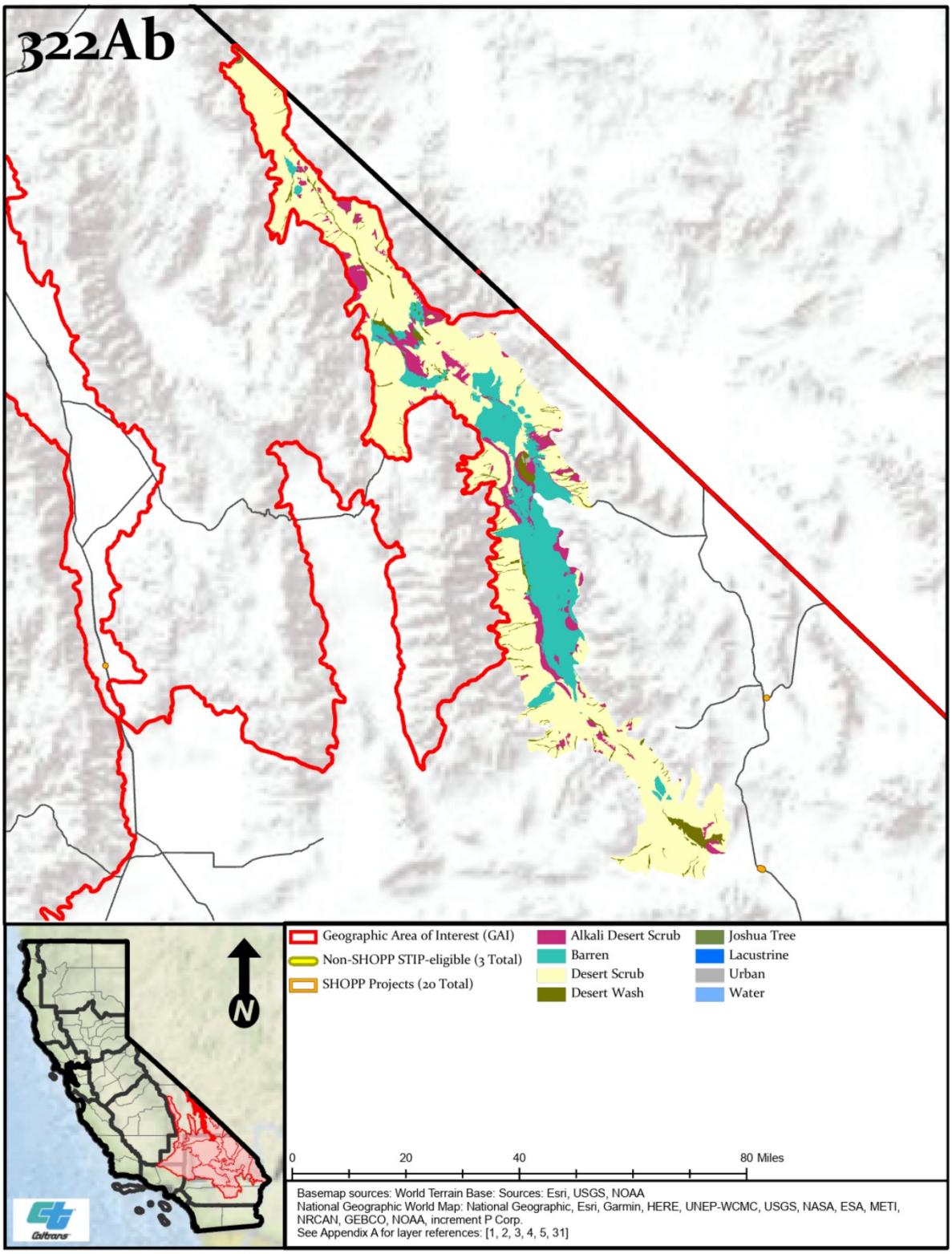
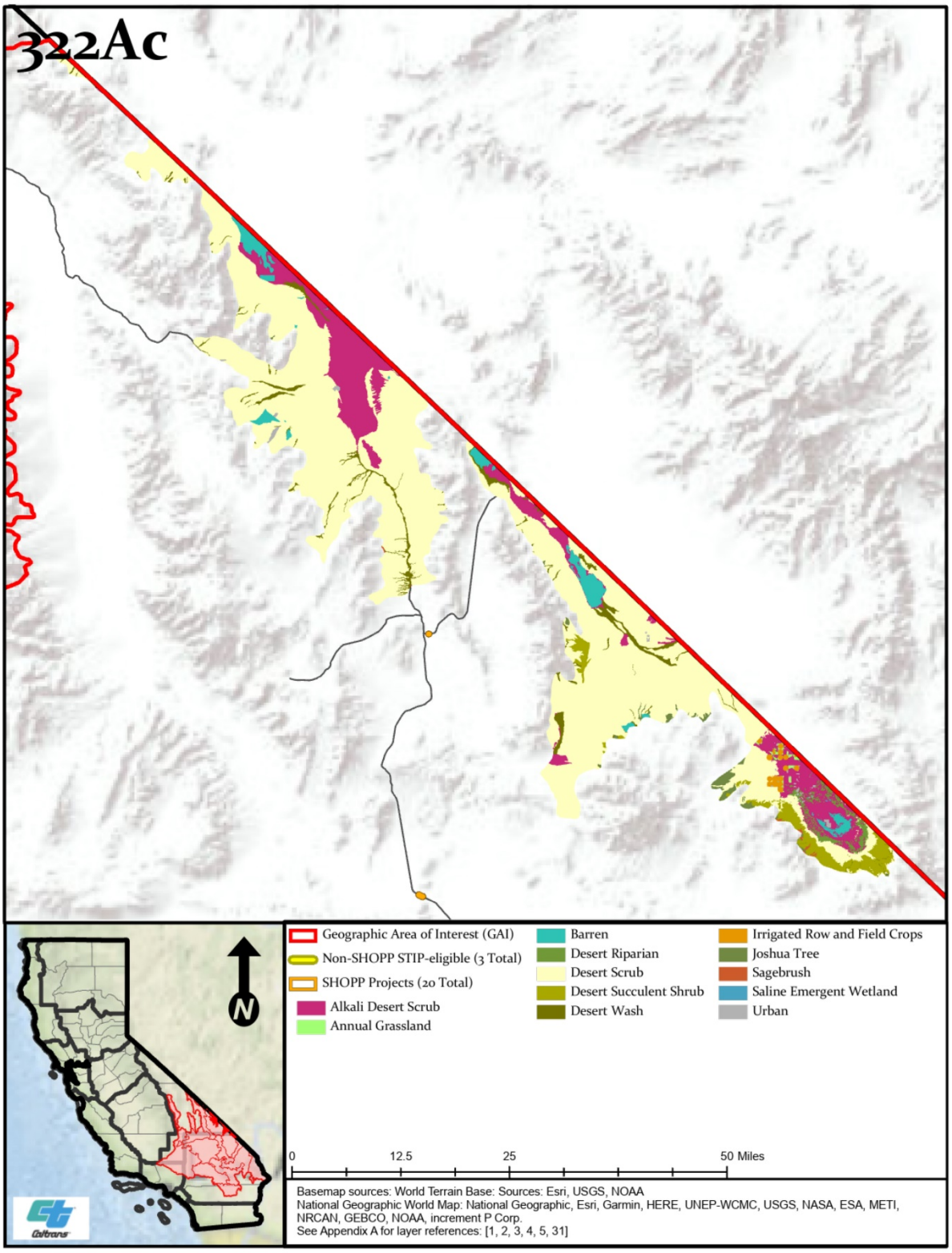
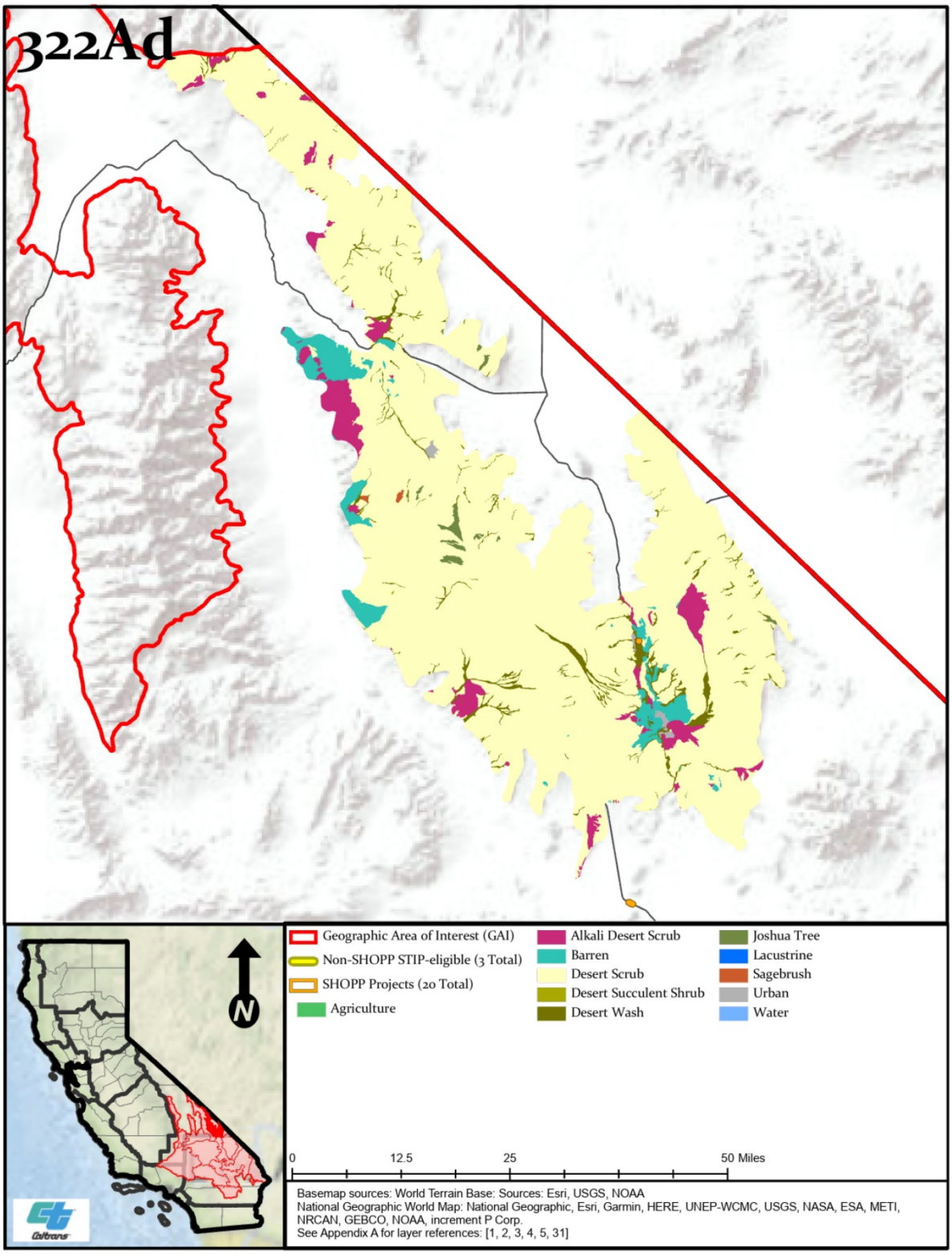
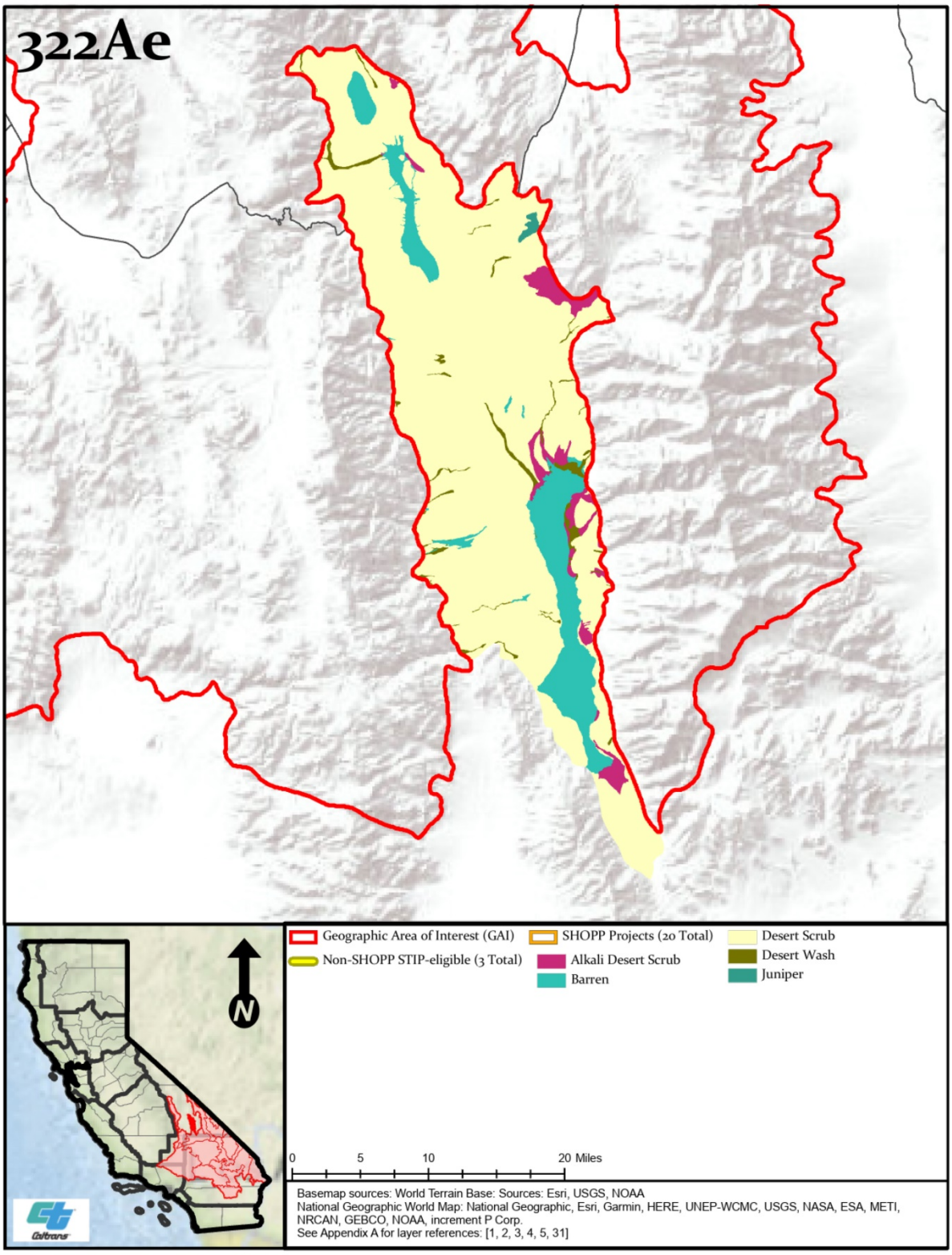

Page2
Page3
Page6
Page4
Page5
Page7
Page11
Page12
Page9
Page10
Page8
Page13
Page16
Page15
Page17
N
Geographic Area of Interest (GAI)
Non-SHOPP STIP-eligible (3 Total)
SHOPP Projects (20 Total)
Amargosa Desert-Pahrump Valley (322Ac)
Bullion Mountains-Bristol Lake (322Ao)
Death Valley (322Ab)
Funeral Mountains-Greenwater Valley (322Ad)
High Desert Plains and Hills (322Ag)
Ivanpah Valley (322Ak)
Kingston Range-Valley Wells (322Aj)
Lucerne-Johnson Valleys and Hills (322An)
Mojave Valley-Granite Mountains (322Ah)
Owens Valley (322Aa)
Panamint Valley (322Ae)
Pinto Basin and Mountains (322Ap)
Piute Valley-Sacramento Mountains (322Am)
Providence Mountains-Lanfair Valley (322Al)
Searles Valley-Owlshead Mountains (322Af)
Silurian Valley-Devil's Playground (322Ai)
0
50
100
200 Miles
Basemap sources: World Terrain Base: Sources: Esri, USGS, NOAA
National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
See Appendix A for layer references: [1, 2, 3, 4, 5]

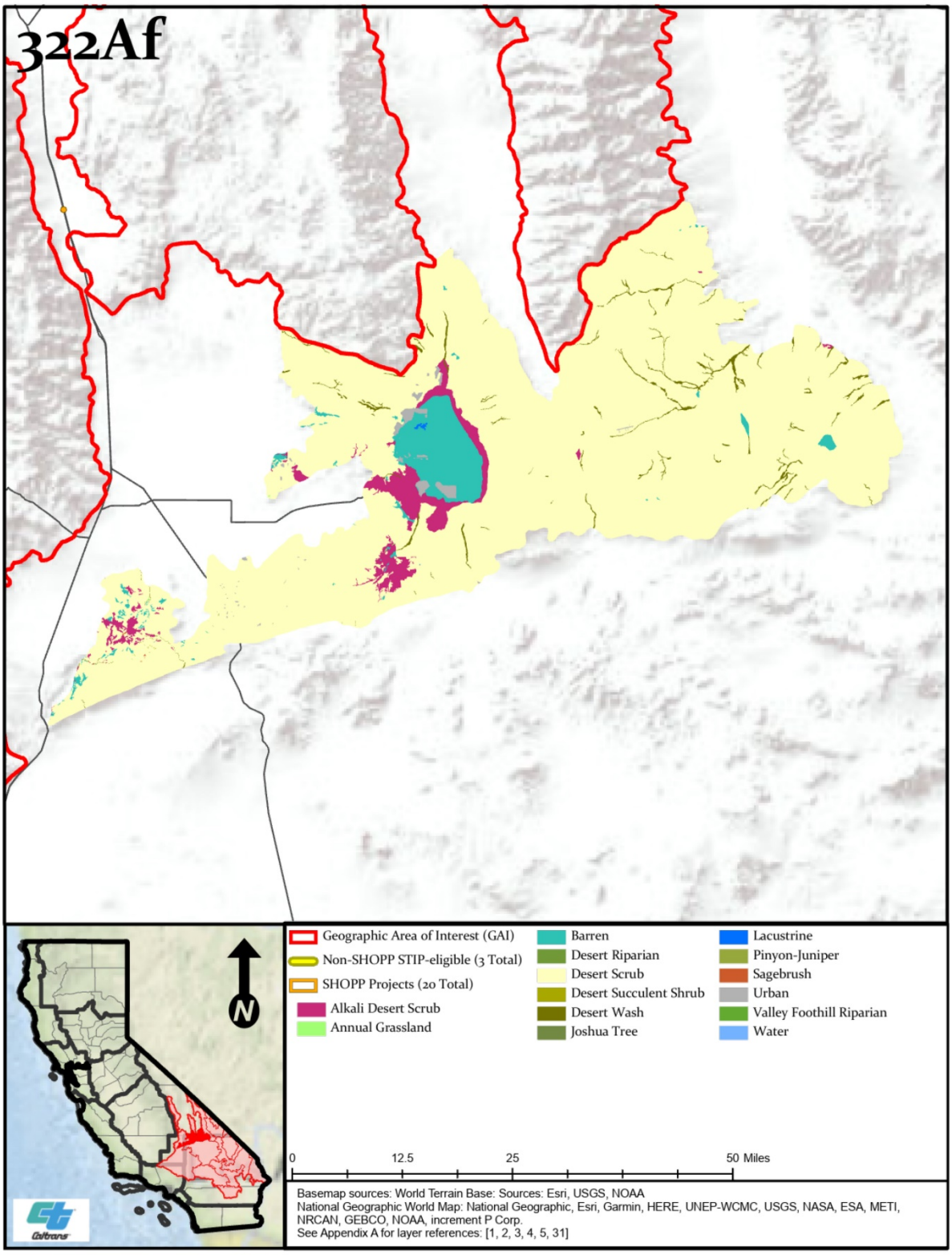

322Aa
Geographic Area of Interest (GAI)
Non-SHOPP STIP-eligible (3 Total)
SHOPP Projects (20 Total)
Alkali Desert Scrub
Annual Grassland
Aspen
Barren
Bitterbrush
Cropland
Desert Riparian
Desert Scrub
Desert Wash
Fresh Emergent Wetland
Joshua Tree
Lacustrine
Low Sage
Mixed Chaparral
Montane Chaparral
Montane Hardwood
Montane Hardwood-Conifer
Montane Riparian
Pasture
Perennial Grassland
Pinyon-Juniper
Riverine
Sagebrush
Urban
Valley Foothill Riparian
Valley Oak Woodland
Water
Wet Meadow
N
0
12.5
25
50 Miles
Basemap sources: World Terrain Base: Sources: Esri, USGS, NOAA
National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
See Appendix A for layer references: [1, 2, 3, 4, 5, 31]

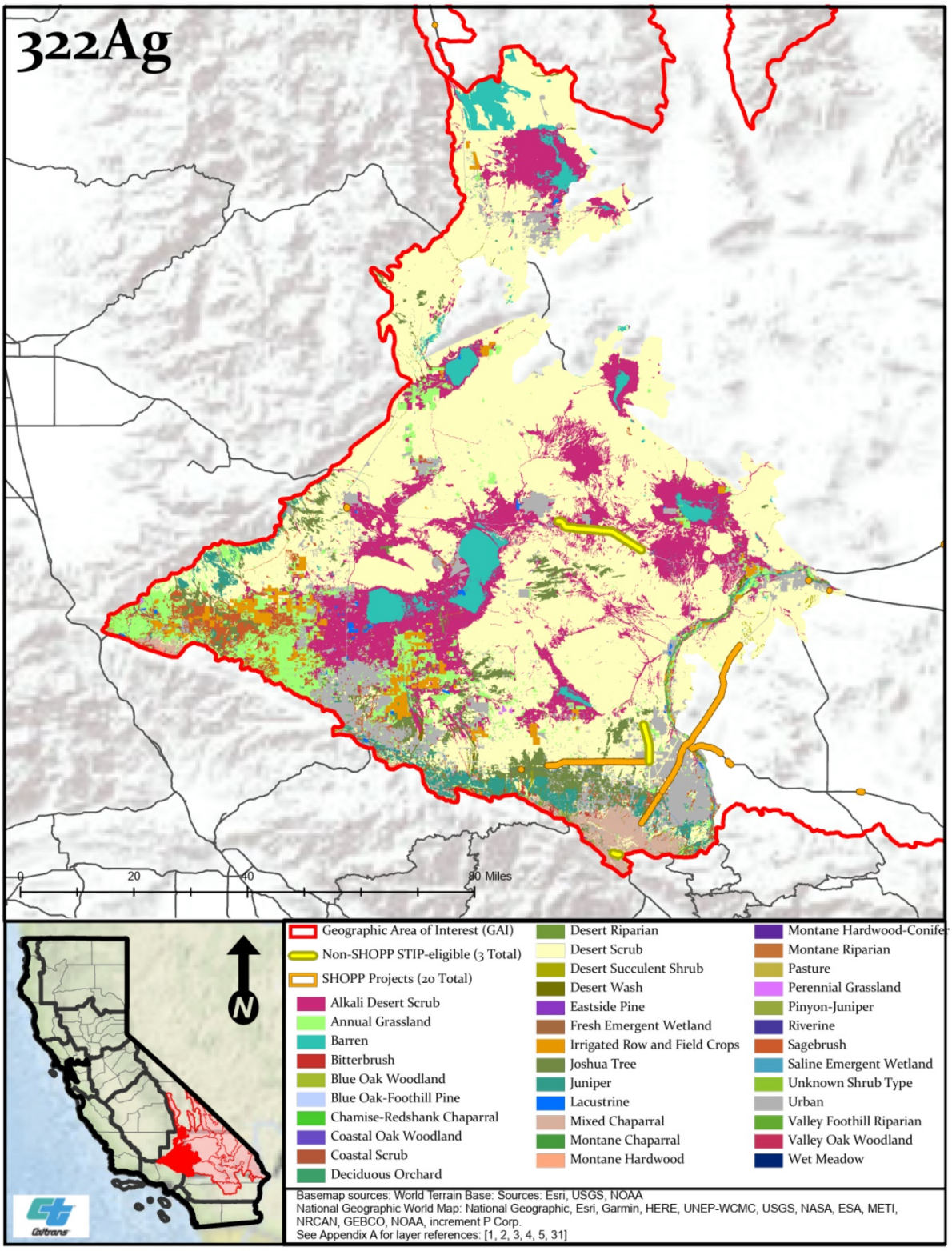

322Ab
Geographic Area of Interest (GAI)
Non-SHOPP STIP-eligible (3 Total)
SHOPP Projects (20 Total)
Alkali Desert Scrub
Barren
Desert Scrub
Desert Wash
Joshua Tree
Lacustrine
Urban
Water
N
0
20
40
80 Miles
Basemap sources: World Terrain Base: Sources: Esri, USGS, NOAA
National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
See Appendix A for layer references: [1, 2, 3, 4, 5, 31]

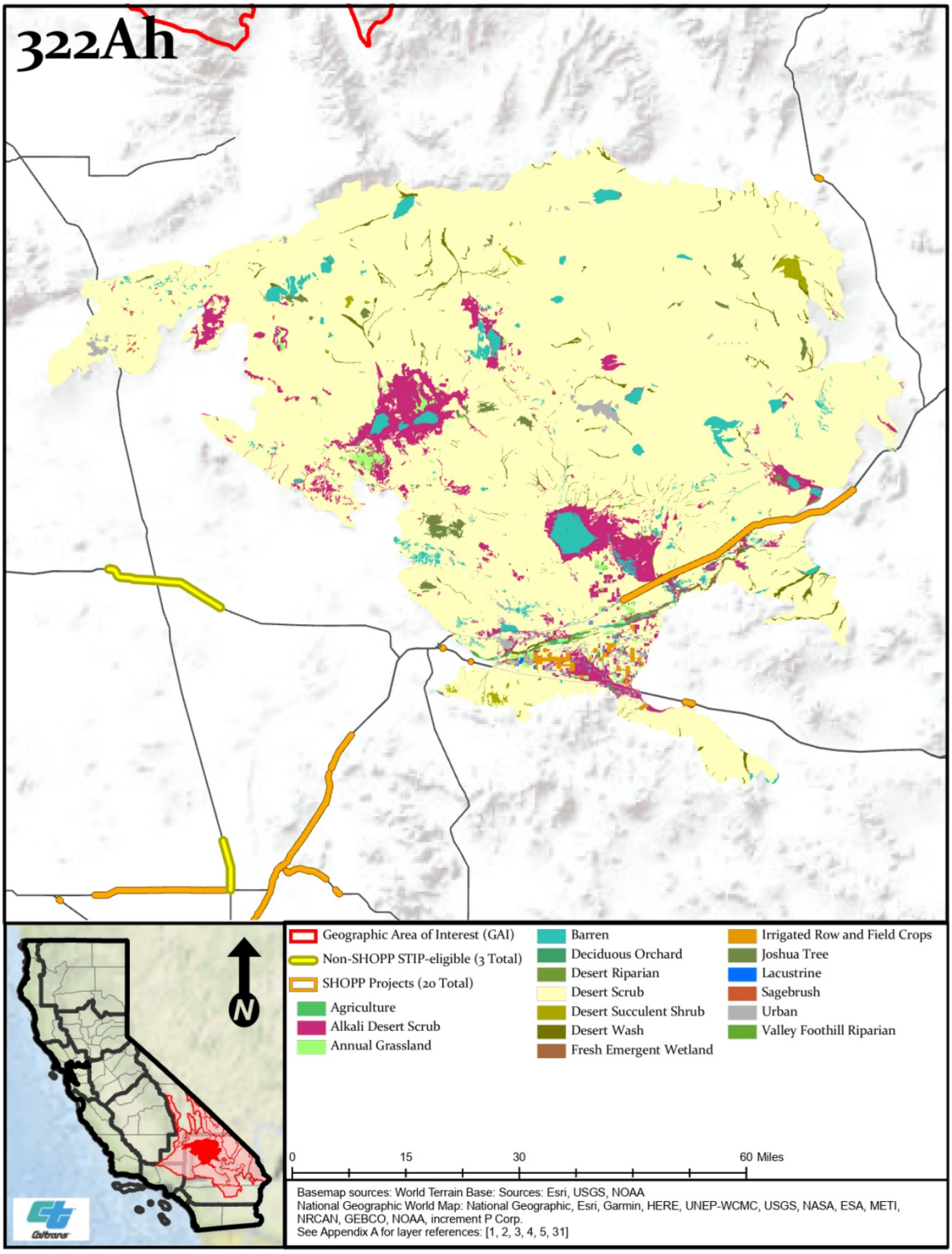

322Ac
Geographic Area of Interest (GAI)
Non-SHOPP STIP-eligible (3 Total)
SHOPP Projects (20 Total)
Alkali Desert Scrub
Annual Grassland
Barren
Desert Riparian
Desert Scrub
Desert Succulent Shrub
Desert Wash
Irrigated Row and Field Crops
Joshua Tree
Sagebrush
Saline Emergent Wetland
Urban
N
0
12.5
25
50 Miles
Basemap sources: World Terrain Base: Sources: Esri, USGS, NOAA
National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
See Appendix A for layer references: [1, 2, 3, 4, 5, 31]

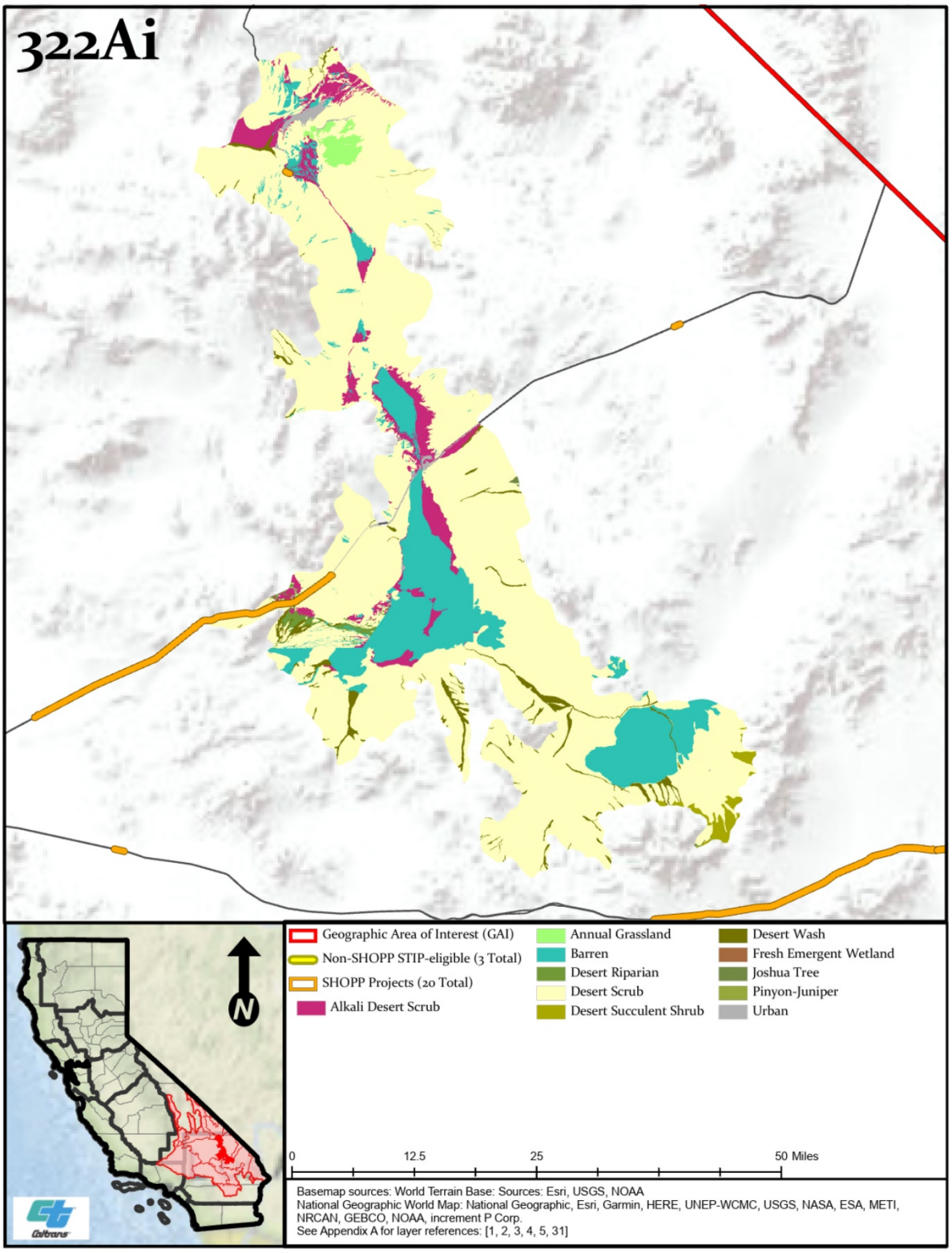

322Ad
N
Geographic Area of Interest (GAI)
Non-SHOPP STIP-eligible (3 Total)
SHOPP Projects (20 Total)
Agriculture
Alkali Desert Scrub
Barren
Desert Scrub
Desert Succulent Shrub
Desert Wash
Joshua Tree
Lacustrine
Sagebrush
Urban
Water
0
12.5
25
50 Miles
Basemap sources: World Terrain Base: Sources: Esri, USGS, NOAA
National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
See Appendix A for layer references: [1, 2, 3, 4, 5, 31]

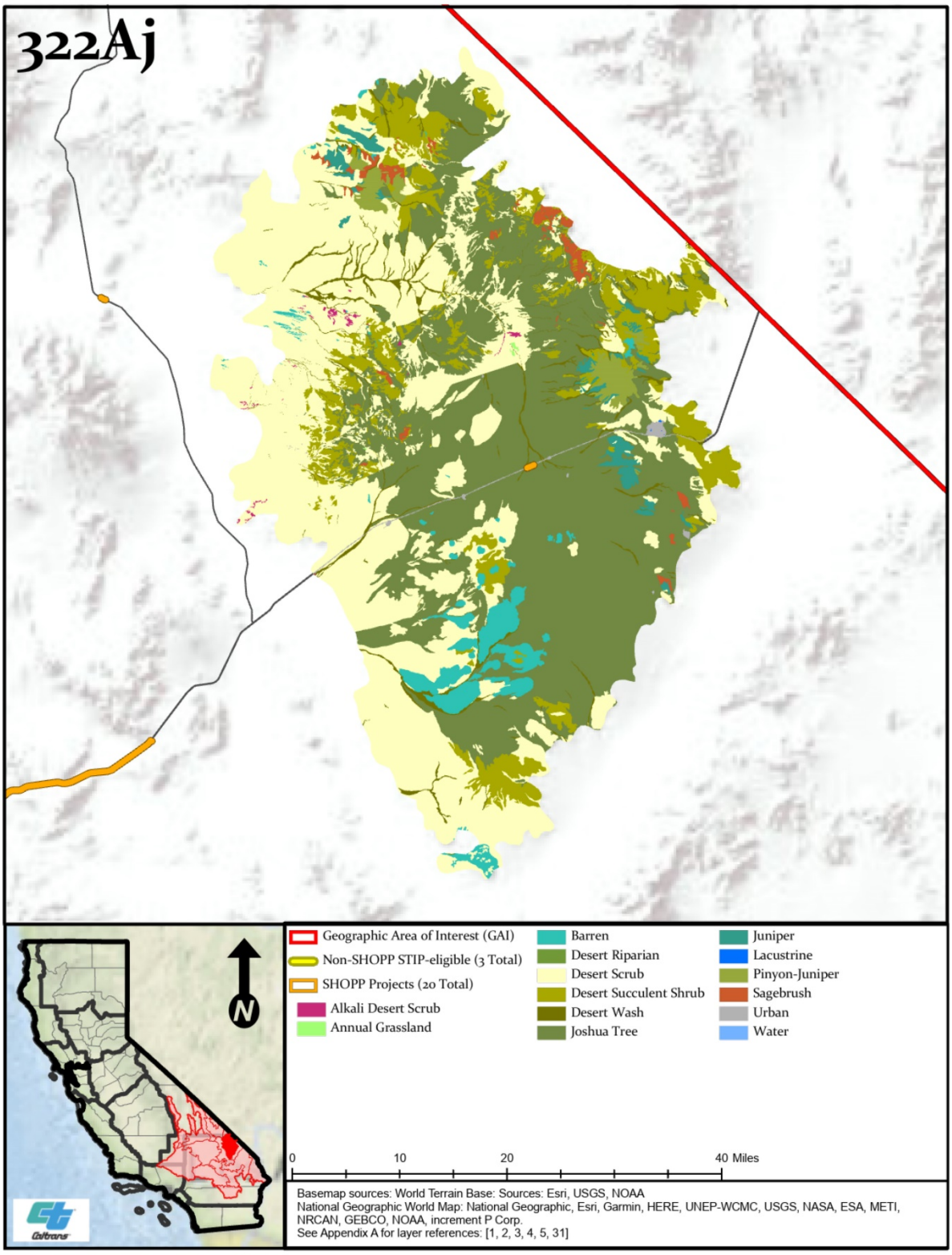

322Ae
Geographic Area of Interest (GAI)
Non-SHOPP STIP-eligible (3 Total)
SHOPP Projects (20 Total)
Alkali Desert Scrub
Barren
Desert Scrub
Desert Wash
Juniper
N
0
5
10
20 Miles
Basemap sources: World Terrain Base: Sources: Esri, USGS, NOAA
National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
See Appendix A for layer references: [1, 2, 3, 4, 5, 31]

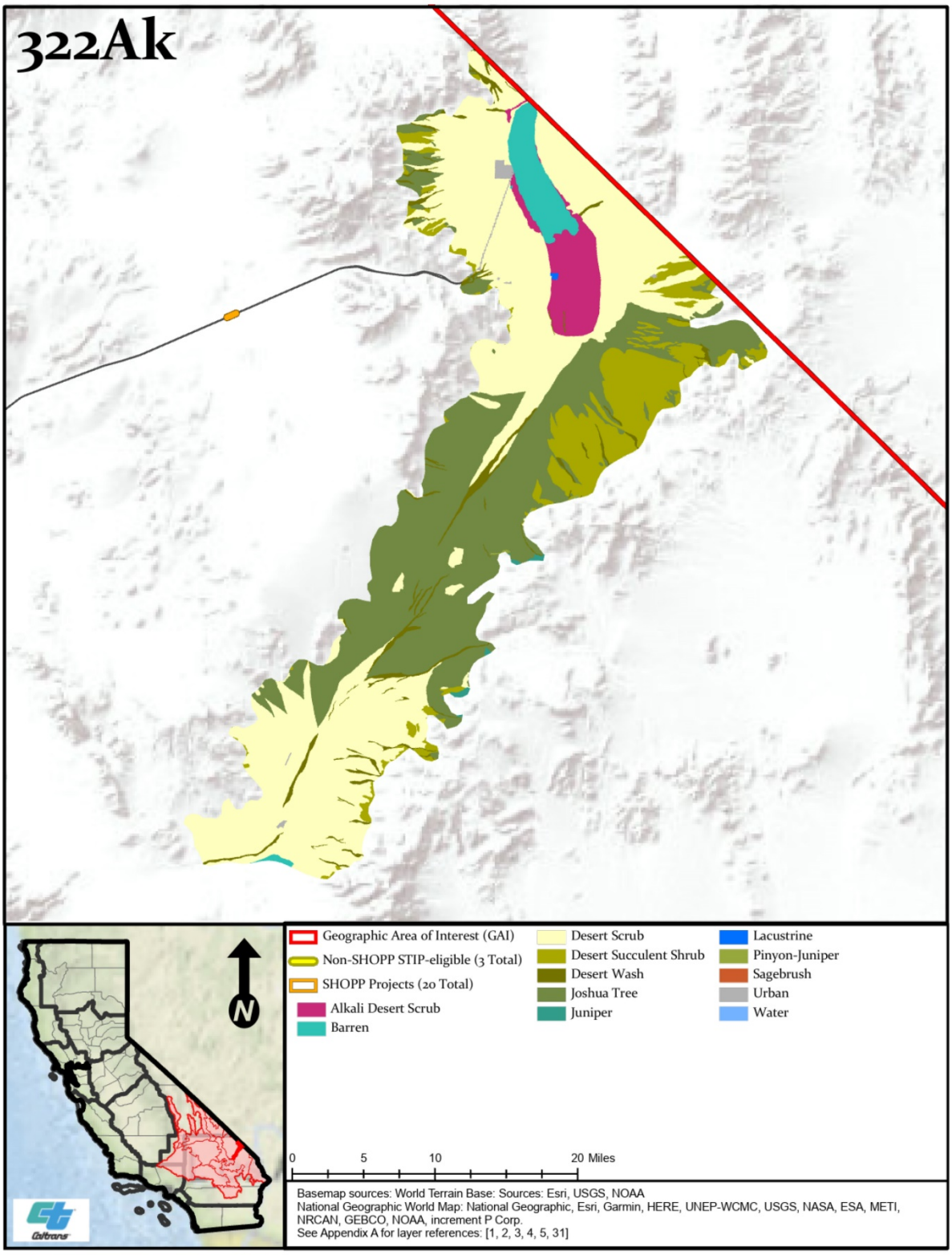

322Af
N
Geographic Area of Interest (GAI)
Non-SHOPP STIP-eligible (3 Total)
SHOPP Projects (20 Total)
Alkali Desert Scrub
Annual Grassland
Barren
Desert Riparian
Desert Scrub
Desert Succulent Shrub
Desert Wash
Joshua Tree
Lacustrine
Pinyon-Juniper
Sagebrush
Urban
Valley Foothill Riparian
Water
0
12.5
25
50 Miles
Basemap sources: World Terrain Base: Sources: Esri, USGS, NOAA
National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
See Appendix A for layer references: [1, 2, 3, 4, 5, 31]

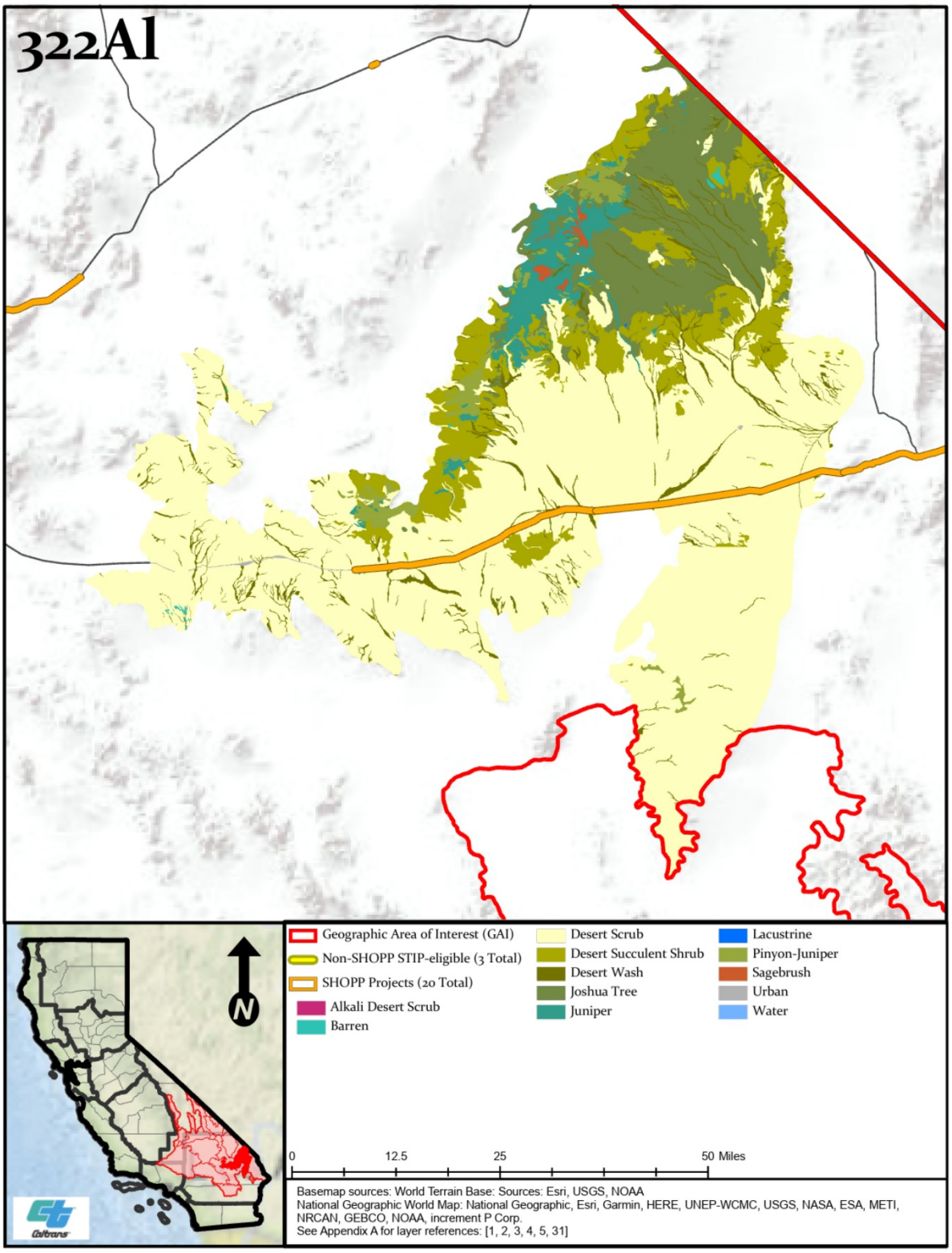

322Ag
0
20
40
80 Miles
N
Caltrans
Geographic Area of Interest (GAI)
Non-SHOPP STIP-eligible (3 Total)
SHOPP Projects (20 Total)
Alkali Desert Scrub
Annual Grassland
Barren
Bitterbrush
Blue Oak Woodland
Blue Oak-Foothill Pine
Chamise-Redshank Chaparral
Coastal Oak Woodland
Coastal Scrub
Deciduous Orchard
Desert Riparian
Desert Scrub
Desert Succulent Shrub
Desert Wash
Eastside Pine
Fresh Emergent Wetland
Irrigated Row and Field Crops
Joshua Tree
Juniper
Lacustrine
Mixed Chaparral
Montane Chaparral
Montane Hardwood
Montane Hardwood-Conife
Montane Riparian
Pasture
Perennial Grassland
Pinyon-Juniper
Riverine
Sagebrush
Saline Emergent Wetland
Unknown Shrub Type
Urban
Valley Foothill Riparian
Valley Oak Woodland
Wet Meadow
Basemap sources: World Terrain Base: Sources: Esri, USGS, NOAA
National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
See Appendix A for layer references: [1, 2, 3, 4, 5, 31]

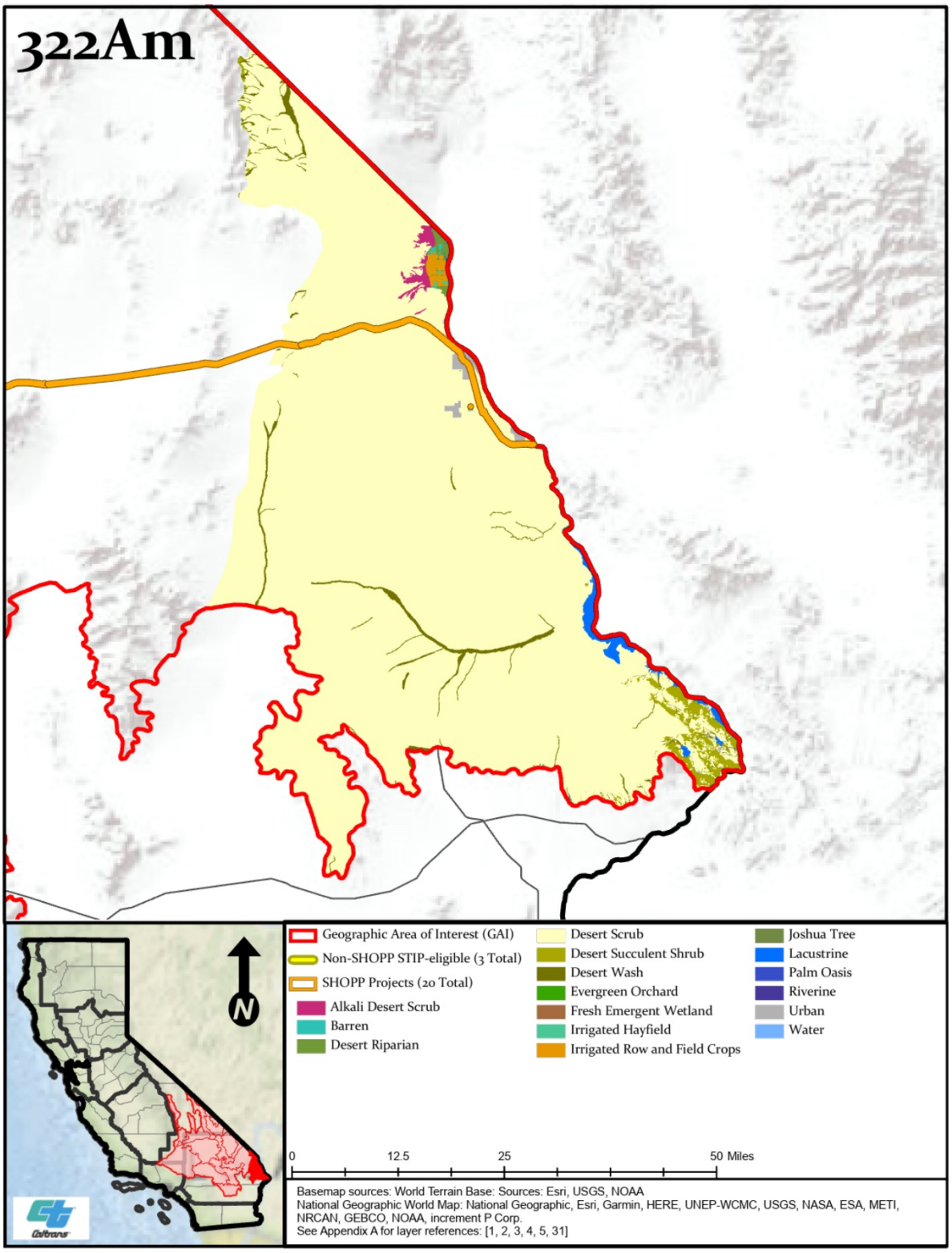

322Ah
Geographic Area of Interest (GAI)
Non-SHOPP STIP-eligible (3 Total)
SHOPP Projects (20 Total)
Agriculture
Alkali Desert Scrub
Annual Grassland
Barren
Deciduous Orchard
Desert Riparian
Desert Scrub
Desert Succulent Shrub
Desert Wash
Fresh Emergent Wetland
Irrigated Row and Field Crops
Joshua Tree
Lacustrine
Sagebrush
Urban
Valley Foothill Riparian
N
0
15
30
60 Miles
Basemap sources: World Terrain Base: Sources: Esri, USGS, NOAA
National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
See Appendix A for layer references: [1, 2, 3, 4, 5, 31]

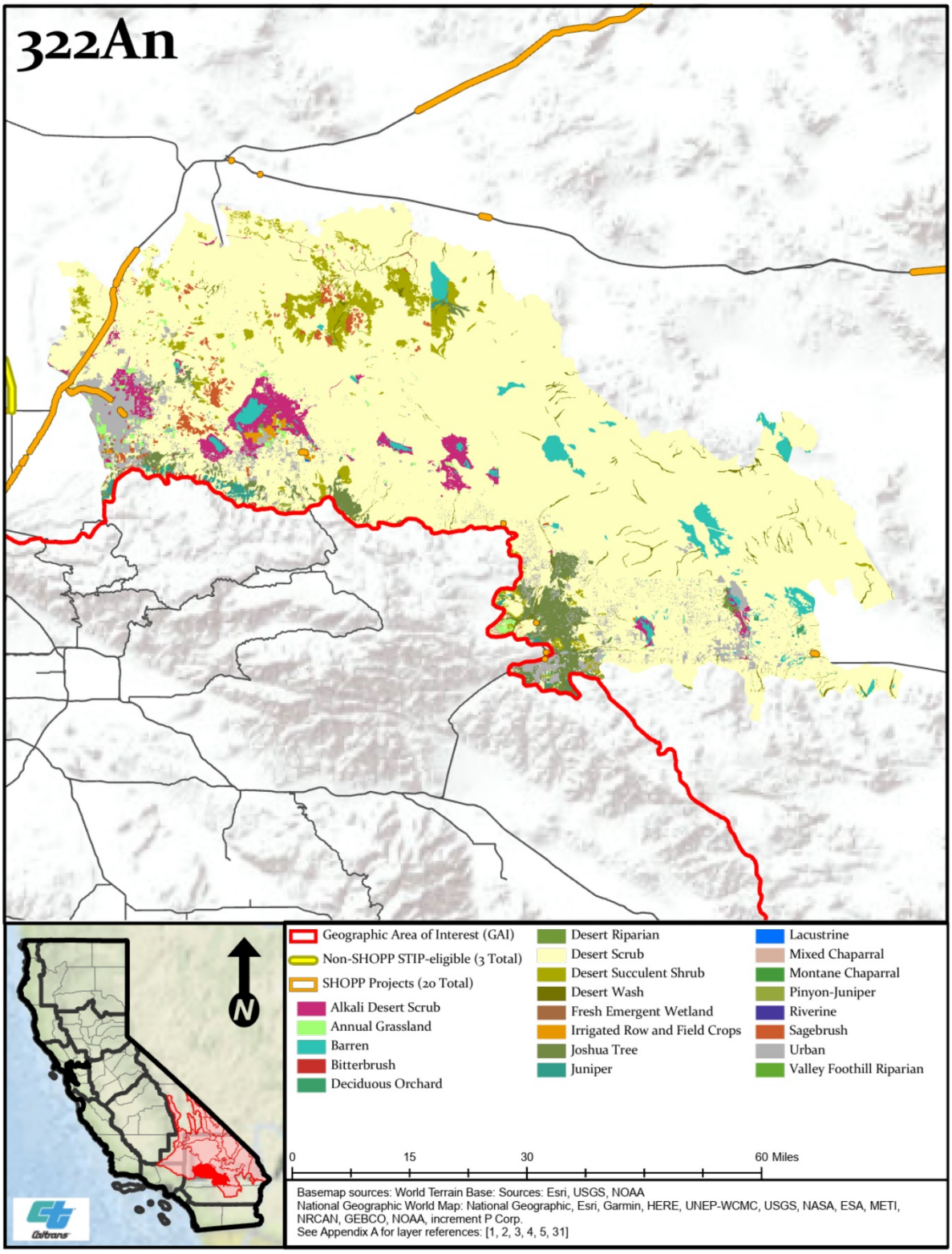

322Ai
Geographic Area of Interest (GAI)
Non-SHOPP STIP-eligible (3 Total)
SHOPP Projects (20 Total)
Alkali Desert Scrub
Annual Grassland
Barren
Desert Riparian
Desert Scrub
Desert Succulent Shrub
Desert Wash
Fresh Emergent Wetland
Joshua Tree
Pinyon-Juniper
Urban
N
0
12.5
25
50 Miles
Basemap sources: World Terrain Base: Sources: Esri, USGS, NOAA
National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
See Appendix A for layer references: [1, 2, 3, 4, 5, 31]

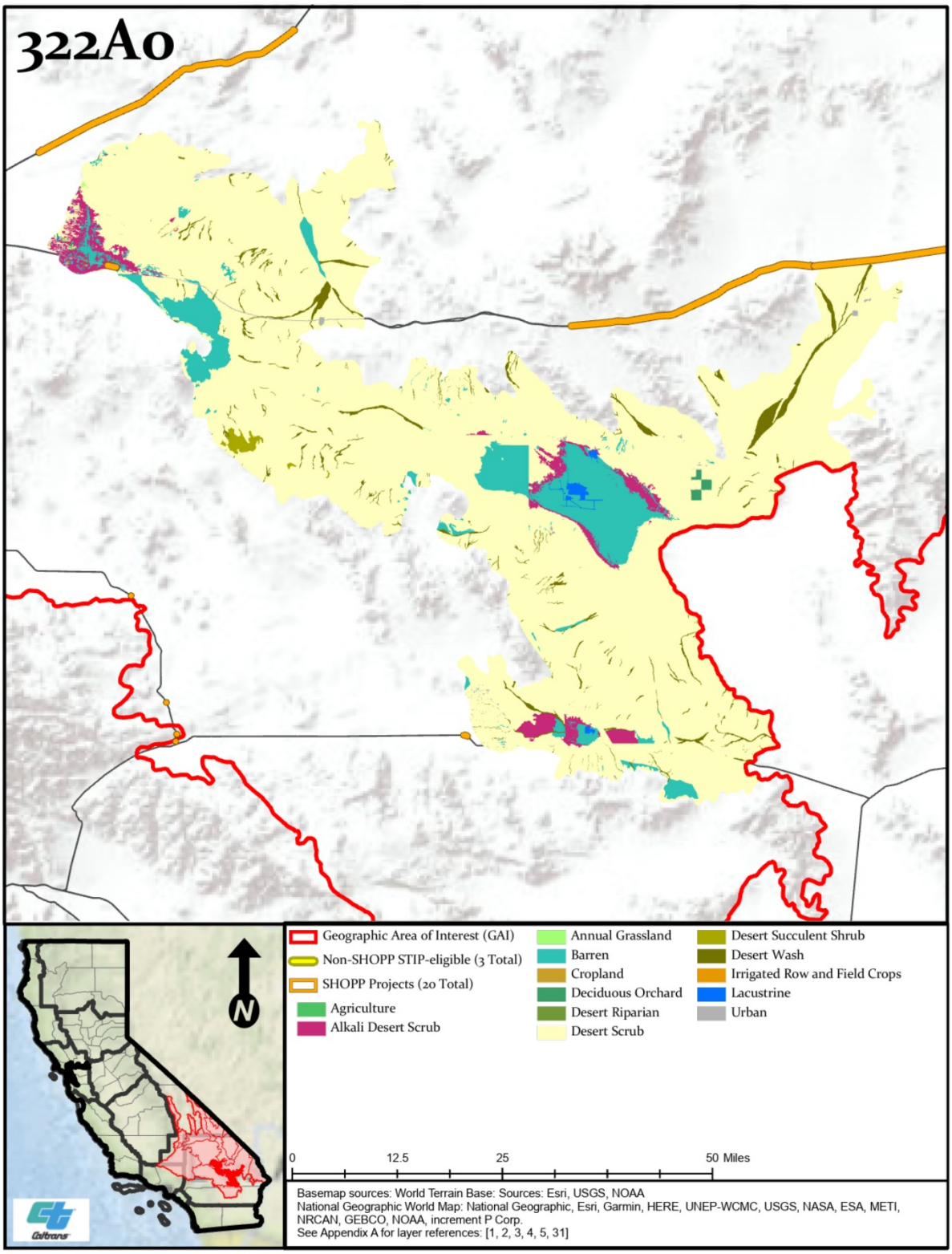

322Aj
Geographic Area of Interest (GAI)
Non-SHOPP STIP-eligible (3 Total)
SHOPP Projects (20 Total)
Alkali Desert Scrub
Annual Grassland
Barren
Desert Riparian
Desert Scrub
Desert Succulent Shrub
Desert Wash
Joshua Tree
Juniper
Lacustrine
Pinyon-Juniper
Sagebrush
Urban
Water
N
0
10
20
40 Miles
Basemap sources: World Terrain Base: Sources: Esri, USGS, NOAA
National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
See Appendix A for layer references: [1, 2, 3, 4, 5, 31]

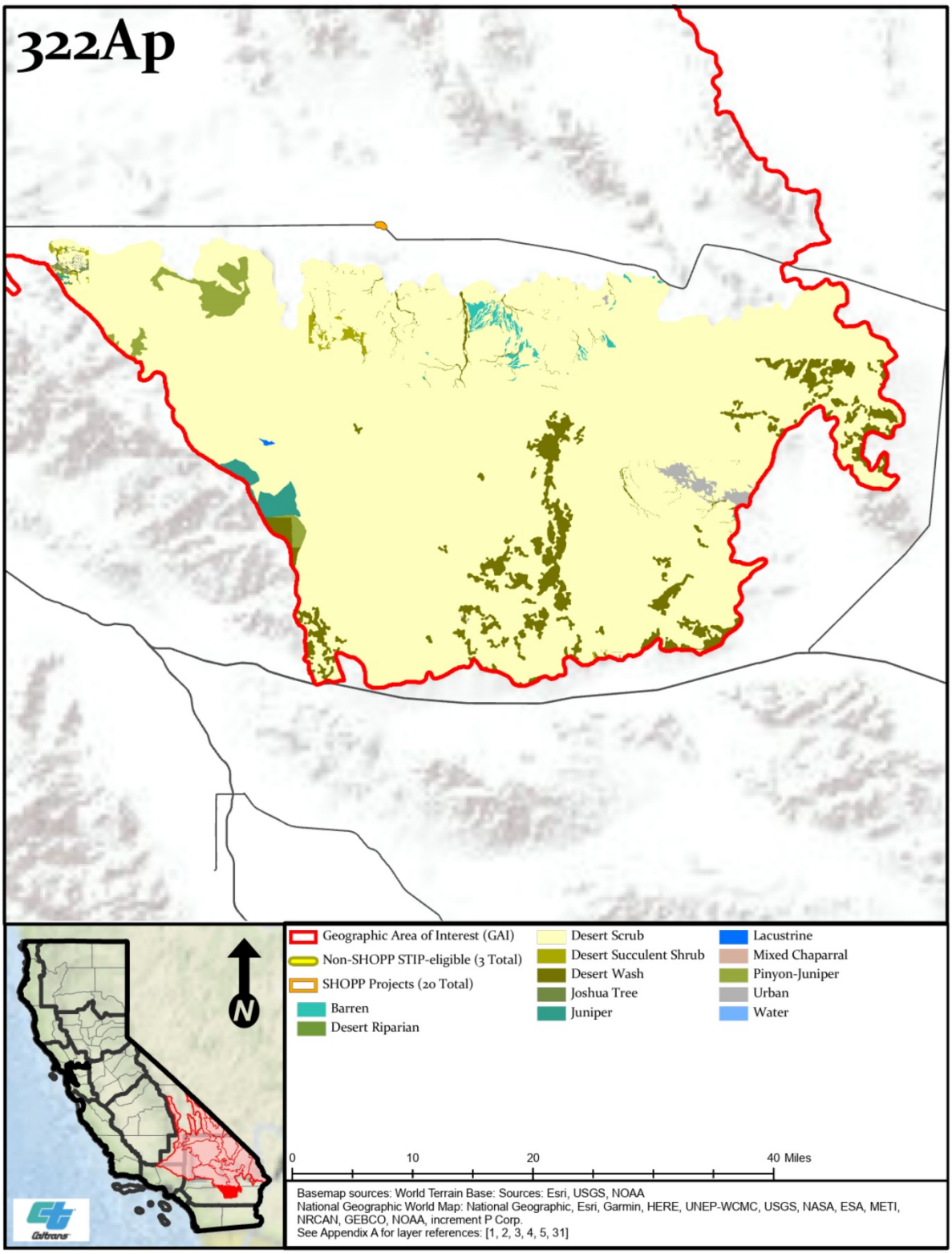

322Ak
Geographic Area of Interest (GAI)
Non-SHOPP STIP-eligible (3 Total)
SHOPP Projects (20 Total)
Alkali Desert Scrub
Barren
Desert Scrub
Desert Succulent Shrub
Desert Wash
Joshua Tree
Juniper
Lacustrine
Pinyon-Juniper
Sagebrush
Urban
Water
N
0
5
10
20 Miles
Basemap sources: World Terrain Base: Sources: Esri, USGS, NOAA
National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
See Appendix A for layer references: [1, 2, 3, 4, 5, 31]


322Al
Geographic Area of Interest (GAI)
Non-SHOPP STIP-eligible (3 Total)
SHOPP Projects (20 Total)
Alkali Desert Scrub
Barren
Desert Scrub
Desert Succulent Shrub
Desert Wash
Joshua Tree
Juniper
Lacustrine
Pinyon-Juniper
Sagebrush
Urban
Water
N
0
12.5
25
50 Miles
Basemap sources: World Terrain Base: Sources: Esri, USGS, NOAA
National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
See Appendix A for layer references: [1, 2, 3, 4, 5, 31]


322Am
Geographic Area of Interest (GAI)
Non-SHOPP STIP-eligible (3 Total)
SHOPP Projects (20 Total)
Alkali Desert Scrub
Barren
Desert Riparian
Desert Scrub
Desert Succulent Shrub
Desert Wash
Evergreen Orchard
Fresh Emergent Wetland
Irrigated Hayfield
Irrigated Row and Field Crops
Joshua Tree
Lacustrine
Palm Oasis
Riverine
Urban
Water
N
0
12.5
25
50 Miles
Basemap sources: World Terrain Base: Sources: Esri, USGS, NOAA
National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
See Appendix A for layer references: [1, 2, 3, 4, 5, 31]


322An
Geographic Area of Interest (GAI)
Non-SHOPP STIP-eligible (3 Total)
SHOPP Projects (20 Total)
Alkali Desert Scrub
Annual Grassland
Barren
Bitterbrush
Deciduous Orchard
Desert Riparian
Desert Scrub
Desert Succulent Shrub
Desert Wash
Fresh Emergent Wetland
Irrigated Row and Field Crops
Joshua Tree
Juniper
Lacustrine
Mixed Chaparral
Montane Chaparral
Pinyon-Juniper
Riverine
Sagebrush
Urban
Valley Foothill Riparian
N
0
15
30
60 Miles
Basemap sources: World Terrain Base: Sources: Esri, USGS, NOAA
National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
See Appendix A for layer references: [1, 2, 3, 4, 5, 31]


322A0
Geographic Area of Interest (GAI)
Non-SHOPP STIP-eligible (3 Total)
SHOPP Projects (20 Total)
Agriculture
Alkali Desert Scrub
Annual Grassland
Barren
Cropland
Deciduous Orchard
Desert Riparian
Desert Scrub
Desert Succulent Shrub
Desert Wash
Irrigated Row and Field Crops
Lacustrine
Urban
N
0
12.5
25
50 Miles
Basemap sources: World Terrain Base: Sources: Esri, USGS, NOAA
National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
See Appendix A for layer references: [1, 2, 3, 4, 5, 31]


322Ap
Geographic Area of Interest (GAI)
Non-SHOPP STIP-eligible (3 Total)
SHOPP Projects (20 Total)
Barren
Desert Riparian
Desert Scrub
Desert Succulent Shrub
Desert Wash
Joshua Tree
Juniper
Lacustrine
Mixed Chaparral
Pinyon-Juniper
Urban
Water
N
0
10
20
40 Miles
Basemap sources: World Terrain Base: Sources: Esri, USGS, NOAA
National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
See Appendix A for layer references: [1, 2, 3, 4, 5, 31]

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APPENDIX D: COMPLETE SAMNA SPECIES RESULTS

Complete terrestrial species SAMNA results for the GAI are provided in Table D-1. It 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 2019). The SAMNA results are only as accurate as their foundational data and have not been ground-truthed. The following assumptions were included in the SAMNA:

- 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 document sources of home ranges. When a subspecies did not have home range information suitable for input into the SAMNA model, SAMNA results are provided at the species level which may include both special status and non-special status species, and, hence, the number of species that have the potential to be affected may be overestimated.
- If impacts were estimated, additional information sources 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 table where data input limitations and modeling assumptions resulted in identification of potential impacts to species or subspecies that are not present in the GAI.

Habitats referenced in Table D-1 are mapped in Appendix C. While desert tortoise is the species of mitigation need identified for this GAI, several other special-status species share habitat with desert tortoise and may be affected by Caltrans future transportation projects. Advance mitigation planning will consider the special-status species that co-occur in desert tortoise 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. The types of desert tortoise habitats with the potential to be affected in the GAI, and the other special-status species that may share these habitats, were excerpted from Table D-1 and are provided in Table 5-6 of the main text.

References

Caltrans. 2019. *Statewide Advance Mitigation Needs Assessment Report*. State Highway Operation and Protection Program. Ten-Year Project Book. Second Quarter 2017/2018 Fiscal Year. July. Sacramento, California.

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Table D-1. Complete SAMNA Results for the Mojave Ecoregion Section in District 8, by Land Cover (results provided in acres)

Common Name	Species Name	Status	Alkali Desert Scrub	Annual Grassland	Barren	Desert Riparian	Desert Scrub	Desert Succulent Shrub	Desert Wash	Joshua Tree	Sagebrush	Irrigated Row and Field Crops	Juniper	Lacustrine	Mixed Chaparral	Riverine	Urban	Valley Foothill Riparian
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**
Lane Mountain milk-vetch	*Astragalus jaegerianus*	FE	0	0	0	0	517.28	0	0	2.71	0	0	0	0	0	0	0	0
Long Valley milk-vetch[a]	*Astragalus johannis-howellii*	FS/SR	0	0	0	0	1.45	0	0	0	0	0	0	0	0	0	0	0
Coachella Valley milk-vetch[b]	*Astragalus lentiginosus* var. *coachellae*	FE	0	0	0	0	432.19	0	0	0	0	0	0	0	0	0	0	0
Peirson's milk-vetch[c]	*Astragalus magdalenae* var. *peirsonii*	FT/SE	0	0	0	0	432.19	0	0	0	0	0	0	0	0	0	0	0
Mono milk-vetch[d]	*Astragalus monoensis*	FS/SR	1.45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wiggins' croton[e]	*Croton wigginsii*	FS/SR	0	0	0	0	432.19	0	0	0	0	0	0	0	0	0	0	0
July gold[f]	*Dedeckera eurekensis*	FS/SR	0	0	0	0	433.64	0	0	0	0	0	0	0	0	0	0	0
Red Rock tarplant	*Deinandra arida*	FS/SR	0	0	0	0	517.28	0	0	0	0	0	0	0	0	0	0	0
Mojave tarplant	*Deinandra mohavensis*	FS/SE	0	0	0	0	0	0	0	0	0	0	0	0	0.05	0	0	0
Borrego bedstraw[g]	*Galium angustifolium* ssp. *borregoense*	SR	0	0	0	0	432.19	0	0	0	0	0	0	0	0	0	0	0
Algodones Dunes sunflower[h]	*Helianthus niveus* ssp. *tephrodes*	SE	0	0	0	0	432.19	0	0	0	0	0	0	0	0	0	0	0
rock lady[i]	*Holmgrenanthe petrophila*	SR	0	0	0	0	517.28	0	0	0	0	0	0	0	0	0	0	0
spreading navarretia[j]	*Navarretia fossalis*	FT	0	0.14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Amargosa nitrophila	*Nitrophila mohavensis*	FE/SE	0	0.14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Eureka Dunes evening-primrose[k]	*Oenothera californica* ssp. *eurekensis*	SR	0	0	0	0	517.28	0	0	0	0	0	0	0	0	0	0	0
Eureka Valley dune grass[l]	*Swallenia alexandrae*	FT/SR	0	0	0	0	517.28	0	0	0	0	0	0	0	0	0	0	0
Fish	**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**
Mohave tui chub	*Siphateles bicolor mohavensis*	FE/SE	0	0	0	0	0	0	0	0	0	0	0	0	0	1.58	0	0

Common Name	Species Name	Status	Alkali Desert Scrub	Annual Grassland	Barren	Desert Riparian	Desert Scrub	Desert Succulent Shrub	Desert Wash	Joshua Tree	Sagebrush	Irrigated Row and Field Crops	Juniper	Lacustrine	Mixed Chaparral	Riverine	Urban	Valley Foothill Riparian
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**
arroyo toad	*Anaxyrus californicus*	FE/SSC	0	0	0	0.07	38.71	0	0	0	0	0	0	0	0.05	0	0	0.03
California red-legged frog	*Rana draytonii*	FT/SSC	0	0.43	0	0	0	0	0	0	0	0	0	0.33	0.05	0	0	0.03
Couch's spadefoot	*Scaphiopus couchii*	FS/SSC	0	0	0	0	432.19	0	0	0	0	0	0	0	0	0	0	0
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 legless lizard[m]	*Anniella pulchra*	FS/SSC	0	0	0	0	433.61	0	0	0	0	0	0	0	0	0	0	0
coachwhip[n]	*Masticophis [Coluber] flagellum*[o]	SSC	0.6	0.57	0	3.21	517.28	4.19	5.52	2.71	0.36	0	0.15	0	0.05	0	0	0.03
ring-necked snake[p]	*Diadophis punctatus*	SSC	0	0.13	0	0	474.67	0	0	0	0	0	0	0.33	0.05	0	28.19	0
Panamint alligator lizard	*Elgaria panamintina*	FS/SSC	0	0	0	0	1.45	0	0	0	0	0	0	0	0	0	0	0
Mojave desert tortoise	*Gopherus agassizii*	FT/ST	0.6	0.57	0.28	3.21	517.28	4.19	5.52	2.71	0.36	0	0	0	0	0	0	0
gila monster	*Heloderma suspectum*	FS/SSC	0	0	0	0	432.19	0	0	0.5	0	0	0	0	0	0	0	0
Blainville's horned lizard	*Phrynosoma blainvillii*	FS/SSC	0.18	0.43	0	0	0	0	0	0	0	0	0.15	0	0.05	0	0	0.03
Gophersnake	*Pituophis catenifer*	NA	0.6	0.57	0	3.21	517.28	4.19	5.52	2.71	0.36	0.17	0.15	0	0.05	0	537.70	0.03
western patch-nosed snake[q]	*Salvadora hexalepis*	SSC	0.6	0.57	0.28	3.21	517.28	4.19	5.52	2.71	0.36	0	0	0	0.05	0	0	0.03
Coachella fringe-toed lizard[r]	*Uma inornata*	FT/SE	0	0	0	0	432.19	0	0	0	0	0	0	0	0	0	0	0
Mojave fringe-toed lizard	*Uma scoparia*	FS/SSC	0.38	0	0.28	0.07	482.88	0	2.34	0	0	0	0	0	0	0	0	0
desert night lizard[s]	*Xantusia vigilis*	FS/SSC	0.6	0.57	0	3.21	517.28	4.19	5.52	2.71	0.34	0	0	0	0	0	0	0
Birds	**See below**	**See below**	**See below**	**See below**	**See below**	**See below**	**See below**	**See below**	**See below**	**See below**	**See below**	**See below**	**See below**	**See below**	**See below**	**See below**	**See below**	**See below**
red-winged blackbird[t]	*Agelaius phoeniceus*	SSC	0	0.57	0	3.21	0	0	0	0	0	0.17	0	0	0	0	537.70	0
tricolored blackbird	*Agelaius tricolor*	FS/ST	0	0.14	0	0	0	0	0	0	0	0	0	0	0	0	1.74	0
golden eagle	*Aquila chrysaetos*	FS/SFP/ SFS	0.6	0.57	0.28	3.21	517.28	4.19	5.52	2.71	0.36	0	0.15	0	0.05	0	537.70	0.03

Common Name	Species Name	Status	Alkali Desert Scrub	Annual Grassland	Barren	Desert Riparian	Desert Scrub	Desert Succulent Shrub	Desert Wash	Joshua Tree	Sagebrush	Irrigated Row and Field Crops	Juniper	Lacustrine	Mixed Chaparral	Riverine	Urban	Valley Foothill Riparian
great egret	*Ardea alba*	SFS	0.43	0.14	0	3.21	0	0	0	0	0	0	0	0.33	0	0.32	78.07	0.03
great blue heron	*Ardea herodias*	SFS	0	0.57	0	3.21	0	0	0	0	0	0.17	0.15	0.33	0	0.32	537.70	0.03
Bell's sparrow	*Artemisiospiza belli*	NA	0.6	0	0	0	517.28	0	0	2.71	0.36	0	0.15	0	0.05	0	0	0
long-eared owl	*Asio otus*	SSC	0	0.57	0	3.21	517.28	0	0	0	0.36	0	0.15	0	0.05	0	0	0.03
burrowing owl	*Athene cunicularia*	FS/SSC	0.6	0.57	0.28	3.21	517.28	4.19	5.52	2.71	0.36	0	0.15	0	0.05	0	537.70	0.03
redhead	*Aythya americana*	SSC	0	0	0	0	0	0	0	0	0	0	0	0	0	0.32	0	0
Barrow's goldeneye	*Bucephala islandica*	SSC	0	0	0	0	0	0	0	0	0	0	0	0	0	0.32	0	0
Swainson's hawk	*Buteo swainsoni*	FS/ST	0	0.14	0	0	1.45	0	0	0	0	0	0	0	0	0	1.74	0
California quail[u]	*Callipepla californica*	SSC	0.4	0.57	0	0.07	483.03	0	0	2.18	0.36	0	0.15	0	0.05	0	236.30	0.03
cactus wren[v]	*Campylorhynchus brunneicapillus*	FS/SSC	0	0	0	3.21	517.28	4.19	5.03	2.71	0	0	0	0	0.05	0	537.70	0
mountain plover	*Charadrius montanus*	FS/SSC	0	0	0.09	0	0	0	0	0	0.11	0	0	0	0	0	0	0
northern harrier	*Circus cyaneus*	SSC	0.6	0.57	0.28	3.21	517.28	0	5.52	0	0.36	0	0.15	0.33	0.05	0.32	537.70	0.03
gilded flicker	*Colaptes chrysoides*	FS/SE	0	0	0	3.14	435.09	0	0	0.5	0	0	0	0		0		0
white-tailed kite	*Elanus leucurus*	FS/SFP	0.26	0.57	0.12		483.7	0	0	0	0	0	0	0.33	0.05	0	78.61	0.03
common yellowthroat	*Geothlypis trichas*	SSC	0	0	0	3.14	0	0	0	0	0	0	0	0.33	0	0	1.74	0
bald eagle	*Haliaeetus leucocephalus*	FS/SE/ SFP/SFS	0	0	0	3.14	0	0	0	0	0	0	0	0	0	0.32	0	0
yellow-breasted chat	*Icteria virens*	SSC	0	0	0	3.21	0	0	0	0	0	0	0	0	0	0	0	0.03
least bittern	*Ixobrychus exilis*	SSC	0	0	0	3.14	0	0	0	0	0	0	0	0	0	0.32	0	0
loggerhead shrike	*Lanius ludovicianus*	SSC	0.6	0.57	0.28	3.21	517.28	4.19	5.52	2.71	0.36	0	0.15	0	0.05	0	537.70	0.03
Gila woodpecker	*Melanerpes uropygialis*	FS/SE	0	0	0	3.14	0	0	0	0	0	0	0	0	0	0	29.29	0
song sparrow[w]	*Melospiza melodia*	SSC	0	0	0	3.21	0	0	0	0.63	0.02	0	0	0.33	0	0.32	258.37	0.03
Lucy's warbler	*Oreothlypis luciae*	FS/SSC	0	0	0	3.21	434.43	0	0.08	0	0	0	0	0	0	0	43.44	0
Osprey	*Pandion haliaetus*	FS/SFS	0.15	0	0	3.14	437.97	0	0	0	0	0	0	0	0	0.32	0	0
savannah sparrow[x]	*Passerculus sandwichensis*	FE	0.6	0.57	0	3.21	517.28	0	5.52	0	0.36	0	0.15	0	0.05	0	0	0.03
American white pelican	*Pelecanus erythrorhynchos*	SSC	0	0	0.12	0	0	0	0	0	0	0	0	0.33	0	0.32	1.74	0
California towhee[y]	*Melozone [Pipilo] crissalis*[o]	FT/SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18.40	0
spotted towhee[z]	*Pipilo maculatus*	SSC	0	0	0	3.14	0	0	0	0	0	0	0	0	0	0.32	26.58	0

Common Name	Species Name	Status	Alkali Desert Scrub	Annual Grassland	Barren	Desert Riparian	Desert Scrub	Desert Succulent Shrub	Desert Wash	Joshua Tree	Sagebrush	Irrigated Row and Field Crops	Juniper	Lacustrine	Mixed Chaparral	Riverine	Urban	Valley Foothill Riparian
summer tanager	*Piranga rubra*	SSC	0	0	0	3.21	0	0	0	0	0	0	0	0	0	0	0	0.03
vermilion flycatcher	*Pyrocephalus rubinus*	SSC	0	0	0	3.21	0	0	0	0	0	0	0	0	0	0	0	0
Ridgway's [clapper] rail[o,aa]	*Rallus obsoletus*[o]	NA	0	0	0	0	0	0	0	0.32	0	0	0	0	0	0	0	0
Yuma Ridgway's [clapper] rail[aa]	*Rallus obsoletus yumanensis*[o]	FE/ST/ SFP	0	0	0	0	0	0	0	0	0	0	0	0	0	0.32	0	0
yellow warbler	*Setophaga petechia*	SSC	0	0	0	3.21	0	0	0	0	0	0	0	0.33	0.05	0	73.69	0.03
Bendire's thrasher	*Toxostoma bendirei*	FS/SSC	0	0	0	0	0	4.19	0	0.53	0	0	0	0	0	0	0	0
Crissal thrasher	*Toxostoma crissale*	SSC	0	0	0	3.14	0	0	1.22	0	0	0	0	0	0	0	0	0
Le Conte's thrasher	*Toxostoma lecontei*	SSC	0.6	0	0	0	517.28	4.19	5.52	2.71	0	0	0	0	0	0	0	0
Bell's vireo[bb]	*Vireo bellii*	FE/SE	0	0	0	3.14	0	0	0	0	0	0	0	0.33	0	0	0	0
Arizona Bell's vireo	*Vireo bellii arizonae*	FS/SE	0	0	0	3.14	0	0	0	0	0	0	0	0	0	0	0	0
yellow-headed blackbird	*Xanthocephalus xanthocephalus*	SSC	0	0.14	0	0	0	0	0	0	0	0.17	0.15	0.33	0.05	0.32	535.97	0.03
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**
pallid bat	*Antrozous pallidus*	FS/SSC	0.6	0.57	0.28	3.21	517.28	4.19	5.52	2.71	0.36	0.17	0.15	0	0.05	0.32	537.70	0.03
Ringtail	*Bassariscus astutus*	SFP	0.6	0.16	0.24	3.21	507.6	4.19	5.52	0.53	0.13	0.17	0.15	0.33	0.05	0	0	0.03
San Diego pocket mouse[cc]	*Chaetodipus fallax*	SSC	0	0.31	0	0	477.84	0	0	0	0.22	0	0.15	0.33	0.05	0	0	0
Townsend's big-eared bat	*Corynorhinus townsendii*	FS/SSC	0.22	0.14	0	0	0	0	0.08	0.63	0.2	0.17	0.15	0	0.05	0.32	537.70	0.03
Merriam's kangaroo rat[dd]	*Dipodomys merriami*	FE/SSC	0.6	0.57	0	3.21	517.28	4.19	5.52	2.71	0.36	0	0	0	0.05	0	0	0
spotted bat	*Euderma maculatum*	FS/SSC	0.6	0.57	0	3.21	517.28	4.19	5.52	2.71	0.36	0	0.15	0	0	0.32	537.70	0.03
western mastiff bat	*Eumops perotis*	FS/SSC	0.6	0.57	0.28	3.21	517.28	4.19	5.52	2.71	0	0.17	0.15	0	0.05	0	537.70	0.03
black-tailed jackrabbit[ee]	*Lepus californicus*	SSC	0.6	0.57	0	3.21	517.28	4.19	5.52	2.71	0.36	0.17	0.15	0	0.05	0	537.70	0.03
California leaf-nosed bat	*Macrotus californicus*	FS/SSC	0	0	0.08	3.14	466.29	4.19	5.03	0	0	0	0	0	0	0.32	0	0
California vole[ff]	*Microtus californicus*	FE/SE	0.18	0.43	0	0	0	0	0	0	0.36	0	0	0	0.05	0	54.02	0.03
small-footed myotis	*Myotis ciliolabrum*	FS	0.15	0	0	0	435.05	0	0	0.53	0	0.17	0	0.33	0.05	0	6.34	0
long-eared myotis	*Myotis evotis*	FS	0	0	0	0	0	0	0	0	0	0	0	0.33	0	0	0	0

Common Name	Species Name	Status	Alkali Desert Scrub	Annual Grassland	Barren	Desert Riparian	Desert Scrub	Desert Succulent Shrub	Desert Wash	Joshua Tree	Sagebrush	Irrigated Row and Field Crops	Juniper	Lacustrine	Mixed Chaparral	Riverine	Urban	Valley Foothill Riparian
Arizona myotis	*Myotis occultus*	SSC	0	0	0	3.14	435.09	0	0	0	0	0	0	0	0	0.32	24.10	0
fringed myotis	*Myotis thysanodes*	FS	0.22	0.14	0		0	0	0.59	0.5	0	0	0	0	0	0	3.65	0
cave myotis	*Myotis velifer*	FS/SSC	0	0	0	3.14	435.09	0	0	0	0	0	0	0	0	0.32	0	0
Yuma myotis	*Myotis yumanensis*	FS	0.15	0	0	3.14	436.54	0	0	0	0	0	0	0	0	0.32	28.77	0
desert woodrat[gg]	*Neotoma lepida*	SSC	0.6	0	0	3.21	517.28	4.19	5.52	2.71	0.36	0	0	0	0.05	0	0	0
pocketed free-tailed bat	*Nyctinomops femorosaccus*	SSC	0	0	0	0	432.19	0	0	0	0	0	0	0	0	0	0	0
southern grasshopper mouse	*Onychomys torridus*	SSC	0.6	0.57	0	3.21	517.28	4.19	5.52	0	0.36	0	0	0	0.05	0	0	0.03
bighorn sheep[hh]	*Ovis canadensis*	FS/SFP	0.24	0	0	3.18	491.13	4.19	5.52	0	0	0	0	0.33	0	0	0	0
San Joaquin pocket mouse	*Perognathus inornatus*	FS	0	0.14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
little pocket mouse[ii]	*Perognathus longimembris*	FS/SSC	0.53	0	0	3.21	517.28	0	5.52	2.71	0.36	0	0	0	0.05	0	0	0
deer mouse[jj]	*Peromyscus maniculatus*	SSC	0.6	0.57	0.28	3.21	517.28	4.19	5.52	2.71	0.36	0.17	0.15	0	0.05	0	537.70	0.03
mountain lion[kk]	*Puma concolor*	SSC	0	0	0	3.14	437.97	0	0	0.5	0	0	0	0.33	0	0	0	0
Arizona cotton rat[ll]	*Sigmodon arizonae*	SSC	0	0	0	3.14	0	0	0	0	0	0	0	0	0	0	0	0
hispid cotton rat[mm]	*Sigmodon hispidus*	SSC	0	0	0	0	432.19	0	0	0	0	0	0	0	0	0	0	0
ornate shrew[nn]	*Sorex ornatus*	SSC	0	0	0	0	0	0	0	0	0	0	0	0	0.05	0	0	0
western spotted skunk[oo]	*Spilogale gracilis*	SSC	0.4	0.16	0	3.21	0	0	0	0	0.13	0	0.15	0.33	0.05	0	66.06	0.03
brush rabbit[pp]	*Sylvilagus bachmani*	FE/SE	0	0	0	0	0	0	0	0	0	0	0	0		0	0.06	0
American badger	*Taxidea taxus*	SSC	0.6	0.57	0.28	3.21	517.28	4.19	5.52	2.71	0.36	0.17	0.15	0	0.05	0	0	0.03
kit fox[qq]	*Vulpes macrotis*	FE/ST	0.6	0.57	0.28	3.21	517.28	4.19	5.52	2.71	0.36		0.15	0		0	0	0.03
Mohave ground squirrel	*Xerospermophilus mohavensis*	FS/ST	0.4	0.57	0	0	480.8	0	0	2.18	0	0	0	0	0	0	0	0
round-tailed ground squirrel[rr]	*Xerospermophilus tereticaudus*	FS/SSC	0	0	0	0	469.2	4.19	5.03	0	0	0	0	0	0	0	0	0

Notes: FE = federally endangered, FS = federal sensitive (USFS and/or BLM sensitive), FT = federally threatened, NA = not applicable, 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] Long Valley milk-vetch. Species does not occur in the GAI. It is only found near Mono Lake.
[b] Coachella Valley milk-vetch. Species does not occur in the GAI. It is only found in the Coachella Valley.
[c] Peirson's milk-vetch. Species does not occur in the GAI. It is only found in the Sonoran Desert.
[d] Mono milk-vetch. Species does not occur in the GAI. It is only found near Mono Lake.
[e] Wiggins' croton. Species does not occur in the GAI. It is only found in the Sonoran Desert.
[f] July gold. Species does not occur in the GAI. It is only found near Bishop in the White and Inyo Mountains.
[g] Borrego bedstraw. Species does not occur in the GAI. It is only found in the Sonoran Desert.
[h] Algodones Dunes sunflower. Species does not occur in the GAI. It is only found in the Sonoran Desert.

[i] Rock lady. Species does not occur in the GAI. It is only found in the White and Inyo Mountains.
[j] Spreading navarretia. The only population in the desert occurs near the base of the San Gabriel Mountains in a seasonal depression fed by farm/road run off, possibly an aberrant introduction. All other populations are coastal/near coastal in southern California.
[k] Eureka Dunes evening-primrose. Species does not occur in the GAI. It is only found in the White and Inyo Mountains above the GAI, which is only desert floor.
[l] Eureka Valley dune grass. Species does not occur in the GAI. It is only found in the White and Inyo Mountains above the GAI, which is only desert floor.
[m] California legless lizard. Species does not occur in the GAI. *A. stebbinsi*, the southern California species, occurs just outside the GAI.
[n] Coachwhip. Only the San Joaquin subspecies is special status, and it does not occur in the GAI.
[o] Latin name or regulatory status has changed since August 20, 2019, when the SAMNA model was run (Caltrans 2019).
[p] Ring-necked snake. There are three special status subspecies, none of which occur in the GAI.
[q] Western patch-nosed snake. Only the coast subspecies is special status, and it does not occur in the GAI.
[r] Coachella fringe-toed lizard. Species does not occur in the GAI. It occurs west of the GAI.
[s] Desert night lizard. Only the Sierra subspecies is special status, and it does not occur in the GAI.
[t] Red-winged blackbird. Only the Kern subspecies is special status, and it does not occur in the GAI.
[u] California quail. Only the Catalina subspecies is special status, and it does not occur in the GAI.
[v] Cactus wren. Only the coastal subspecies is special status, and it does not occur in the GAI.
[w] Song sparrow. Five subspecies are special status, none of which occur in the GAI.
[x] Savannah sparrow. Three subspecies are special status, none of which occur in the GAI.
[y] California towhee. Only the Inyo subspecies is special status, and it does not occur in the GAI.
[z] Spotted towhee. Only the San Clemente subspecies is special status, and it does not occur in the GAI.
[aa] Clapper rail. Only the Yuma subspecies is special status, addressed in another row. The acreages provided for clapper rail represent those for the Yuma subspecies.
[bb] Bell's vireo. There are two special status subspecies that occur in the GAI, Arizona Bell's vireo, addressed in another row, and least Bell's vireo.
[cc] San Diego pocket mouse. Two of the subspecies are special status, but only the northwestern subspecies occurs in the GAI.
[dd] Merriam's kangaroo rat. The San Bernardino subspecies is special status, but it does not occur in the GAI.
[ee] Black-tailed jackrabbit. Only the San Diego subspecies is special status, but it does not occur in the GAI.
[ff] California vole. Five subspecies are special status, but only the Mohave River, Amargosa, and Owens Valley subspecies occur in the GAI. Status shown is for the Amargosa subspecies.
[gg] Desert woodrat. The San Diego subspecies (*N.l. intermedia*) is special status.
[hh] Bighorn sheep. There are two special status species, one of which occurs in the GAI – desert bighorn sheep.
[ii] Little pocket mouse. Four species are special status. Only the Palm Springs and Jacumba subspecies occur in the GAI. Status shown is for the Palm Springs subspecies.
[jj] Deer mouse. Only the Anacapa Island and San Clemente subspecies are special status, and neither occur in the GAI.
[kk] Mountain lion. Only the Yuma subspecies is special status and it does not occur in the GAI.
[ll] Arizona cotton rat. Only the Colorado River subspecies is special status and it does not occur in the GAI.
[mm] Hispid cotton rat. Only the Yuma subspecies is special status and it does not occur in the GAI.
[nn] Ornate shrew. Five species are special status, none of which occur in the GAI.
[oo] Western spotted skunk. Only the Channel Islands subspecies is special status, and it does not occur in the GAI.
[pp] Brush rabbit. Only the riparian subspecies is special status, and it does not occur in the GAI.
[qq] Kit fox. Only the San Joaquin subspecies is special status, and it does not occur in the GAI.
[rr] Round-tailed ground squirrel. The Palm spring subspecies is special status and it occurs at the far southwestern extent of the GAI.

APPENDIX E: HYDROLOGIC UNITS

The SAMNA Reporting Tool expresses the landscape in terms of USGS HUC-8 sub-basins (Caltrans 2017; USGS 2014). However, the State Water Board 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. For the purposes of this RAMNA, aquatic resources in the Mojave and Southern Mojave sub-basins were the primary focus.

Table E-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]
15030101	Havasu-Mohave Lakes-AZ,CA,NV	649,135	713.20	Homer	44,938
15030101	Havasu-Mohave Lakes-AZ,CA,NV	649,135	713.30	Homer	125,320
15030101	Havasu-Mohave Lakes-AZ,CA,NV	649,135	714.00	Chemehuevis	479,041
15030102	Piute Wash-CA,NV	437,785	713.10	Homer	292,739
15030102	Piute Wash-CA,NV	437,785	713.40	Homer	145,050
15030104	Imperial Reservoir-AZ,CA	754,771	715.10	Colorado	327,821
18100100	Southern Mojave	5,601,503	701.00	Lucerne Lake	301,640
18100100	Southern Mojave	5,601,503	702.00	Johnson	193,206
18100100	Southern Mojave	5,601,503	703.00	Bessemer	82,297
18100100	Southern Mojave	5,601,503	704.00	Means	30,812
18100100	Southern Mojave	5,601,503	705.00	Emerson	191,664
18100100	Southern Mojave	5,601,503	706.00	Lavic	88,558
18100100	Southern Mojave	5,601,503	707.00	Deadman	148,093
18100100	Southern Mojave	5,601,503	708.10	Joshua Tree	129,902
18100100	Southern Mojave	5,601,503	708.20	Joshua Tree	34,389
18100100	Southern Mojave	5,601,503	709.10	Dale	114,095
18100100	Southern Mojave	5,601,503	709.20	Dale	298,267
18100100	Southern Mojave	5,601,503	710.10	Route Sixty Six	750,352
18100100	Southern Mojave	5,601,503	710.20	Route Sixty Six	704,023
18100100	Southern Mojave	5,601,503	711.00	Cadiz	371,844
18100100	Southern Mojave	5,601,503	712.00	Ward	718,638

HUC-8 #	HUC-8 Name	HUC-8 Acreage[a]	HU #	HU Name	HU Acreage[a]
18100100	Southern Mojave	5,601,503	716.00	Rice	201,951
18100100	Southern Mojave	5,601,503	717.20	Chuckwalla	419,669
18100100	Southern Mojave	5,601,503	717.30	Chuckwalla	374,608
18100100	Southern Mojave	5,601,503	717.40	Chuckwalla	33,662
18100200	Salton Sea	1,588,659	718.00	Hayfield	52,608
18100200	Salton Sea	1,588,659	719.10	Whitewater	45,441
18100200	Salton Sea	1,588,659	719.20	Whitewater	112,663
18100200	Salton Sea	1,588,659	719.45	Whitewater	99,895
18100200	Salton Sea	1,588,659	719.47	Whitewater	540,056
18070102	Santa Clara	1,034,800	403.43	Santa Clara - Calleguas	39,647
18070203	Santa Ana	950,336	801.51	Santa Ana River	36,201
16060015	Ivanpah-Pahrump Valleys-CA,NV	550,773	610.00	Pahrump	140,195
16060015	Ivanpah-Pahrump Valleys-CA,NV	550,773	611.00	Mesquite	132,163
16060015	Ivanpah-Pahrump Valleys-CA,NV	550,773	612.00	Ivanpah	278,493
18090102	Crowley Lake-CA,NV	1,189,805	603.20	Owens	204,629
18090102	Crowley Lake-CA,NV	1,189,805	603.20	Owens	8,398
18090102	Crowley Lake-CA,NV	1,189,805	603.20	Owens	10,089
18090102	Crowley Lake-CA,NV	1,189,805	603.20	Owens	7,872
18090102	Crowley Lake-CA,NV	1,189,805	603.20	Owens	2,687
18090102	Crowley Lake-CA,NV	1,189,805	603.20	Owens	5,274
18090102	Crowley Lake-CA,NV	1,189,805	603.20	Owens	5,333
18090103	Owens Lake	878,403	603.30	Owens	224,765
18090103	Owens Lake	878,403	603.30	Owens	10,136
18090103	Owens Lake	878,403	603.30	Owens	5,171
18090103	Owens Lake	878,403	603.30	Owens	8,185
18090103	Owens Lake	878,403	603.30	Owens	7,981
18090103	Owens Lake	878,403	603.30	Owens	9,475
18090103	Owens Lake	878,403	603.30	Owens	4,477

HUC-8 #	HUC-8 Name	HUC-8 Acreage[a]	HU #	HU Name	HU Acreage[a]
18090103	Owens Lake	878,403	603.30	Owens	12,140
18090103	Owens Lake	878,403	603.30	Owens	5,604
18090103	Owens Lake	878,403	603.30	Owens	4,818
18090103	Owens Lake	878,403	603.30	Owens	8,125
18090103	Owens Lake	878,403	603.30	Owens	18,270
18090103	Owens Lake	878,403	603.30	Owens	6,758
18090103	Owens Lake	878,403	603.30	Owens	2,948
18090103	Owens Lake	878,403	603.30	Owens	8,662
18090103	Owens Lake	878,403	603.30	Owens	2,877
18090103	Owens Lake	878,403	603.30	Owens	6,930
18090103	Owens Lake	878,403	603.30	Owens	6,657
18090103	Owens Lake	878,403	603.30	Owens	3,362
18090103	Owens Lake	878,403	603.30	Owens	9,346
18090103	Owens Lake	878,403	603.30	Owens	7,830
18090103	Owens Lake	878,403	603.30	Owens	7,671
18090103	Owens Lake	878,403	603.30	Owens	16,533
18090103	Owens Lake	878,403	603.30	Owens	6,355
18090103	Owens Lake	878,403	603.30	Owens	8,690
18090103	Owens Lake	878,403	603.30	Owens	4,399
18090103	Owens Lake	878,403	603.30	Owens	8,207
18090103	Owens Lake	878,403	603.30	Owens	14,265
18090103	Owens Lake	878,403	603.30	Owens	4,698
18090103	Owens Lake	878,403	603.30	Owens	3,525
18090103	Owens Lake	878,403	603.30	Owens	7,257
18090103	Owens Lake	878,403	603.30	Owens	6,639
18090103	Owens Lake	878,403	603.30	Owens	14,092
18090103	Owens Lake	878,403	603.30	Owens	6,799
18090103	Owens Lake	878,403	603.30	Owens	6,986
18090103	Owens Lake	878,403	603.30	Owens	7,575
18090103	Owens Lake	878,403	603.30	Owens	10,197
18090103	Owens Lake	878,403	603.30	Owens	5,958

HUC-8 #	HUC-8 Name	HUC-8 Acreage[a]	HU #	HU Name	HU Acreage[a]
18090103	Owens Lake	878,403	603.30	Owens	8,877
18090103	Owens Lake	878,403	603.30	Owens	9,796
18090103	Owens Lake	878,403	603.30	Owens	7,517
18090103	Owens Lake	878,403	603.30	Owens	7,686
18090103	Owens Lake	878,403	603.30	Owens	4,820
18090103	Owens Lake	878,403	603.30	Owens	13,284
18090103	Owens Lake	878,403	603.30	Owens	4,993
18090103	Owens Lake	878,403	603.30	Owens	4,011
18090103	Owens Lake	878,403	603.30	Owens	8,528
18090103	Owens Lake	878,403	603.30	Owens	6,354
18090103	Owens Lake	878,403	603.30	Owens	6,839
18090103	Owens Lake	878,403	603.30	Owens	6,248
18090103	Owens Lake	878,403	603.30	Owens	6,412
18090103	Owens Lake	878,403	603.30	Owens	1,486
18090103	Owens Lake	878,403	603.30	Owens	9,651
18090103	Owens Lake	878,403	603.30	Owens	3,238
18090103	Owens Lake	878,403	603.30	Owens	9,429
18090103	Owens Lake	878,403	603.30	Owens	6,213
18090103	Owens Lake	878,403	603.30	Owens	8,127
18090103	Owens Lake	878,403	603.30	Owens	10,399
18090103	Owens Lake	878,403	603.30	Owens	9,494
18090103	Owens Lake	878,403	603.30	Owens	7,495
18090103	Owens Lake	878,403	603.30	Owens	8,835
18090103	Owens Lake	878,403	624.10	Indian Wells	15,787
18090103	Owens Lake	878,403	624.10	Indian Wells	14,133
18090103	Owens Lake	878,403	624.10	Indian Wells	5,482
18090103	Owens Lake	878,403	624.10	Indian Wells	5,635
18090103	Owens Lake	878,403	624.10	Indian Wells	10,457
18090202	Upper Amargosa-CA,NV	730,335	609.41	Amargosa	78,373
18090202	Upper Amargosa-CA,NV	730,335	609.42	Amargosa	3,976
18090202	Upper Amargosa-CA,NV	730,335	609.42	Amargosa	492,862

HUC-8 #	HUC-8 Name	HUC-8 Acreage[a]	HU #	HU Name	HU Acreage[a]
18090202	Upper Amargosa-CA,NV	730,335	609.43	Amargosa	75,169
18090202	Upper Amargosa-CA,NV	730,335	609.44	Amargosa	79,999
18090203	Death Valley-Lower Amargosa-CA,NV	3,245,078	609.11	Amargosa	3,434
18090203	Death Valley-Lower Amargosa-CA,NV	3,245,078	609.11	Amargosa	1,508
18090203	Death Valley-Lower Amargosa-CA,NV	3,245,078	609.11	Amargosa	8,716
18090203	Death Valley-Lower Amargosa-CA,NV	3,245,078	609.11	Amargosa	1,654,506
18090203	Death Valley-Lower Amargosa-CA,NV	3,245,078	609.11	Amargosa	10,611
18090203	Death Valley-Lower Amargosa-CA,NV	3,245,078	609.11	Amargosa	11,868
18090203	Death Valley-Lower Amargosa-CA,NV	3,245,078	609.11	Amargosa	5,784
18090203	Death Valley-Lower Amargosa-CA,NV	3,245,078	609.11	Amargosa	5,676
18090203	Death Valley-Lower Amargosa-CA,NV	3,245,078	609.11	Amargosa	9,923
18090203	Death Valley-Lower Amargosa-CA,NV	3,245,078	609.11	Amargosa	10,797
18090203	Death Valley-Lower Amargosa-CA,NV	3,245,078	609.11	Amargosa	5,733
18090203	Death Valley-Lower Amargosa-CA,NV	3,245,078	609.11	Amargosa	14,769
18090203	Death Valley-Lower Amargosa-CA,NV	3,245,078	609.11	Amargosa	7,859
18090203	Death Valley-Lower Amargosa-CA,NV	3,245,078	609.11	Amargosa	6,328
18090203	Death Valley-Lower Amargosa-CA,NV	3,245,078	609.11	Amargosa	10,901
18090203	Death Valley-Lower Amargosa-CA,NV	3,245,078	609.11	Amargosa	6,815
18090203	Death Valley-Lower Amargosa-CA,NV	3,245,078	609.11	Amargosa	5,794
18090203	Death Valley-Lower Amargosa-CA,NV	3,245,078	609.11	Amargosa	4,294

HUC-8 #	HUC-8 Name	HUC-8 Acreage[a]	HU #	HU Name	HU Acreage[a]
18090203	Death Valley-Lower Amargosa-CA,NV	3,245,078	609.11	Amargosa	7,521
18090203	Death Valley-Lower Amargosa-CA,NV	3,245,078	609.11	Amargosa	5,746
18090203	Death Valley-Lower Amargosa-CA,NV	3,245,078	609.11	Amargosa	5,529
18090203	Death Valley-Lower Amargosa-CA,NV	3,245,078	609.11	Amargosa	7,974
18090203	Death Valley-Lower Amargosa-CA,NV	3,245,078	609.11	Amargosa	7,420
18090203	Death Valley-Lower Amargosa-CA,NV	3,245,078	609.11	Amargosa	9,488
18090203	Death Valley-Lower Amargosa-CA,NV	3,245,078	609.11	Amargosa	8,618
18090203	Death Valley-Lower Amargosa-CA,NV	3,245,078	609.13	Amargosa	80,178
18090203	Death Valley-Lower Amargosa-CA,NV	3,245,078	609.21	Amargosa	17,230
18090203	Death Valley-Lower Amargosa-CA,NV	3,245,078	609.22	Amargosa	159,691
18090203	Death Valley-Lower Amargosa-CA,NV	3,245,078	609.23	Amargosa	408,480
18090203	Death Valley-Lower Amargosa-CA,NV	3,245,078	609.24	Amargosa	265,234
18090203	Death Valley-Lower Amargosa-CA,NV	3,245,078	609.31	Amargosa	90,333
18090203	Death Valley-Lower Amargosa-CA,NV	3,245,078	609.32	Amargosa	42,472
18090203	Death Valley-Lower Amargosa-CA,NV	3,245,078	613.10	Owlshead	33,453
18090203	Death Valley-Lower Amargosa-CA,NV	3,245,078	613.20	Owlshead	68,547
18090203	Death Valley-Lower Amargosa-CA,NV	3,245,078	614.00	Leach	98,723
18090204	Panamint Valley	1,046,373	620.10	Ballarat	8,530
18090204	Panamint Valley	1,046,373	620.21	Ballarat	21,536
18090204	Panamint Valley	1,046,373	620.22	Ballarat	15,994
18090204	Panamint Valley	1,046,373	620.30	Ballarat	6,560

HUC-8 #	HUC-8 Name	HUC-8 Acreage[a]	HU #	HU Name	HU Acreage[a]
18090204	Panamint Valley	1,046,373	620.60	Ballarat	8,055
18090204	Panamint Valley	1,046,373	alley	Ballarat	9,454
18090204	Panamint Valley	1,046,373	620.60	Ballarat	7,541
18090204	Panamint Valley	1,046,373	620.60	Ballarat	505,845
18090204	Panamint Valley	1,046,373	620.60	Ballarat	9,153
18090204	Panamint Valley	1,046,373	620.70	Ballarat	53,838
18090204	Panamint Valley	1,046,373	620.80	Ballarat	194,787
18090205	Indian Wells Searles Valleys	1,291,610	621.10	Trona	327,328
18090205	Indian Wells Searles Valleys	1,291,610	621.20	Trona	54,151
18090205	Indian Wells Searles Valleys	1,291,610	621.30	Trona	76,056
18090205	Indian Wells Searles Valleys	1,291,610	622.20	Coso	149,293
18090205	Indian Wells Searles Valleys	1,291,610	624.10	Indian Wells	8,205
18090205	Indian Wells Searles Valleys	1,291,610	624.10	Indian Wells	15,757
18090205	Indian Wells Searles Valleys	1,291,610	624.10	Indian Wells	5,470
18090205	Indian Wells Searles Valleys	1,291,610	624.10	Indian Wells	6,953
18090205	Indian Wells Searles Valleys	1,291,610	624.10	Indian Wells	23,927
18090205	Indian Wells Searles Valleys	1,291,610	624.10	Indian Wells	7,708
18090205	Indian Wells Searles Valleys	1,291,610	624.10	Indian Wells	5,572
18090205	Indian Wells Searles Valleys	1,291,610	624.10	Indian Wells	2,584
18090205	Indian Wells Searles Valleys	1,291,610	624.10	Indian Wells	8,723
18090205	Indian Wells Searles Valleys	1,291,610	624.10	Indian Wells	10,528
18090205	Indian Wells Searles Valleys	1,291,610	624.20	Indian Wells	328,203

HUC-8 #	HUC-8 Name	HUC-8 Acreage[a]	HU #	HU Name	HU Acreage[a]
18090205	Indian Wells Searles Valleys	1,291,610	624.20	Indian Wells	8,262
18090205	Indian Wells Searles Valleys	1,291,610	624.20	Indian Wells	13,973
18090205	Indian Wells Searles Valleys	1,291,610	624.20	Indian Wells	6,791
18090205	Indian Wells Searles Valleys	1,291,610	624.20	Indian Wells	14,295
18090205	Indian Wells Searles Valleys	1,291,610	624.20	Indian Wells	11,613
18090205	Indian Wells Searles Valleys	1,291,610	624.20	Indian Wells	12,730
18090205	Indian Wells Searles Valleys	1,291,610	624.20	Indian Wells	8,883
18090205	Indian Wells Searles Valleys	1,291,610	624.20	Indian Wells	7,517
18090205	Indian Wells Searles Valleys	1,291,610	624.20	Indian Wells	9,012
18090205	Indian Wells Searles Valleys	1,291,610	624.20	Indian Wells	9,103
18090205	Indian Wells Searles Valleys	1,291,610	624.20	Indian Wells	12,685
18090205	Indian Wells Searles Valleys	1,291,610	624.20	Indian Wells	7,857
18090205	Indian Wells Searles Valleys	1,291,610	624.20	Indian Wells	9,425
18090205	Indian Wells Searles Valleys	1,291,610	624.20	Indian Wells	12,341
18090205	Indian Wells Searles Valleys	1,291,610	624.20	Indian Wells	17,816
18090205	Indian Wells Searles Valleys	1,291,610	624.20	Indian Wells	4,713
18090205	Indian Wells Searles Valleys	1,291,610	624.20	Indian Wells	6,270
18090205	Indian Wells Searles Valleys	1,291,610	624.20	Indian Wells	3,995
18090205	Indian Wells Searles Valleys	1,291,610	624.20	Indian Wells	8,536

HUC-8 #	HUC-8 Name	HUC-8 Acreage[a]	HU #	HU Name	HU Acreage[a]
18090205	Indian Wells Searles Valleys	1,291,610	624.20	Indian Wells	4,117
18090205	Indian Wells Searles Valleys	1,291,610	624.20	Indian Wells	9,997
18090205	Indian Wells Searles Valleys	1,291,610	624.20	Indian Wells	7,037
18090205	Indian Wells Searles Valleys	1,291,610	624.20	Indian Wells	8,219
18090205	Indian Wells Searles Valleys	1,291,610	624.20	Indian Wells	4,630
18090206	Antelope-Fremont Valleys	2,154,065	625.10	Fremont	3,379
18090206	Antelope-Fremont Valleys	2,154,065	625.10	Fremont	6,711
18090206	Antelope-Fremont Valleys	2,154,065	625.10	Fremont	5,610
18090206	Antelope-Fremont Valleys	2,154,065	625.10	Fremont	5,971
18090206	Antelope-Fremont Valleys	2,154,065	625.10	Fremont	3,791
18090206	Antelope-Fremont Valleys	2,154,065	625.10	Fremont	5,191
18090206	Antelope-Fremont Valleys	2,154,065	625.40	Fremont	305,211
18090206	Antelope-Fremont Valleys	2,154,065	625.40	Fremont	6,299
18090206	Antelope-Fremont Valleys	2,154,065	625.40	Fremont	9,920
18090206	Antelope-Fremont Valleys	2,154,065	625.40	Fremont	5,906
18090206	Antelope-Fremont Valleys	2,154,065	625.40	Fremont	7,789
18090206	Antelope-Fremont Valleys	2,154,065	625.40	Fremont	12,694
18090206	Antelope-Fremont Valleys	2,154,065	625.40	Fremont	6,316
18090206	Antelope-Fremont Valleys	2,154,065	625.40	Fremont	9,646
18090206	Antelope-Fremont Valleys	2,154,065	626.10	Antelope	22,751
18090206	Antelope-Fremont Valleys	2,154,065	626.10	Antelope	40,041
18090206	Antelope-Fremont Valleys	2,154,065	626.20	Antelope	43,892
18090206	Antelope-Fremont Valleys	2,154,065	626.30	Antelope	11,028
18090206	Antelope-Fremont Valleys	2,154,065	626.30	Antelope	4,931
18090206	Antelope-Fremont Valleys	2,154,065	626.30	Antelope	7,943
18090206	Antelope-Fremont Valleys	2,154,065	626.30	Antelope	63,056
18090206	Antelope-Fremont Valleys	2,154,065	626.30	Antelope	4,707
18090206	Antelope-Fremont Valleys	2,154,065	626.30	Antelope	12,516

HUC-8 #	HUC-8 Name	HUC-8 Acreage[a]	HU #	HU Name	HU Acreage[a]
18090206	Antelope-Fremont Valleys	2,154,065	626.30	Antelope	2,576
18090206	Antelope-Fremont Valleys	2,154,065	626.40	Antelope	6,892
18090206	Antelope-Fremont Valleys	2,154,065	626.40	Antelope	9,329
18090206	Antelope-Fremont Valleys	2,154,065	626.40	Antelope	157,693
18090206	Antelope-Fremont Valleys	2,154,065	626.40	Antelope	10,389
18090206	Antelope-Fremont Valleys	2,154,065	626.40	Antelope	10,420
18090206	Antelope-Fremont Valleys	2,154,065	626.50	Antelope	557,620
18090206	Antelope-Fremont Valleys	2,154,065	626.60	Antelope	278,240
18090206	Antelope-Fremont Valleys	2,154,065	626.70	Antelope	56,754
18090206	Antelope-Fremont Valleys	2,154,065	626.80	Antelope	265,344
18090207	Coyote Cuddeback Lakes	1,138,938	615.10	Granite	23,878
18090207	Coyote Cuddeback Lakes	1,138,938	615.20	Granite	30,796
18090207	Coyote Cuddeback Lakes	1,138,938	616.00	Bicycle	87,899
18090207	Coyote Cuddeback Lakes	1,138,938	617.00	Goldstone	44,685
18090207	Coyote Cuddeback Lakes	1,138,938	618.00	Coyote	159,543
18090207	Coyote Cuddeback Lakes	1,138,938	619.00	Superior	184,099
18090207	Coyote Cuddeback Lakes	1,138,938	627.00	Cuddeback	132,454
18090207	Coyote Cuddeback Lakes	1,138,938	628.41	Mojave	41,336
18090207	Coyote Cuddeback Lakes	1,138,938	628.42	Mojave	434,248
18090208	Mojave	2,999,939	628.10	Mojave	106,382
18090208	Mojave	2,999,939	628.20	Mojave	556,821
18090208	Mojave	2,999,939	628.30	Mojave	327,512
18090208	Mojave	2,999,939	628.50	Mojave	203,211
18090208	Mojave	2,999,939	628.61	Mojave	12,840
18090208	Mojave	2,999,939	628.62	Mojave	221,828
18090208	Mojave	2,999,939	628.71	Mojave	130,067
18090208	Mojave	2,999,939	628.72	Mojave	167,568
18090208	Mojave	2,999,939	628.73	Mojave	44,309
18090208	Mojave	2,999,939	628.81	Mojave	58,093
18090208	Mojave	2,999,939	628.82	Mojave	606,479

HUC-8 #	HUC-8 Name	HUC-8 Acreage[a]	HU #	HU Name	HU Acreage[a]
18090208	Mojave	2,999,939	628.90	Mojave	417,978
18090208	Mojave	2,999,939	629.00	Broadwell	146,848

Source: Caltrans 2017
[a] Numbers were rounded to the nearest whole number.

References

California Department of Water Resources. 2016. "CalWater Hydrologic Areas." Accessed October 19, 2019. https://catalog.data.gov/dataset/calwater-2-233fac.

Caltrans 2017. "Waters_D8 in Caltrans District 8 Geospatial Data for the Advance Mitigation Needs Assessment for the Second Quarter of FY 2017/2018" (data file). Accessed February 6, 2019.

U.S. Geological Survey (USGS). 2014. "National Hydrology Dataset & National Watershed Boundary Dataset." Accessed March 18, 2019. https://www.usgs.gov/core-science-systems/ngp/national-hydrography.

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APPENDIX F: AQUATIC RESOURCE LOCATIONS

Aquatic resource locations are shown by HUC-8 sub-basin and HU in the following maps. These locations were excerpted from the SAMNA Reporting Tool's water and wetland layers (Caltrans 2017a, 2017b). 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 (2017) 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 Report Tool relies upon them (Caltrans 2017a, 2017b).

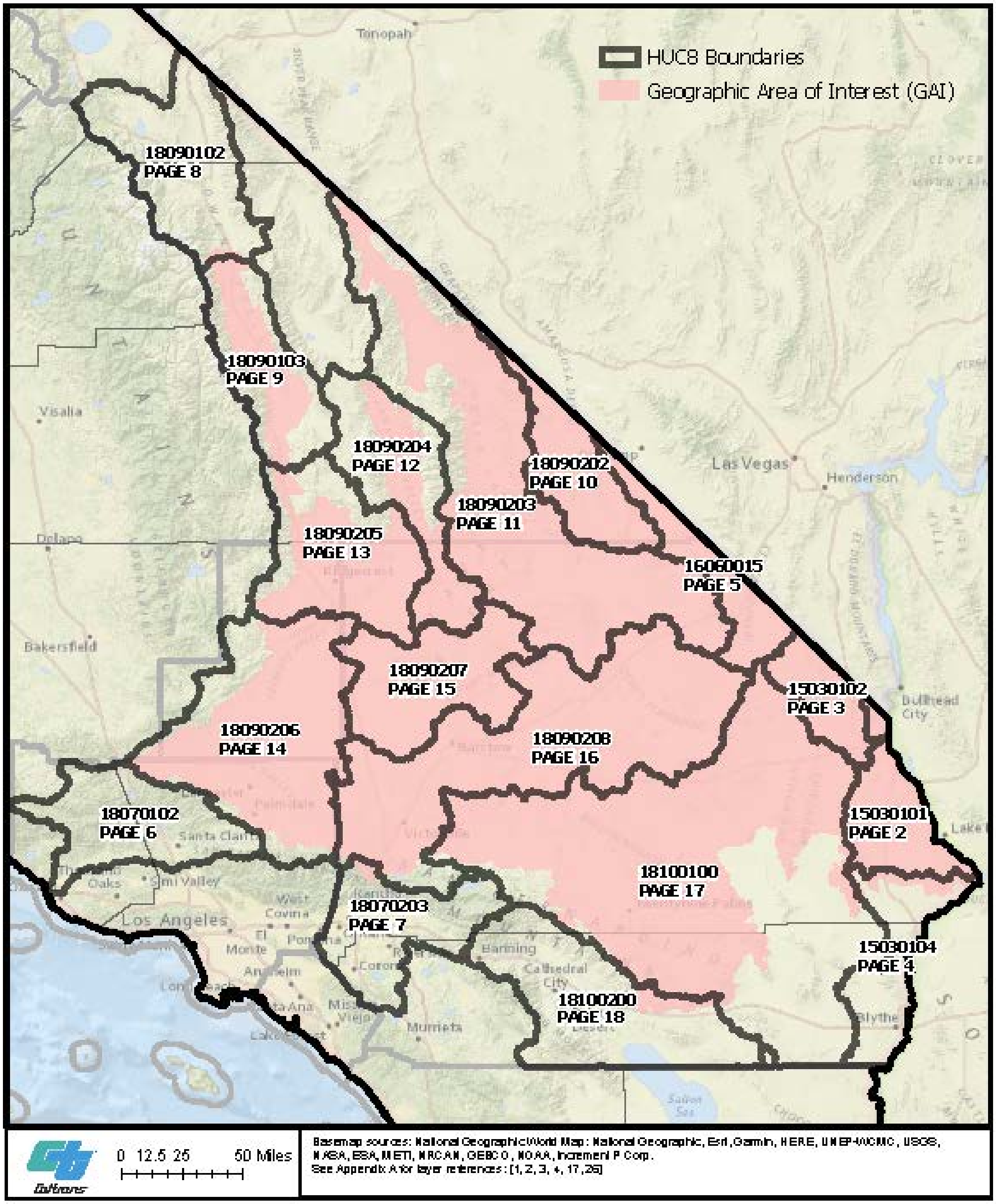
References

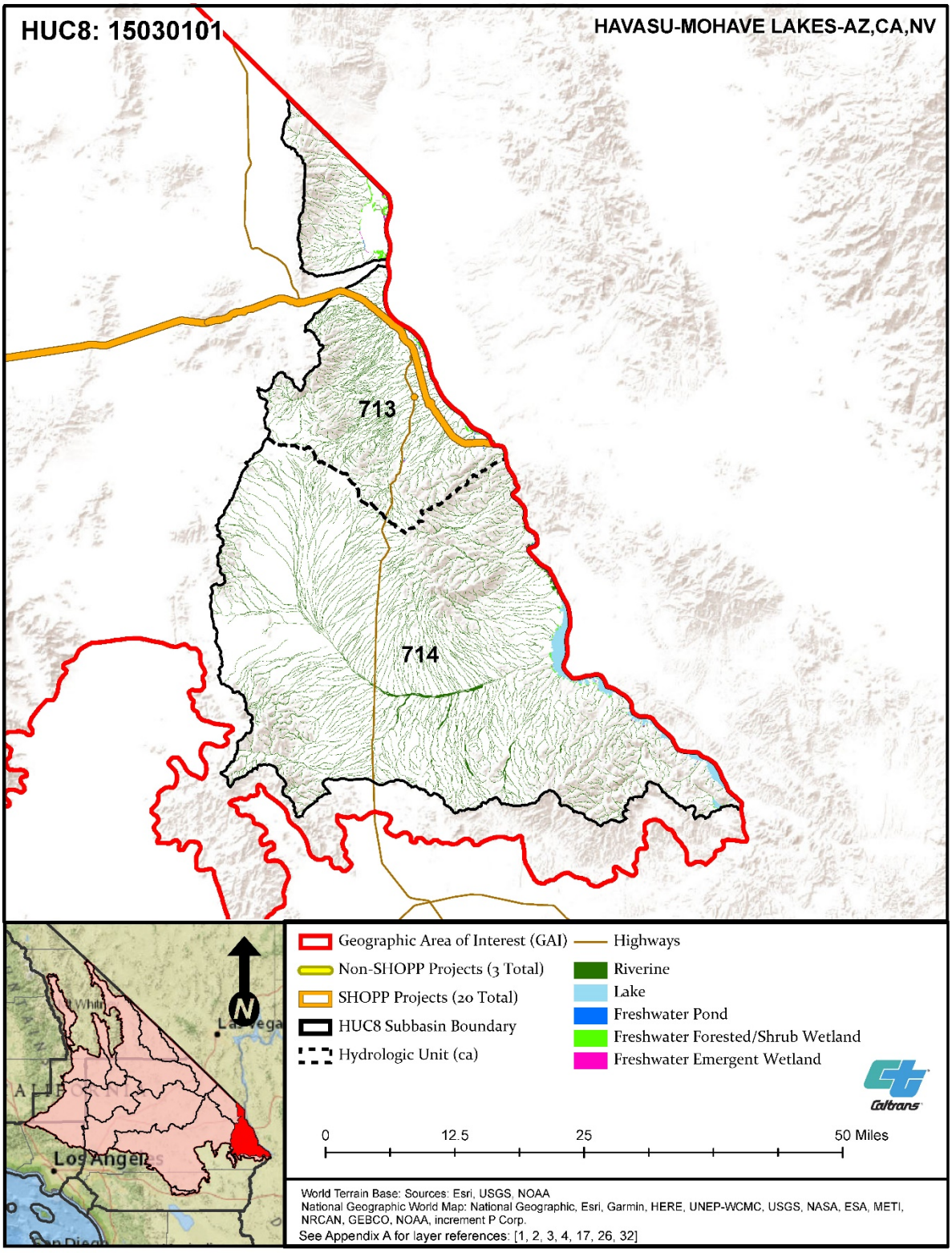
Caltrans. 2017a. "Waters_D8 in Caltrans District 8 Geospatial Data for the Advance Mitigation Needs Assessment for the Second Quarter of FY 2017/2018" (data file). Accessed February 6, 2019. http://www.dot.ca.gov/env/advancemitigation/.

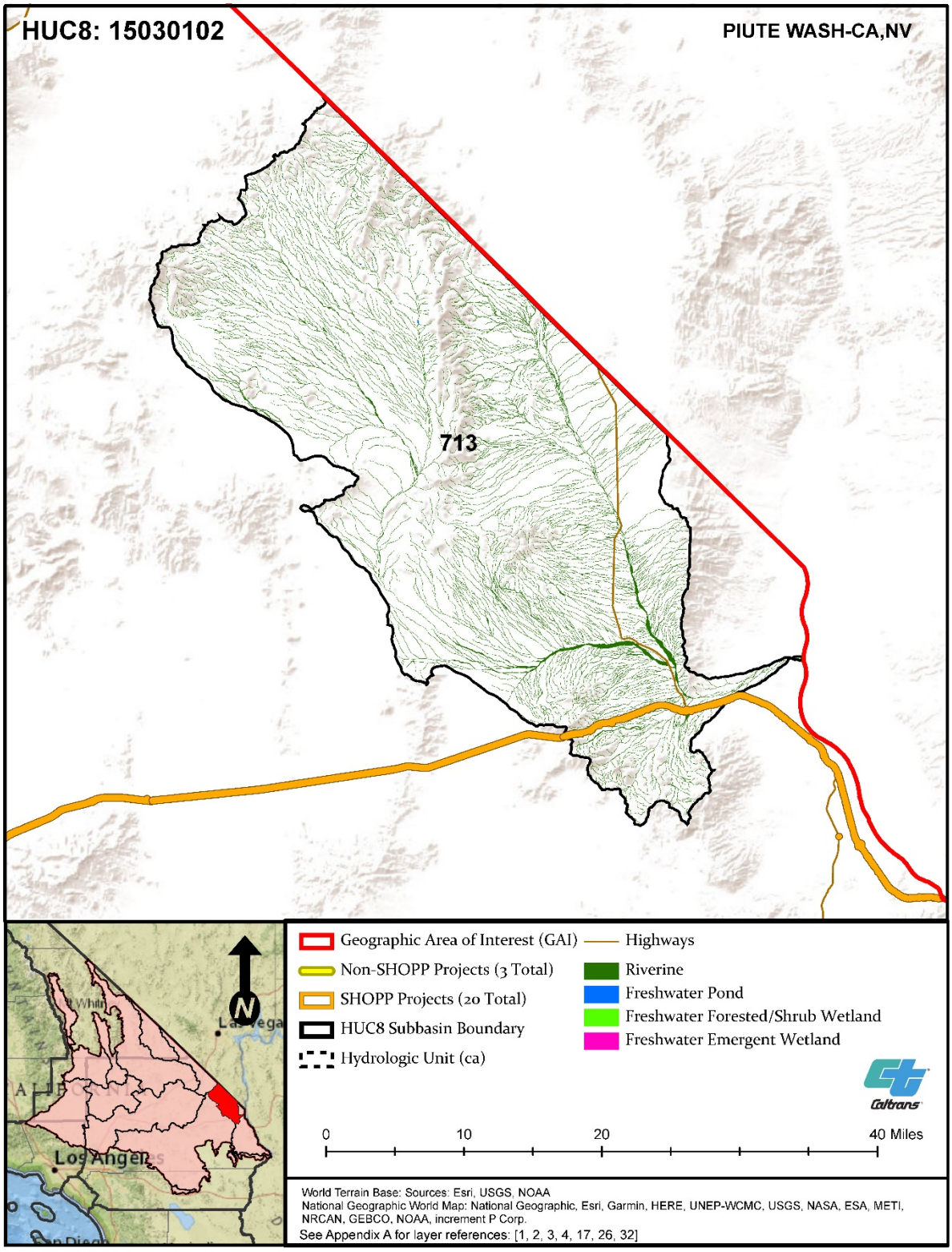
Caltrans. 2017b. "Wetlands_D8 in Caltrans District 8 Geospatial Data for the Advance Mitigation Needs Assessment for the Second Quarter of FY 2017/2018" (data file). Accessed February 6, 2019. http://www.dot.ca.gov/env/advancemitigation/.

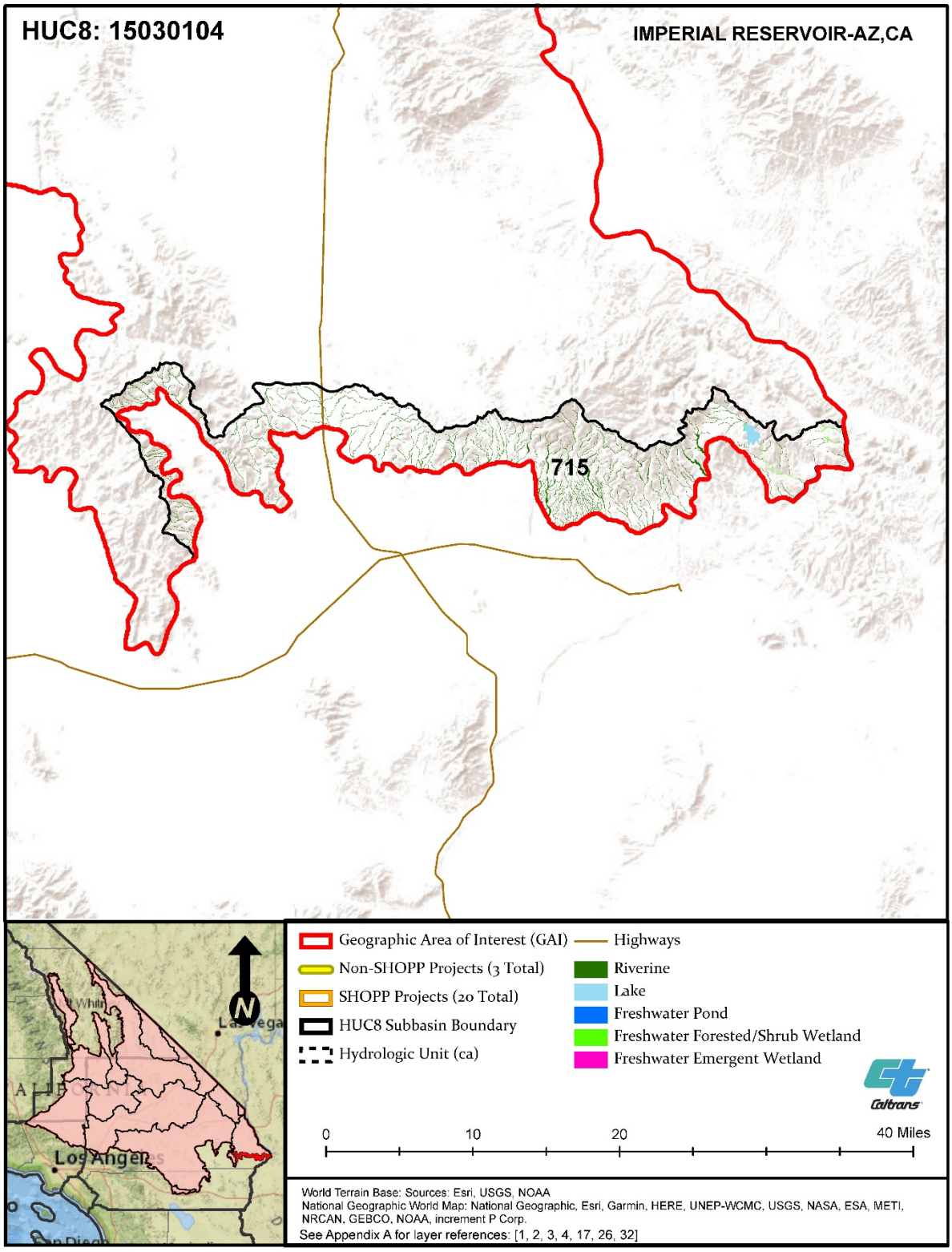
FWS. 2017. "National Wetlands Inventory. Wetlands Mapper." Accessed February 19, 2019. https://www.fws.gov/wetlands/data/mapper.html.

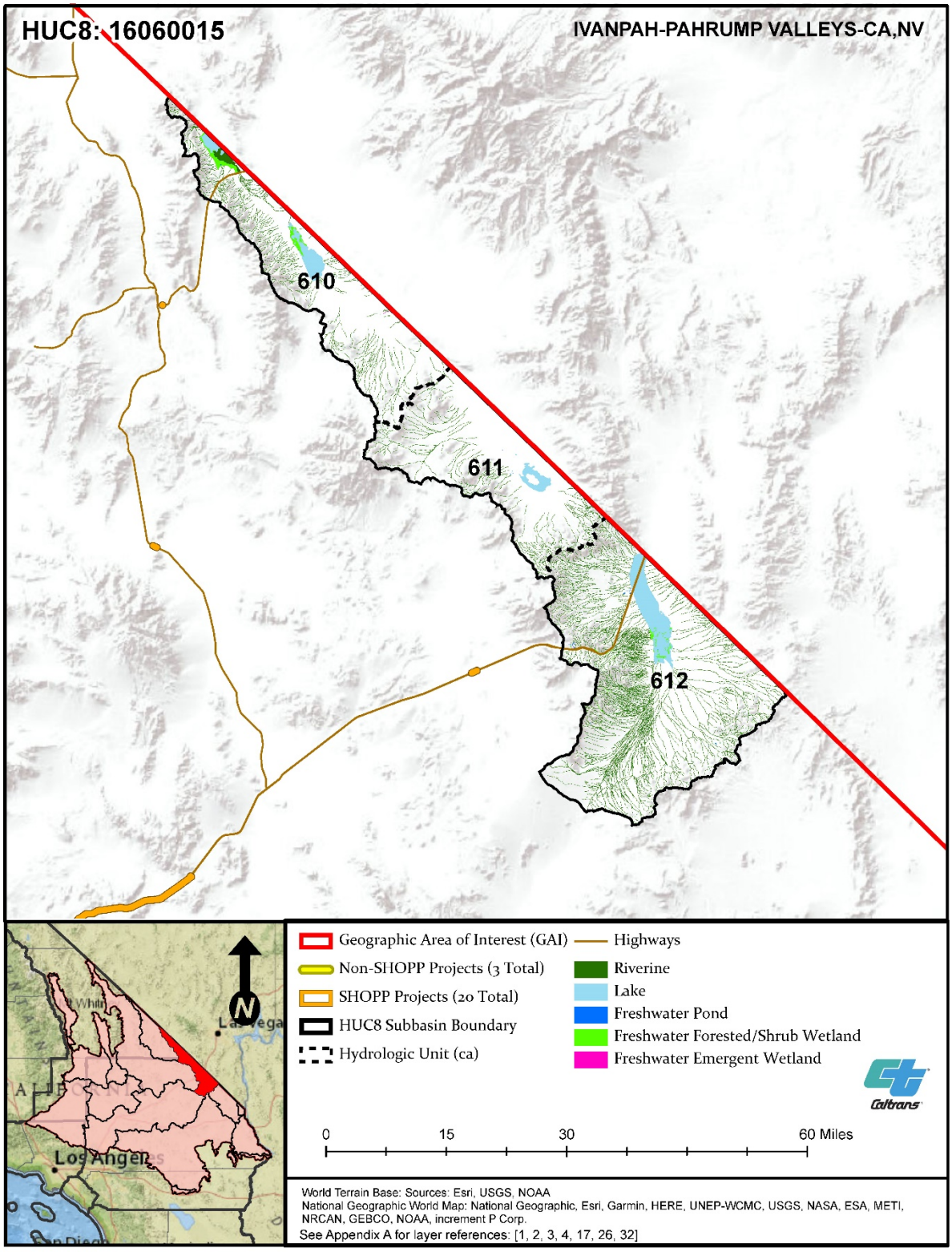
San Francisco Estuary Institute. 2018. "California Aquatic Resource Inventory (CARI)." Accessed February 28, 2019. https://www.sfei.org/cari#sthash.SnPvzyAU.dpbs.

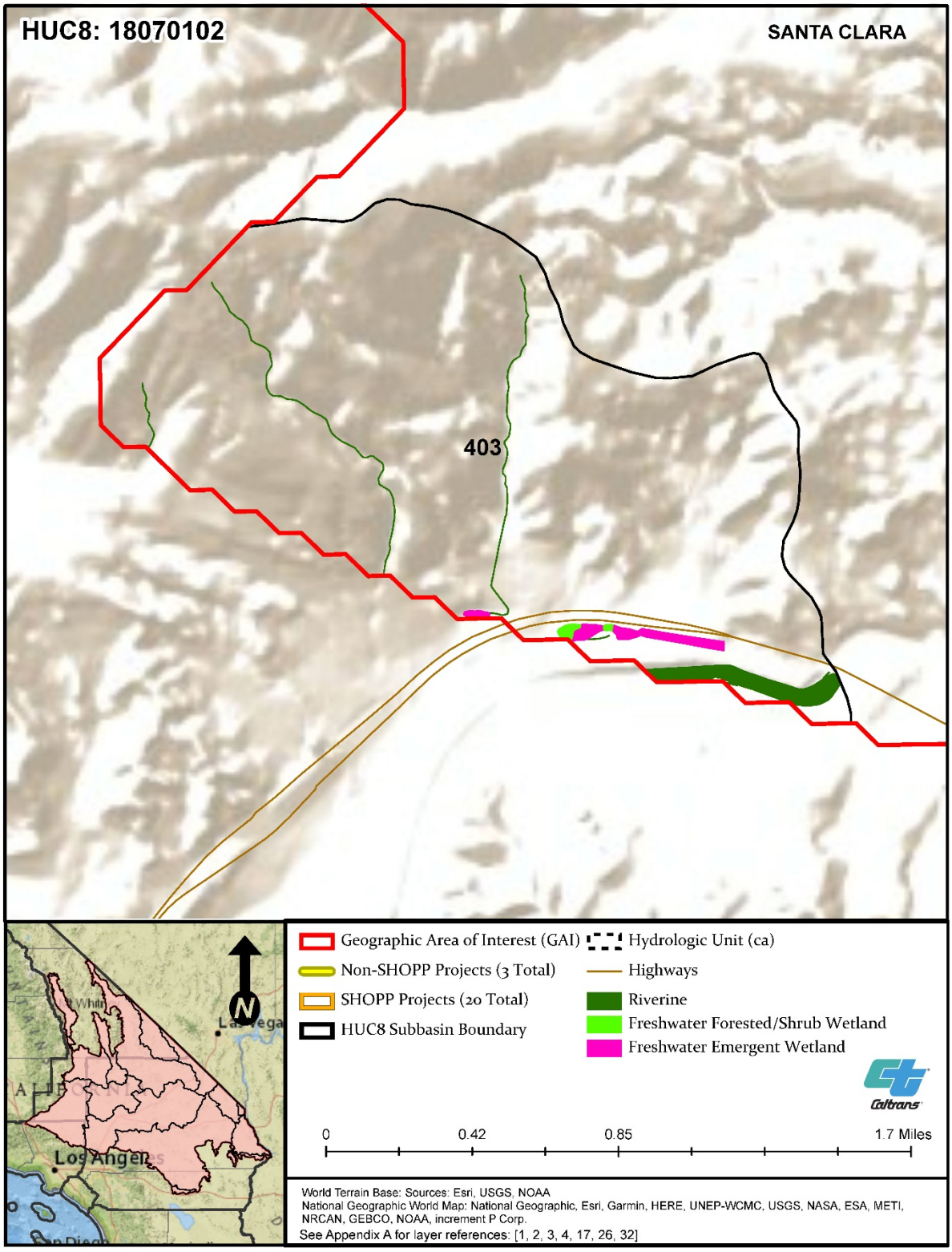

HUC8 Boundaries
Geographic Area of Interest (GAI)
18090102
PAGE 8
18090103
PAGE 9
18090204
PAGE 12
18090202
PAGE 10
18090203
PAGE 11
18090205
PAGE 13
16060015
PAGE 5
18090207
PAGE 15
15030102
PAGE 3
18090206
PAGE 14
18090208
PAGE 16
18070102
PAGE 6
15030101
PAGE 2
18100100
PAGE 17
18070203
PAGE 7
15030104
PAGE 4
18100200
PAGE 18
Las Vegas
Henderson
Visalia
Bakersfield
Los Angeles
0 12.5 25 50 Miles
Basemap sources: National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, Increment P Corp.
See Appendix A for layer references: [1, 2, 3, 4, 17, 26]

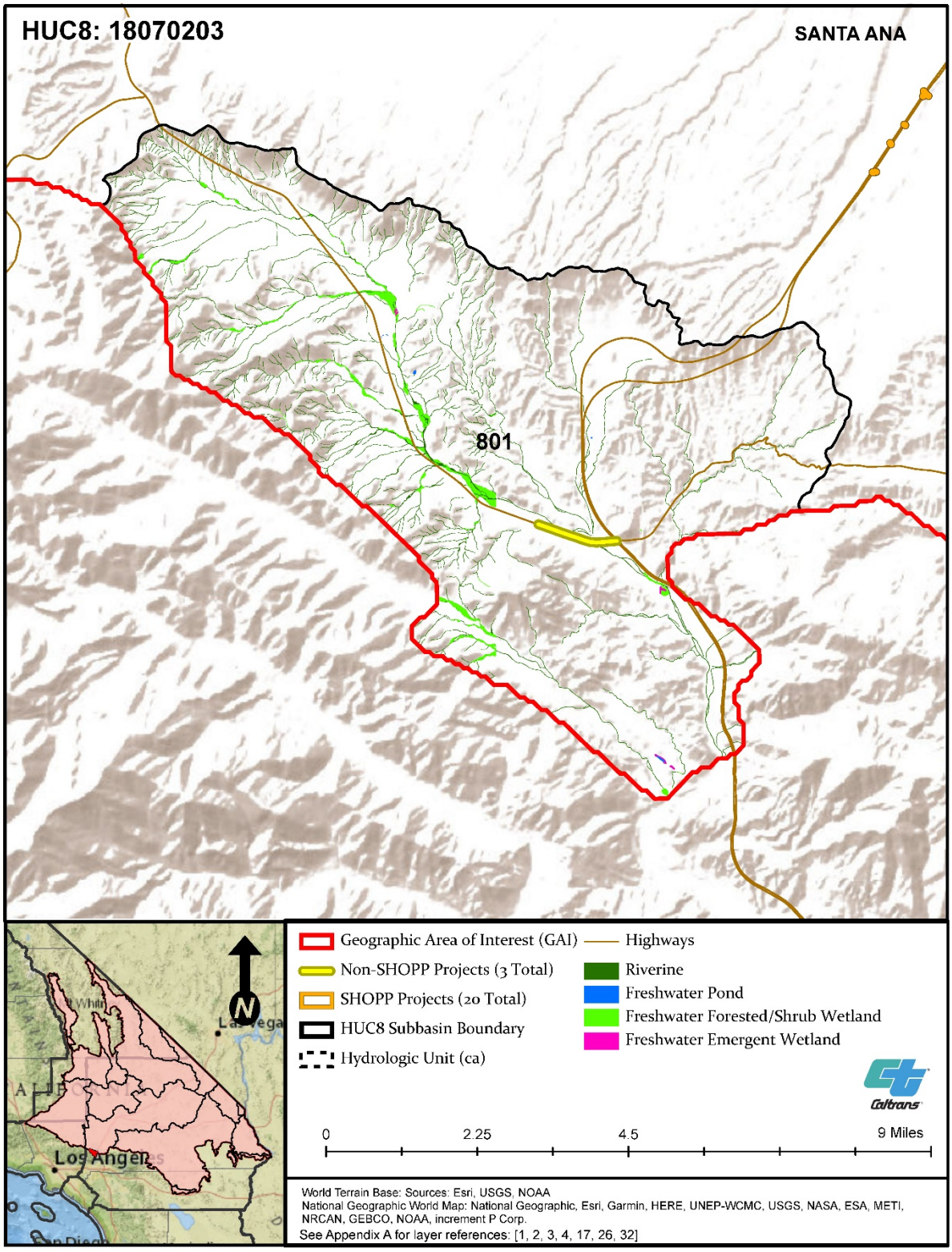

HUC8: 15030101
HAVASU-MOHAVE LAKES-AZ,CA,NV
713
714
N
Las Vegas
Los Angeles
Geographic Area of Interest (GAI)
Non-SHOPP Projects (3 Total)
SHOPP Projects (20 Total)
HUC8 Subbasin Boundary
Hydrologic Unit (ca)
Highways
Riverine
Lake
Freshwater Pond
Freshwater Forested/Shrub Wetland
Freshwater Emergent Wetland
Caltrans
0
12.5
25
50 Miles
World Terrain Base: Sources: Esri, USGS, NOAA
National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
See Appendix A for layer references: [1, 2, 3, 4, 17, 26, 32]

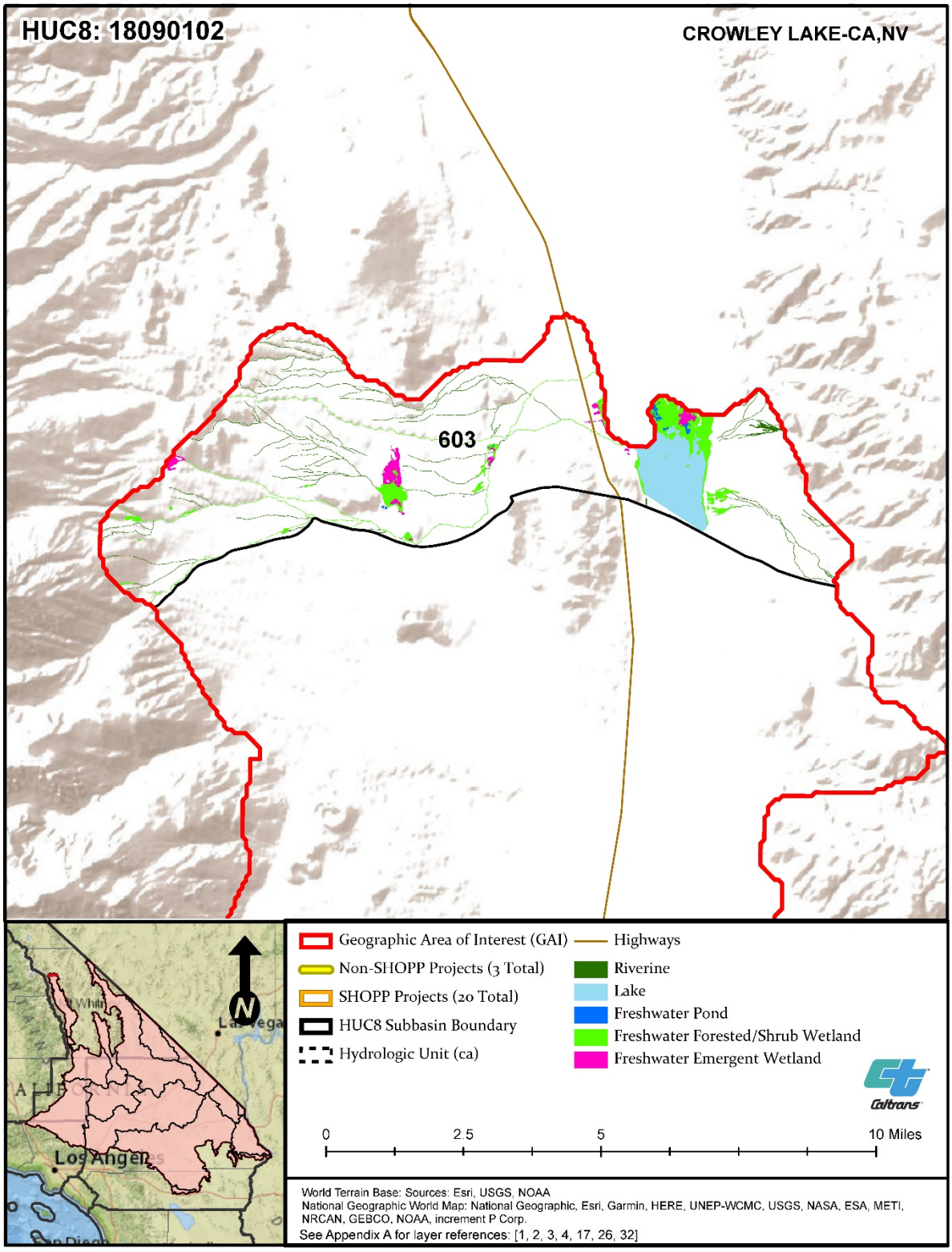

HUC8: 15030102
PIUTE WASH-CA,NV
713
N
Geographic Area of Interest (GAI)
Non-SHOPP Projects (3 Total)
SHOPP Projects (20 Total)
HUC8 Subbasin Boundary
Hydrologic Unit (ca)
Highways
Riverine
Freshwater Pond
Freshwater Forested/Shrub Wetland
Freshwater Emergent Wetland
Caltrans
0
10
20
40 Miles
World Terrain Base: Sources: Esri, USGS, NOAA
National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
See Appendix A for layer references: [1, 2, 3, 4, 17, 26, 32]

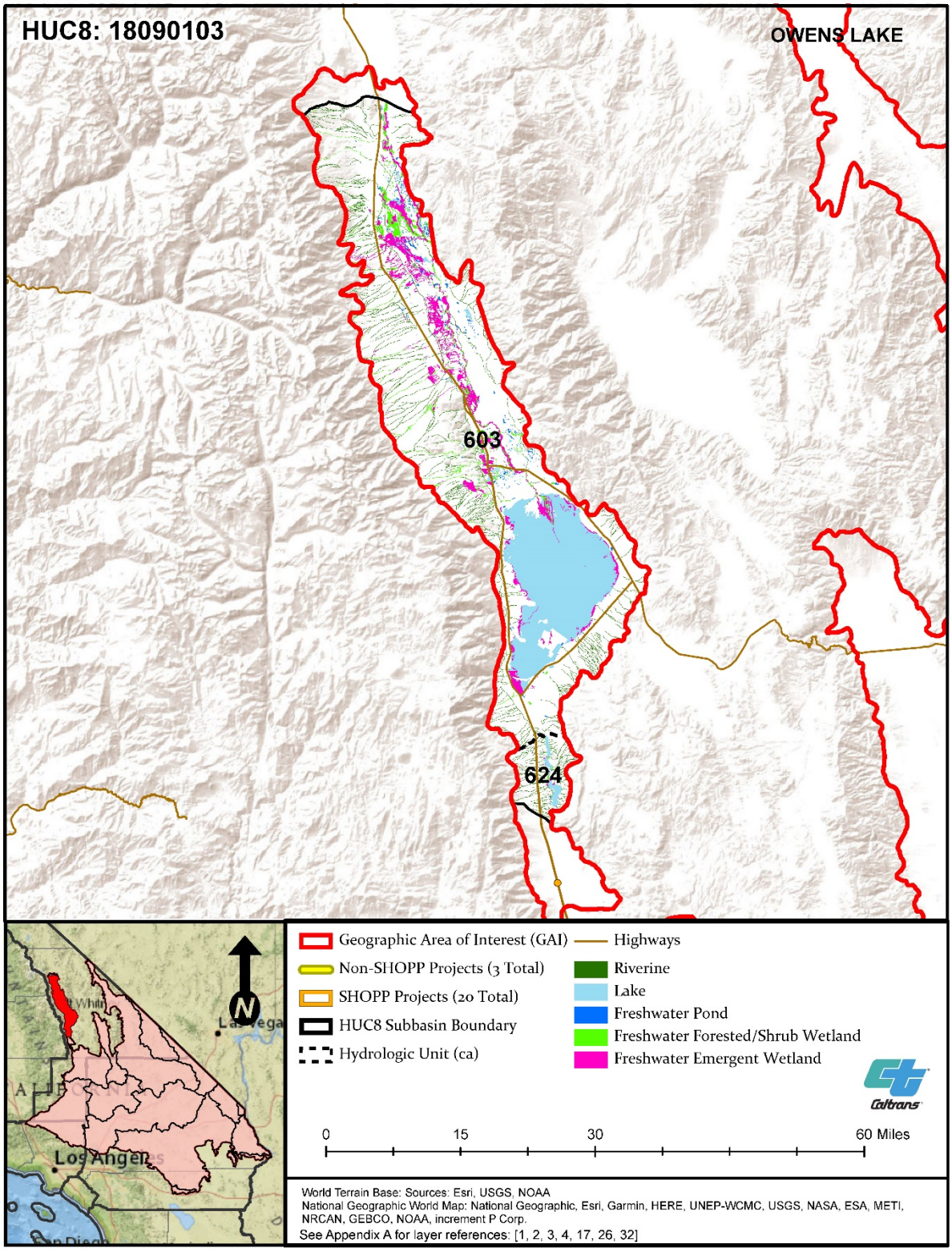

HUC8: 15030104
IMPERIAL RESERVOIR-AZ,CA
715
N
Los Angel
Geographic Area of Interest (GAI)
Non-SHOPP Projects (3 Total)
SHOPP Projects (20 Total)
HUC8 Subbasin Boundary
Hydrologic Unit (ca)
Highways
Riverine
Lake
Freshwater Pond
Freshwater Forested/Shrub Wetland
Freshwater Emergent Wetland
Caltrans
0
10
20
40 Miles
World Terrain Base: Sources: Esri, USGS, NOAA
National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
See Appendix A for layer references: [1, 2, 3, 4, 17, 26, 32]

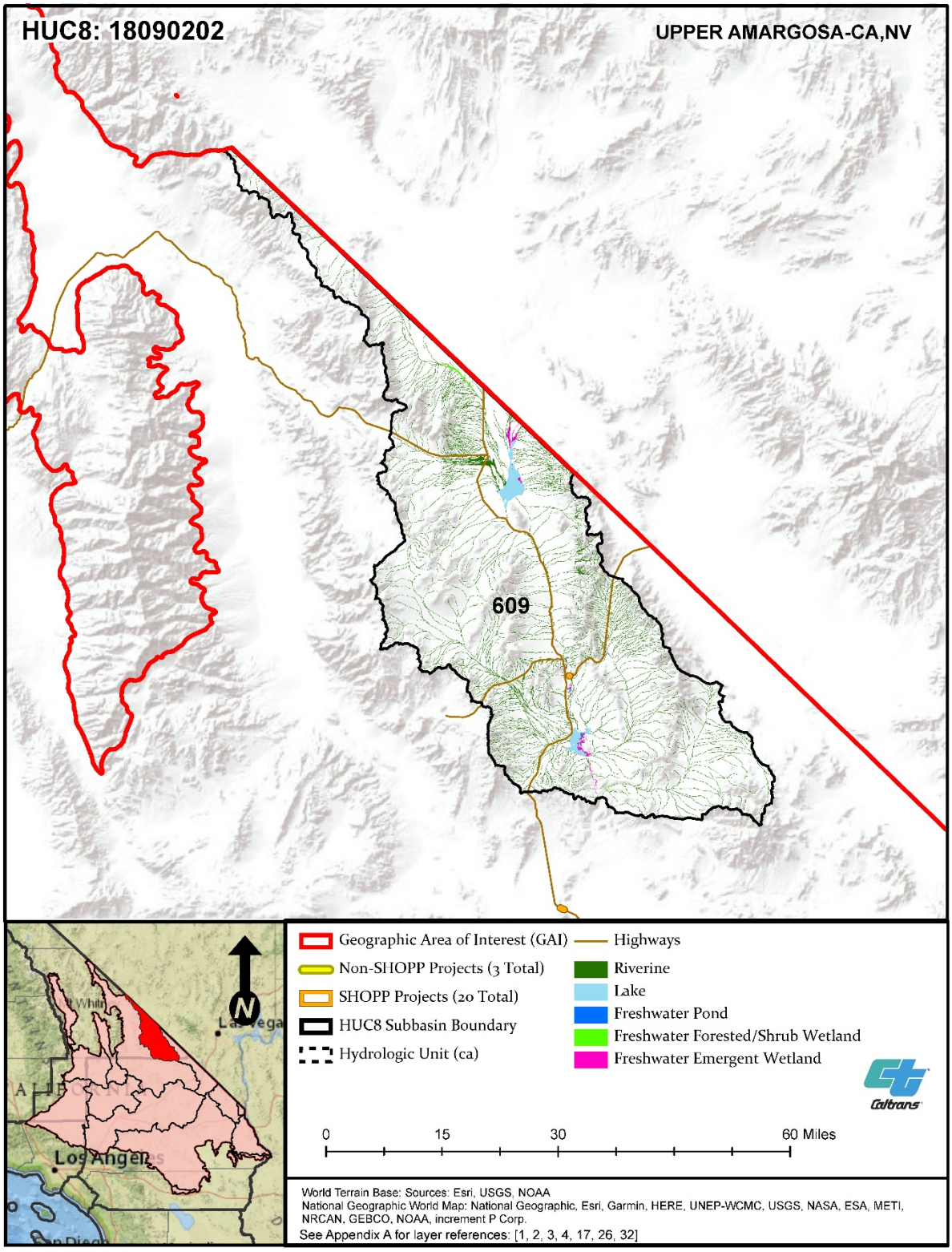

HUC8: 16060015
IVANPAH-PAHRUMP VALLEYS-CA,NV
610
611
612
N
Las Vegas
Los Angeles
Geographic Area of Interest (GAI)
Non-SHOPP Projects (3 Total)
SHOPP Projects (20 Total)
HUC8 Subbasin Boundary
Hydrologic Unit (ca)
Highways
Riverine
Lake
Freshwater Pond
Freshwater Forested/Shrub Wetland
Freshwater Emergent Wetland
Caltrans
0
15
30
60 Miles
World Terrain Base: Sources: Esri, USGS, NOAA
National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
See Appendix A for layer references: [1, 2, 3, 4, 17, 26, 32]


HUC8: 18070102
SANTA CLARA
403
N
Las Vegas
Los Angeles
Geographic Area of Interest (GAI)
Non-SHOPP Projects (3 Total)
SHOPP Projects (20 Total)
HUC8 Subbasin Boundary
Hydrologic Unit (ca)
Highways
Riverine
Freshwater Forested/Shrub Wetland
Freshwater Emergent Wetland
Caltrans
0
0.42
0.85
1.7 Miles
World Terrain Base: Sources: Esri, USGS, NOAA
National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
See Appendix A for layer references: [1, 2, 3, 4, 17, 26, 32]


HUC8: 18070203
SANTA ANA
801
N
Los Angeles
Geographic Area of Interest (GAI)
Non-SHOPP Projects (3 Total)
SHOPP Projects (20 Total)
HUC8 Subbasin Boundary
Hydrologic Unit (ca)
Highways
Riverine
Freshwater Pond
Freshwater Forested/Shrub Wetland
Freshwater Emergent Wetland
Caltrans
0
2.25
4.5
9 Miles
World Terrain Base: Sources: Esri, USGS, NOAA
National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
See Appendix A for layer references: [1, 2, 3, 4, 17, 26, 32]


HUC8: 18090102
CROWLEY LAKE-CA,NV
603
N
Los Angeles
Geographic Area of Interest (GAI)
Non-SHOPP Projects (3 Total)
SHOPP Projects (20 Total)
HUC8 Subbasin Boundary
Hydrologic Unit (ca)
Highways
Riverine
Lake
Freshwater Pond
Freshwater Forested/Shrub Wetland
Freshwater Emergent Wetland
Caltrans
0
2.5
5
10 Miles
World Terrain Base: Sources: Esri, USGS, NOAA
National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
See Appendix A for layer references: [1, 2, 3, 4, 17, 26, 32]


HUC8: 18090103
OWENS LAKE
603
624
N
Los Angeles
Geographic Area of Interest (GAI)
Non-SHOPP Projects (3 Total)
SHOPP Projects (20 Total)
HUC8 Subbasin Boundary
Hydrologic Unit (ca)
Highways
Riverine
Lake
Freshwater Pond
Freshwater Forested/Shrub Wetland
Freshwater Emergent Wetland
Caltrans
0
15
30
60 Miles
World Terrain Base: Sources: Esri, USGS, NOAA
National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
See Appendix A for layer references: [1, 2, 3, 4, 17, 26, 32]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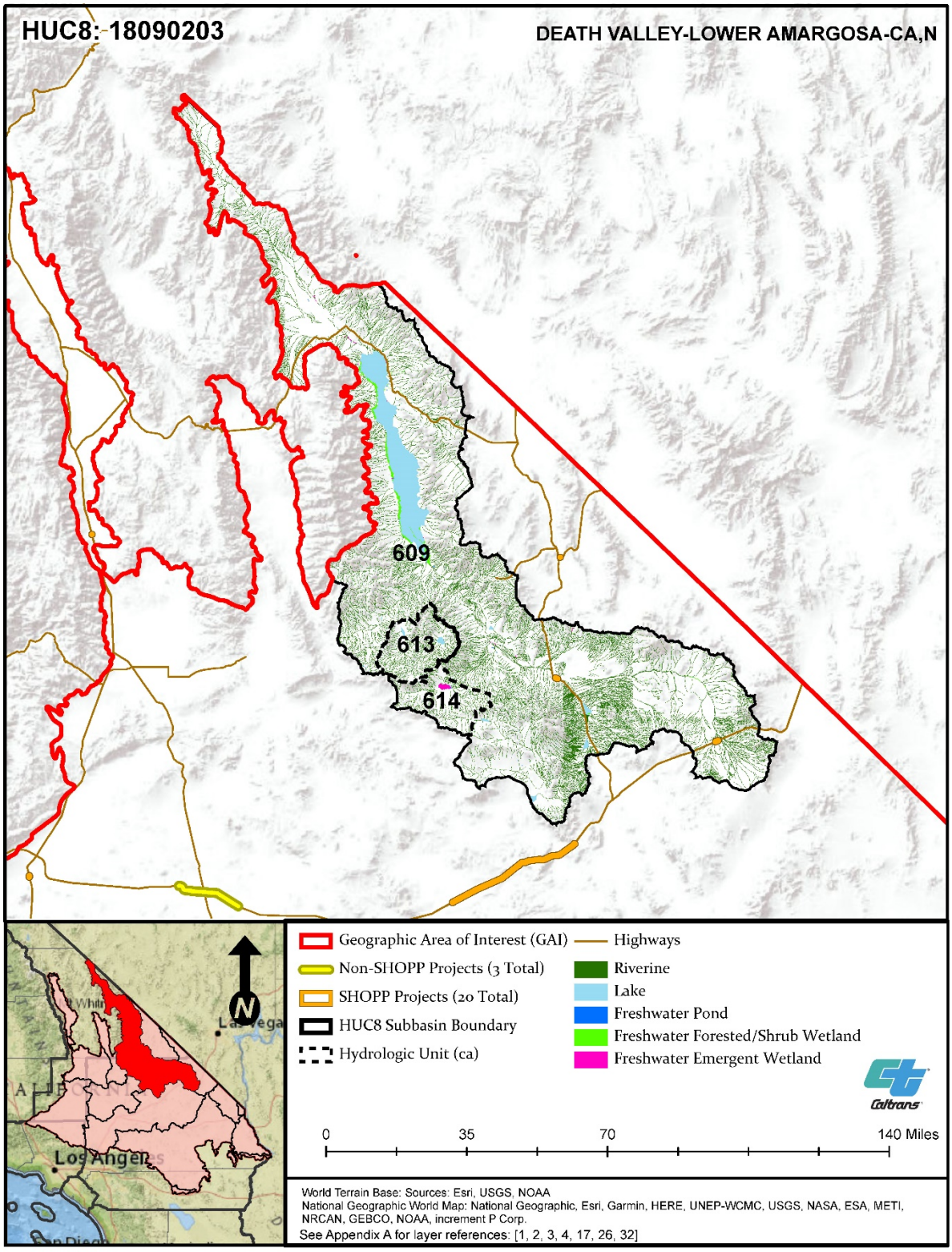
UPPER AMARGOSA-CA,NV
609
N
Los Angeles
Geographic Area of Interest (GAI)
Non-SHOPP Projects (3 Total)
SHOPP Projects (20 Total)
HUC8 Subbasin Boundary
Hydrologic Unit (ca)
Highways
Riverine
Lake
Freshwater Pond
Freshwater Forested/Shrub Wetland
Freshwater Emergent Wetland
Caltrans
0
15
30
60 Miles
World Terrain Base: Sources: Esri, USGS, NOAA
National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
See Appendix A for layer references: [1, 2, 3, 4, 17, 26, 32]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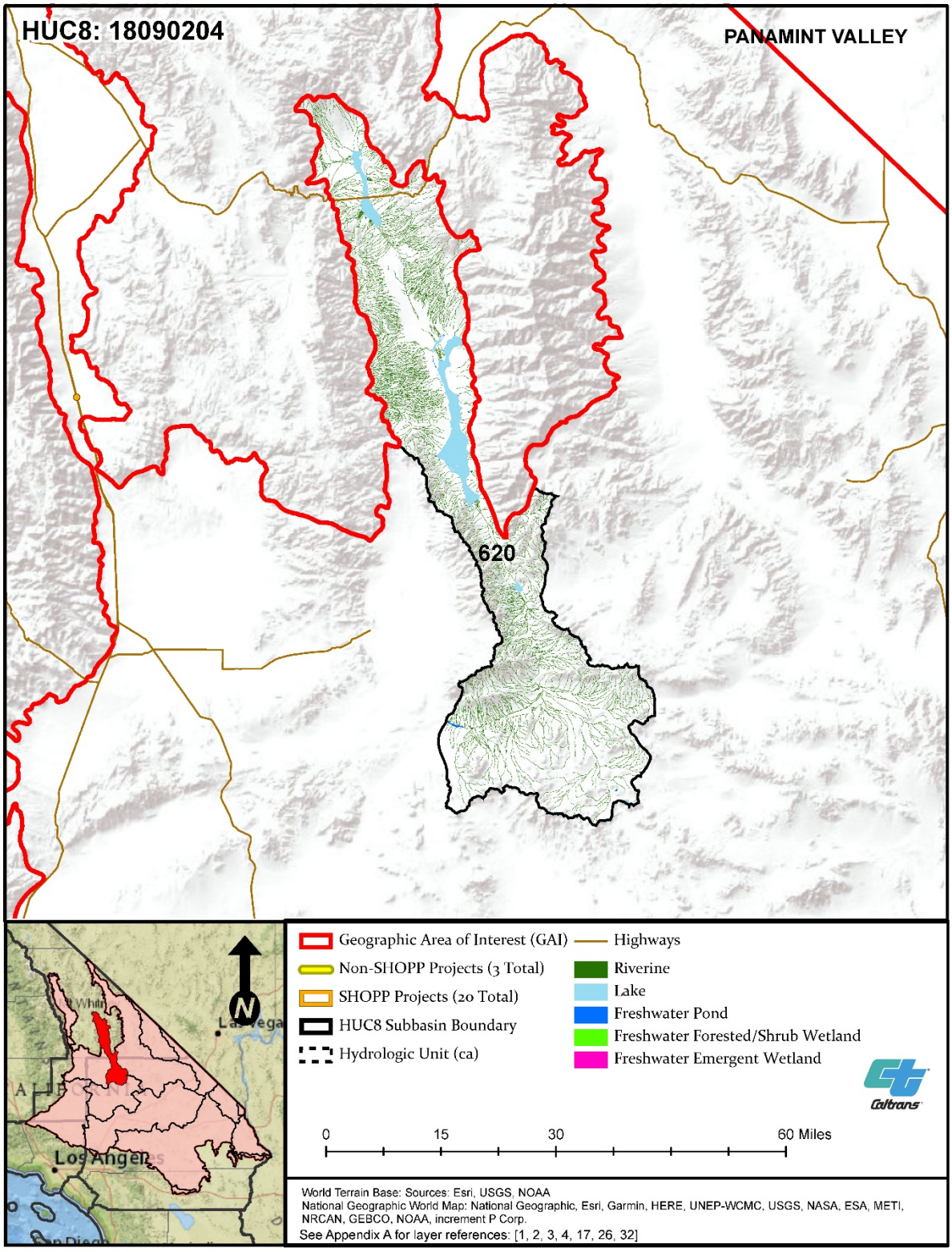
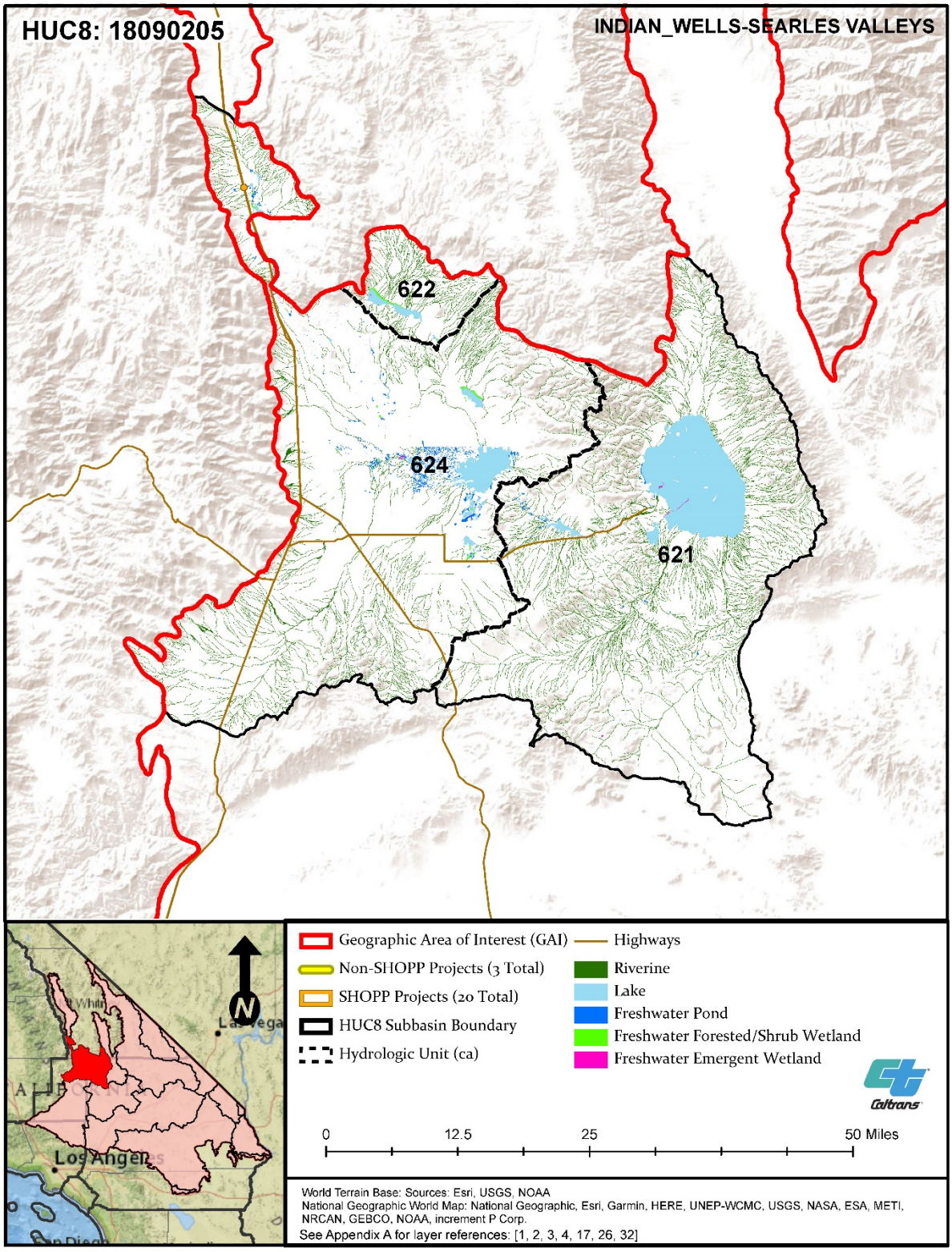
DEATH VALLEY-LOWER AMARGOSA-CA,N
609
613
614
N
Geographic Area of Interest (GAI)
Non-SHOPP Projects (3 Total)
SHOPP Projects (20 Total)
HUC8 Subbasin Boundary
Hydrologic Unit (ca)
Highways
Riverine
Lake
Freshwater Pond
Freshwater Forested/Shrub Wetland
Freshwater Emergent Wetland
Caltrans
0
35
70
140 Miles
World Terrain Base: Sources: Esri, USGS, NOAA
National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
See Appendix A for layer references: [1, 2, 3, 4, 17, 26, 32]


HUC8: 18090204
PANAMINT VALLEY
620
N
Las Vegas
Los Angeles
Geographic Area of Interest (GAI)
Non-SHOPP Projects (3 Total)
SHOPP Projects (20 Total)
HUC8 Subbasin Boundary
Hydrologic Unit (ca)
Highways
Riverine
Lake
Freshwater Pond
Freshwater Forested/Shrub Wetland
Freshwater Emergent Wetland
Caltrans
0
15
30
60 Miles
World Terrain Base: Sources: Esri, USGS, NOAA
National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
See Appendix A for layer references: [1, 2, 3, 4, 17, 26, 32]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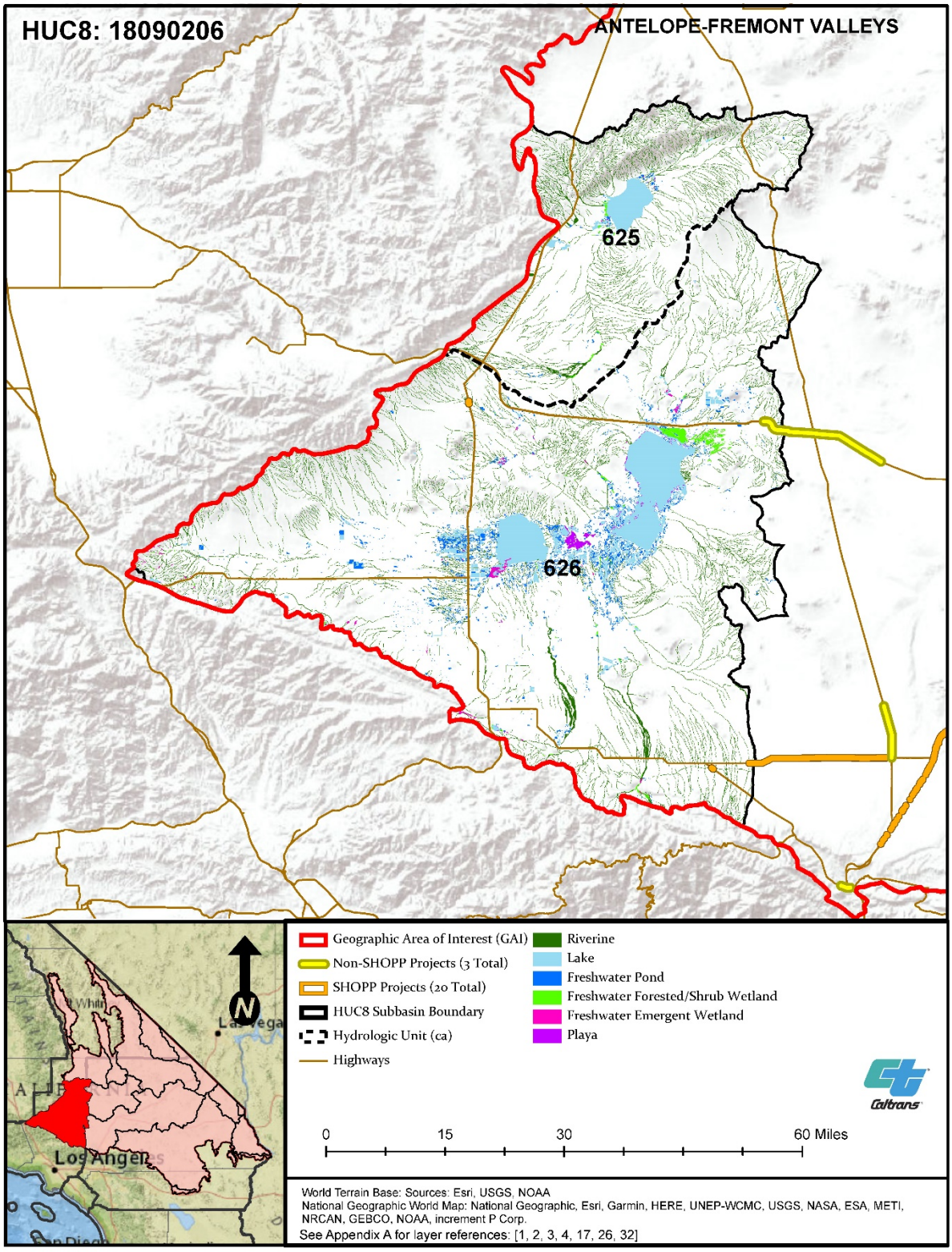
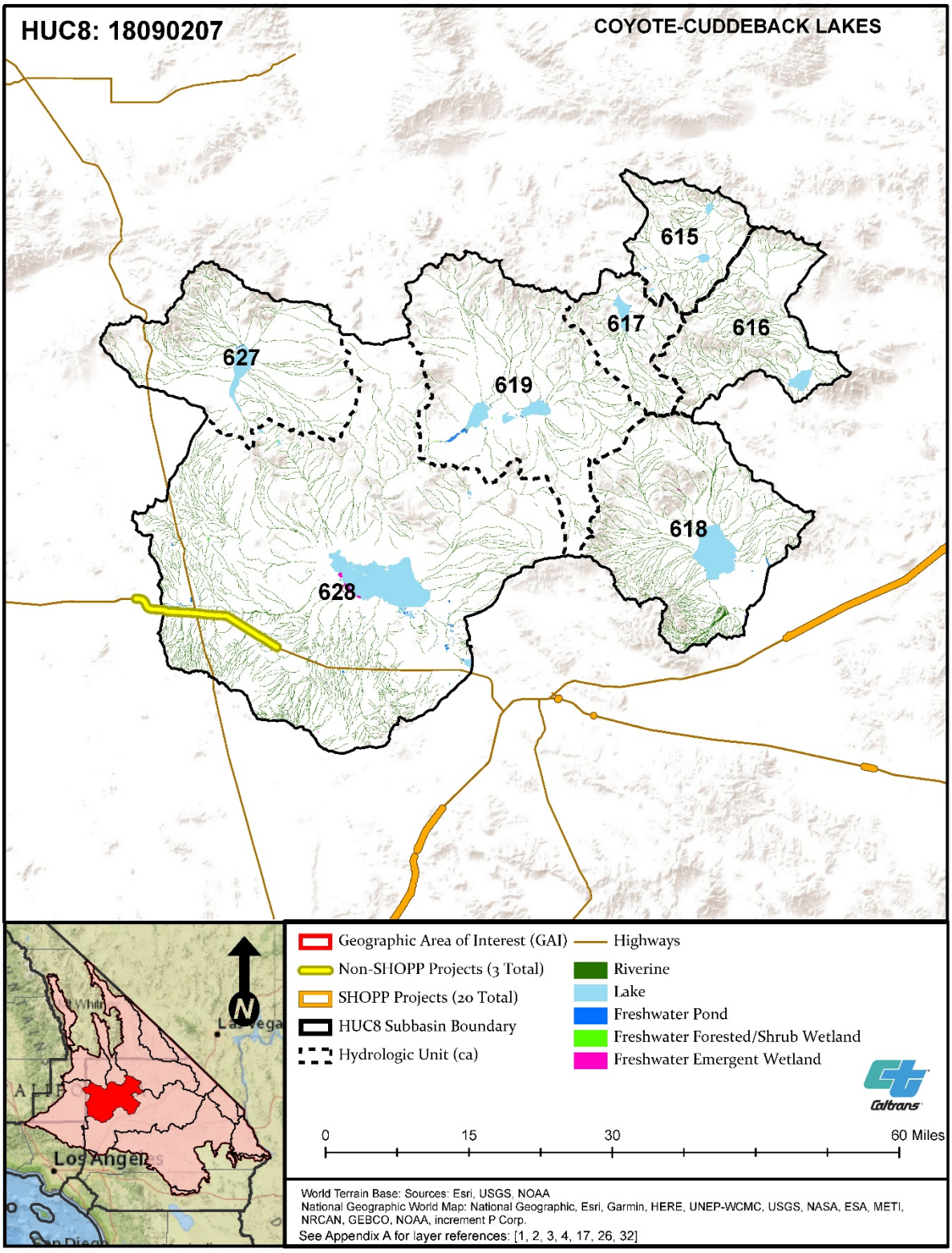
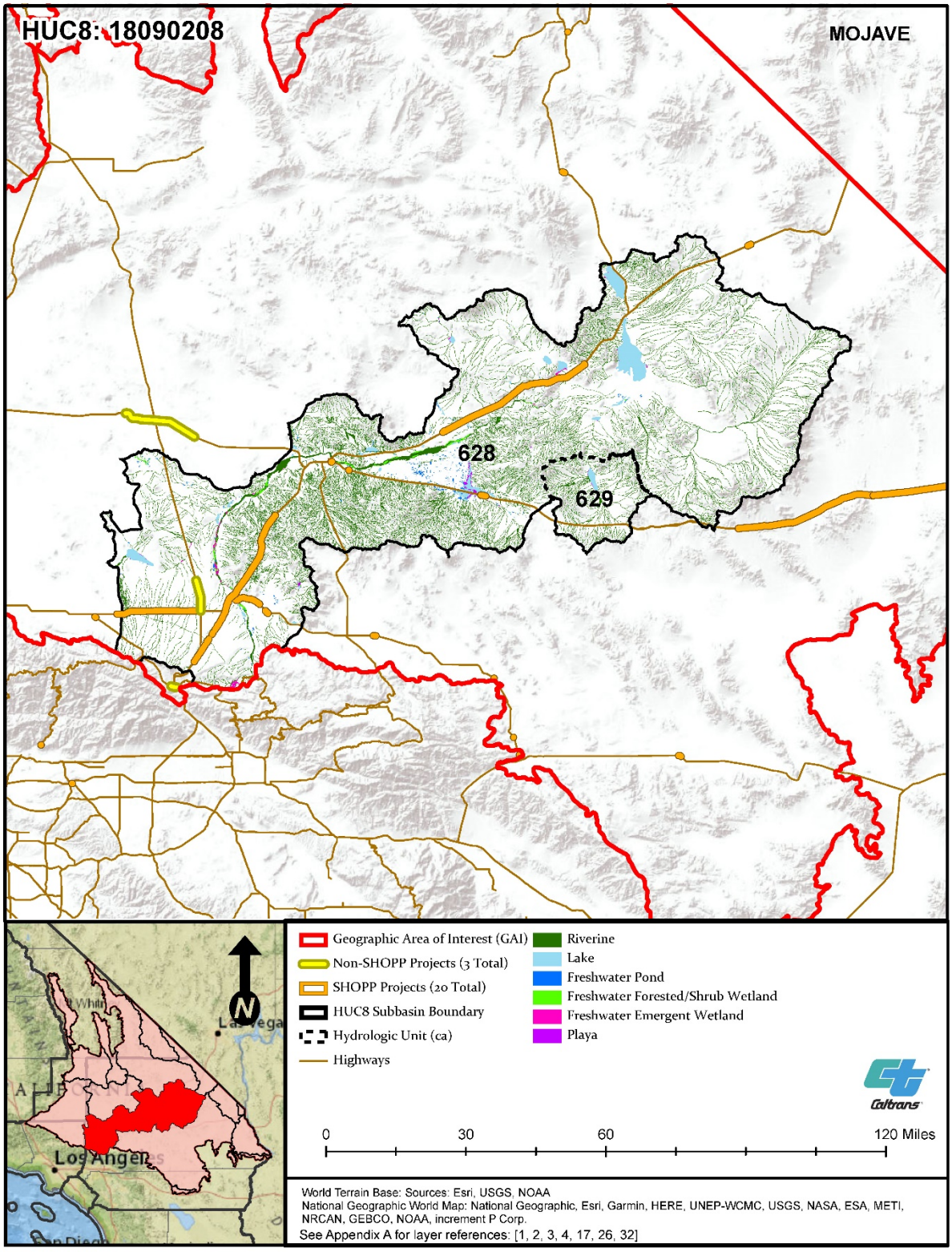
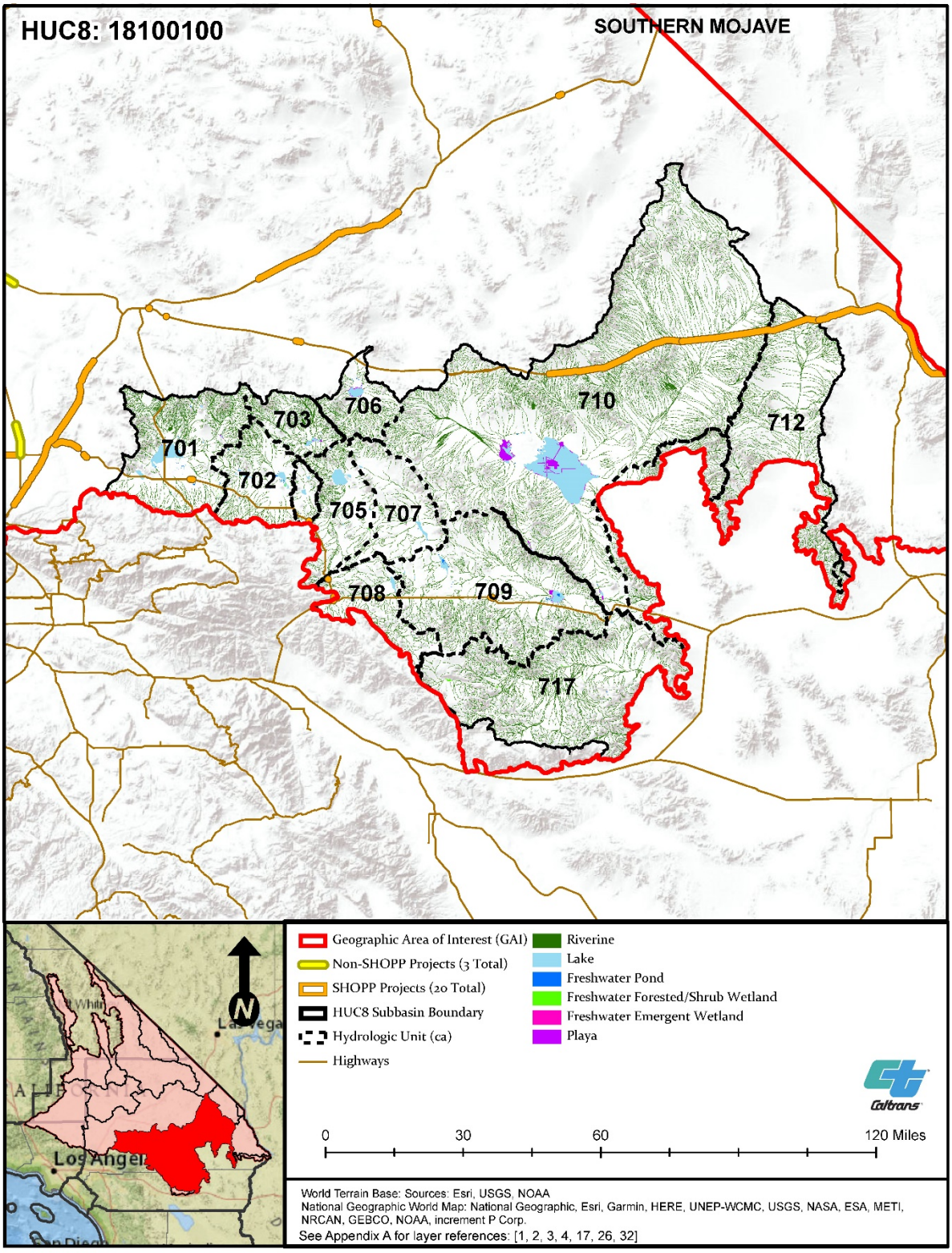
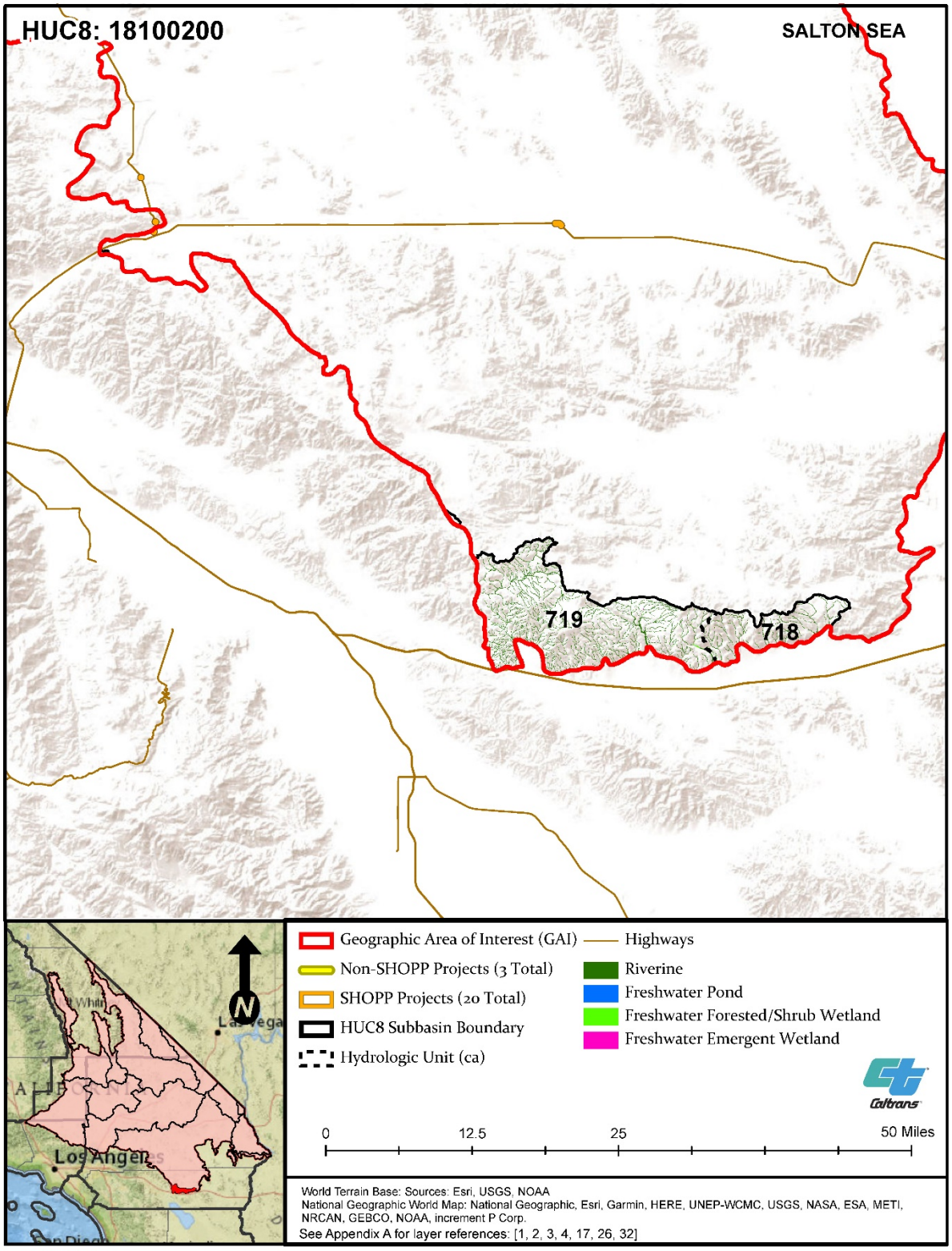
INDIAN_WELLS-SEARLES VALLEYS
622
624
621
Geographic Area of Interest (GAI)
Non-SHOPP Projects (3 Total)
SHOPP Projects (20 Total)
HUC8 Subbasin Boundary
Hydrologic Unit (ca)
Highways
Riverine
Lake
Freshwater Pond
Freshwater Forested/Shrub Wetland
Freshwater Emergent Wetland
Caltrans
0
12.5
25
50 Miles
N
Las Vega
Los Angel
World Terrain Base: Sources: Esri, USGS, NOAA
National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
See Appendix A for layer references: [1, 2, 3, 4, 17, 26, 32]


HUC8: 18090206
ANTELOPE-FREMONT VALLEYS
625
626
N
Las Vegas
Los Angeles
Geographic Area of Interest (GAI)
Non-SHOPP Projects (3 Total)
SHOPP Projects (20 Total)
HUC8 Subbasin Boundary
Hydrologic Unit (ca)
Highways
Riverine
Lake
Freshwater Pond
Freshwater Forested/Shrub Wetland
Freshwater Emergent Wetland
Playa
Caltrans
0
15
30
60 Miles
World Terrain Base: Sources: Esri, USGS, NOAA
National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
See Appendix A for layer references: [1, 2, 3, 4, 17, 26, 32]


HUC8: 18090207
COYOTE-CUDDEBACK LAKES
615
616
617
618
619
627
628
N
Geographic Area of Interest (GAI)
Non-SHOPP Projects (3 Total)
SHOPP Projects (20 Total)
HUC8 Subbasin Boundary
Hydrologic Unit (ca)
Highways
Riverine
Lake
Freshwater Pond
Freshwater Forested/Shrub Wetland
Freshwater Emergent Wetland
Caltrans
0
15
30
60 Miles
World Terrain Base: Sources: Esri, USGS, NOAA
National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
See Appendix A for layer references: [1, 2, 3, 4, 17, 26, 32]


HUC8: 18090208
MOJAVE
628
629
N
Las Vegas
Los Angeles
Geographic Area of Interest (GAI)
Non-SHOPP Projects (3 Total)
SHOPP Projects (20 Total)
HUC8 Subbasin Boundary
Hydrologic Unit (ca)
Highways
Riverine
Lake
Freshwater Pond
Freshwater Forested/Shrub Wetland
Freshwater Emergent Wetland
Playa
Caltrans
0
30
60
120 Miles
World Terrain Base: Sources: Esri, USGS, NOAA
National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
See Appendix A for layer references: [1, 2, 3, 4, 17, 26, 32]


HUC8: 18100100
SOUTHERN MOJAVE
701
702
703
705
706
707
708
709
710
712
717
N
Geographic Area of Interest (GAI)
Non-SHOPP Projects (3 Total)
SHOPP Projects (20 Total)
HUC8 Subbasin Boundary
Hydrologic Unit (ca)
Highways
Riverine
Lake
Freshwater Pond
Freshwater Forested/Shrub Wetland
Freshwater Emergent Wetland
Playa
Caltrans
0
30
60
120 Miles
World Terrain Base: Sources: Esri, USGS, NOAA
National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
See Appendix A for layer references: [1, 2, 3, 4, 17, 26, 32]


HUC8: 18100200
SALTON SEA
719
718
N
Las Vegas
Los Angeles
Geographic Area of Interest (GAI)
Non-SHOPP Projects (3 Total)
SHOPP Projects (20 Total)
HUC8 Subbasin Boundary
Hydrologic Unit (ca)
Highways
Riverine
Freshwater Pond
Freshwater Forested/Shrub Wetland
Freshwater Emergent Wetland
Caltrans
0
12.5
25
50 Miles
World Terrain Base: Sources: Esri, USGS, NOAA
National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
See Appendix A for layer references: [1, 2, 3, 4, 17, 26, 32]

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