4.4 BIOLOGICAL RESOURCES

This section evaluates the biological resources impacts of the proposed Plan. Appendix D~~E~~ of this EIR provides more detail on the data sources and analysis background.

4.4.1 Existing Conditions

This section describes the existing biological resources within the San Diego region, including sensitive vegetation communities, federally and state-regulated waters and wetlands, special-status species, wildlife movement corridors, and conserved lands.

SENSITIVE VEGETATION COMMUNITIES

Sensitive vegetation communities considered in this EIR are those regulated, protected, or designated as sensitive by any federal, state, or local agency, plan, policy, regulation, or ordinance (see Section 4.4.2, "Regulatory Setting"). Furthermore, sensitive vegetation communities are considered rare within the San Diego region and support habitat for listed or special-status species. Sensitive vegetation communities also include riparian and wetland vegetation communities that are associated with federally and state-regulated aquatic resources (in this document, "aquatic resources" generally refers to regulated waters and wetlands, including Section 404 of the Clean Water Act [CWA], the California Coastal Act [CCA], the Porter-Cologne Act, the Water Quality Control Act, and California Fish and Game Code [CFGC] Section 1600 et seq.).

The following agencies and entities identify sensitive vegetation communities in their policies, plans, and programs: California Coastal Commission (CCC), U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Wildlife (CDFW) (through the California Natural Diversity Database [CNDDB] and NatureServe Standard Heritage Program methodology [NatureServe 2025]), California Native Plant Society (CNPS), the County of San Diego, and cities in the San Diego region that participate in various Natural Community Conservation Planning (NCCP) programs, specifically the Multiple Species Conservation Program (MSCP) and the Multiple Habitat Conservation Program (MHCP). The U.S. Army Corps of Engineers (USACE) and Regional Water Quality Control Board (RWQCB) regulate aquatic resources, and while this does not include specific vegetation communities, regulated aquatic resources are often associated with wetland and riparian vegetation communities.

Sensitive vegetation communities that occur anywhere in San Diego County are included in the inventory and analysis in this EIR. The County of San Diego and cities of San Diego, Chula Vista, Encinitas, Carlsbad, Oceanside, Poway, and Escondido identify sensitive vegetation communities in their ordinances and guidelines, including within species conservation planning documents. Specifically, the County of San Diego regulates sensitive vegetation communities through the Biological Mitigation Ordinance (BMO) for areas covered by the County's MSCP Subarea Plans and the Resource Protection Ordinance (RPO) for areas not covered by the County's MSCP, County of San Diego Guidelines for Determining Significance for Biological Resources (County of San Diego 2010), and Habitat Loss Permit (HLP) ordinance (see Section 4.4.2). The cities of San Diego, Chula Vista, and Carlsbad also developed specific guidelines under the implementation of their respective MSCP/MHCP Subarea Plans, including the City of San Diego's Environmentally Sensitive Lands (ESL) Regulations and Land Development Manual–Biology Guidelines and the City of Carlsbad's Biological Studies, Habitat Restoration, Preserve Management, and Riparian and Wetlands Buffer Guidelines. In addition, the City of San Diego regulates vernal pools through the Vernal Pool Habitat Conservation Plan (VPHCP) (City of San Diego 2017).

For the purpose of this EIR and as identified in the guidelines, plans, and policies listed above, riparian, wetland, and certain upland vegetation communities, which are identified in Table 4.4-1, are considered sensitive, specifically those that are regulated as classified by a "tier" system within a species conservation plan. Upland vegetation communities identified as sensitive in the San Diego County HCPs/NCCPs (including the MHCP and South County MSCPs) are divided into tiers of biological sensitivity based on rarity and ecological importance. Tier

I represents the most sensitive (rarest or subject to threats) communities, while Tier IV represents the least sensitive communities. Other land cover types—such as agriculture, disturbed habitat (i.e., areas that have been physically disturbed[1] and no longer contain substantial stands of native or naturalized vegetation communities), eucalyptus woodland and other ornamental or nonnative vegetation, and urban/developed—are not considered sensitive (Table 4.4-1) with the following exceptions.

The monarch butterfly (*Danaus plexippus*), which is a candidate for protection under the federal Endangered Species Act, can use coastal eucalyptus groves as overwintering sites; these groves are considered crucial habitat for the species, but would otherwise not be considered sensitive because eucalyptus trees are not native to California or San Diego County. Furthermore, the flowering forb milkweek (*Asclepias* sp.) that may occur in nonnative grasslands and disturbed lands functions as the butterfly's exclusive host plant. Fallow agricultural lands and other habitats with short, sparse vegetation at some time of the year (as defined by CDFW 2012), together with sensitive native and nonnative grassland, is also considered suitable habitat for the western burrowing owl (*Athene cunicularia*), specifically if occupied by fossorial mammals. The western burrowing owl is a candidate species for listing under the California Endangered Species Act (CESA) and covered under several HCPs/NCCPs. Burrowing owl habitat may require mitigation if the habitat would be impacted. The CESA candidate species Crotch's bumble bee (*Bombus crotchii*) and federally endangered and CESA candidate species Quino checkerspot butterfly (*Euphyrdyas editha quino*) also use~~s~~ grasslands and other nonsensitive habitats that contain certain nectaring and flowering plants and the host plant dwarf plantain (*Plantago erecta*). ~~that may require habitat assessments for this species following CDFW protocols where impacts are proposed.~~

Table 4.4-1 Existing Vegetation Communities and Land Cover Types within the San Diego Region

Vegetation Community	Acres[1]	Percent of Total in San Diego County
Riparian and Wetlands Land Cover Category		
Beach/coastal dunes/saltpan/mudflats	447	0.1
Marsh	8,256	0.3
Meadows and seeps	12,649	0.5
Open water and streams	31,388	0.6
Riparian forest/woodland	53,733	2.0
Riparian scrub	17,449	0.6
Vernal pools[2]	460	0.02
Riparian and wetlands total	**124,382**	**4.1**
Uplands Land Cover Category		
Chaparral	852,657	31.4
Coastal scrub	288,039	10.6
Desert dunes	46,601	1.7
Desert scrub	465,755	17.2
Oak woodlands[3]	119,554	4.4
Forest/woodland	134,354	5.0
Grasslands	146,518	5.4
Uplands total	**2,053,478**	**75.7**

[1] Groups are based on physiognomic, ecologic, and geographic criteria, such that groups contain vegetation types of similar structure and ecological function and include restored native habitats. These groups are not defined in the Holland and/or 2015 vegetation classification systems. Appendix D~~E~~-1 lists the detailed vegetation communities within each aggregated group.

[2] 2003–2011 vernal pool mapping available from the City of San Diego VPHCP (City of San Diego 2017).

[3] The forest/woodlands category includes eucalyptus woodlands that provide important roosting habitat for the monarch butterfly.

Vegetation Community	Acres[1]	Percent of Total in San Diego County
Other Land Cover Category		
Agriculture	136,739	5.0
Disturbed habitat[4]	28,905	1.1
Urban/developed	383,321	14.1
Other cover types total	**548,965**	**20.2**
Grand total	**2,712,073**	**100.0**

Source: SDMMP 2021; adapted by Ascent in 2025.

Vegetation Mapping Data Sources and Methods

The description of existing conditions for vegetation communities in the San Diego region is based on a compilation of regionally collected vegetation data, which are aggregated in a geographic information system (GIS) data layer of existing vegetation and administered by the County of San Diego (SDMMP 2021) and by the San Diego Management and Monitoring Program (SDMMP) (2021). This dataset covers the entire San Diego region and uses the modified Holland classification system (Holland 1986; Oberbauer et al. 2008). The data were collected mostly for the development of the MSCP and MHCP and have been modified and updated over the years from a variety of sources and cataloged by SANDAG and the County of San Diego; the most recent update reflected in this EIR is from 2021 (SDMMP 2021).

The vegetation community and land cover types in the 2021 dataset have been combined and organized into 17 vegetation groups that were created specifically for this EIR in an effort to streamline the programmatic analysis of the vegetation communities. The groups contain vegetation communities of similar regulatory importance, sensitivity, structure, and ecologic function, and are based on physiognomic (appearance or outward features), ecologic, and geographic criteria. These 17 vegetation groups have been further categorized into three overarching land cover types: riparian and wetlands (seven groups); uplands (seven groups); and other cover types (three groups) (Table 4.4-1). The data sources and analytic techniques described below provide a reasonably accurate description of existing conditions for vegetation and land cover, including sensitive vegetation communities, for the purpose of a programmatic large-scale analysis, such as required for the proposed Plan EIR (rather than based on site-specific or project-specific data). Appendix ~~E~~D-1 includes the breakdown of the 2021 vegetation classification into the 17 vegetation groups identified in Table 4.4-1.

Postfire Vegetation

Most common vegetation communities in the San Diego region generally persist unless development and land use pressures, invasion by exotic species, or wildfire cause changes (Barbour et al. 2007; Diffendorfer et al. 2002). Fire recovery in certain vegetation types may require decades (Witter et al. 2007), and some vegetation types recover more readily (e.g., chaparral) than others (e.g., coastal sage scrub) (Witter et al. 2007; Meng et al. 2014). It is generally assumed, and supported by the literature (Meng et al. 2014), that the postfire response of San Diego region vegetation communities, such as chaparral, is to eventually (after 10 to 15 years) return to their prefire communities (Witter et al. 2007; Keeley and Mantgem 2022); however, most sensitive native vegetation communities (e.g., coastal sage scrub, maritime succulent scrub, vernal pools, and chaparral dominated by self-seeding plants [versus resprouting plants]) could convert to a degraded condition or nonnative habitat ("type-convert") (Keeley and Mantgem 2022; Lippitt et al. 2013; Brennan-Kane and Keeley 2020). Burned habitats within the western one-third of the San Diego region may be prone to increased edge effects and human encroachment and therefore have an increased chance to type-convert to a degraded condition. Vegetation recovery post-wildfires is not often mapped, or it is mapped on a small scale related to project-specific mapping efforts.

The existing conditions in this EIR assume that all vegetation communities available in the land cover dataset are in their prefire condition (i.e., no type conversion has occurred). As noted above, some of the native vegetation

[4] Although disturbed habitat is not considered sensitive, it might provide habitat for such sensitive species as the western burrowing owl, monarch butterfly, and Crotch's bumble bee.

communities affected by fires may have recovered since the fires, there is evidence that many sensitive vegetation communities subject to wildfire do not return to their mapped prefire condition (i.e., they converted to a degraded or nonnative condition) (Lippitt et al. 2013; Keeley and Mantgem 2022; Brennan-Kane and Keeley 2020). Therefore, this assumption and approach may overestimate the impacts of the proposed Plan on sensitive vegetation communities where they have type-converted following wildfire and the baseline condition is now nonnative vegetation.

Physiographic Subregions

The 17 vegetation communities and land cover types identified for this EIR occur within three physiographic subregions in San Diego County: Southern California Coast, Southern California Mountains and Valleys, and Colorado Desert (McNab et al. 2005). The subregions are characterized as follows:

Southern California Coast Subregion

The Southern California Coast subregion can be found at elevations ranging from sea level to 2,900 feet above mean sea level (AMSL). It encompasses the area along the immediate coastline of the Pacific Ocean and the more easterly mesa and interior foothills (approximately the western third of the San Diego region). Brush and scrub communities, such as chaparral and coastal scrub, are the most common upland habitats found in this subregion, with chaparral the most widespread (Figure 4.4-1). Nonnative grasslands are widely distributed (often as a result of disturbance or type conversion), whereas native grasslands are a relatively rare occurrence. Riparian woodlands are found throughout the subregion and are predominantly distributed in a linear pattern along rivers and streams. Marshes and wetlands are associated with estuaries but also can be found in valleys or along riparian corridors. In addition, this region also includes the unique vegetation community of vernal pools. (Figure 4.4-1).

Vegetation communities characterized by a high level of constituent sensitive species found in the coastal subregion include southern foredunes, southern coastal bluff scrub, maritime succulent scrub, Diegan coastal sage scrub, southern maritime chaparral, native grassland, San Diego mesa hardpan/claypan vernal pools, southern coastal salt marsh, coastal brackish marsh, coastal freshwater marsh, riparian woodlands and scrubs, coast live oak woodland, Engelmann oak woodland, and Torrey pine forest. These communities provide habitat for a diversity of sensitive plant and animal species.

Southern California Mountains and Valleys

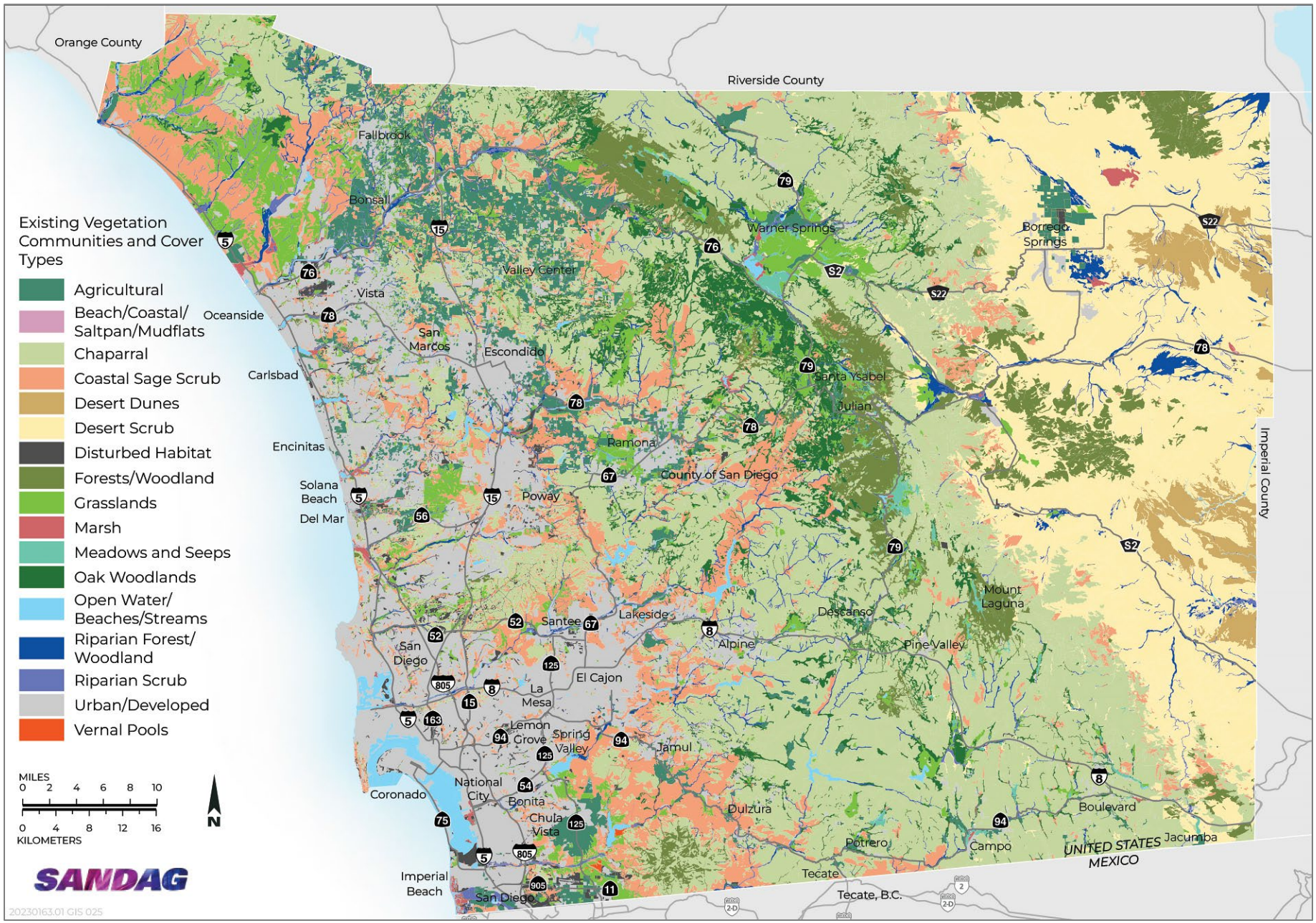
The Southern California Mountains and Valleys subregion can be found at elevations ranging from 100 to 6,500 feet AMSL and includes the major mountain systems of the peninsular range in the San Diego region: San Ysidro, Cuyamaca, Volcan, Laguna, and Vallecitos (approximately the central third of the San Diego region). Vegetation communities in this montane subregion overlap with the chaparral, scrub, riparian, and woodland communities of the coastal subregion; however, others are unique to the mountains (Figure 4.4-1). These include coniferous woodlands, black oak woodlands, and montane meadows. All of these vegetation communities provide habitat for various plant and animal species, and, although fewer than those found in the coastal subregion, sensitive species are well represented.

Colorado Desert Subregion

The Colorado Desert subregion is found to the east of the montane subregion at elevations ranging from sea level to 3,400 feet AMSL (approximately the eastern third of the San Diego region). The vegetation communities present in the Colorado Desert subregion are quite distinct from those found within the coastal and mountains and valleys subregions. The majority are desert scrub communities, of which creosote bush scrub is dominant (Figure 4.4-1). This vegetation community is also the second most common vegetation type in the San Diego region. A number of sensitive plant and animal species are also found within these vegetation communities.

Existing Vegetation Communities

This section describes the 17 existing vegetation community groups in the San Diego region derived from the datasets indicated above.



Source: SDMMP 2021; adapted by Ascent in 2025.

Figure 4.4-1 Existing Vegetation Communities and Cover Types

Riparian and Wetland Vegetation Communities

Riparian and wetland habitats support vegetation communities adapted to the periodic presence of or saturation by surface or ground water; therefore, they are relatively rare in the semiarid climate of Southern California. Riparian and wetland habitats are considered sensitive due to extensive historic losses of wetlands nationwide, their ability to improve and maintain the quality of potable water sources, and their value as habitat for sensitive species and wildlife movement. It is estimated that over half of wetland habitats have been lost in the conterminous United States (SWRCB 2019).

In California, at least 90% of wetland habitat has been lost (SWRCB 2019). In Southern California, an estimated 91–95% of riparian wetlands and over 70% of coastal wetlands have been lost (Natural Resources Agency 2010; Sutula et al. 2008; CCC 1994; Faber et al. 1989), and over 97% of vernal pool habitat has been lost in the San Diego region (Bauder and McMillan 1986; Oberbauer and Vanderwier 1991; Keeler-Wolf et al. 1995).

Of the vegetation groups, riparian/forest woodland contains the largest expanse of riparian/wetland vegetation communities, followed by riparian scrub, open water and streams, meadows and seeps, and marsh (including coastal salt marsh). Vernal pools are isolated ephemeral depressions surrounded by upland habitat and form a unique vegetation community containing many special-status and endemic species but cover less than 500 acres of land cover in San Diego County. Open water includes lakes, reservoirs, estuaries, and the fringes of these types of open water habitats. Open water, riparian woodland, and riparian scrub comprise 81% (i.e., 99,570 acres out of a total of 124,382 acres of wetland habitats) of all vegetation groups within the riparian and wetland land cover category (Table 4.4-1).

Riparian ecosystems provide critical ecosystem functions, such as the buffering of the effects of organic nutrients and toxins and providing habitat to support a high diversity of species (Peck 1993). Plant density, composition, age structure, and cover within and adjacent to riparian woodlands and forests affect habitat diversity (which may be measured by the degree of vertical and horizontal habitat structure, density, and species richness). Riparian woodlands and forests are composed of several vertical layers, including canopy, shrub, herb, and ground. This complex habitat structure is often positively correlated with wildlife abundance and diversity (i.e., habitat productivity). In addition, riparian areas usually harbor greater wildlife diversity and abundance than upland areas and frequently serve as wildlife corridors due to their linear nature and connection they provide to distinct geographical areas as well as the cover they provide.

Riparian woodland overstory provides valuable roosting, foraging, and breeding areas, while foraging birds and mammals utilize the understory. The trees themselves provide extensive foliage and bark surface for foraging by insectivorous birds. Although overall wildlife diversity is generally greater where vertical vegetation structure is well developed, species-specific occurrence can frequently be linked to the quality or presence of one component of the vertical structure. Riparian and wetlands communities also contribute to the overall soil health and stability, create shade to lower water temperatures and improve water quality for aquatic organisms, return carbon into the soil through detritus and debris deposition, and increase carbon storage and biomass (NRCS 2010). This is particularly true for estuarine habitats as a result of deep organic soil deposits that have the ability to sequester relatively large amounts of blue carbon[5] (McTigue et al. 2019; Windham-Myers et al. 2018; Sutton-Grier and Moore 2016). Riparian buffers improve water quality by enhanced infiltration of surface runoff and increase surface roughness to slow overland flows. Water is more easily absorbed in riparian buffers, which allows for groundwater recharge. Functional riparian systems have significant potential to reduce the adverse effects of climate change by enhancing ecosystem resilience (Seavy et al. 2009).

The majority of riparian and wetland communities contain native species, although disturbed wetlands are usually dominated by nonnative species; for example, giant reed (*Arundo donax*) and salt cedar (*Tamarix* sp.) are highly invasive nonnative species that are often found in and along rivers and streams and can be found along with native vegetation communities, such as southern willow scrub or riparian forests and woodlands, but may also occur along the upper terraces of valleys and canyons intermixed with upland habitat or in monocultural stands.

[5] Blue carbon refers to carbon dioxide removed from the atmosphere by the world's ocean ecosystems—mostly algae, mangroves, salt marshes, seagrasses and macroalgae—through plant growth and the accumulation and burial of organic matter in the soil.

Upland Vegetation Communities

Southern California is an international biodiversity hotspot due to its varied topography and associated vegetation belts and biomes and its Mediterranean climate (Dobson et al. 1997; Jennings et al. 2018; Stein et al. 2000). The San Diego region is characterized by a unique mosaic of upland scrub, forest, and grassland habitats, many of which are considered sensitive because they provide valuable nesting, breeding, and foraging habitat for many special-status wildlife species, including narrow endemic species that occur nowhere else in the world. San Diego County's upland habitats are dominated by chaparral (852,657 acres), desert scrub (465,755), and coastal sage scrub (288,039), comprising 78% (i.e., 1,606,451 acres out of a total of 2,053,354 acres) of all upland vegetation communities (Table 4.4-1).

Unlike riparian corridors, which are linear and found along rivers and streams, upland habitats typically form a large matrix and provide a broad variety of species structure and composition. Dense sage scrub vegetation or dense-canopied forest/woodlands provide useful habitat and movement corridors for wildlife, whereas open grasslands provide foraging habitat for raptors and other predators and can also contain a unique diversity of plant species.

The majority of coastal and inland habitats are dominated by shrublands (such as coastal sage scrub and chaparral), most of which are considered sensitive. Upland vegetation communities with soils that have high clay content are known to support special-status endemic plant species, such as those that occur in association with mafic chaparral and gabbro soils. Clay-adapted coastal sage scrub is associated with the federally threatened coastal California gnatcatcher (*Polioptila californica californica*), the protection of which spearheaded the development of the California NCCP Act and associated subregional multispecies conservation programs, such as the San Diego MSCP and North County MHCP. Impermeable clay soils also provide conditions for many narrow endemic plant species and form vernal pools (specifically on mesa tops and in valley grasslands), which are unique seasonal wetlands that support the highest number of federally and state-listed and narrow endemic species in the San Diego region. Nonnative grasslands provide habitat for special-status plant and animal species, including foraging habitat for many raptor species.

San Diego's upland scrub communities have evolved with natural fires. Many sensitive upland vegetation communities, such as coast live oak woodland and Diegan coastal sage scrub, are rapidly declining due to urbanization and climate change effects, including frequent and short-interval wildfires that lead to type conversion and the effects of invasive pest invasions such as the polyphagous and Kuroshio shot hole borers (*Euwallacea* sp.) and the goldspotted oak borer beetles (*Agrilus auroguttatus*).

Forests and woodlands harbor a great wildlife diversity and contribute significantly to carbon sequestration and storage, specifically those considered old growth. Forest and woodlands are mostly distributed in higher elevations and, with a few exceptions, are found in the eastern portion of San Diego County, including the desert subregion. These exceptions include oak woodlands, Torrey pine forest, and coastal closed-cone coniferous forest, all of which are considered sensitive. Oak woodlands are regulated at the state level (Senate Bill 1334) and also considered sensitive by the County of San Diego (Tier I sensitivity level), the MSCP, and the MHCP. Oak woodlands are composed of a variety of oak-dominated vegetation communities that span from the coast to the mountains in the eastern part of the County. Engelmann oak (*Quercus engelmannii*) is considered sensitive in San Diego County.

Most forest and woodland communities are not considered sensitive except for Torrey pine forest, which is an NCCP-covered vegetation community regulated as a Tier I vegetation community. Likewise regulated under the Tier I classification, southern interior cypress forest contains sensitive tree species that are protected, such as Tecate cypress (*Hesperocyparis forbesii*), which is restricted to three locations in San Diego County, and Cuyamaca cypress (*Hesperocyparis stephensonii*), which only occurs in one location in the United States—Cuyamaca peak (Sproul et al. 2011). The forest and woodland community in the region consists mainly of native vegetation communities with the exception of eucalyptus woodland, which is composed of monocultures of eucalyptus (or gum) trees (Eucalyptus sp.) that were imported from Australia to provide a source for timber and that thrive in San Diego's Mediterranean climate. Eucalyptus woodlands do not provide habitat for native species, with the exception of raptor nesting and monarch butterfly roosting (in coastal areas). Some undifferentiated woodlands

that occur in the coastal region may consist of nonnative acacia species, also imported from Australia as an ornamental plant; like eucalyptus woodland, they do not provide ecological value to native species.

FEDERALLY AND STATE-REGULATED WATERS AND WETLANDS

As detailed in Section 4.4.2, "Regulatory Setting," waters and wetlands, including riparian habitat, are regulated by federal and state agencies through a variety of different laws and ordinances. USACE regulates activities in wetland and nonwetland waters of the United States. These are aquatic resources considered relatively permanent waters (e.g., intermittent or perennial) or wetlands that have a surface connection to traditional navigable waters. State agencies, such as CDFW, RWQCB, and CCC, have various responsibilities for regulating activities in waters of the United States; depending on the regulatory program, wetlands and riparian habitats may also be subject to additional state regulation. The extent of an individual state or federal agency's jurisdiction is defined by its respective regulations, guidance, and case law. Aquatic resource types (including wetlands and riparian habitats) in the San Diego region that may be considered waters of the United States or state include the following:

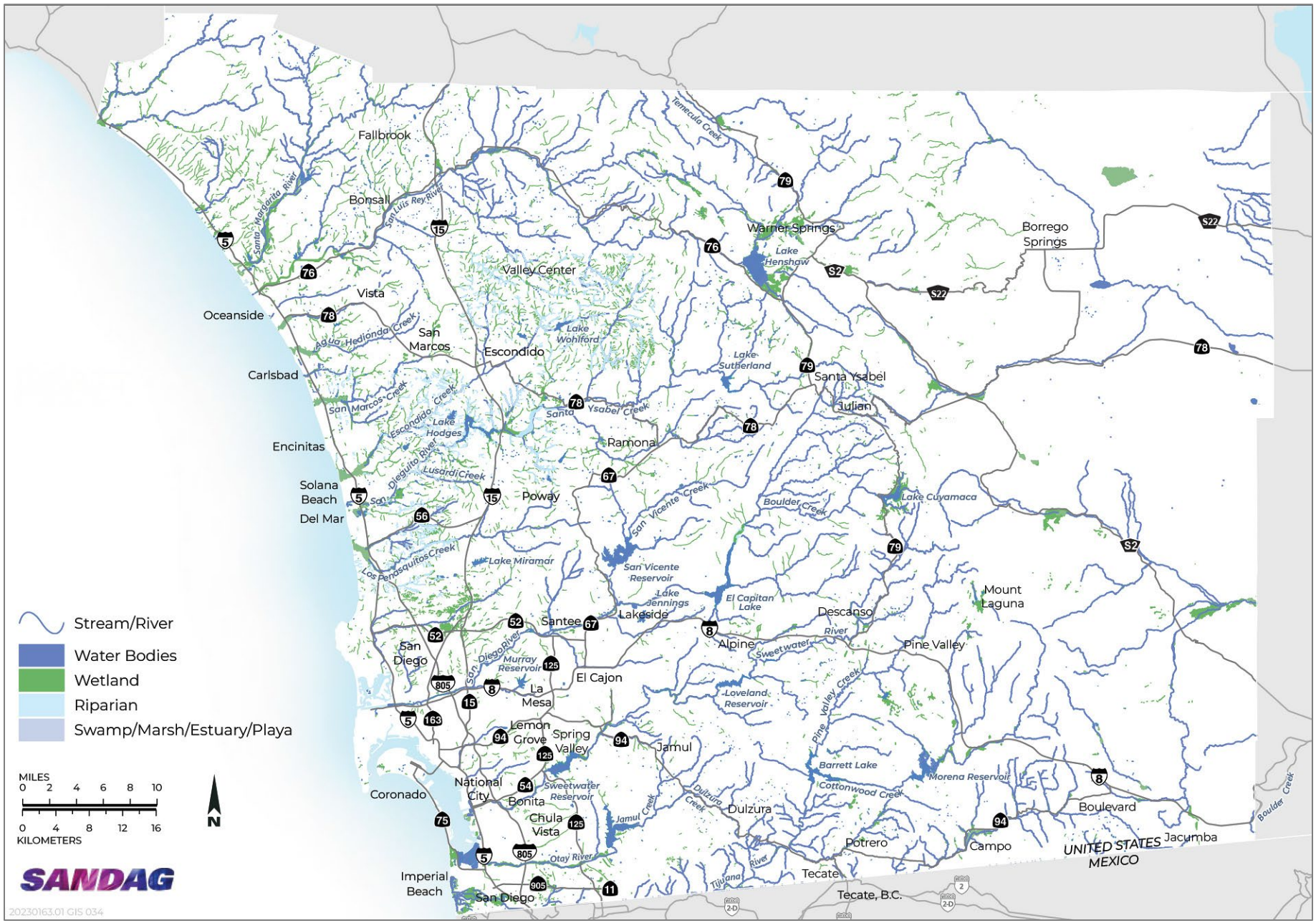
- the Pacific Ocean, bays, lagoons, lakes, and reservoirs;
- perennial and intermittent (and ephemeral) rivers, streams, drainages, floodplains and washes (federally jurisdictional nonwetland waters must meet the regulatory "relatively permanent" standard);
- tidal, nontidal, saline, and freshwater wetlands; and
- wetland and nonwetland riparian habitats.

Data Mapping Sources and Methods

The approximate location of regulated waters (including wetlands, and both nonwetland and wetland riparian habitats) in the San Diego region were mapped using the U.S. Geological Survey's (USGS) National Hydrography Dataset (NHD) (USGS 2025) and USFWS's National Wetlands Inventory (NWI) (2021) dataset (USFWS 2025a). The NHD is the surface-water component of the national map. The NHD is a relatively detailed generalized set of digital spatial data that represents the surface waters of the United States. These data are designed to be used in general mapping and in the analysis of surface water systems. The NWI is a series of topical maps that show wetlands and deepwater habitats. This geospatial information is used by federal, state, and local agencies; academic institutions; and private industry for management, research, policy development, education, and planning activities.

Existing Regulated Waters, Wetlands, and Riparian Habitat

Figure 4.4-2 depicts the approximate location of surface waters, wetlands, and riparian habitats in the San Diego region. This figure represents the best information available at the time of Draft EIR preparation (NHD 2023; USFWS 2025a). Although Figure 4.4-2 depicts current information for existing conditions for waters, wetlands, and riparian habitat based on best available datasets, the maps and figures provided in the EIR are not intended to be used as the final determination of the type, extent, and jurisdictional status of waters in the San Diego region because the depicted data are not site-specific (i.e., no formal wetland delineations have been conducted). The dataset depicted on the figures includes waters and wetlands considered ephemeral by USACE as of September 8, 2023, and may, therefore, no longer be under the USACE's jurisdiction. Waters of the United States assessed in this EIR may therefore be underestimated. Furthermore, "waters of the state" captures all aquatic resources regulated by numerous state agencies. It includes rivers, streams, lakes, wetlands, mudflats, vernal pools, and other aquatic sites which may not be depicted in Figure 4.4-2. Waters of the state assessed in this EIR may therefore be underestimated. Accurate delineation of all federally and state-regulated waters would occur during project-specific analysis of land use and transportation projects.



Sources: USFWS 2025a; NHD 2023; adapted by Ascent in 2025.

Figure 4.4-2 Regulated Waters Including Wetlands

SPECIAL STATUS SPECIES

CEQA Guidelines Section 15380 defines "endangered, rare or threatened species" as "species or subspecies of animal or plant or variety of plant" listed under the Code of Federal Regulations (CFR), Title 50, Part 17.11 or 17.12 or California Code of Regulations, Title 14, Section 670.2 or 670.5, or a species not included in the above listings but that can be shown to meet the criteria in CEQA Guidelines Section 15380(b). In this circumstance, endangered means "when its survival and reproduction in the wild are at risk from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors"; rare means that "although not presently threatened with extinction, the species is existing in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens, or the species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered 'threatened' as that term is used in the Federal Endangered Species Act." Species that fall under the above criteria are referred to in this EIR as special-status species.

State species of special concern and fully protected species are animals not necessarily listed under the federal Endangered Species Act (ESA) or California Endangered Species Act (CESA), but that nonetheless (1) are declining at a rate that could result in listing or (2) have historically occurred in low numbers and known threats to their persistence currently exist. The CNPS Inventory of Rare and Endangered Vascular Plants of California is sanctioned by CDFW and serves as a species of special concern list for plants. Therefore, for purposes of analysis in this EIR, special-status species must meet at least one of the following criteria:

- listed or proposed for listing (including candidate species[6]) under the ESA and CESA;
- CDFW species of special concern (CNDDB 2025);
- CDFW fully protected species (CNDDB 2025);
- CDFW watch list species (CNDDB 2025);
- California Rare Plant Rank Species (CRPR) are ranked as 1A (presumed extinct in California and rare/extinct elsewhere), 1B (rare, threatened, and endangered in California and elsewhere), 2A (presumed extinct in California, but more common elsewhere), 2B (rare, threatened, or endangered in California, but more common elsewhere), or 3 (plants are those for which more information is needed [a review list]) (CNPS n.d.). All plants constituting CRPR 1A, 1B, 2A, 2B, and 3 meet the definitions of Sections 2062 and 2067 (CESA) of the CFGC (CNPS n.d.). Some, but not all, CRPR 4 plant species meet the definitions of Sections 2062 and 2067 (CESA) of the CFGC (CNPS n.d.). CRPR 4 plants are those of limited distribution (watch list) (CNPS n.d.); and
- Species considered sensitive or narrow endemic by approved adopted NCCPs and habitat conservation plans (HCPs).

Data Sources and Methods

The occurrence and location of special-status species may change based on climate, seasonality, habitat suitability, and other site-specific factors. The special-status species identified in this EIR are those that are contained within the most recent versions of the data sources described above. However, there are areas in the San Diego region for which no data are available because they have not been surveyed or recorded. Therefore, site-specific surveys would be required at the project level based on presence of suitable physical and biological features to determine presence of special-status species.

San Diego is one of the global biodiversity hot spots and contains a high diversity of species, many of which are considered special status. For this programmatic level of analysis, collecting site-specific information is not

[6] Candidate species are those petitioned species that are actively being considered for listing under ESA, as well as those species for which USFWS has initiated an ESA status review, as announced in the Federal Register. Proposed species are those candidate species that were found to warrant listing and have been officially proposed for listing in the Federal Register. There is no statutory protection for federal candidate species under the ESA; however, the USFWS encourages collaboration with local authorities to protect and conserved federal candidate species. Under CESA, candidate species are those species currently petitioned for state-listing status. The CDFW regulate impacts to candidate species the same as listed species.

practicable because information collected now does not guarantee presence or absence of a species in the future at the time of project-level implementation. Therefore, for the purpose of this EIR, publicly available databases were used to establish a baseline of special-status species occurrence. Suitable habitat for special-status species was ascertained from the 2025 SDMMP vegetation layer. USFWS-designated critical habitat boundaries (USFWS 2025b) were used to identify areas likely to contain suitable habitat for federally listed species; however, the presence of critical habitat does not necessarily mean the associated listed species is present. Additional project-level analysis would be conducted in these areas to determine the presences of listed species.

The analysis in this EIR also references publicly available datasets for recent (i.e., within the last 10 years) known locations of special-status plant and animal species to determine each species' potential to occur in a given area evaluated in the analysis. Recorded occurrences of special-status species in the San Diego region were compiled from the CNDDB (CNDDB 2025), County of San Diego's SanBios data (SANGIS 2025a), and USFWS occurrence information (USFWS 2024), as well as species habitat models developed by the County of San Diego Land Use and Environment Group (LUEG) GIS (accessed in 2025). Occurrence data provide an overview of the historical presence of species; however, not all known special-status species locations are included in these datasets; therefore, project-specific information must be collected at the time of or immediately prior to project construction (during the most opportune season for maximum detection) to verify presence or absence of special-status species. Suitable habitat or USFWS-designated critical habitat alone does not guarantee that the species occupies a particular project-level area.

Special-Status Species

Federally and State-Listed Plant Species

There are 34 federally or state-listed or candidate plant species with potential to occur in the San Diego region (Table 4.4-2), including 14 that are federally listed as endangered, six that are federally listed as threatened, 22 that are state listed as endangered, two that are state listed as threatened, and six that are state listed as rare (Table 4.4-2). Table 4.4-2 also lists the habitat typically used by each species and any rarity information, if available. Botanical species nomenclature in this EIR follows Rebman and Simpson's (2014) *Checklist of the Vascular Plants of San Diego County*. Avian species nomenclature follows the American Ornithologists Union (Chesser et al. 2024). Nonavian species nomenclature follows the CDFW Online Special Animals List (CNDDB 2025). Figure 4.4-3 illustrates the results of regional database information for federally and state-listed plant species in the San Diego region.

Table 4.4-2 Listed Plant Species Potentially Occurring within the San Diego Region

Common Name	Scientific Name	Listing Status[1] Federal	Listing Status[1] State	Habitat
San Diego thornmint	*Acanthomintha ilicifolia*	FT	SE	Chaparral, coastal sage scrub, valley and foothill grassland, vernal pools.
San Diego ambrosia	*Ambrosia pumila*	FE		Coastal sage scrub, valley and foothill grassland. Elevation range 20–415 meters. Only 12 populations remain in San Diego County.
Del Mar manzanita	*Arctostaphylos glandulosa* ssp. *crassifolia*	FE		Coastal chaparral, closed-coned coniferous forest. Found on sandy coastal mesas and ocean bluffs; in chaparral or Torrey pine forest. Elevation range 0–365 meters.
Peirson's milkvetch	*Astragalus magdalenae* var. *peirsonii*	FT	SE	Desert sand dune habitat with loose sand. Several collections from 2005 near Borrego Mountain at 224 meters.
Coastal dunes milkvetch	*Astragalus tener* var. *titi*	FE	SE	Coastal bluff scrub, coastal dunes. Found in moist, sandy depressions of bluffs or dunes along and near the Pacific Ocean; one recorded occurrence on a clay terrace. Elevation range 1–50 meters.
Encinitas baccharis	*Baccharis vanessae*	FT	SE	Chaparral. Found on sandstone soils in steep, open, rocky areas with chaparral associates. Elevation range 60–720 meters.

Common Name	Scientific Name	Listing Status[1] Federal	Listing Status[1] State	Habitat
Nevin's barberry	*Berberis nevinii*	FE	SE	Chaparral, cismontane woodland, coastal scrub, riparian scrub. Found on steep, north- facing slopes or in low grade sandy washes. Elevation range 290–1,575 meters.
Thread-leaved brodiaea	*Brodiaea filifolia*	FT	SE	Cismontane woodland, coastal scrub, playas, valley and foothill grassland, vernal pools. Usually associated with annual grassland and vernal pools; often surrounded by shrubland habitats. Found in clay soils. Elevation range 25–860 meters.
Dunn's mariposa lily	*Calochortus dunnii*		SR	Closed-cone coniferous forest, chaparral. Found in gabbro or metavolcanic soils; also known from sandstone; often associated with chaparral. Elevation range 375–1,830 meters.
Salt marsh bird's beak	*Chloropyron maritimum* ssp. *Maritimum*	FE	SE	Coastal salt marsh, coastal dunes. Limited to the higher zones of the salt marsh habitat. Elevation range 0–30 meters.
Orcutt's spineflower	*Chorizanthe orcuttiana*	FE	SE	Coastal scrub, chaparral, closed- cone coniferous forest. Found from Del Mar to Point Loma, in the San Diego region. Found in sandy sites and openings; sometimes in transition zones. Elevation range 3–125 meters.
Otay tarplant	*Deinandra conjugens*	FT	SE	Coastal scrub, valley and foothill grassland. Found on coastal plains, mesas, and river bottoms; often in open, disturbed areas; clay soils. Elevation range 25–300 meters.
Mojave tarplant	*Deinandra mohavensis*		SE	Riparian scrub, chaparral. Found in low sand bars in river beds; mostly in riparian areas or ephemeral grassy areas. Elevation range 850–1,600 meters.
Cuyamaca larkspur	*Delphinium hesperium* ssp. *Cuyamacae*		SR	Lower montane coniferous forest, meadows. Found on dried edge of grassy meadows and mesic sites. Elevation range 1,210–1,630 meters.
Mount Laguna aster	*Dieteria asteroides* var. *lagunensis*		SR	Cismontane woodland, lower montane coniferous forest. Found in openings in woodland or forest. Elevation range 800–2,400 meters.
Cuyamaca Lake downingia	*Downingia concolor* var. *brevior*		SE	Meadows (mesic), vernal pools. Found on shores of Cuyamaca Lake in San Diego region. Located in vernal seeps, lakes, and pools, and on mudflats, with *Orthocarpus*, *Limnanthes*, and *Collinsia*. Elevation range 1,400–1,500 meters.
Short-leaved dudleya	*Dudleya brevifolia*		SE	Chaparral, coastal scrub. Found on Torrey sandstone soils; in pebbly openings. Elevation range 30–250 meters.
San Diego button celery	*Eryngium aristulatum* var. *parishii*	FE	SE	Vernal pools, coastal scrub, valley and foothill grassland. Found in San Diego mesa hardpan and claypan vernal pools, and in southern interior basalt flow vernal pools; usually surrounded by scrub. Elevation range 15–620 meters.
Mexican flannelbush	*Fremontodendron mexicanum*	FE	SR	Closed-cone coniferous forest, chaparral, cismontane woodland. Usually scattered along the borders of creeks or in dry canyons; sometimes on gabbro soils. Elevation range 10–490 meters.
Borrego bedstraw	*Galium angustifolium* ssp. *borregoense*		SR	Sonoran desert scrub. Found on steep walls and (usually north-facing) slopes in rocky watersheds or canyons. Elevation range 350–1,100 meters.
Orcutt's hazardia	*Hazardia orcuttii*		ST	Chaparral, coastal scrub, often on clay; in grassy edges of chaparral and coastal scrub. Elevation range 0–85 meters. Only one population remains in San Diego County.
Algodones Dunes sunflower	*Helianthus niveus* ssp. *tephrodes*		SE	Desert dunes. Elevation range 50–100 meters.

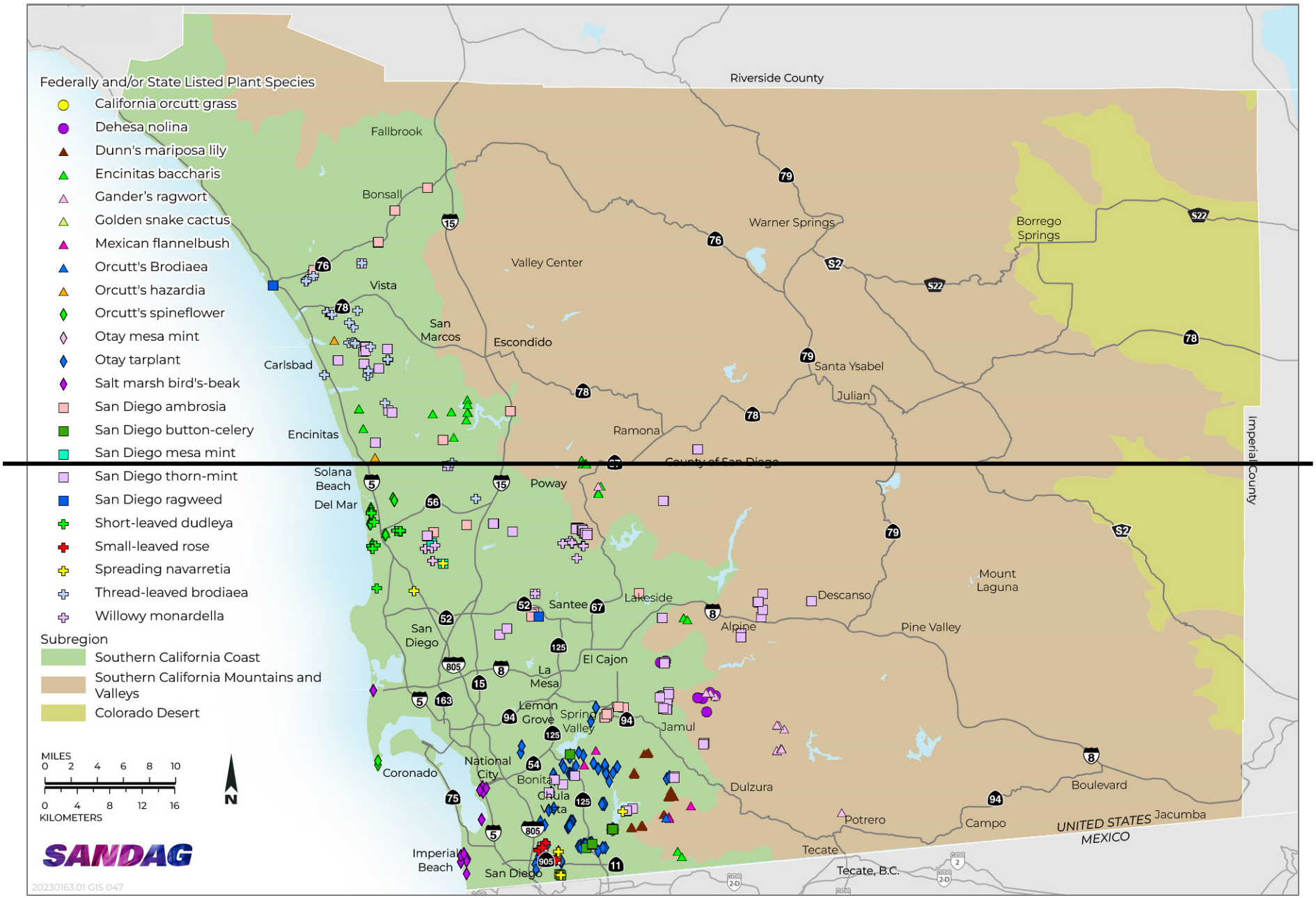
Common Name	Scientific Name	Listing Status[1] Federal	Listing Status[1] State	Habitat
Parish's meadowfoam	*Limnanthes alba* ssp. *parishii*		SE	Meadows and seeps, vernal pools. Vernally moist areas and temporary seeps of highland meadows and plateaus; often bordering lakes and streams. Elevation range 600–1,760 meters.
Willowy monardella	*Monardella viminea*	FE	SE	Coastal scrub/alluvial ephemeral washes with adjacent coastal scrub, chaparral, or sycamore woodland. In canyons, in rocky and sandy places, sometimes in washes or floodplains. Elevation range 50–225 meters.
Gambel's water cress	*Nasturtium gambelii*	FE	ST	Marshes and swamps. Freshwater and brackish marshes at the margins of lakes and along streams, in or just above the water level. Elevation range 5–1,305 meters.
Spreading navarretia	*Navarretia fossalis*	FT		Vernal pools, chenopod scrub, marshes and swamps, and playas. San Diego hardpan and San Diego claypan vernal pools; in swales and vernal pools, often surrounded by other habitat types. Elevation range 30–1,300 meters.
Dehesa nolina	*Nolina interrata*		SE	Chaparral. Typically on rocky hillsides or ravines on ultramafic soils (gabbro or metavolcanic). Elevation range 180–855 meters.
California orcutt grass	*Orcuttia californica*	FE	SE	Vernal pools. Elevation range 15–660 meters.
Baja California birdbush	*Ornithostaphylos oppositifolia*		SE	Chaparral. Associated with *Ceanothus verrucosus* and *Salvia mellifera* in California. Elevation range 55–800 meters.
Gander's ragwort	*Packera ganderi*		SR	Recently burned sites and gabbro outcrops. Elevation range 400–1,200 meters.
San Bernardino blue grass	*Poa atropurpurea*	FE		Meadows and seeps. Mesic meadows of open pine forests and grassy slopes, loamy alluvial to sandy loam soil. Elevation range 1,350–2,455 meters.
San Diego mesa mint	*Pogogyne abramsii*	FE	SE	Vernal pools. Vernal pools within grasslands, chamise chaparral or coastal sage scrub communities; with other rare plants. Elevation range 90–200 meters.
Otay Mesa mint	*Pogogyne nudiuscula*	FE	SE	Vernal pools. Dry beds of vernal pools and moist swales with *Eryngium aristulatum* var. *parishii* and *Orcuttia californica*. Elevation range 85–250 meters.
Small-leaved rose	*Rosa minutifolia*		SE	Coastal scrub, chaparral. In California on cobbly soil at the head of a small, dry canyon on Otay Mesa. Elevation range 150–160 meters.

Notes: FE = federally listed as endangered, FT = federally listed as threatened, SE = state listed as endangered, ST = state listed as threatened, SR = state listed as rare.

Sources: USFWS 2024; CNDDB 2025; Baldwin et al. 2012; Jepson 2025; Rebman and Simpson 2014.

Nonfederally and Nonstate-Listed Special-Status Plant Species

In addition to federally and state-listed plants, approximately 244 additional special-status plant species have known distributions in the San Diego region. These species include CRPR species, nonlisted NCCP-covered species (e.g., narrow, endemic species), or species that otherwise meet the special-status species criteria, as discussed above. These nonlisted special-status plant species have the potential to occur throughout the San Diego region in their respective riparian, wetland, and upland habitats. A list of these additional special-status plant species and their general habitat affinities is presented in Appendix DE-2.


Federally and/or State Listed Plant Species
California orcutt grass
Dehesa nolina
Dunn's mariposa lily
Encinitas baccharis
Gander's ragwort
Golden snake cactus
Mexican flannelbush
Orcutt's Brodiaea
Orcutt's hazardia
Orcutt's spineflower
Otay mesa mint
Otay tarplant
Salt marsh bird's-beak
San Diego ambrosia
San Diego button-celery
San Diego mesa mint
San Diego thorn-mint
San Diego ragweed
Short-leaved dudleya
Small-leaved rose
Spreading navarretia
Thread-leaved brodiaea
Willowy monardella
Subregion
Southern California Coast
Southern California Mountains and Valleys
Colorado Desert
MILES
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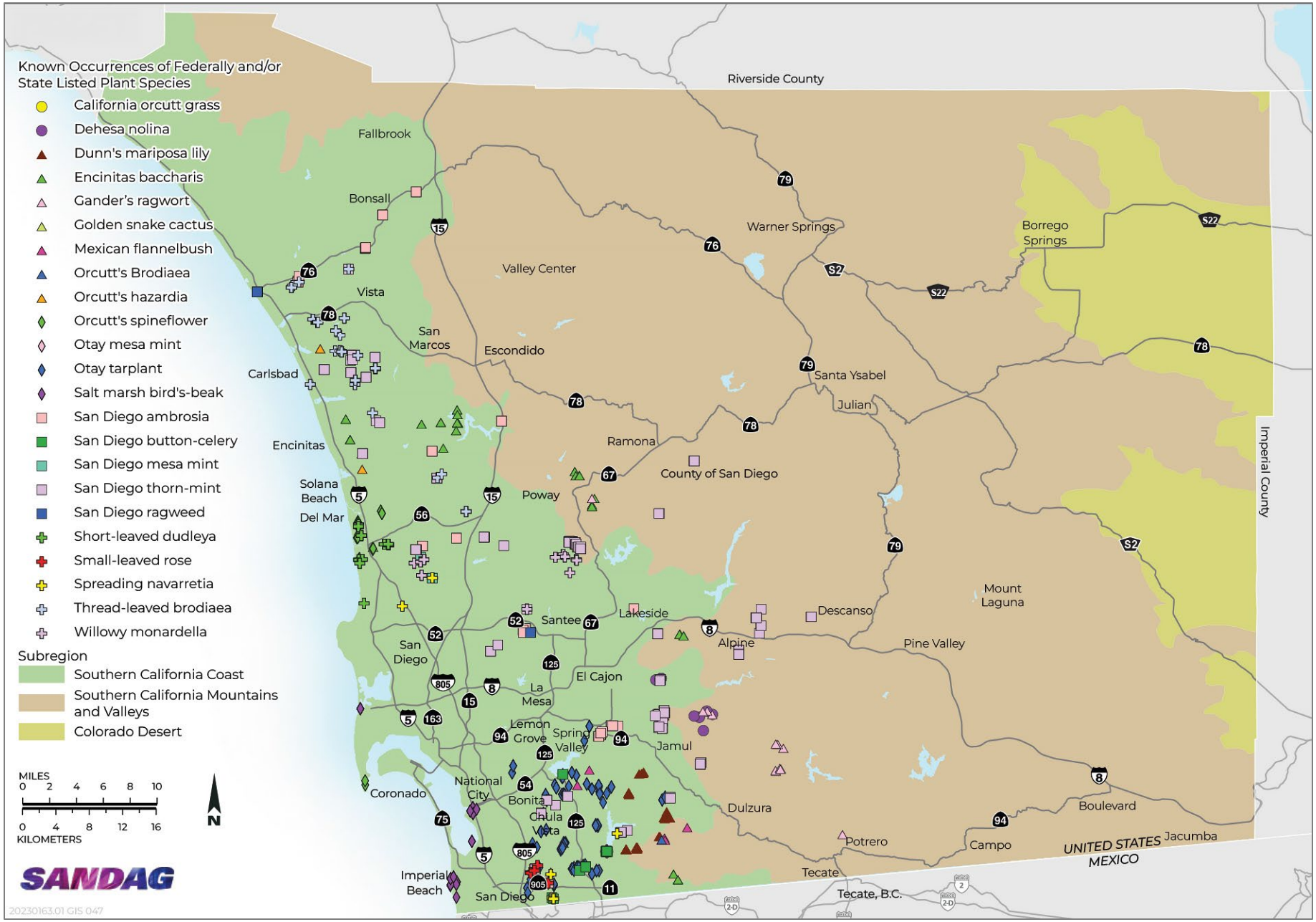
Imperial County
Fallbrook
Bonsall
Vista
San Marcos
Escondido
Valley Center
Warner Springs
Borrego Springs
Carlsbad
Encinitas
Solana Beach
Del Mar
Poway
Ramona
Santa Ysabel
Julian
County of San Diego
Santee
Lakeside
Alpine
Descanso
Mount Laguna
Pine Valley
San Diego
El Cajon
La Mesa
Lemon Grove
Spring Valley
Jamul
Dulzura
Boulevard
Campo
Potrero
Jacumba
Tecate
Tecate, B.C.
UNITED STATES
MEXICO
Coronado
National City
Bonita
Chula Vista
Imperial Beach
San Diego



Sources: SANGIS 2025a; SDMMP 2025; adapted by Ascent in 2025.

Figure 4.4-3 Known Occurrences of Federally and State-Listed Plant Species

Federally or State-Listed Animal Species

There are 37 federally or state-listed or candidate animal species that have potential to be found in the San Diego region as year-round residents or as migrants that reoccur seasonally to breed (Table 4.4-3). These 37 species include seven invertebrate, four fish, six reptile and amphibian, 16 bird, and four mammal species. Of these, four are considered extirpated from the San Diego region: California red-legged frog (*Rana draytonii*), southern mountain yellow-legged frog (*Rana muscosa*), California black rail (*Laterallus jamaicensis coturiculus*), and the bank swallow (*Riparia riparia*), which is known to occur in the San Diego region as a rare migrant, but for which the last breeding colony in the San Diego region has been extirpated (USFWS 2024). Out of the 37 species, ~~six~~seven species are categorized as candidate species (~~three~~ four federal and three state candidates)~~, including the federal candidates~~ Species proposed for federal listing as threatened include monarch butterfly (*Danaus plexippus*), southwestern pond turtle (*Actinimeys pallida*), and western spadefoot toad (*Spea hammondii*) in the southern distinct population segment. The California spotted owl (*Strix occidentalis occidentalis*) is proposed to be listed as federally endangered for the coastal southern California distinct population segment. Critical habitats for the federal candidate species have not yet been designated. Where not covered by approved habitat conservation plans and programs, impacts to the federally endangered Quino checkerspot butterfly also may require the application of federal take permits under Section 7 or 10 of the Federal Endangered Species Act (FESA).

CDFW has declared candidate species status for state listing for~~, and the state candidates~~ the Quino checkerspot butterfly and Crotch's bumblebee (*Bombus crotchii*), western burrowing owl (*Athene cunicularia* ssp. *hypugaea*), and mountain lion (*Puma concolor*)~~; critical habitats for the federal candidate species have not yet been designated~~. Unavoidable impacts to these species may require habitat assessments and focused surveys following CDFW protocols, and, where not covered by adopted conservation plans, the potential application for an Incidental Take Permit (ITP) under Section 2081 of the California Fish and Game Code. Figures 4.4-4 through 4.4-8 illustrate the results of regional database information for federally and state-listed wildlife species in the San Diego region.

Nonfederally and Nonstate-Listed Special-Status Wildlife Species

In addition to federally and state-listed wildlife, approximately 150 additional special-status wildlife species have known distributions within the San Diego region. These species include those considered special status by CDFW or species classified by the MSCP/MHCP as covered species, or otherwise meet the criteria discussed above. This list includes an additional 17 invertebrate, one fish, two amphibian, 17 reptile, 67 bird, and 46 mammal species. These nonlisted special-status wildlife species have the potential to occur throughout the San Diego region in each of their respective riparian, wetland, and upland habitats. A list of these additional special-status wildlife species and their general habitat affinities is presented in Appendix D~~E~~-3.

Table 4.4-3 Listed and Candidate Wildlife Species Potentially Occurring within the San Diego Region

Common Name	Scientific Name	Listing Status[1] Federal	Listing Status[1] State	Habitat
Invertebrates				
San Diego fairy shrimp	*Branchinecta sandiegonensis*	FE		Restricted to vernal pools, hardpan and claypan pools. Orange and San Diego Counties, Baja California.
Riverside fairy shrimp	*Streptocephalus woottonii*	FE		Restricted to deep, large vernal pools with long periods of inundation. San Diego (within 15 kilometers of the ocean) and Riverside Counties.
Laguna Mountains skipper	*Pyrgus ruralis lagunae*	FE		Only in a few open meadows in yellow pine forest between an elevation of 1,524 and 1,828 meters in the vicinity of Mount Laguna and Palomar mountains. Host plant is *Horkelia bolanderi clevelandi*.
Crotch's bumblebee	*Bombus crotchii*		SC	Native and nonnative grasslands, scrublands and lands with annual and perennial flowering plants. Male and female bumblebees have different plant preferences.

Common Name	Scientific Name	Listing Status[1] Federal	Listing Status[1] State	Habitat
Monarch butterfly (overwintering population)	*Danaus plexippus*	FC[7]		Coastal eucalyptus groves for roosting and overwintering and native and nonnative grasslands, coastal sage scrub, chaparral, and other scrublands where host milkweed species occur.
Quino checkerspot butterfly	*Euphydryas editha quino*	FE	SC	Native and nonnative grasslands, coastal sage scrub, open chaparral, and other open vegetation community types.
Hermes copper butterfly	*Lycaena hermes*	FT		Southern mixed chaparral and coastal sage scrub at the western edge of Laguna Mountains. Host plant is *Rhamnus crocea*.
Fish				
Desert pupfish	*Cyprinodon macularius*	FE	SE	Desert ponds, springs, marshes, and streams in Southern California.
Tidewater goby	*Eucyclogobius newberryi*	FE		Brackish shallow lagoons and lower stream reaches with still water.
Unarmored threespine stickleback	*Gasterosteus aculeatus williamsoni*	FE	SE	Found in weedy pools, backwaters, and among emergent vegetation at the stream edge in small streams.
Southern steelhead	*Oncorhynchus mykiss irideus*	FE		Coastal rivers. Federal listing refers to populations from Santa Maria River south to southern extent of range (San Mateo Creek in San Diego region though species was detected in San Luis Rey in 2005 and 2007; previously occurred in Santa Margarita, San Dieguito, San Diego, Sweetwater and Otay rivers, where apparently extirpated; recently observed by USGS in Sandia Creek).
Amphibians				
Arroyo toad	*Anaxyrus californicus*	FE		Gravelly or sandy washes, stream and river banks. Upland habitat near washes and streams, such as sage scrub and mixed chaparral habitats.
California red- legged frog	*Rana draytonii*	FT		Slow parts of streams, lakes, reservoirs, ponds, and other usually permanent water sources; primarily in wooded areas in lowlands and foothills, but also can be found in grassland. Typical habitat consists of deepwater pools ringed by thick vegetation (especially arroyo willow or native cattails). Extirpated in San Diego region.
Southern mountain yellow-legged frog	*Rana muscosa*	FE	SE	Always encountered within a few feet of water. Federal listing includes populations in the San Gabriel, San Jacinto, and San Bernardino mountains. San Diego population formerly on Palomar Mountain considered extirpated.
Western spadefoot toad	*Spea hammondii*	FC[8]		Vernal pools and ephemeral wetlands where the species completes its life form from egg mass to metamorphed tadpoles. The adults aestivate in adjacent uplands and canyons up to 40 meters from the breeding habitat.

[7] Proposed as threatened.
[8] Proposed as threatened in the southern distinct population.

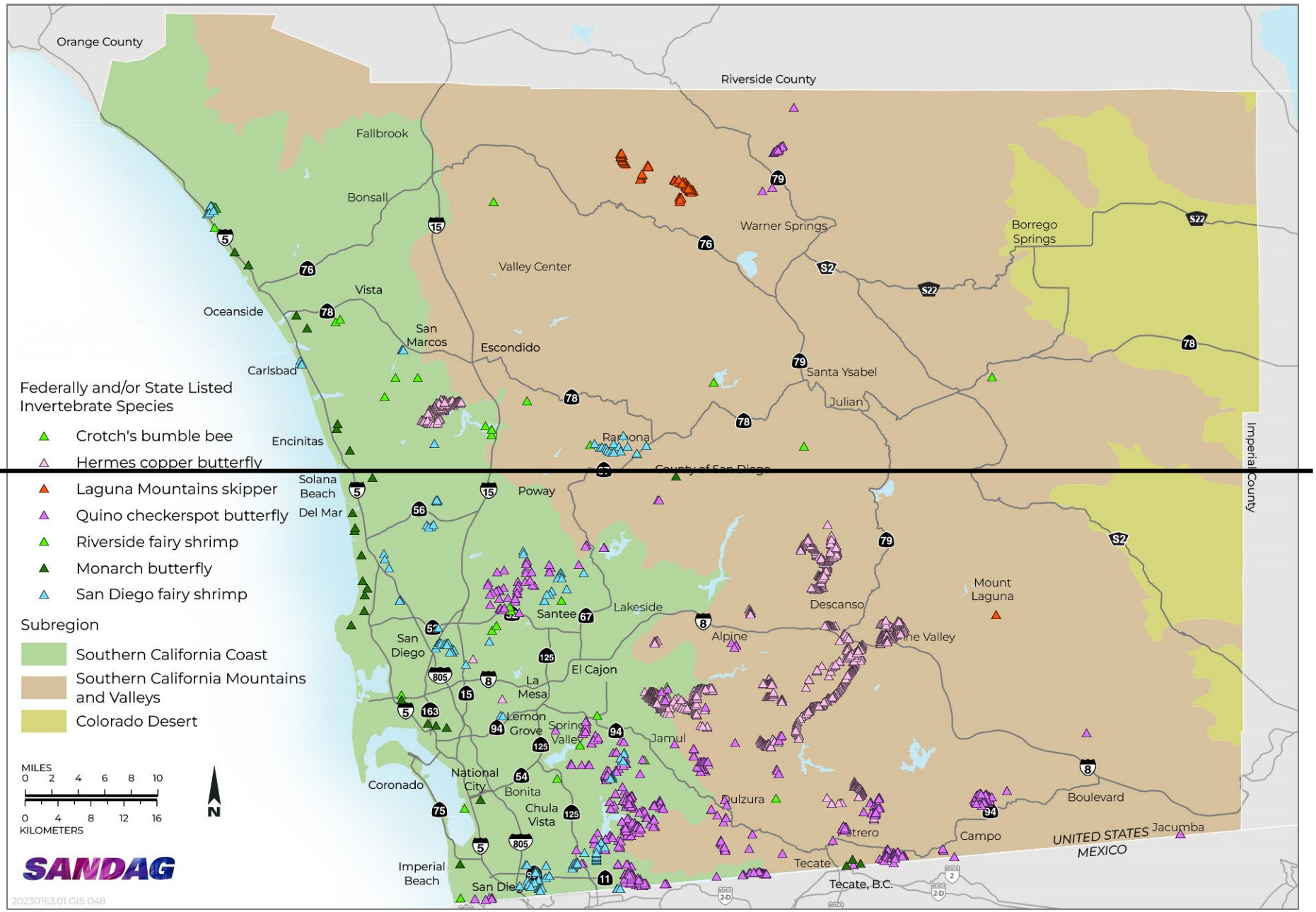
Common Name	Scientific Name	Listing Status[1] Federal	Listing Status[1] State	Habitat
Reptiles				
Southwestern pond turtle	*Actinemys pallida*	FC[7]		Occurs from Monterey County south to San Diego into northern Baja California, Mexico. The turtles use rivers, lakes, ponds, streams other water sources and terrestrial habitats throughout their lives.
Barefoot banded gecko	*Coleonyx switaki*		ST	Found in arid rocky areas on flatlands, canyons, and thornscrub, especially where there are large boulders and rock outcrops, and where vegetation is sparse.
Birds				
Golden eagle	*Aquila chrysaetos*	BGEPA	FP	Occurs over large expanses of landscape and forages in diverse habitat types. Nests on cliffs and in large trees.
White-tailed kite	*Elanus leucurus*		FP	Forages over low shrublands, grasslands, and estuaries and nest in tall shrubs or small trees.
Bald eagle	*Haliaeetus leucocephalus*	FDR, BGEPA	SE	Occurs primarily near large lakes with open water. Also known to nest in grasslands near small ponds.
Western burrowing owl	*Athene cunicularia* ssp. *hypugaea*		SC	Wintering occurs in sparse, low-growing uplands. In San Diego County, nests in ground squirrel burrows primarily in low-growing native and nonnative grasslands, disturbed lands, in berms and mounds, and fallow agricultural lands.
California spotted owl–coastal southern DPS	*Strix occidentalis occidentalis*	FC[9]		Occurs in riparian habitats and dense, tall tree canopy. Also can be found to utilize hardwood forests and woodlands, live oak/big cone fir forests in Southern California.
California black rail	*Laterallus jamaicensis coturiculus*		ST	Inhabits freshwater marshes, wet meadows, and shallow margins of saltwater marshes bordering larger bays. Extirpated in San Diego region.
Light-footed Ridgway's rail	*Rallus obsoletus levipes*	FE	SE	Found in Southern California in coastal salt marshes, especially those dominated by cordgrass.
Western snowy plover	*Charadrius nivosus*	FT		Nests on beaches, dunes, and salt flats in San Diego region, with the highest concentrations in two areas: Marine Corps Base (MCB) Camp Pendleton and the Silver Strand.
California least tern	*Sternula antillarum browni*	FE	SE	A ground-nesting bird that requires undisturbed stretches of beach and coastline.
Western yellow-billed cuckoo (western DPS)	*Coccyznus americanus*	FT	SE	Occurs in broadleaf riparian forests; extremely rare.
Southwestern willow flycatcher	*Empidonax trailli extimus*	FE	SE	Restricted to a few colonies in riparian woodlands scattered throughout Southern California. Riparian forests are integral to this species' persistence.
Tricolored blackbird	*Agelaius tricolor*		ST	Freshwater marshes with cattails and other emergent vegetation.
Least Bell's vireo	*Vireo belli pusillus*	FE	SE	Riparian woodland with understory of dense young willows or mulefat and willow canopy.

[9] Proposed as endangered in the southern California distinct population segment.

Common Name	Scientific Name	Listing Status[1] Federal	Listing Status[1] State	Habitat
Bank swallow	*Riparia riparia*		ST	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, or ocean to dig nesting hole. Only known colony extirpated from San Diego region.
Coastal California gnatcatcher	*Polioptila californica californica*	FT		Diegan coastal sage scrub dominated by California sagebrush and flat-topped buckwheat below 762 meters elevation in Riverside County and below 305 meters elevation along the coastal slope.
Belding's savannah sparrow	*Passerculus sandwichensis beldingi*		SE	Occurs primarily in grassland, saline emergent wetland, and wet meadow habitats.
Mammals				
Stephens' kangaroo rat	*Dipodomys stephensi*	FE	ST	Open grassy and weedy areas adjacent to sage scrub.
Pacific pocket mouse	*Perognathus longimembris pacificus*	FE		Coastal sage scrub, coastal strand, and river alluvium on MCB Camp Pendleton exclusively.
Mountain lion (southern California)	*Puma concolor*		SC	Coastal chaparral, valleys, canyons, foothills, and mountains. They can be found wherever native or introduced ungulates such as mule deer, bighorn sheep, or feral hogs are present.
Peninsular bighorn sheep (DPS population 2)	*Ovis canadensis nelsoni* (distinct population segment population 2)	FE	ST	Optimal habitat includes steep-walled canyons and ridges bisected by rocky or sandy washes, with available water.

Notes: BGEPA = Bald and Gold Eagle Act; FDR=federally delisted, recovered; FP=state listed as fully protected; FE = federally listed as endangered; FT= federally listed as threatened; FC = Candidate species proposed for federal listing as endangered or threatened; SE = state listed as endangered; ST = state listed as threatened; SC = Candidate species proposed for listing; DPS = distinct population segment.

Sources: USFWS 2024; CNDDB 2025.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Imperial County
Fallbrook
Bonsall
Vista
Oceanside
San Marcos
Escondido
Carlsbad
Valley Center
Warner Springs
Borrego Springs
Santa Ysabel
Julian
Ramona
Encinitas
Solana Beach
Del Mar
Poway
Santee
Lakeside
San Diego
El Cajon
La Mesa
Lemon Grove
Spring Valley
Jamul
Descanso
Alpine
Mount Laguna
Pine Valley
Dulzura
Boulevard
Campo
Jacumba
Tecate
Tecate, B.C.
UNITED STATES
MEXICO
Coronado
National City
Bonita
Chula Vista
Imperial Beach
Federally and/or State Listed Invertebrate Species
Crotch's bumble bee
Hermes copper butterfly
Laguna Mountains skipper
Quino checkerspot butterfly
Riverside fairy shrimp
Monarch butterfly
San Diego fairy shrimp
Subregion
Southern California Coast
Southern California Mountains and Valleys
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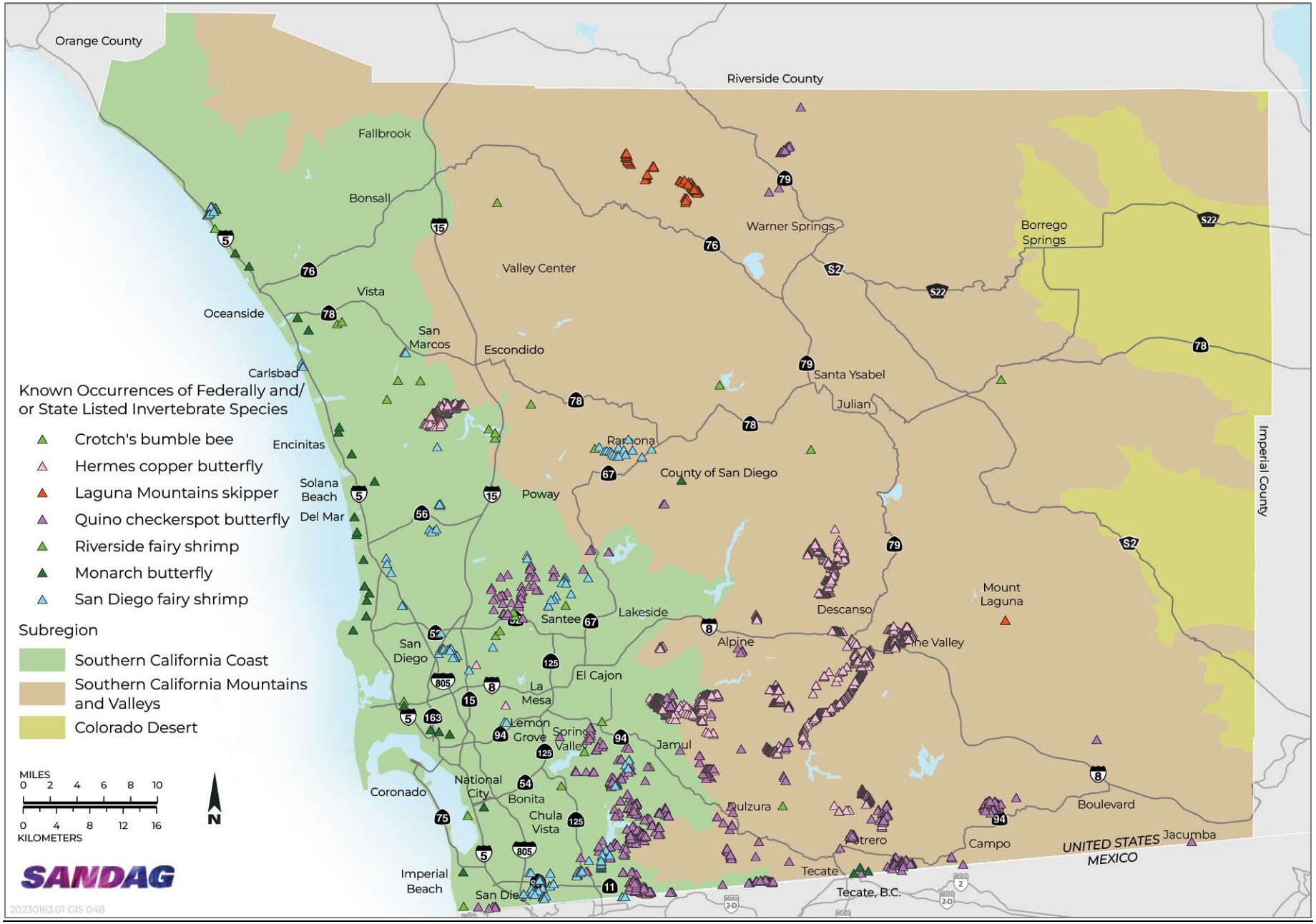
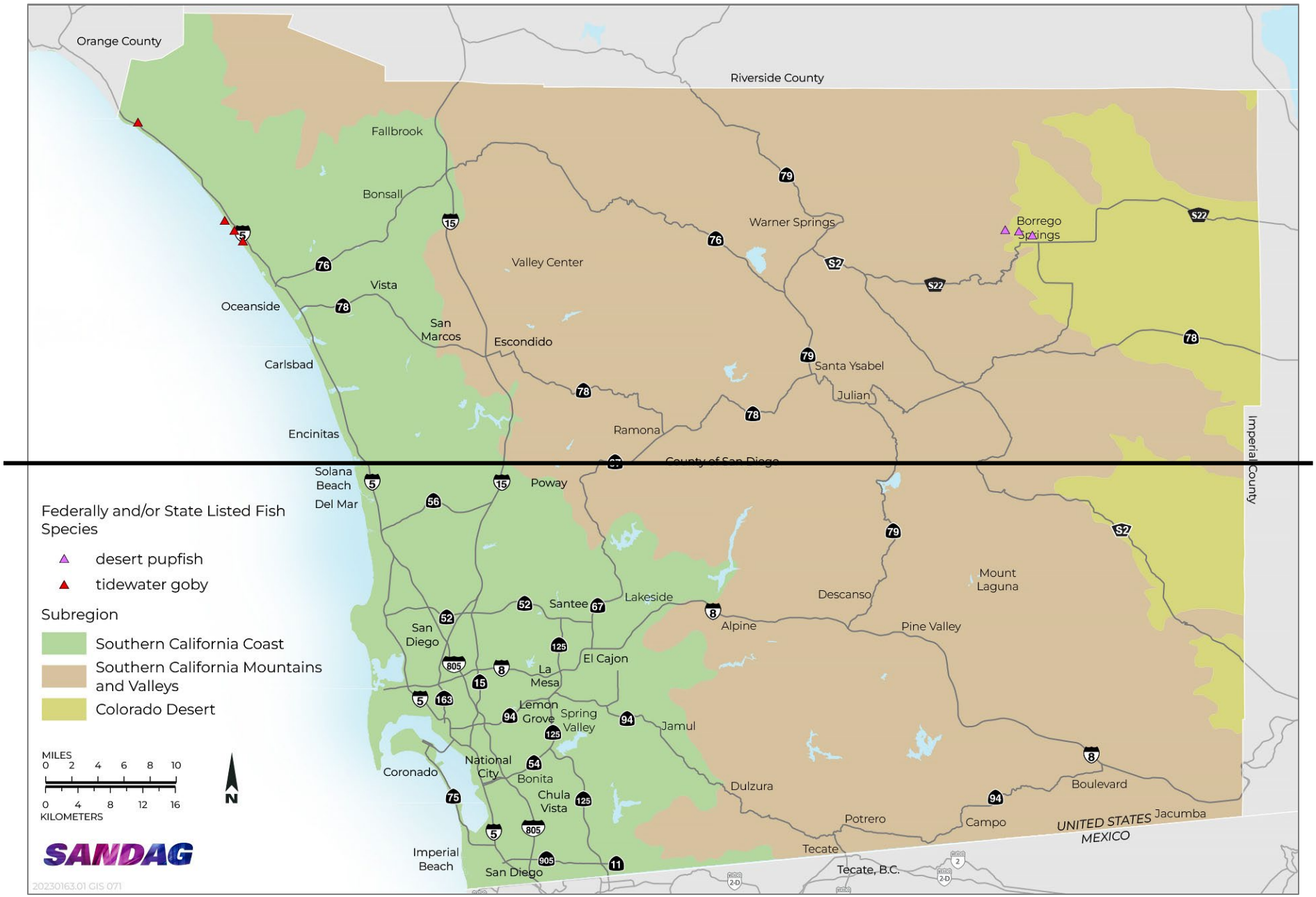


Sources: SANGIS 2025a; SDMMP 2025; adapted by Ascent in 2025.

Figure 4.4-4 Known Occurrences of Federally and State-Listed Invertebrate Species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Borrego Springs
Santa Ysabel
Julian
Ramona
Encinitas
Solana Beach
Del Mar
Poway
Lakeside
Santee
Alpine
Descanso
Mount Laguna
Pine Valley
San Diego
El Cajon
La Mesa
Lemon Grove
Spring Valley
Jamul
National City
Coronado
Bonita
Chula Vista
Dulzura
Potrero
Campo
Boulevard
Jacumba
Tecate
Tecate, B.C.
Imperial Beach
UNITED STATES
MEXICO
Federally and/or State Listed Fish Species
desert pupfish
tidewater goby
Subregion
Southern California Coast
Southern California Mountains and Valleys
Colorado Desert
MILES
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0 4 8 12 16
KILOMETERS
N
SANDAG
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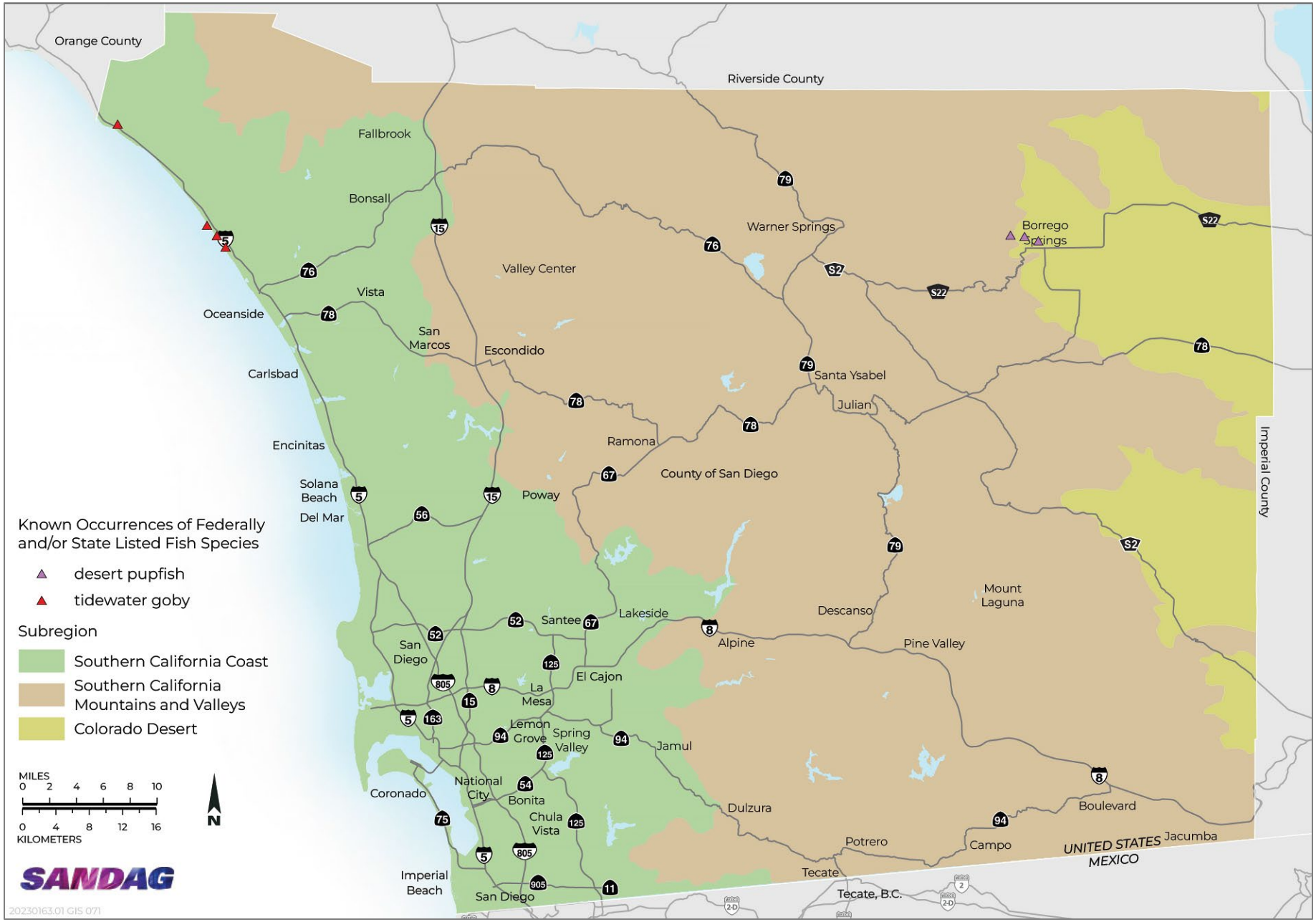
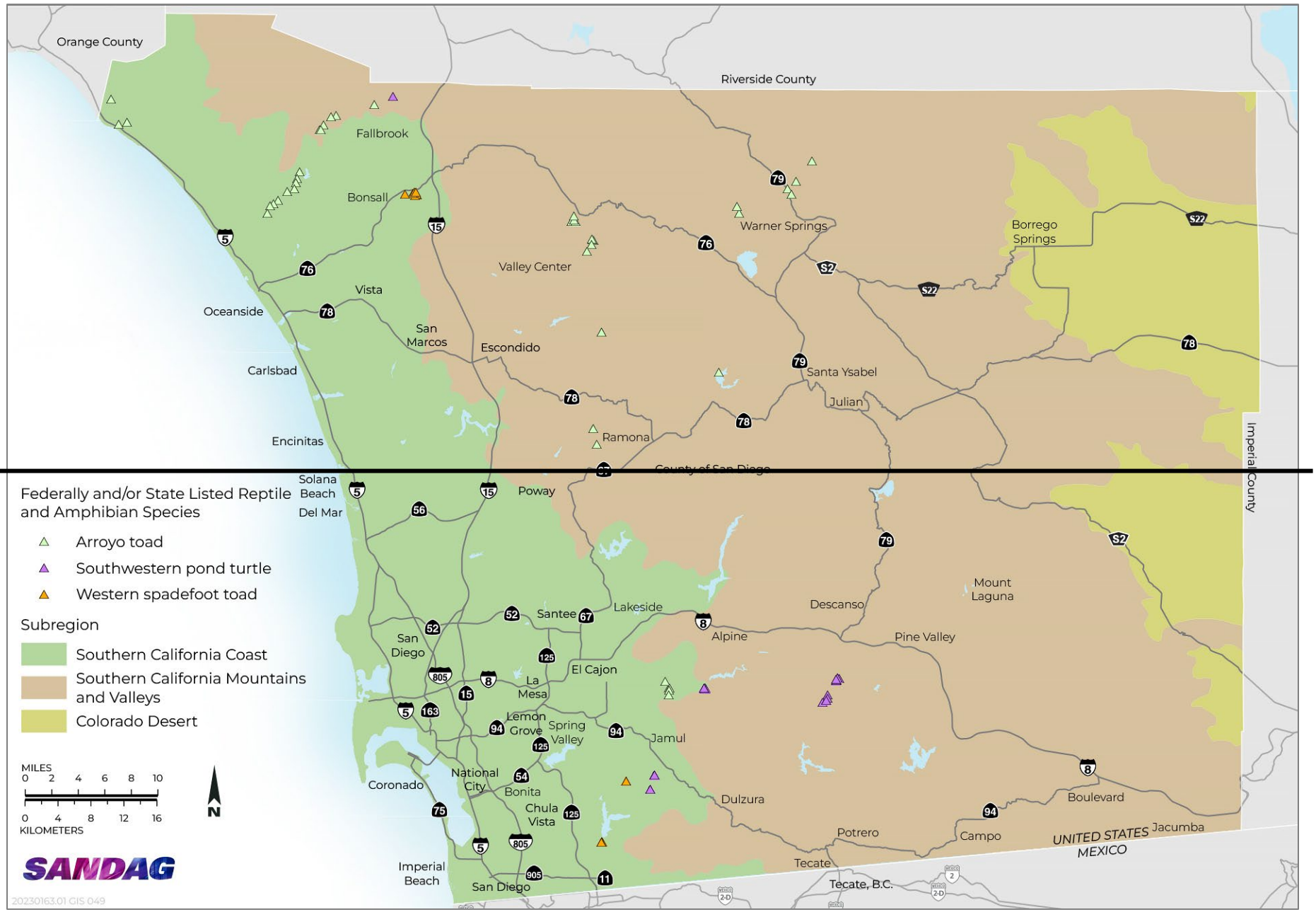


Source: CNDDB 2025; adapted by Ascent in 2025.

Figure 4.4-5 Known Occurrences of Federally and State-Listed Fish Species


Orange County
Riverside County
Imperial County
County of San Diego
Fallbrook
Bonsall
Vista
Oceanside
San Marcos
Escondido
Carlsbad
Encinitas
Valley Center
Warner Springs
Borrego Springs
Santa Ysabel
Julian
Ramona
Solana Beach
Del Mar
Poway
Santee
Lakeside
Descanso
Mount Laguna
Alpine
Pine Valley
San Diego
El Cajon
La Mesa
Lemon Grove
Spring Valley
Jamul
National City
Coronado
Bonita
Chula Vista
Dulzura
Boulevard
Potrero
Campo
Jacumba
Tecate
Tecate, B.C.
Imperial Beach
UNITED STATES
MEXICO
Federally and/or State Listed Reptile and Amphibian Species
Arroyo toad
Southwestern pond turtle
Western spadefoot toad
Subregion
Southern California Coast
Southern California Mountains and Valleys
Colorado Desert
MILES
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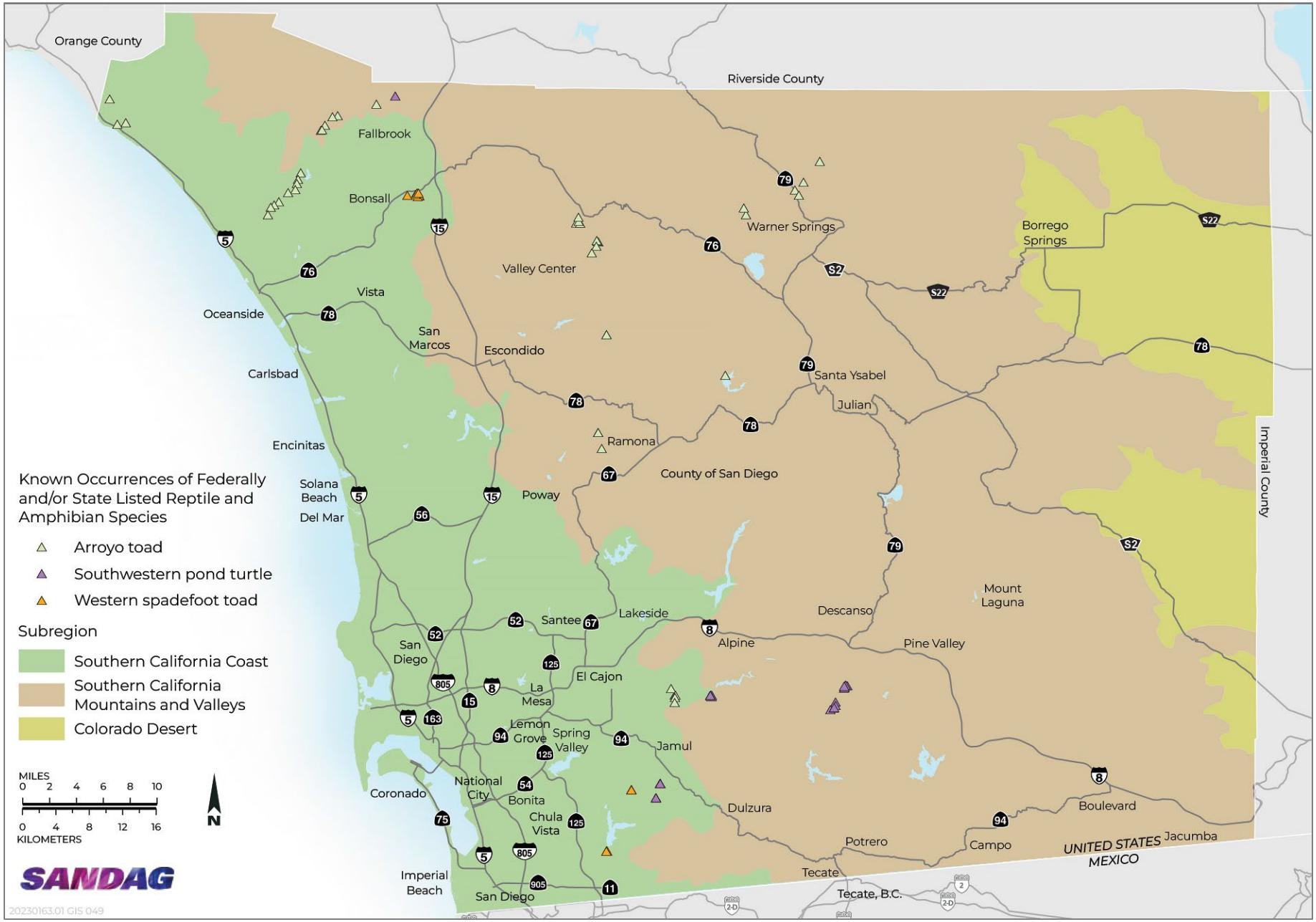
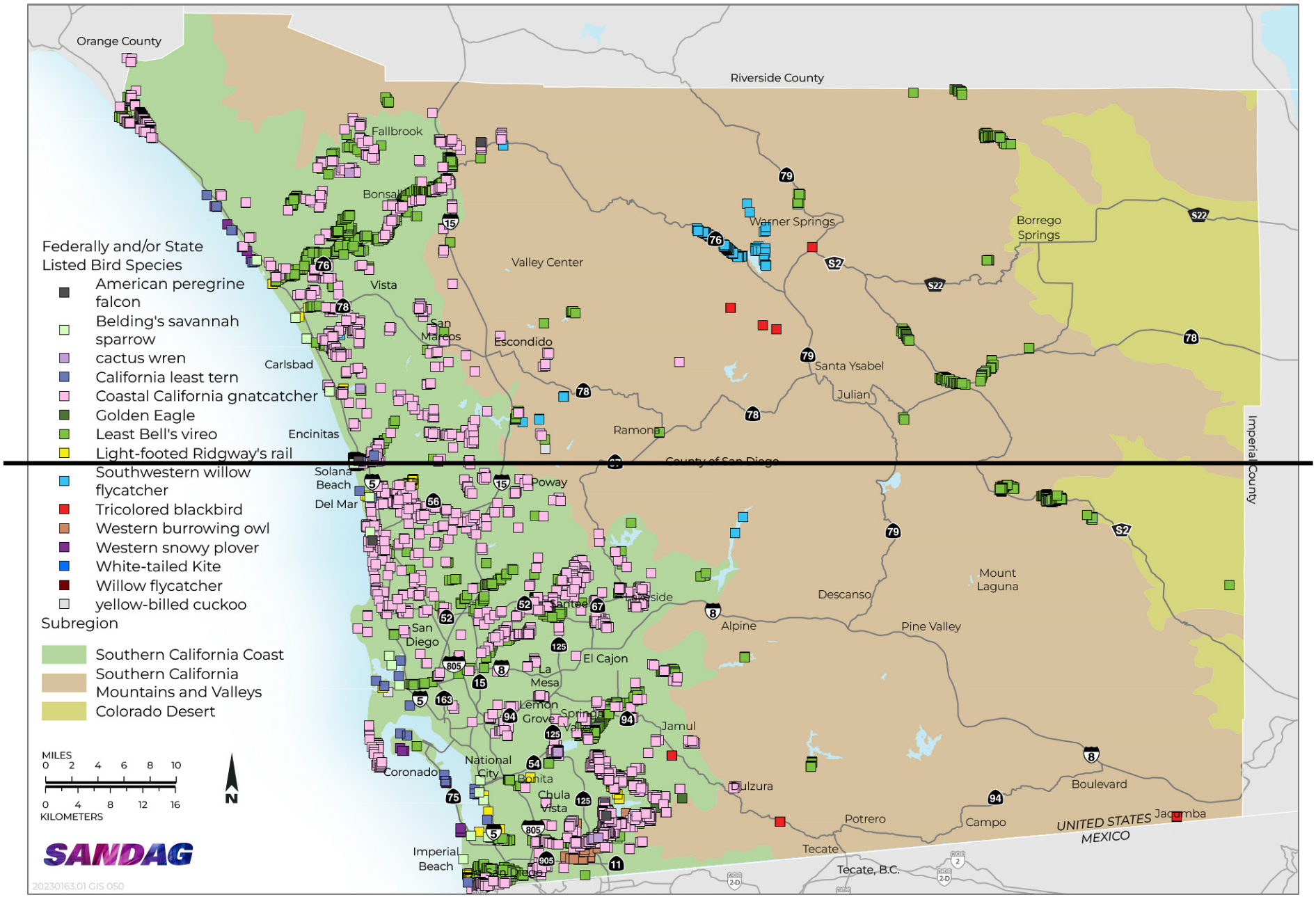
0 4 8 12 16
KILOMETERS
N
SANDAG
20230163.01 GIS 049



Sources: SANGIS 2025a; SDMMP 2025; adapted by Ascent in 2025.

Figure 4.4-6 Known Occurrences of Federally and State-Listed Reptile and Amphibian Species


Orange County
Riverside County
Imperial County
County of San Diego
Federally and/or State Listed Bird Species
American peregrine falcon
Belding's savannah sparrow
cactus wren
California least tern
Coastal California gnatcatcher
Golden Eagle
Least Bell's vireo
Light-footed Ridgway's rail
Southwestern willow flycatcher
Tricolored blackbird
Western burrowing owl
Western snowy plover
White-tailed Kite
Willow flycatcher
yellow-billed cuckoo
Subregion
Southern California Coast
Southern California Mountains and Valleys
Colorado Desert
MILES
0 2 4 6 8 10
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KILOMETERS
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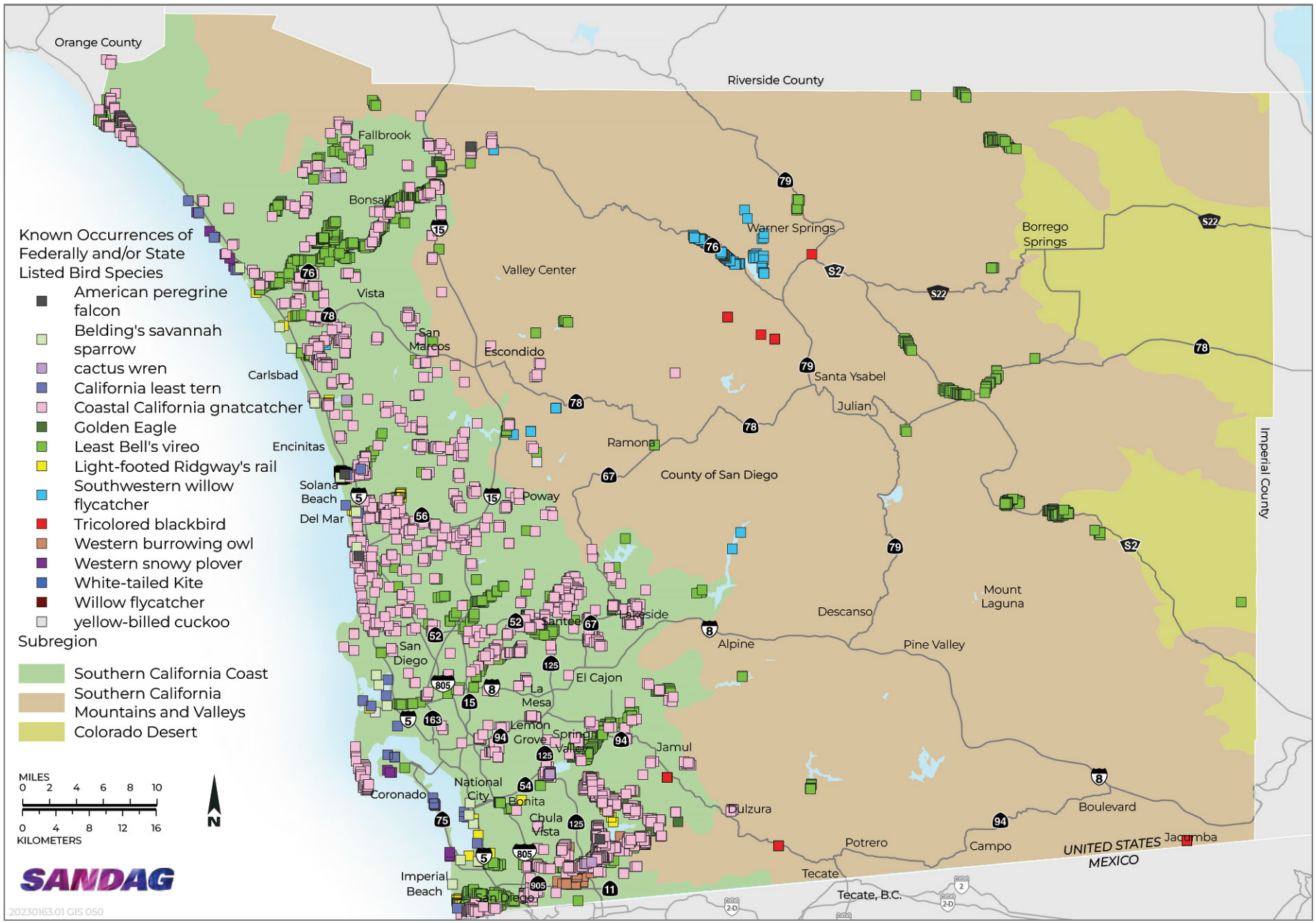
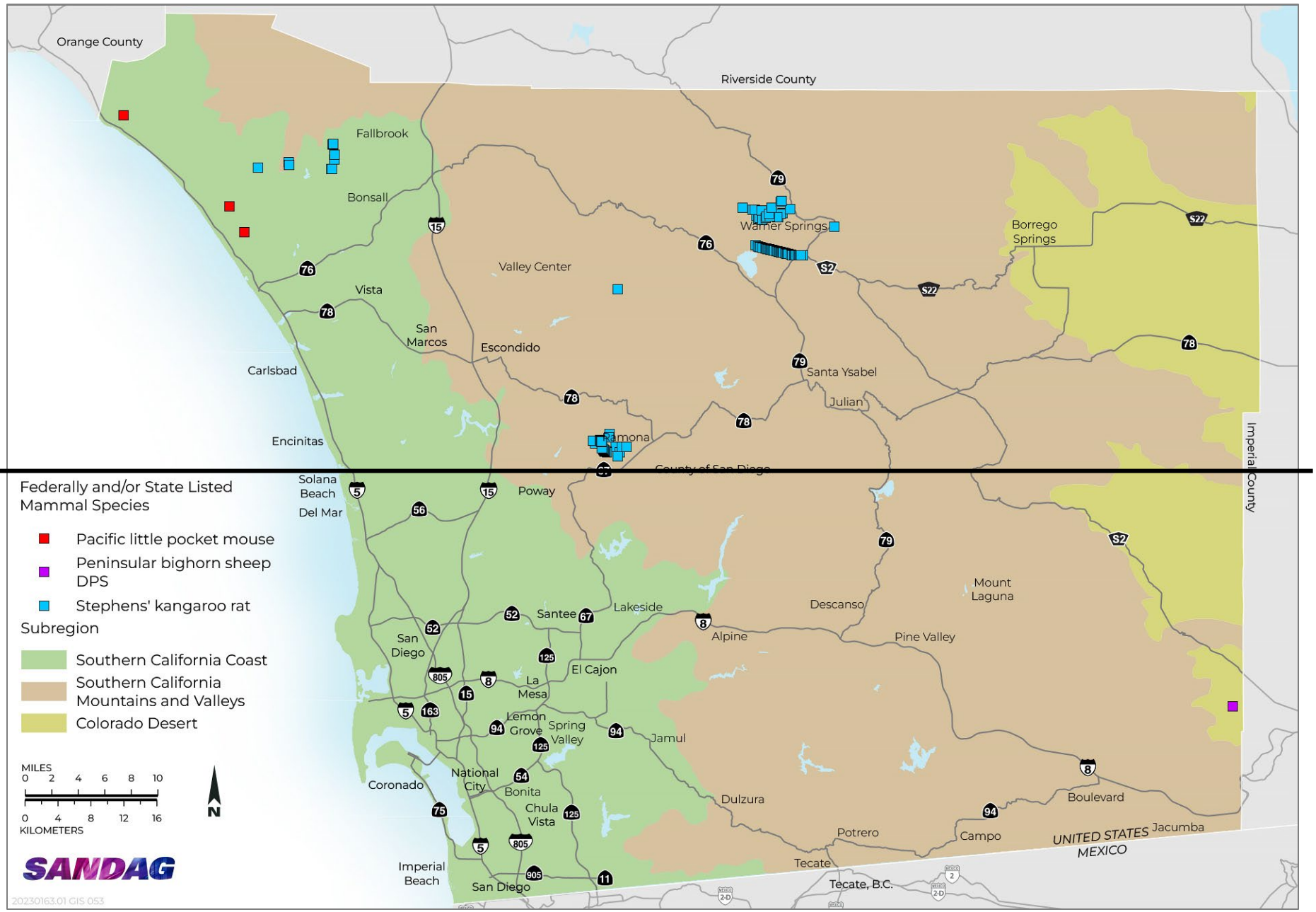
SANDAG
20230163.01 GIS 050
Fallbrook
Bonsall
Vista
San Marcos
Escondido
Valley Center
Carlsbad
Encinitas
Solana Beach
Del Mar
Poway
Ramona
Warner Springs
Borrego Springs
Santa Ysabel
Julian
Descanso
Mount Laguna
Alpine
Pine Valley
El Cajon
La Mesa
Lemon Grove
Spring Valley
Jamul
Dulzura
Boulevard
Campo
Potrero
Tecate
Tecate, B.C.
UNITED STATES
MEXICO
Jacumba
National City
Coronado
Bonita
Chula Vista
Imperial Beach
San Diego



Sources: SANGIS 2025a; SDMMP 2025; adapted by Ascent in 2025.

Figure 4.4-7 Known Occurrences of Federally and State-Listed Bird Species


Orange County
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Imperial County
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Poway
Warner Springs
Borrego Springs
Santa Ysabel
Julian
Ramona
County of San Diego
Lakeside
Santee
Alpine
Descanso
Mount Laguna
Pine Valley
San Diego
El Cajon
La Mesa
Lemon Grove
Spring Valley
Jamul
National City
Coronado
Bonita
Chula Vista
Imperial Beach
Dulzura
Potrero
Campo
Boulevard
Jacumba
Tecate
Tecate, B.C.
UNITED STATES
MEXICO
Federally and/or State Listed Mammal Species
Pacific little pocket mouse
Peninsular bighorn sheep DPS
Stephens' kangaroo rat
Subregion
Southern California Coast
Southern California Mountains and Valleys
Colorado Desert
MILES
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KILOMETERS
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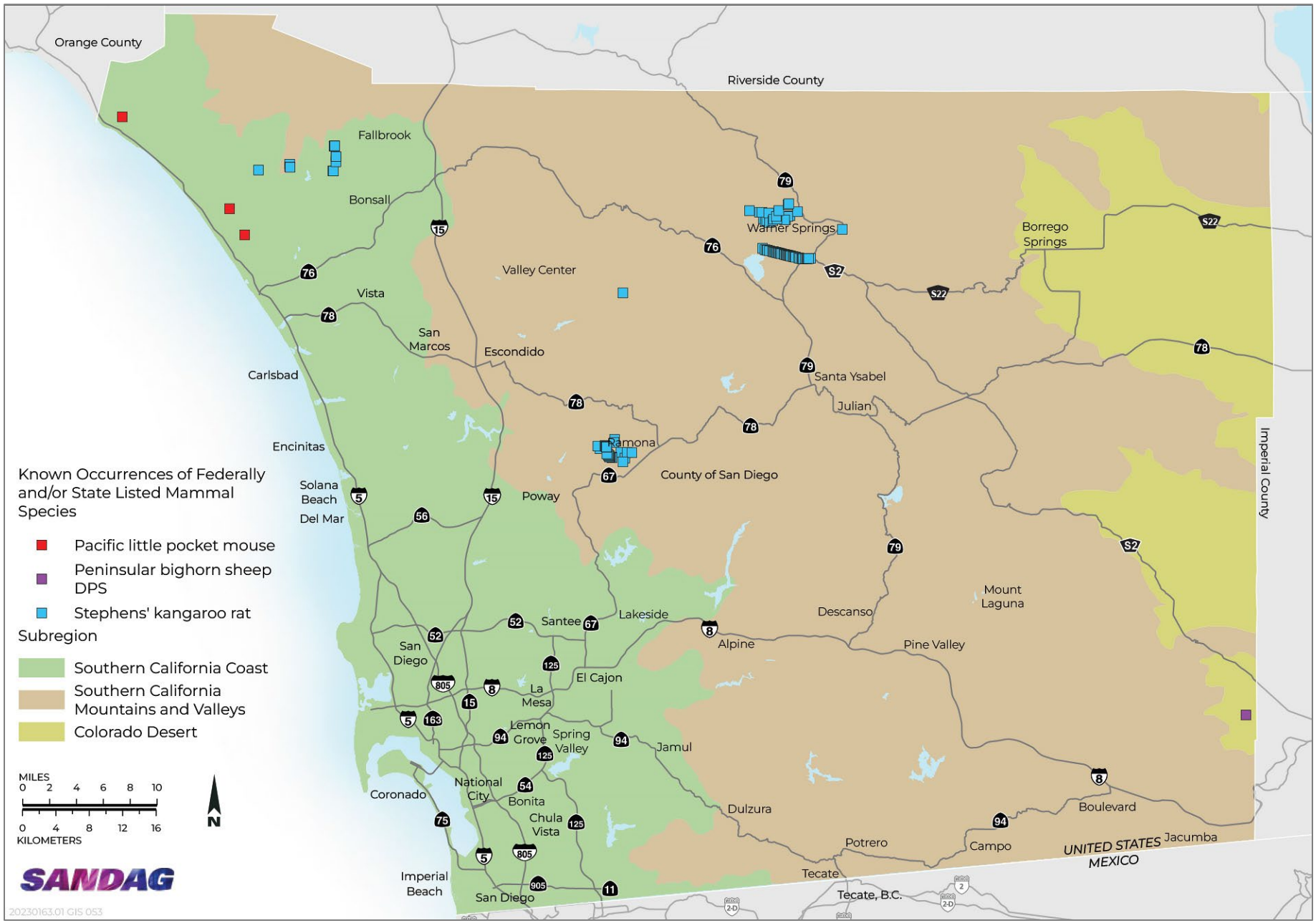
20230163.01 GIS 053



Sources: SANGIS 2025a; SDMMP 2025; adapted by Ascent in 2025.

Figure 4.4-8 Known Occurrences of Federally and State-Listed Mammal Species

Critical Habitat

USFWS-designated critical habitat for endangered and threatened species is defined as the "geographic areas that contain the physical or biological features that are essential to the conservation of federally listed endangered and threatened species and that may need special management or protection" (16 U.S. Code [USC] 1532[5][A]). The San Diego region (except for military bases) includes USFWS-designated critical habitat for 20 species (Table 4.4-4). Plant, invertebrate, fish, reptile and amphibian, bird, and mammal species final critical habitat in the San Diego region is displayed in Figures 4.4-9 through 4.4-14.

Table 4.4-4 Critical Habitat[1] within the San Diego Region

Common Name	Scientific Name	Total Acres[2]	General Location
Plants			
San Diego thornmint	*Acanthomintha ilicifolia*	1,749	North of Willows Road near Viejas Indian Reservation.
San Diego ambrosia	*Ambrosia pumila*	806	Largest areas south of Rancho San Diego along State Route 94 and Sweetwater River and southwest of Lake Hodges along Del Dios Highway.
Thread-leaved brodiaea	*Brodiaea filifolia*	985	Small patches of vernal pool habitat along the northern coastal area of San Diego region.
Otay tarplant	*Deinandra conjugens*	6,333	Coastal scrub and grassland habitat in southwest San Diego region.
Mexican flannelbush	*Fremontodendron mexicanum*	228	Cedar and Little Cedar canyons just west of Dulzura.
Willowy monardella	*Monardella viminea*	122	Sycamore and Clark Canyon northeast of Santee Lakes.
Spreading navarretia	*Navarretia fossalis*	1,068	Small patches of vernal pool habitat along the coastal area of San Diego region.
San Bernardino blue grass	*Poa atropurpurea*	1,115	Laguna meadow west of Mount Laguna and Mendenhall Valley northeast of Palomar Mountain.
Invertebrates			
San Diego fairy shrimp	*Branchinecta sandiegonensis*	2,918	Vernal pools and basins located on mesa tops or in grasslands in the San Diego region.
Hermes copper butterfly	*Lycaena hermes*	35,052	South from State Route 56 in three distinct units: Lopez Canyon, between Miramar and Santee, and in Southeast San Diego south of Interstate 8, east of State Route 125. Habitat loss due to recent fires.
Riverside fairy shrimp	*Streptocephalus woottoni*	807	Vernal pools and basins in the southern coastal area of San Diego region.
Quino checkerspot butterfly	*Euphydryas editha quino*	40,136	United States–Mexico border, including the San Ysidro Mountain region; along State Route 94 near the Campo and La Posta Indian Reservations; and northwest of Jacumba.
Laguna Mountains skipper	*Pyrgus ruralis lagunae*	6,259	West of Mount Laguna in the Laguna Mountains and north of Palomar Mountain.
Fish			
Tidewater goby	*Eucyclogobius newberryi*	55	Mouth of the San Luis Rey River.
Southern California Steelhead	*Oncorhynchus mykiss irideus*	670[10]	Critical habitat occurs along and within the Santa Margarita River and San Mateo Creek in North San Diego County.

[10] Critical habitat is identified as a linear feature. In order to compute an acreage, the linear feature was multiplied by the width of the two creeks as derived from the National Hydrology Dataset (NHD).

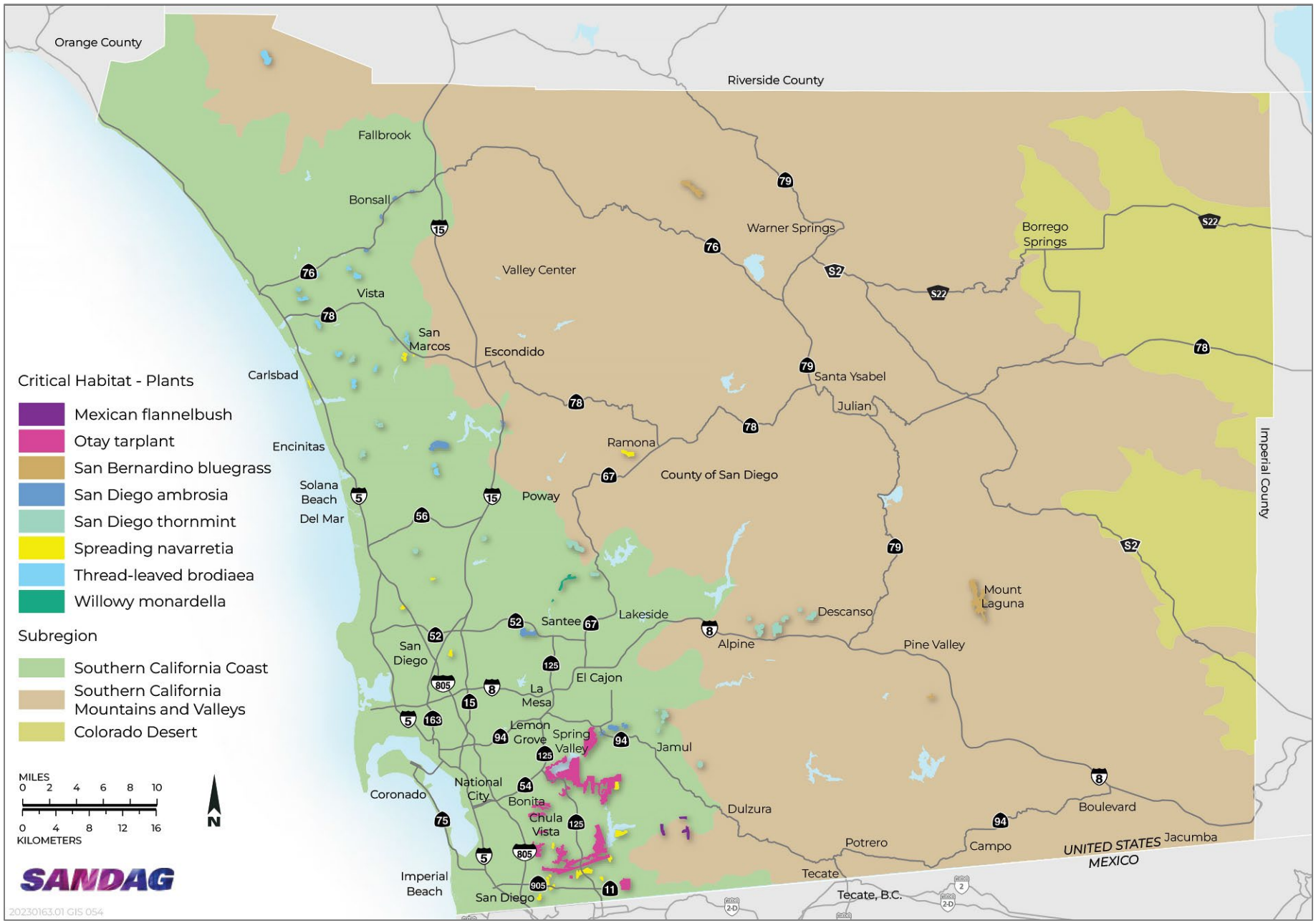
Common Name	Scientific Name	Total Acres[2]	General Location
Reptiles and Amphibians			
Arroyo toad	*Anaxyrus californicus*	60,802	San Juan Creek; San Mateo Creek; Lower and Upper Santa Margarita River; Lower, Middle, and Upper San Luis Rey River; Santa Ysabel Creek; San Diego River; San Vicente Creek; Sweetwater River; and Cottonwood Creek.
Birds			
Least Bell's vireo	*Vireo belli pusillus*	13,415	San Luis Rey River, Santa Margarita River, San Diego River, Sweetwater River, Tijuana River, Coyote Creek, and Jamul-Dulzura creeks.
Southwestern willow flycatcher	*Empidonax traillii extimus*	5,373	Santa Margarita River, DeLuz Creek, San Luis Rey River, Pilgrim Creek, Agua Hedionda Creek, Santa Ysabel Creek, Temescal Creek, Temecula Creek, Sweetwater River, and San Diego River.
Western snowy plover	*Charadrius nivosus*	405	San Dieguito Lagoon, San Elijo Lagoon Coronado Beach, Silver Strand State Beach, San Diego National Wildlife Refuge, and Tijuana Estuary and Border Field State Park.
Coastal California gnatcatcher	*Polioptila californica*	76,420	Largest contiguous areas of critical habitat for coastal California gnatcatcher include the San Diego National Wildlife Refuge and surrounding area; the upper San Diego River drainage area as well as areas surrounding the El Capitan Reservoir; open space north of the city of Santee; open space northwest of the city of Ramona; habitat within the MHCP planning area in the northwest San Diego region; and habitat along the Interstate-15 corridor from Escondido to Riverside County.
Mammals			
Peninsular bighorn sheep (DPS population 2)	*Ovis canadensis nelson* (DPS population 2)	261,120	Santa Rosa Mountains, Coyote Canyon, San Ysidro Mountains, Pinyon Mountains, Vallecito Mountains, Carrizo Canyon, In-Ko-Pah Mountains, Jacumba Mountains, Coyote Mountains, and Tierra Blanca Mountains.

Notes: DPS = distinct population segment; MHCP = Multiple Habitat Conservation Program.

[1] Critical habitat in this table includes final designated critical habitat and proposed designated critical habitat as of July 2021.

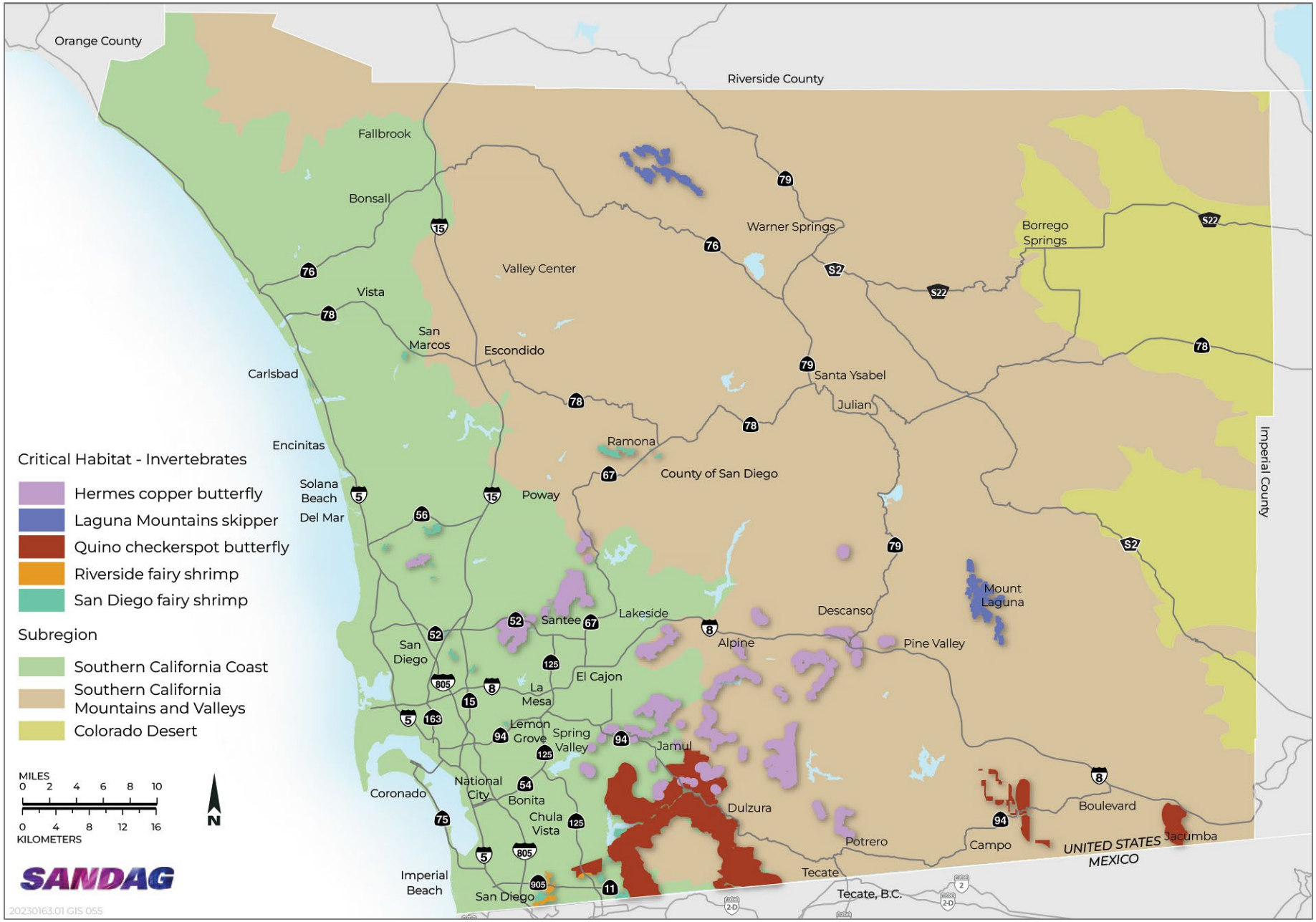
[2] Acres are rounded up or down to the next acre.

Source: Data downloaded from USFWS in 2025; adapted by Ascent in 2025.



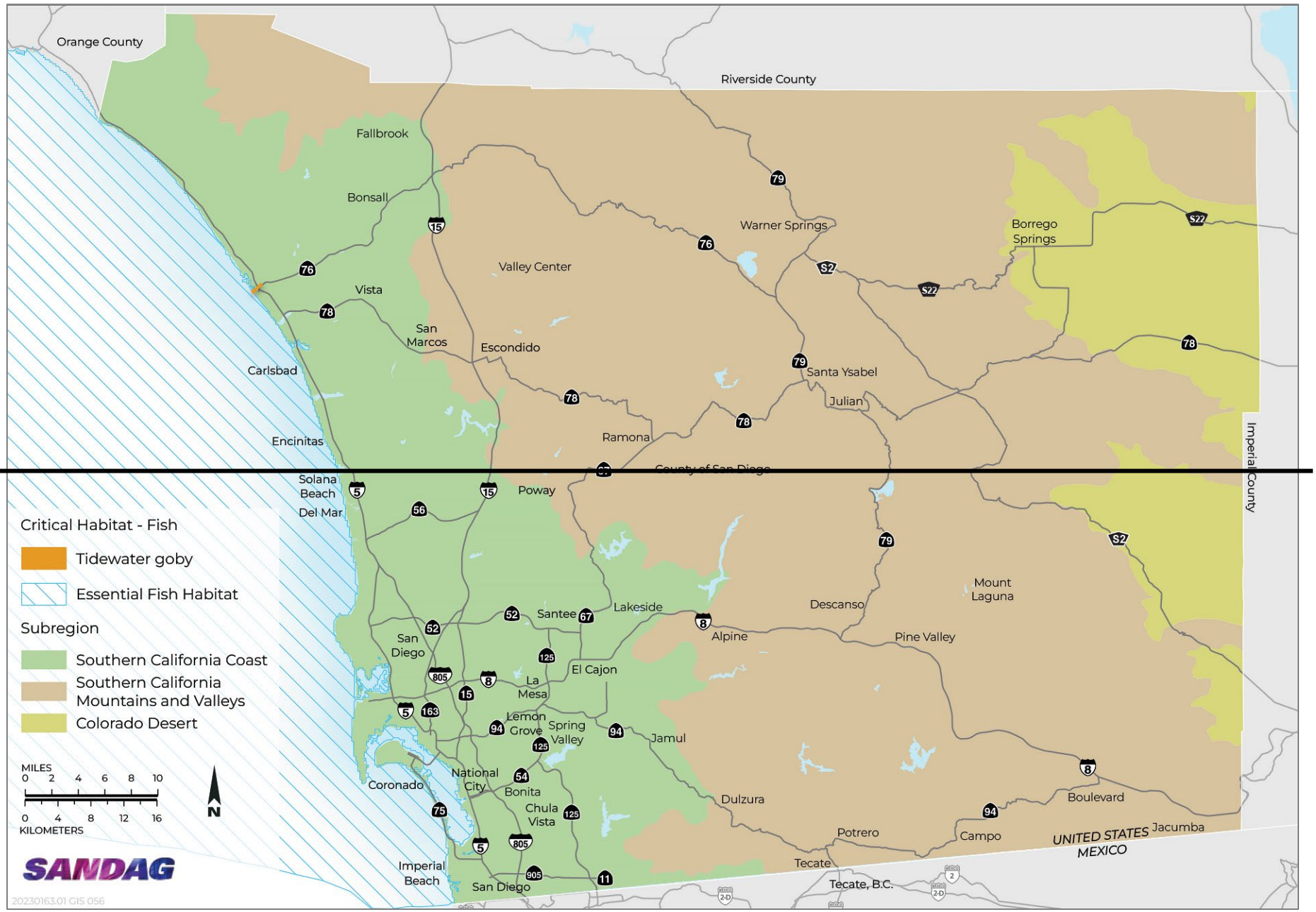
Source: USFWS 2025b; adapted by Ascent in 2025.

Figure 4.4-9 Critical Habitat: Plants



Source: USFWS 2025b; adapted by Ascent in 2025.

Figure 4.4-10 Critical Habitat: Invertebrates


Orange County
Riverside County
Imperial County
Fallbrook
Bonsall
Vista
San Marcos
Escondido
Valley Center
Warner Springs
Borrego Springs
Santa Ysabel
Julian
Ramona
Carlsbad
Encinitas
Solana Beach
Del Mar
Poway
County of San Diego
Lakeside
Santee
Alpine
Descanso
Mount Laguna
Pine Valley
San Diego
El Cajon
La Mesa
Lemon Grove
Spring Valley
Jamul
Dulzura
Coronado
National City
Bonita
Chula Vista
Imperial Beach
San Diego
Potrero
Campo
Tecate
Tecate, B.C.
Boulevard
Jacumba
UNITED STATES
MEXICO
Critical Habitat - Fish
Tidewater goby
Essential Fish Habitat
Subregion
Southern California Coast
Southern California Mountains and Valleys
Colorado Desert
MILES
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0 4 8 12 16
KILOMETERS
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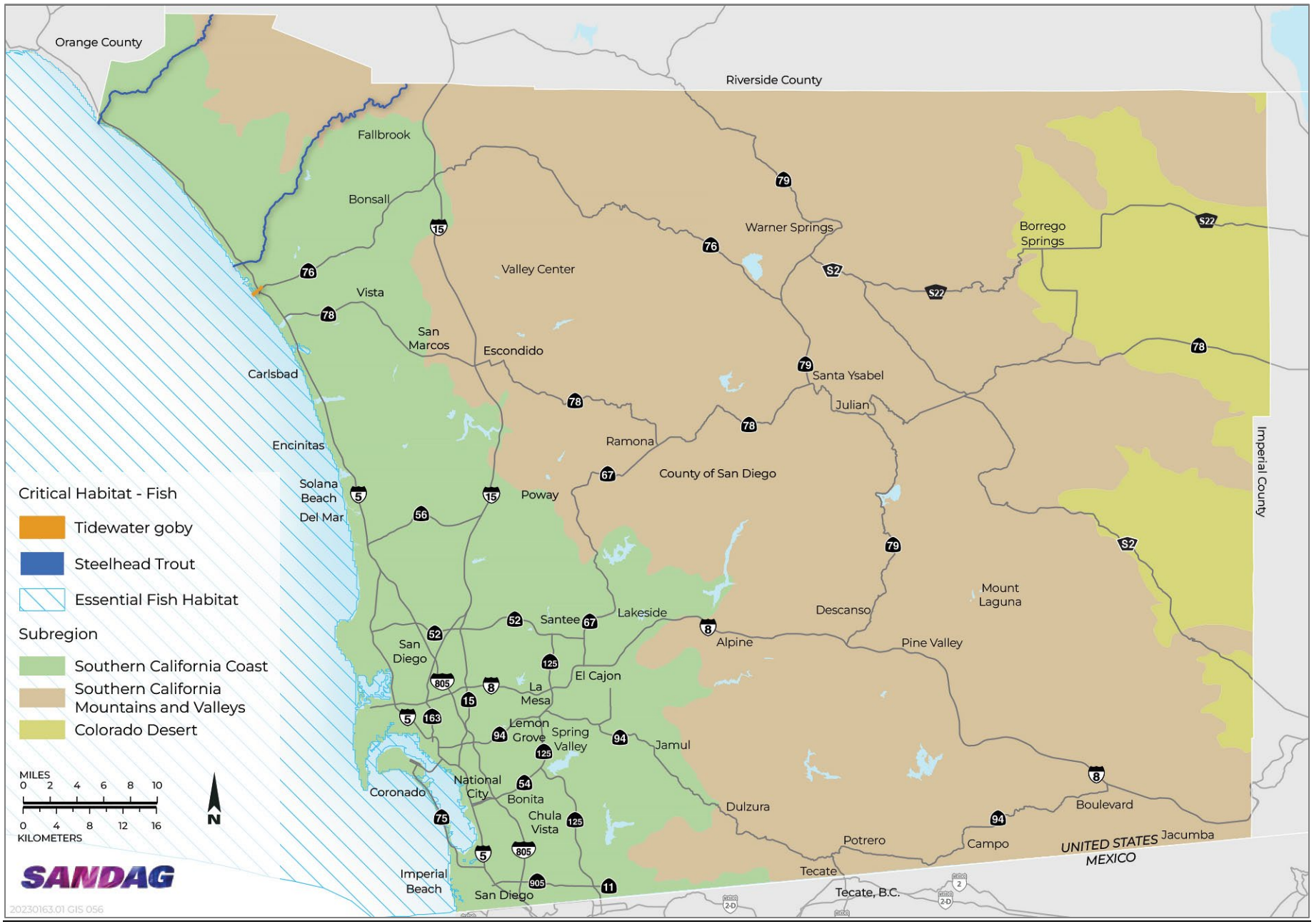
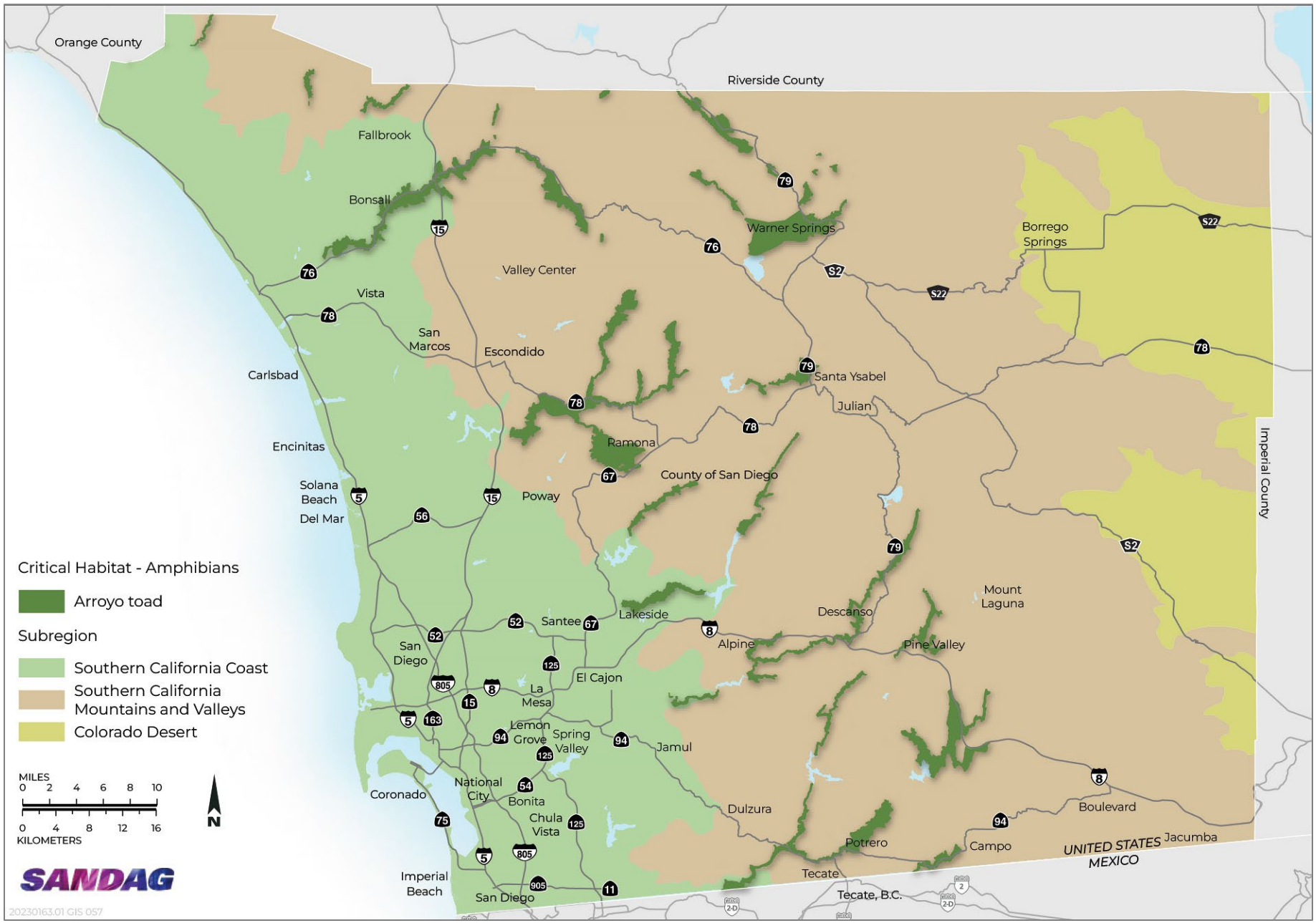


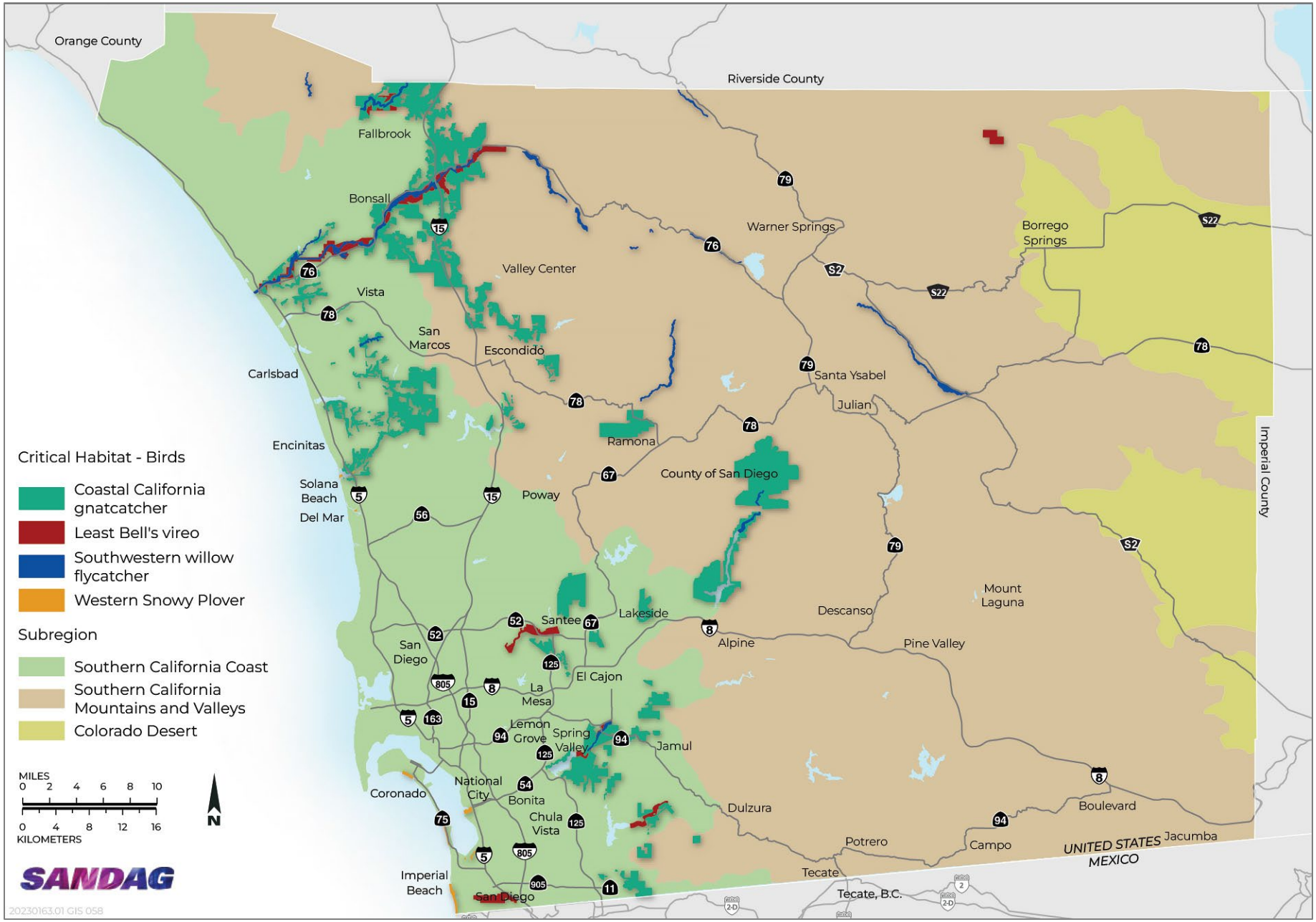
Source: USFWS 2025b; adapted by Ascent in 2025.

Figure 4.4-11 Critical Habitat: Fish and Essential Fish Habitat



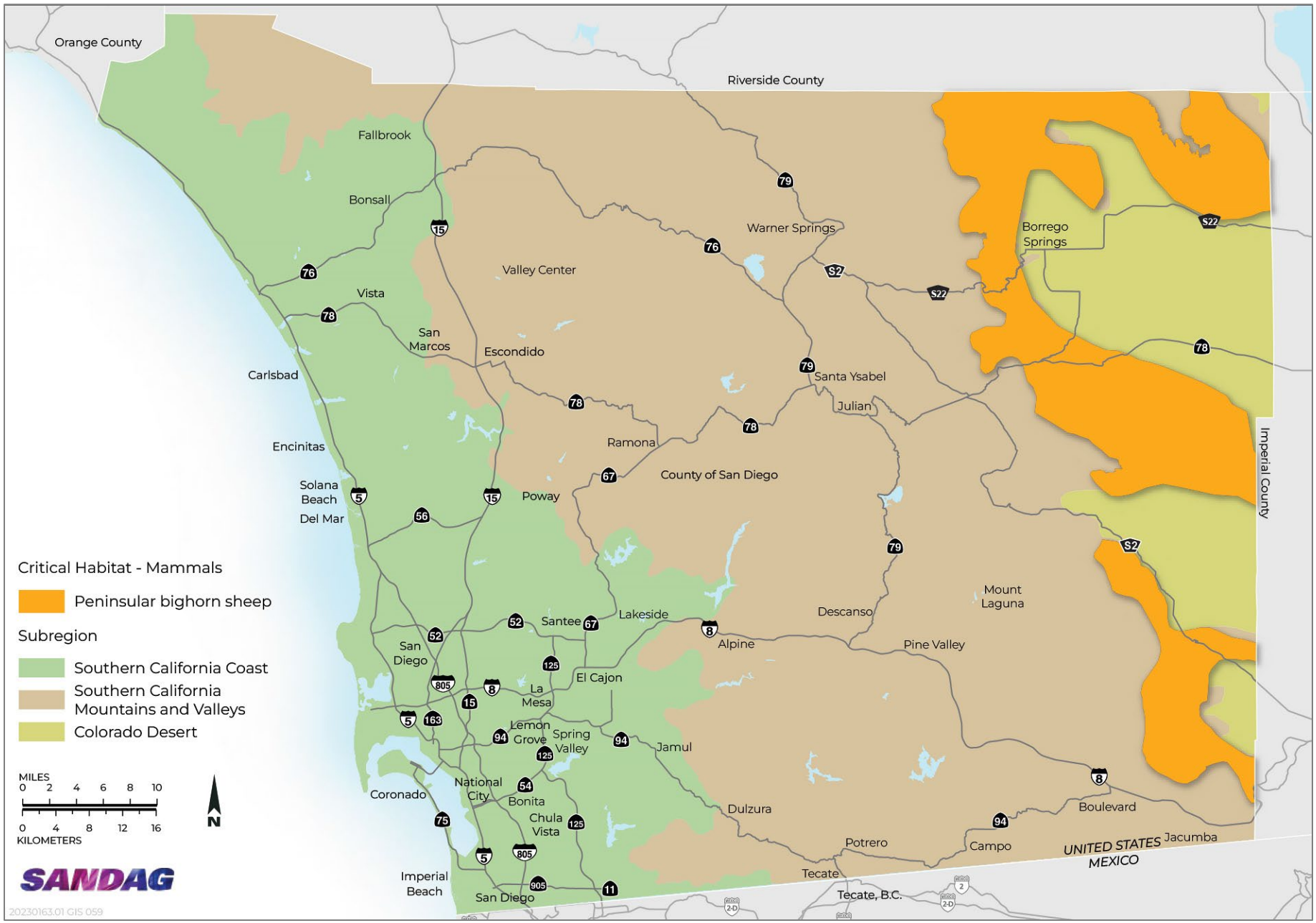
Source: USFWS 2025b; adapted by Ascent in 2025.

Figure 4.4-12 Critical Habitat: Amphibians



Sources: USFWS 2025b; adapted by Ascent in 2025.

Figure 4.4-13 Critical Habitat: Birds



Source: USFWS 2025b; adapted by Ascent in 2025.

Figure 4.4-14 Critical Habitat: Mammals

Essential Fish Habitat

Essential Fish Habitat (EFH), which is defined as "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" (16 USC 1801 et seq.), is displayed in Figure 4.4-11. EFH in the San Diego region has been identified for federally managed fisheries of Pacific coast groundfish and associated species, including rockfish, cabezon, California sheephead, ocean whitefish, and greenlings of genus Hexagrammos (NOAA Fisheries 2025; CDFW 2025). The Southern Groundfish Management Area is defined as ocean waters between from Point Conception, Santa Barbara County (34° 27' north latitude) to the United States–Mexico border and areas designated as Habitat Areas of Particular Concern (HAPCs). Under the Pacific Coast Groundfish Fisheries Management Plan (FMP), HAPCs include estuary, seagrass, kelp canopy, and rocky reef.

WILDLIFE MOVEMENT

Wildlife movement may occur along landscape features (e.g., wildlife corridors, habitat linkages) that allow for species movement over time between two habitat patches that would otherwise be disconnected (Beier and Noss 1998; Lidicker and Peterson 1999; CBI 2003; Beier et al. 2008). For some species, such as the California gnatcatcher and other bird species, dispersal may also occur within line of sight along fragmented habitat patches (stepping stones) between larger habitat blocks (Bailey and Mock 1998).

Wildlife corridors contribute to population viability by (1) assuring continual exchange of genes between populations, which helps maintain genetic diversity; (2) providing access to adjacent habitat areas representing additional territory for foraging and mating; (3) allowing for a greater carrying capacity; and (4) providing routes for colonization of habitat lands following local population extinctions or habitat recovery from ecological catastrophes. Corridors also allow species to adapt to climate change because many habitats could lose their original value as the climate changes and force species range shifts into more hospitable areas or climates (National Fish, Wildlife, and Plants Climate Adaptation Partnership 2012). Because many wildlife species have species-specific habitat requirements for survival and dispersal, corridors types and usage may be species specific.

Primary landscape features known to provide wildlife movement are ridgelines and drainages. Riparian corridors, often within drainages, provide sufficient structural vegetative cover to allow the passage of many different types of wildlife. For some species, such as mountain lions, riparian habitat is often preferred cover for movement, and the presence of this habitat may reduce some of the negative impacts of roads as a deterrent for movement (Dickson and Beier 2002). In many parts of Southern California, the linear habitat provided by riparian corridors is the only habitat left providing connectivity to core areas or unfragmented habitat patches.

Data Sources and Methods

The program-level description of existing conditions focuses on describing landscape-level regional wildlife movement and habitat linkages rather than specific local corridors (e.g., small canyons, ephemeral drainages); the latter would be evaluated individually during project-level CEQA review. Wildlife nursery sites are addressed qualitatively as part of the wildlife movement corridor discussion because regional data on nursery sites are not available. Regional corridors are described as a result of statewide habitat connectivity modeling (Spencer et al. 2010) and in regional planning documents and regional studies, including the San Diego NCCP documents (County of San Diego 1998; SANDAG 2003; SCW 2008; Jennings et al. 2020). These modeled wildlife movement corridors in San Diego County are depicted in Figure 4.4-15, which overlays a compilation of MSCP, MHCP and climate resilient linkage models, including MHCP gnatcatcher stepping stones and Peninsular bighorn sheep (*Ovis canadensis nelsoni*) habitat patches.

Additionally, cross-border linkages identified by the Las Californias Binational Conservation Initiative between the United States and Mexico, and the Pacific Flyway (a major regional north–south migration route for birds that travel between North and South America) are discussed qualitatively. Furthermore, the Audubon Society identifies, monitors, and protects Important Bird Areas (IBAs) (National Audubon Society 2025). There are several IBAs located in San Diego County, including USFWS wildlife refuges, the Tijuana River Reserve, Mission Bay, all San Diego lagoons, and San Pasqual Valley, to name a few. Most of the IBAs in San Diego County are either not developable (i.e., lakes and bays) or are already conserved and, therefore, included in the EIR's analysis.

Southern California Climate Resilient Connectivity Linkage Network

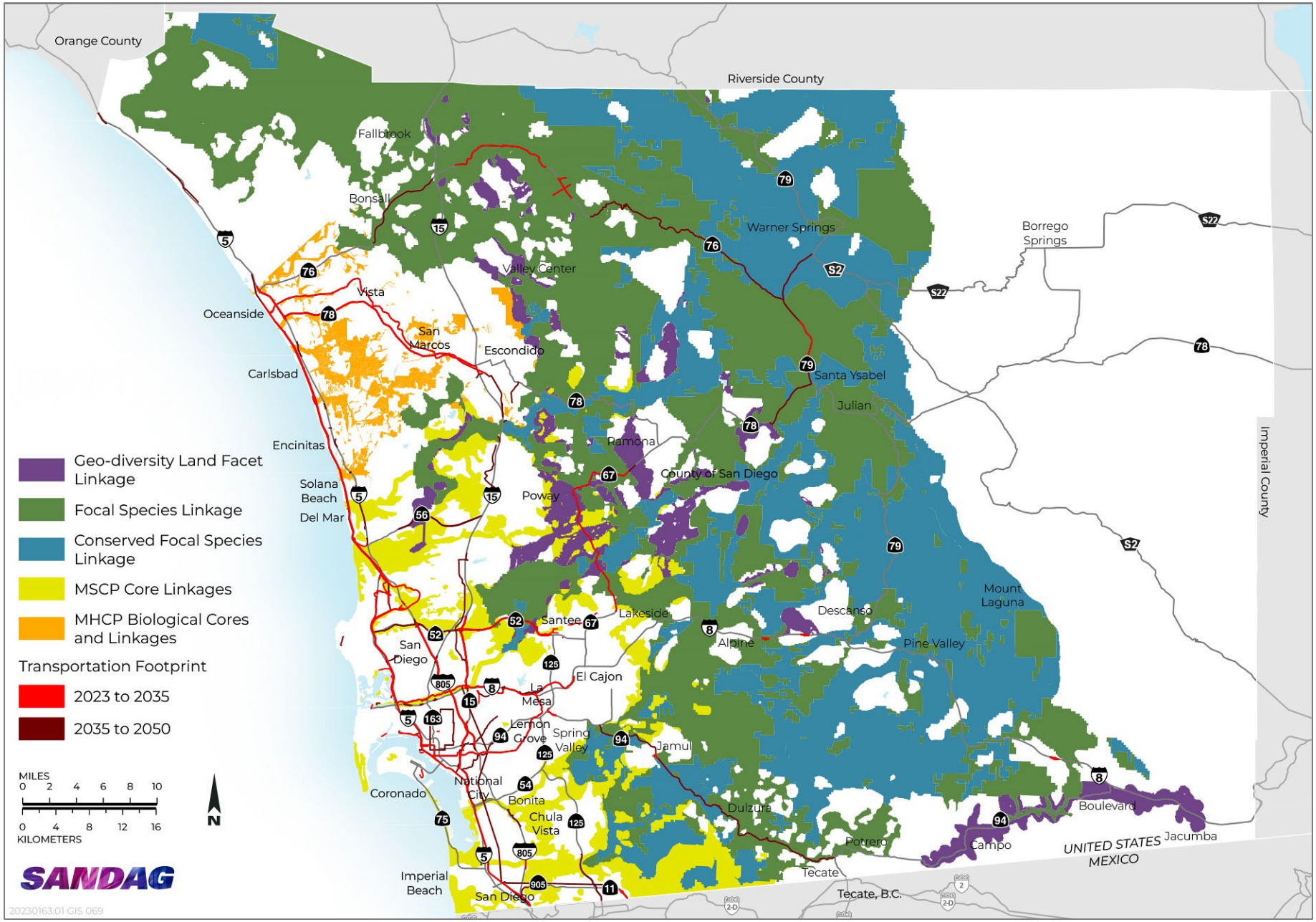
As part of developing a climate resilient connectivity strategy, a team of researchers from San Diego State University (SDSU), University of Washington, and Point Blue Conservation Science have identified landscape connectivity patches and corridors in the south coast ecoregion of Southern California (from Santa Barbara County to the international border between San Diego County and Mexico) to address threats of climate change, habitat fragmentation, and intensifying development (Jennings et al. 2020). In the Southern California study area, over 55% of the multispecies linkage network is already conserved, and an additional 5% is on military and tribal lands with relative low possibility of development; therefore, just under 40% of the linkage network remains on unconserved lands (Jennings et al. 2020). The model output identifies a network of linkages and their conservation status based on available habitat patch and corridor modeling data, and provides the most recent comprehensively modeled connectivity corridors and linkages in San Diego County. However, the model is based on different land use data than the proposed Plan and the County General Plan. This may lead to an overestimation of impacts because the model includes developed lands that would be impact-neutral.

SDSU's Institute for Ecological Monitoring and Management has published the GIS data for multispecies linkages and the Climate Resilient Connectivity Prioritized Linkages Network (Jennings et al. 2019), which were used as the most current available information on wildlife corridors and linkages for the analysis in this EIR. The model output is provided in Figure 4.4-15. The SDSU model identifies land facet corridors and focal species linkages, which are terms used for spatial conservation planning. Land facet corridors are ecological wildlife movement corridors characterized by relatively homogeneous topographic and soil characteristics. These corridors are designed to facilitate wildlife movement and species dispersal across landscapes, particularly in the context of climate change. Focal species linkages refer to a network of connected habitats designed to support the movement and survival of specific, strategically chosen "focal" or target species to serve as indicators of the overall health and connectivity of the landscape and to protect a broader range of species and ecological processes within the connected landscape.

Multiple Species Conservation Plan

The MSCP (County of San Diego 1998) identifies landscape-level biological linkages that serve to connect large tracts of core habitat within the MSCP South County Subarea (the southwestern portion of the San Diego region) study area and to areas outside the MSCP South County Subarea study area. These linkages generally are formed by river valleys or mesa tops in the coastal plain. At times the linkages, particularly those formed by relatively narrow river valleys coursing through urbanizing areas, are identified as being constrained due to encroaching infrastructure or land development. Farther inland, the linkages become less constrained because there is far less encroachment. A total of 24 linkages are identified, as shown in Figure 4.4-15.

These linkages are formed by various landscape features. Some are formed by westward-flowing drainages descending from the mountains and foothills. These consist of, from north to south, the San Dieguito River, Los Peñasquitos Creek, Poway Creek, the San Diego River, the Sweetwater River, and the Otay River. These and other drainages, including Santa Ysabel Creek, Dulzura Creek, and Cottonwood Creek, also provide linkages with core habitat outside the MSCP area. Additional linkages are formed by other diverse terrain features, such as the coastal mesa and ridgeline formed by Del Mar Mesa and Black Mountain and the foothills surrounding Poway Valley, as well as hilly terrain connecting various large blocks of inland habitat, such as the ridges connecting San Miguel Mountain with Rancho del Rey and the foothills surrounding Otay Lakes to the north, east, and south (San Miguel Mountain, Sequan Peak, the Jamul Mountains, and Otay Mountain). Linkages to habitat areas outside of the MSCP area are provided by the hilly terrain north of Lake Hodges, Boden Canyon, the San Vicente River Valley, Long's Gulch, Lake Jennings, Wildcat Canyon, Dehesa Valley, Lyons Valley, and Marron Valley.



Sources: Jennings et al. 2019; BIOS 2025a, 2025b; adapted by Ascent in 2025.

Figure 4.4-15 Known Occurrences of Regional Wildlife Movement Corridors

Multiple Habitat Conservation Plan

The MHCP is the subregional plan for the northwestern portion of the San Diego region (SANDAG 2003). The preserve design incorporated linkages between the coastal lagoons and inland habitat areas (generally east–west corridors associated with riparian habitats). North–south linkages consist of fragmented habitat that provides stepping-stone connectivity for avian species with limited dispersal abilities, such as the federally threatened coastal California gnatcatcher (Bailey and Mock 1998); the stepping-stone concept was considered and is included in the modeling that resulted in the MHCP core and linkages maps. Figure 4.4-15 includes the MHPC modeled cores and linkages (shown in orange) as part of the regional wildlife movement and corridor context. The matrix of urban and agriculture areas between the core habitats creates a major barrier for north–south movement of most terrestrial species. However, some large blocks of habitat inside the MHCP area (e.g., south San Marcos and north Escondido) are contiguous with larger blocks of habitat beyond the MHCP boundaries and provide habitat connectivity at a regional scale.

Las Californias Binational Conservation Initiative

The Las Californias Binational Conservation Initiative identified three important linkages along the international border with Mexico using a digital land cover Spatial Portfolio Optimization Tool (CBI 2004). These linkages connect the Sweetwater River and Otay River watersheds in the southern part of the San Diego region, the binational Tijuana River watershed, and the Rio Guadalupe watershed in Baja California (SCW 2008). The Initiative goal was to conserve the integrity and biological diversity of the Las Californias region across the coast-mountain-desert gradient and urban-wildland gradient.

Pacific Flyway

The San Diego region is part of the Pacific Flyway, a major north–south migration route for birds that travel between North and South America. In Southern California, this migratory pathway spans a broad front, and migrating birds are not uniformly distributed across the landscape. In the spring, many birds migrating from their winter range in western mainland Mexico to their breeding range in Northern California, the Pacific Northwest, or Alaska use the San Diego region as a corridor for crossing from the desert to the coastal slope (Aspen Environmental Group 2008). Large numbers of waterfowl and shorebirds winter in San Diego's protected bays and lagoons, which contain shallow aquatic habitat used by many birds migrating along the Pacific Flyway. Conversely, raptors and other soaring birds typically follow mountain ridges during migration to take advantage of updrafts created by the topography.

California Fish Passage Assessment Database

The California Fish Passage Assessment, or Passage Assessment Database (PAD), is an ongoing map-based inventory of known and potential barriers to anadromous fish in California (CDFW 2025). PAD compiles data from more than one hundred agencies, organizations and landowners throughout California, and allows past and future barrier assessments to be standardized and stored at one place and enables the analysis of cumulative effects of passage barriers in the context of overall watershed health and restoration potential. The California Fish Passage Assessment Database shows potential fish passage locations for anadromous fish in San Diego County.

ANTICIPATED EFFECTS FROM CLIMATE CHANGE

The San Diego region is a biodiversity hotspot, with more plants and mammals than any other county in the country (Jennings et al. 2018). The San Diego region is likely to experience a variety of climate change impacts that affect these biological resources during the timeframe of the proposed Plan. Climate change impacts in the San Diego region include sea-level rise of up to 1.3 feet by 2050 and up to 6.7 feet by 2100, wetter winters and more intense precipitation that can lead to increased flooding, a 12 percent decrease in runoff and streamflow due to less snowpack and greater evaporation, more intense heat waves and annual average temperature increases of up to 4.8 degrees Fahrenheit (°F) by 2050, a longer and less predictable fire season, fewer coastal low clouds and less fog, longer and more humid heat waves, and increased pests and pathogens as a result of drought (CEP and SDF 2015; Kalansky et al. 2018; OPC 2024; Jennings et al. 2018).

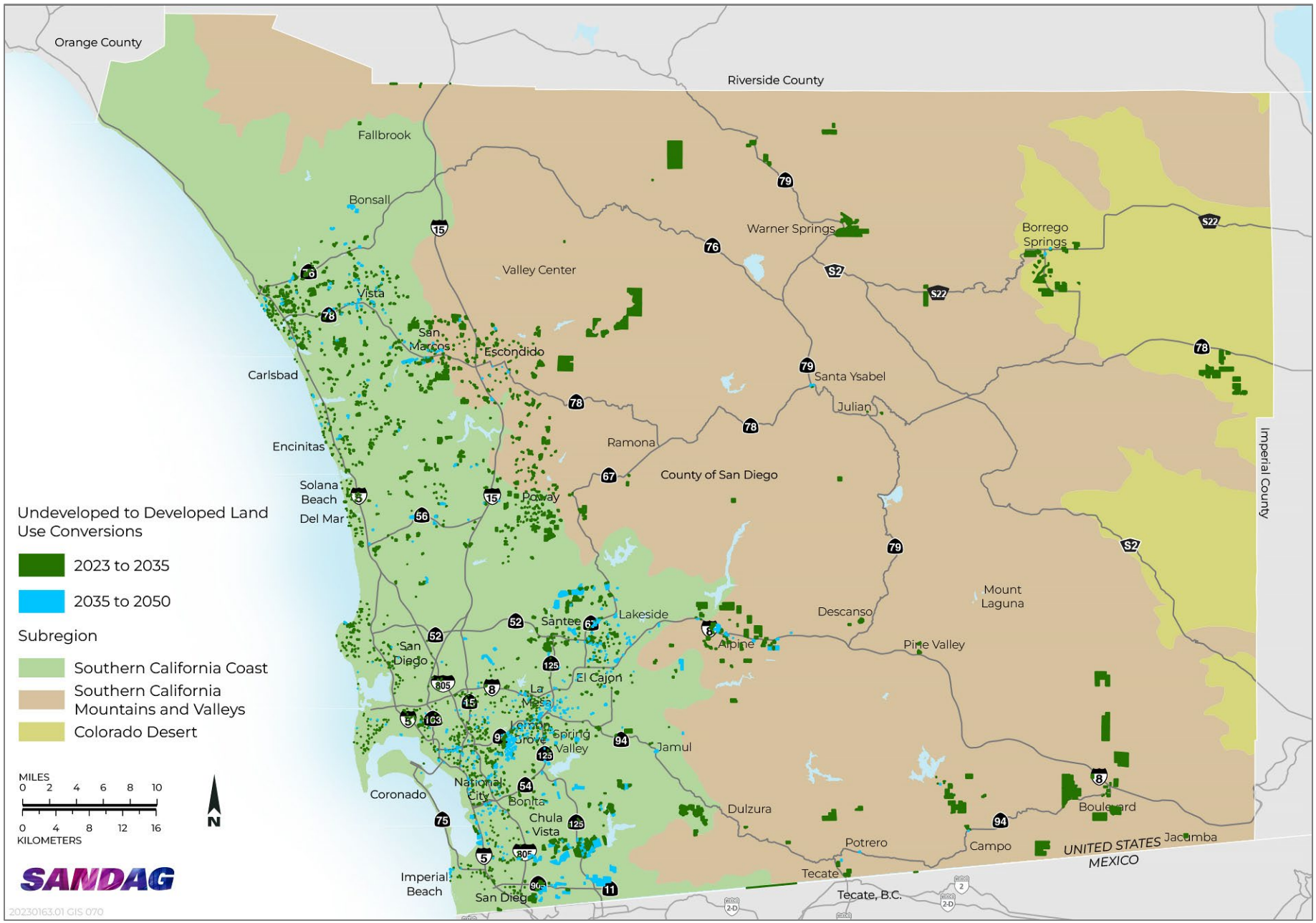
These types of changes can result in conditions that either stress biological resources, resulting in lower fitness or productivity (e.g., higher temperatures may reduce plant growth or plant reproduction rates resulting in lower plant biomass and potentially lower soil carbon levels) (Bradford et al. 2016; Hatfield and Prueger 2015; Ren et al. 2020), or complete loss of organisms that were pushed beyond their biological limits. While some biological resources may be able to adapt to changes, long-term climate trends may significantly affect the continuance of many species and their habitats in the San Diego region.

Climate change may result in adverse effects on habitats and wetlands, species health and productivity, and migratory pathways and timing. For example, sea-level rise can result in beach loss and limited inland migration space. For example, in response to sea-level rise, coastal wetlands migrate upstream and inland; however, in urbanized San Diego, space for wetlands to migrate is limited (Kalansky et al. 2018). Beach and dune wildlife such as a western snowy plover and other shorebirds that primarily nest on beaches and in foredunes have an increased risk of habitat loss due to flooding from sea-level rise and storms. (Thorne et al. 2024). A study of San Luis Obispo County found that sea-level rise along the coast could lead to increased erosion of coastal bluffs and beaches, coastal flooding, permanent inundation of coastal wetlands, and saltwater intrusion into freshwater supplies, all of which affect ecosystem health (Moser and Ekstrom 2012). Similarly, in San Diego, there is risk of flooding, inundation, erosion, saltwater intrusion, and water table rise. Chronic inundation could threaten open space and the environment, specifically salt marshes, beaches, dune communities, and riparian and bottomland habitat areas (City of San Diego 2020).

In riparian habitats, sea-level rise may increase saltwater intrusion into freshwater ecosystems, which may threaten species living in these environments (ICLEI 2012). In response to climate change, coastal wetlands, which act as nurseries for fish and birds, absorb nutrients and pollutants from rivers, trap atmospheric carbon, and provide places for people to recreate, are expected to become mud flats with less plant diversity (Kalansky et al 2018). Higher water temperatures in streams and estuaries, particularly in the San Diego region where water levels are relatively shallow, may cause thermal stress for species living there, making the habitat unsuitable (Jennings et al. 2018). Also, more frequent or intense drought conditions can change stream levels, particularly in areas with seasonal waterways like Southern California, which could damage riparian habitats (Hilberg et al. 2017; Jennings et al. 2018).

As habitats change and species face environmental stress due to changing temperature and precipitation patterns, plant and animal species may migrate to new habitats. While animals can move relatively quickly to new habitats, vegetation does not and changing conditions may surpass the pace that vegetation can move. Some climates, such as alpine climates, could disappear entirely in the future, whereas desert climates could expand significantly (Moser et al. 2012). Some habitats may expand whereas others are lost (Moser et al. 2012). If there is no suitable habitat nearby, species will be unable to migrate. The combination of human-driven land use change and changing climate conditions could negatively affect available habitat areas, including San Diego's scrublands and forests. As the habitat areas change, the species that depend on them could be negatively affected (USFWS 2010).

Climate change is projected to compound environmental stressors from human-caused disturbances, habitat fragmentation, and landscape changes (Jennings et al. 2018). Changes such as warmer temperatures, more variable precipitation resulting in high intensity flooding, more frequent droughts, destructive fires, and sea-level rise could affect species success.



Source: USFWS 2016; adapted by Ascent in 2025.

Figure 4.4-16 Undeveloped to Developed Land Use Conversions

4.4.2 Regulatory Setting

FEDERAL LAWS, REGULATIONS, PLANS, AND POLICIES

Federal Endangered Species Act

Administered by the USFWS and National Oceanographic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS), the federal ESA provides the legal framework for the listing and protection of species (and their habitats) that are identified as being endangered or threatened with extinction. Under ESA (7 USC Section 136, 16 USC Section 1531 et seq.), USFWS and NMFS have regulatory authority over species listed as endangered or threatened, as well as habitat of such species that has been designated as critical (i.e., critical habitat). Under ESA, authorization is required to "take" a listed species or adversely modify critical habitat. Take is defined under ESA Section 3 as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Under federal regulation (50 CFR 17.3, 222.102), harm is further defined, as of the date of the Draft EIR, to include habitat modification or degradation where it would be expected to result in death or injury to listed wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. In April 2023, USFWS and NMFS proposed to eliminate this regulatory of "harm" (USFWS and NOAA 2025), but this change had not been adopted at the time of Draft EIR preparation.

USFWS-designated critical habitat for endangered and threatened species is defined as a specific geographic area that is essential for species recovery and conservation of a threatened or endangered species and that may require special management and protection. Critical habitat is generally designated when a species is listed pursuant to the ESA and may include an area that is not currently occupied by the species but that will be needed for its recovery. Critical habitat designations are not made for every species listed under the ESA. The designation process also takes into account economic, national security, and other impacts and may result in the exclusion of some habitat areas from critical habitat designation (16 USC Section 1533[b][2]). Military installations are generally excluded from critical habitat designations; however, they are required by the Sikes Act (16 USC Sections 670a–670f, as amended) to prepare Integrated Natural Resource Management Plans (INRMPs).

Specifically, Sections 7 and 10(a) of the ESA regulate actions that could jeopardize endangered or threatened species. Candidate species do not fall under any statutory protections but may be included in regional and local conservation plans and considered under USFWS-issued biological opinions. ESA Section 7 outlines procedures for federal interagency consultation to conserve federally listed species and designated critical habitat. Section 7(a)(2) and its implementing regulations (50 CFR Part 402) require federal agencies to consult with USFWS or NMFS to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species, or result in the destruction or adverse modification of critical habitat.

For projects where federal action is not involved and take of a listed species may occur, the project proponent may seek to obtain an incidental take permit (ITP) under ESA Section 10(a), which allows issuance of permits for incidental take of endangered or threatened species. The term "incidental" applies if the taking of a listed species is incidental to and not the purpose of an otherwise lawful activity. An HCP demonstrating how the taking would be minimized and what steps would be taken to ensure the species' survival must be submitted for issuance of Section 10(a) permits.

Sikes Act

Congress established the Sikes Act in 1960 to manage military lands for wildlife conservation and human access (16 USC Section 670 et seq.). The Sikes Act was amended in 1997 to require development and implementation of mutually agreed upon INRMPs through voluntary cooperative agreements between the Department of Defense installations, USFWS, and the respective state fish and wildlife agencies (e.g., CDFW). INRMPs are planning documents used to implement planning, development, maintenance, and coordination of natural resource conservation and rehabilitation on military lands in consideration of the military's missions and obligations.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) domestically implements a series of international treaties that provide for migratory bird protection (16 USC Section 703 et seq.). The MBTA authorizes the Secretary of the Interior to regulate the taking of migratory birds. The act provides that it is unlawful, except as permitted by regulations, "to pursue, hunt, take, capture, kill, attempt to take, capture, or kill, possess, […] any migratory bird, or any part, nest, or egg of any such bird" (16 USC Section 703[a]). Species protected under the MBTA are listed in. Most native birds in the San Diego region are protected under the MBTA. The USFWS issues permits under the MBTA to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, educational, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal; USFWS does not issue permits for "incidental take" of migratory birds that results from otherwise lawful activities, such as infrastructure, transportation projects, facility structures, or other activities.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (BGEPA) is the primary law protecting eagles, including individuals, and their nests and eggs (16 USC Section 668 et seq.). It defines take to include "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, or disturb" (16 USC Section 668c). Disturb is defined by regulation at 50 CFR 22.6 as "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause…(1) injury to an eagle, (2) a decrease in productivity…, or (3) nest abandonment…". Under the BGEPA Eagle Permit Rule (50 CFR 22200), USFWS may issue permits to authorize limited, nonpurposeful take of bald eagles and golden eagles.

Marine Mammal Protection Act

The Marine Mammal Protection Act (MMPA) of 1972 prohibits, with certain exceptions, the take of marine mammals. The MMPA defines take to mean the harassment, hunting, capture, or killing of any marine mammal, or attempt to harass, hunt, capture, or kill any marine mammal (16 USC Section 31). The primary authority for implementing the act belongs to NMFS. Harassment is defined in 16 USC Section 1362(18) as any act of pursuit, torment, or annoyance that:

- has the potential to injure a marine mammal or marine mammal stock in the wild (Level A Harassment); or,
- has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering but which does not have the potential to injure a marine mammal or marine mammal stock in the wild (Level B Harassment).

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), establishes procedures designed to identify, conserve, and enhance EFH for species regulated under a federal FMP. EFH is defined as "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" (16 USC Section 1801 et seq.). The Magnuson-Stevens Act also requires federal agencies to consult with NMFS on all actions or proposed actions permitted, funded, or undertaken by the agency that may adversely affect EFH. NMFS encourages streamlining the consultation process by using review procedures under the National Environmental Policy Act (NEPA), Fish and Wildlife Coordination Act, CWA, and ESA provided the documents meet the requirements for EFH assessments under 50 CFR Section 600.920(e). EFH assessments must include (1) a description of the proposed action; (2) an analysis of effects, including cumulative effects; (3) the federal agency's views regarding the effects of the action on EFH; and (4) proposed mitigation, if applicable.

Marine Protection, Research, and Sanctuaries Act

In 1972, Congress enacted the Marine Protection, Research, and Sanctuaries Act (MPRSA) (also known as the Ocean Dumping Act). Permitting standards under the MPRSA prohibit the dumping of material into the ocean that

would unreasonably degrade or endanger human health or the marine environment (16 USC Section 1431 et seq.; 33 USC Section 1401 et seq.; 40 CFR 227). MPRSA regulates the ocean dumping of all material beyond the territorial limit (3 miles from shore) and prevents or strictly limits dumping material that "would adversely affect human health, welfare, or amenities, or the marine environment, ecological systems, or economic potentialities." Virtually all material ocean dumped today is dredged material (sediments) removed from the bottom of waterbodies in order to maintain navigation channels and berthing areas. Ocean dumping cannot occur unless a permit is issued according to Section 103 of the MPRSA (33 USC Section 1413), which authorizes USACE to issue permits, subject to U.S. Environmental Protection Agency (EPA) approval, for transport and disposal of dredged material (e.g., material excavated from navigable U.S. waters) at designated ocean disposal sites. For other materials, EPA is the permitting agency. EPA is also responsible for designating recommended ocean dumping sites for all types of materials.

Rivers and Harbors Act

Section 10 of the Rivers and Harbors Act

Section 10 of the Rivers and Harbors Act (RHA) of 1899 (33 USC Section 403), administered by USACE, requires USACE authorization for structures in, over, or under navigable waters of the United States or the accomplishment of work affecting the course, location, condition, or capacity of navigable waters of the United States. Navigable waters of the United States generally describes waters that are subject to the ebb and flow of the tide shoreward to the mean high water mark, or presently used, or have been used in the past, or may be susceptible to use to transport interstate or foreign commerce. Work typically includes any dredging or disposal of dredged material, excavation, filling, or other modification of navigable waters of the United States. Structure typically refers to any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial reef, permanent mooring structure, power transmission line, or any other obstacle or obstruction. Typical activities requiring authorization under Section 10 of the RHA are construction of piers, wharves, bulkheads, dolphins, marinas, ramps, floats, intake structures, and cable or pipeline crossings, as well as dredging and excavation.

Section 9 of the Rivers and Harbors Act

Section 9 of the RHA (33 USC Section 491) prohibits the construction of any bridge, dam, dike, or causeway over or in navigable waterways of the United States without congressional approval. The U.S. Coast Guard (USCG) administers Section 9 and issues permits under the General Bridge Act (see below) over navigable waters. Navigable waters that require a USCG bridge permit are defined as "(1) tidal and used by recreational boating, fishing, and other small vessels 21 feet or greater in length or (2) used or susceptible to use in their natural condition or by reasonable improvement as a means to transport interstate or foreign commerce." It is to the discretion of the USCG to determine the navigability of these waters.

General Bridge Act of 1946

USCG administers the Bridge Administration permit process. A USCG bridge permit is needed for the construction, reconstruction, or modification of any bridge or causeway across navigable waters of the United States. A bridge is usually defined as the entire span plus footings, typically from abutment to abutment. For the purposes of bridge permitting, a navigable waterway is defined as any waterway that is subject to tidal action or is presently used or could be used for the transport of interstate or foreign commerce. USCG issues bridge permits under the authorities of both Section 9 of the RHA (see above) and the General Bridge Act of 1946. In cases when USCG issues a bridge permit, authorization from USACE under Section 10 of the RHA is not required. However, authorization under Section 404 of the CWA may still be required. The issuance of a bridge permit is relevant to biological resources because it would constitute a federal action, subject to NEPA (42 USC Section 4321–4347, as amended) that would trigger Section 7 consultation if federally listed endangered or threatened species are present and consultation with NMFS should EFH be present.

Clean Water Act

The purpose of the CWA, also Federal Water Pollution Control Act (33 U.S.C. Section 1251 et seq.) is to restore and maintain the chemical, physical, and biological integrity of all waters of the United States for the conservation of

the nation's potable water sources. Since the enactment of the CWA the definition of waters of the United States has undergone several revisions and updates through administrative rule changes from EPA, including in 2020, 2021, and 2023. At the time of Draft EIR preparation, accepted regulations defining waters of the United States follow the plurality opinion written following the *Sackett v. Environmental Protection Agency* (598 U.S. Docket No. 21-454) Supreme Court of the United States ruling on May 25, 2024, and the subsequent September 8, 2023, publication of the EPA's conforming rule: "Revised Definition of 'Waters of the United States,' Conforming" (USACE and EPA 2023), which amended the previously issued 2023 rule. This rule provides a new interpretation of the term "adjacent" whereas wetlands must contain a surface hydrologic connection to other waters of the United States to be considered adjacent waters of the United States. Additionally, this new rule eliminates the applicability of the significant nexus standard for "non-relatively permanent waters," so ephemeral features are no longer likely to be considered waters of the United States.

The 2023 definition of waters of the United States supersedes the all previous definitions of waters of the United States. Section 404 of the CWA (33 USC Sections 401 et seq., 1344, and 1413 and 33 CFR 323), as previously implemented by USACE. The rule still requires authorization by USACE for the discharge of dredged or fill material into waters of the United States (as defined at 33 CFR 328.3[a]) under Section 404 of the CWA. Dredged material means material that is excavated or dredged from waters of the United States. Fill material means material placed in waters if the United States where the material has the effect of replacing any portion of a waters of the United States with dry land or changing the bottom elevation of waters of the United States. Examples of fill material include rock, sand, soil, clay, plastics, woodchips, concrete, and materials used to create any structure or infrastructure in waters of the United States.

Section 401 of the CWA requires a water quality certification or waiver be issued by the regulating state or tribal authority thereof before any federal permit can be issued "to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge." Therefore, projects requiring authorization by USACE under Section 404 of the CWA or Section 10 of the RHA may need to obtain water quality certification. California's State Water Resources Control Board (SWRCB) and RWQCBs, and EPA are responsible for issuing Section 401 Water Quality Certifications.

Coastal Zone Management Act

The Federal Consistency Unit of CCC implements the federal Coastal Zone Management Act (CZMA) of 1972, Section 307(c)(1) as amended, for federal activities, development projects, permits, licenses, and support to state and local governments. In the CZMA, Congress created a federal and state partnership for management of coastal resources as the primary federal law enacted to preserve and protect coastal resources (33 USC Section 1451 et seq.). The federal CZMA, as amended, requires that federal actions that affect any land or water use or natural resource of a state's coastal zone be consistent, to the maximum extent practicable, with the enforceable policies of a federally approved state coastal zone management plan. The California Coastal Management Program, which includes the CCA of 1976, is the federally approved coastal zone management plan for California.

Regulatory authority, including federal consistency review, is granted to CCC. One of the most significant provisions of the federal CZMA gives state coastal management agencies regulatory control (federal consistency review authority) over all federal activities and federally licensed, permitted, or assisted activities, wherever they may occur (i.e., landward or seaward of the respective coastal zone boundaries fixed under state law) if the activity affects coastal resources.

Executive Order 11988, Floodplain Management

Executive Order (EO) 11988 requires federal agencies to avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains, and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. This EO provides an eight-step process that agencies carry out as part of their decision-making process for projects that have potential impacts on or within a floodplain.

Executive Order 11990, Protection of Wetlands

Under EO 11990, each federal agency is responsible for preparing implementing procedures for carrying out the provisions of the EO. The purpose of this EO is to "minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands." Each agency, to the extent permitted by law, must avoid undertaking or providing assistance for any activity located in wetlands, unless the head of the agency finds that there is no practical alternative to such activity, and the proposed action includes all practical measures to minimize harm to wetlands that may result from such actions.

Executive Order 13112, Invasive Species

EO 13112 requires federal agencies to "prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health effects that invasive species cause." An invasive species is defined by the EO as "an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health." Alien species are defined, with respect to a particular ecosystem, as any species (including its seeds, eggs, spores, or other biological material capable of propagating that species) that is not native to that ecosystem.

Executive Order 13186, Migratory Birds

EO 13186 requires federal agencies to develop a comprehensive strategy for the conservation of migratory birds by the federal government, thereby fulfilling the government's duty to lead in the protection of this international resource. Each federal agency is required to enter into a memorandum of understanding (MOU) with USFWS outlining how the agency will promote conservation of migratory birds. The EO also requires federal agencies to incorporate migratory bird conservation measures into their agency activities. The EO does not affect federal-aid projects because actions delegated to or assumed by nonfederal entities, or carried out by nonfederal entities with federal assistance, are not subject to the EO, although such actions continue to be subject to the MBTA itself.

STATE LAWS, REGULATIONS, PLANS, AND POLICIES

California Endangered Species Act

CESA provides a process by which plants and animals can be recognized as being endangered or threatened with extinction. Pursuant to the CESA, a permit from CDFW is required for projects that could result in the taking of a plant or animal species that is state listed as threatened or endangered (CFGC Section 2050 et seq.). Under CESA, take means hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill (CFGC Section 86). The CESA definition of take does not include "harm" or "harass," as the ESA definition does. As a result, the threshold for take is higher under CESA than under ESA. Authorization for take of state-listed species may be obtained through a CFGC Section 2081 incidental take permit or CFGC Section 2080.1 consistency determination (for applicants who have already obtained a federal incidental take statement or permit for the same species) or a Section 2081 ITP.

Natural Community Conservation Planning Act

The NCCP Act of 1991, amended 2003, is a federal and state cooperative effort to engage in regional multiple species conservation planning. The ESA Section 4(d) special rule for interim take of coastal California gnatcatchers was promulgated in response to California's NCCP Act of 1991 and the initiation of NCCP plans targeting coastal sage scrub (gnatcatcher habitat). NCCPs provide regional or area-wide protection of plants and animals, reconcile urban development and wildlife needs, "conserve" state-listed species to the point where they can be delisted, and maintain or enhance conditions for covered species such that listing will not become necessary (CFGC Section 2800 et seq.). The NCCP Act was amended again in 2011 to allow CDFW to authorize incidental take of "fully protected" species if they are "covered species" under an adopted NCCP.

California Fish and Game Code Section 1602: Lake or Streambed Alteration

CDFW regulates alterations to or impacts on streambeds or lakes under Section 1602 of the CFGC. All diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California that

supports wildlife resources are subject to regulation by CDFW under CFGC Section 1602. Under Section 1602, it is unlawful for any person, governmental agency, or public utility to do the following without first submitting a complete notification of lake or streambed alteration to CDFW:

- substantially divert or obstruct the natural flow of, or substantially change or use any material from, the bed, channel, or bank of any river, stream, or lake; or
- deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

The California Fish and Game Commission defines "stream" as a body of water that flows at least periodically or intermittently through a bed or channel that has banks and supports fish or other aquatic life. This definition includes watercourses with a surface or subsurface flow that supports or has supported riparian vegetation. CDFW's jurisdiction within altered or artificial waterways is based on the value of those waterways to fish and wildlife. CDFW requires a streambed alteration agreement (SAA) for projects that would result in an impact on a river, stream, or lake; divert or obstruct the natural flow of water; change the bed, channel, or bank of any stream; or use any material from a streambed. The SAA is a contract between the applicant and CDFW stating what activities can occur in the riparian zone and stream course.

California Fish and Game Code Sections 3503 and 3503.5: Protection of Birds, Nests, and Raptors

CFGC Section 3503 states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3503.5 specifically states that it is unlawful to take, possess, or destroy any raptors (i.e., species in the orders Falconiformes and Strigiformes), including their nests or eggs. Typical violations of these codes include destruction of active nests resulting from removal of vegetation in which the nests are located. Violation of Section 3503.5 could also include failure of active raptor nests resulting from disturbance of nesting pairs by nearby project construction. These code sections do not provide for the issuance of any type of ITP.

Fully Protected Species under the California Fish and Game Code (California Fish and Game Code Sections 3511, 4700, 5050, and 5515)

Protection of fully protected species is described in CFGC Sections 3511, 4700, 5050, and 5515. These statutes prohibit take or possession of fully protected species under most circumstances. Incidental take of fully protected species may be authorized under an adopted NCCP. SB 147 of 2023 also authorizes take of fully protected species for certain project types under certain conditions, These include transportation projects that do not increase highway or street capacity.

California Native Plant Protection Act

The Native Plant Protection Act (NPPA) of 1977 (CFGC Section 1900 et seq.) directs CDFW to carry out the legislature's intent to "preserve, protect and enhance rare and endangered plants in this State." The NPPA gives the California Fish and Game Commission the power to designate native plants as "endangered" or "rare," and to protect endangered and rare plants from take.

Porter-Cologne Water Quality Control Act: California Water Code Section 13000 et seq.

SWRCB and the RWQCBs, as appropriate, have the responsibility to implement and enforce the Porter-Cologne Water Quality Control Act (Porter-Cologne Act, California Water Code Section 13000 et seq.), which regulates waste discharge into waters of the state. The Porter-Cologne Act grants the RWQCBs the authority to implement and enforce the water quality laws, regulations, policies, and plans to protect the groundwater and surface water of the state. The RWQCB regulates the "discharge of waste" to waters of the state. Discharge of waste is also broadly defined in the Porter-Cologne Act, such that discharges of waste include fill, any material resulting from human activity, or any other "discharge" that may directly or indirectly impact waters of the state relative to implementation of Section 401 of the CWA.

Under the Porter-Cologne Act, all parties proposing to discharge waste that could affect the quality of waters of the state, other than into a community sewer system, are required to file with the appropriate RWQCB a report of waste discharge (ROWD) containing such information and data as may be required by the RWQCB. The RWQCB will then respond to the ROWD by issuing a waste discharge requirement (WDR) in a public hearing or by waiving WDRs (with or without conditions) for that proposed discharge.

The RWQCB collaborates with other agencies on the enforcement of the act, such as CDFW and USACE. Generally, when staff issue or waive 401 certification, WDRs are simultaneously waived. However, for large or multiyear projects that are being reviewed under Section 401 of the CWA, staff may determine that WDRs should also be issued, whereby additional review by the RWQCB and a public hearing will be necessary. However, waters of the state that are not regulated as federal waters by the USACE, the RWQCB may require issuance of WDR authorization.

On April 2, 2019, SWRCB adopted a state wetland definition and procedures for discharges of dredged or fill material to waters of the state (Procedures), which became effective on May 28, 2020 (SWRCB 2020). SWRCB developed the Procedures to address multiple issues, including the need to strengthen protections of waters of the state that are not protected under CWA due to past Supreme Court rulings. The Procedures define an area as a wetland if it meets three criteria: wetland hydrology, wetlands substrate, and wetland plants. The state wetland definition varies slightly from the federal definition to account for wetlands in arid portions of the state and clarifies that under normal circumstances an area may be a wetland even if it lacks wetland vegetation. The Procedures further clarify when a wetland is a water of the state. In light of the 2020 waters of the United States rule, wetlands that are no longer regulated under the CWA will likely remain waters of the state requiring issuance of a WDR. In December 2020, a Sacramento trial court enjoined SWRCB implementation of the Procedures due to errors in the adoption process. SWRCB responded to several legal challenges and approved a resolution on April 6, 2021 (SWRCB 2021), to apply the Procedures to waters of the state as a matter of state policy for water quality control. Therefore, the Porter-Cologne Act continues to require WDRs for discharges to waters of the state, as implemented through the 2019 Procedures as revised on April 26, 2021.

California Coastal Act

Pursuant to California Public Resource Code Section 30000 et seq., CCC regulates coastal resources within the coastal zone under jurisdiction of the CCA (as amended). The coastal zone is identified as the land and water area of the state of California extending seaward to the state's outer limit of jurisdiction (3 miles offshore) including all offshore islands and extending inland generally 1,000 yards from the mean high tide line of the sea. In significant coastal estuarine habitat and recreational areas, it extends inland to the first major ridgeline paralleling the sea or 5 miles from the mean high tide line of the sea, whichever is less, and in developed urban areas, the zone generally extends inland less than 1,000 yards.

The CCC, through provisions of the CCA, is authorized to issue a coastal development permit (CDP) for projects located within the coastal zone. In areas where a local entity has a certified local coastal program (LCP), the local entity can issue a CDP only if it is consistent with the LCP. CCC, however, has permit and appeal authority for portions of LCPs and retains jurisdiction over certain public trust lands and in areas without an LCP (CCC 1994).

With respect to biological resources, Section 30240 of the CCA states that environmentally sensitive habitat areas (ESHAs) "shall be protected against any significant disruption of habitat values and only uses dependent on those resources shall be allowed within those areas." It further states that development in areas adjacent to ESHAs, parks, and recreation areas must be sited and designed to prevent impacts that would significantly degrade those areas and must be compatible with the continuance of those habitat and recreation areas. Section 30233 of the CCA addresses the diking, filing, or dredging of open coastal waters, wetlands, and estuaries.

California Code, Streets and Highways Code - SHC Section 156.3

For any project using state or federal transportation funds programmed after January 1, 2006, Caltrans must ensure that, if the project affects a stream crossing on a stream where anadromous fish are, or historically were, found, an assessment of potential barriers to fish passage is done prior to commencing project design. Caltrans

must submit the assessment to the Department of Fish and Wildlife and add it to the CALFISH database. If any structural barrier to passage exists, remediation of the problem must be designed into the project by the implementing agency. New projects must be constructed so that they do not present a barrier to fish passage. When barriers to fish passage are being addressed, plans and projects must be developed in consultation with the Department of Fish and Wildlife.

LOCAL LAWS, REGULATIONS, PLANS, AND POLICIES

Natural Community Conservation Planning Program and Habitat Conservation Plans

California's NCCP Program focuses largely on conserving large areas of native habitat and the habitats that link those areas to help preserve California's native fauna and flora at the landscape and regional levels. While NCCPs are governed by the California NCCP Act, the ESA requires the issuance of HCPs. NCCPs and HCPs are prepared to be compliant with the requirements under CESA, the NCCP Act, the NPPA, and Section 10(a)(1)(B) of ESA, respectively. NCCPs and HCPs may be combined to provide take authorization under federal and state law.

The following sections describe approved and adopted subarea or subregional plans under the NCCP within the San Diego region. Conflicts with unapproved or unadopted plans do not require analysis under CEQA (see CEQA Guidelines Section 15125[d][e]). In March 2021, the County of San Diego reinstated the planning agreement with USFWS and CDFW for the North and East County MSCP plans (County of San Diego 2021). The reinstatement sets the parameters, goals, and completion schedule for both plans, which will include impacts on aquatic resources under federal and state jurisdictions. Under the interim project processing guidelines outlined in the planning agreement, the County of San Diego considers impacts on the proposed preserve design of the Draft North County MSCP (County of San Diego 2019) during the projects' CEQA process to ensure that proposed projects are consistent with the preliminary conservation objectives and do not compromise the successful completion of the plans. These NCCPs are included in Appendix ~~D~~E-4.

Multiple Species Conservation Program

The MSCP was approved in August 1997 as a cooperative effort by the City of San Diego, County of San Diego, and other jurisdictions in the southwestern San Diego region to implement a regional NCCP and HCP (see Table 4.4-5) the document was updated in 1998 (County of San Diego 1998). The MSCP serves as an umbrella document and gives local jurisdictions the opportunity to obtain coverage as signatories through their respective subarea plan agreements. The MSCP subarea plans contribute collectively to the landscape-level conservation of vegetation communities and species in the MSCP study area by identifying contiguous preserves and setting conservation goals and schedules. Entities with adopted subarea plans must employ a system to track habitat gains and losses over time toward their conservation goals, which are included in annual reports for each subarea plan. Annual reports are available to the public.

Municipal MSCP Subarea Plans

USFWS and CDFW have issued a permits (50-year permit term) to five of the nine jurisdictions within the MSCP plan boundary. The Cities of Chula Vista, La Mesa, Poway, and San Diego (City of San Diego 1997), and the County of San Diego (South County) have adopted subarea plans under the County of San Diego MSCP and have developed municipal guidelines and ordinances to implement their subarea plans. The cities of Coronado, Del Mar, El Cajon, and Santee do not have approved adopted subarea plans under the MSCP (the City of Santee is currently preparing a subarea plan for approval), thereby requiring project-based regulatory approvals under ESA and CESA.

The County of San Diego developed the South County MSCP Subarea Plan to cover all unincorporated areas of the County south of Lake Hodges (County of San Diego 1997). The MSCP Subarea Plan identified MSCP Preserves, which include areas that were negotiated to be preserve land prior to or concurrently with the approval of the South County MSCP Subarea Plan, and softline preserve areas that are identified to contain future preserved lands as part of the Plan's conservation cores and linkages. The County of San Diego is also currently finalizing the North County MSCP, which includes lands within the unincorporated county that are not covered under the MHCP

or South County MSCP. While the County is not yet implementing the North County MSCP, it has completed the conservation design and identified priority areas for conservation that are being considered in the CEQA analysis of development projects within the North County MSCP planning area. Although a planning effort for the eastern portions of the San Diego region was considered by the County of San Diego in 2008, the East County MSCP planning efforts have slowed. Preliminary conservation design has been completed for this area and has identified focused areas for conservation that are considered during CEQA analysis of development projects, as described above for North County. Neither the North County nor the East County MSCP has been adopted.

Although the County is not yet implementing the North County MSCP, it has developed a preserve system consisting of hardline and softline preserves (Pre-Approved Mitigation Area [PAMA]) that is being considered in the CEQA analysis of development projects within the North County MSCP planning area. While a planning effort for the eastern portions of the San Diego region was considered by the County of San Diego in 2008, the East County MSCP planning efforts have slowed because the majority of the eastern San Diego region is occupied by federal lands (e.g., U.S. Forest Service and Bureau of Land Management) and already receives an appreciable degree of conservation under federal laws, ordinances, and guidelines.

In March 2021, the County of San Diego reinstated their planning agreement with USFWS and CDFW regarding the North and East County MSCPs. The planning agreement includes milestones for the finalization of the MSCPs and a draft covered species list. The North County MSCP adoption is anticipated in late 2026.

A summary of approved adopted subarea plans under the County of San Diego MSCP Subregional Plan is provided in Table 4.4-5. Regional habitat conservation planning areas and conserved lands are illustrated in Figure 4.4-17.

City of San Diego Vernal Pool Habitat Conservation Plan

The City of San Diego, in order to provide more comprehensive federal coverage for these habitats than offered under the city's MSCP Subarea Plan for vernal pool species, has developed a VPHCP (City of San Diego 2017) covering seven threatened and endangered vernal pool species, including five plant and two crustacean (fairy shrimp) species. The VPHCP provides take authorization for these species and specific "covered projects," and expands the city's existing multi-habitat planning area preserve boundary to conserve additional vernal pools. The VPHCP also includes a management and monitoring plan to provide for long-term protection, management, and enhancement of vernal pool habitat and the seven covered species.

Table 4.4-5 Summary of Approved or Implemented Subarea Plans under Adopted MSCP/MHCP Subregional Plans in the San Diego Region

Plan	Effective Date	Description
City of San Diego MSCP Subarea Plan	1997	The subarea plan encompasses 206,124 acres and was approved in July 1997 (City of San Diego 1997). The City of San Diego's Subarea Plan developed an MHPA that delineates core biological resource areas and corridors targeted for conservation. Specific policies and directives have been developed for different areas within the MHPA, which is largely composed of core biological resource areas and regional linkages leading to biological core areas within existing reserves and parks. The MHPA covers approximately 56,831 acres, of which 90% will be preserved for biological purposes.
City of San Diego Vernal Pool Habitat Conservation Plan (VPHCP)	2018	The Vernal Pool HCP was developed as a response to legal action that removed all vernal pool–associated covered species from the city's MSCP Subarea Plan (City of San Diego 2018). The VPHCP was finalized in 2017, approved by the city in January of 2018, and permitted by USFWS on August 3, 2018. It covers the same plan area as the city's MSCP Subarea Plan.
County of San Diego (South County) MSCP Subarea Plan	1997	The County subarea is located in the eastern part of the MSCP Subregion. The subarea encompasses 252,132 acres (184,248 acres is habitat), of which 101,268 acres will be conserved. The County MSCP Subarea Plan was approved by the wildlife agencies in March 1998 (County of San Diego 1997). Three segments are included in the plan: Lake Hodges, South County, and Metro-Lakeside-Jamul.
City of Chula Vista MSCP Subarea Plan	2005	This subarea plan covers approximately 57,828 acres and seeks to preserve 5,000 acres within the city's jurisdiction, while 4,200 acres outside the city's jurisdiction is proposed for preservation. The plan will preserve approximately 9,201 acres. Approved in 2003, the Final MSCP Subarea Plan was completed in 2005 (City of Chula Vista 2003).

Plan	Effective Date	Description
City of La Mesa MSCP Subarea Plan	2000	Remaining habitat in this subarea consists largely of coastal sage scrub, and all losses will be mitigated elsewhere. Approved in 1999, permits were issued in 2000 (City of La Mesa 2000).
City of Poway MSCP Subarea Plan	1996	The City of Poway MSCP Subarea Plan provides for incidental take coverage for 43 plant and animal species. It encompasses 35,000 acres and establishes a 13,300-acre mitigation area. This was the first subarea plan approved under the Subregional MSCP (City of Poway 1996).
City of Carlsbad HMP–MHCP Subarea Plan	2004	On November 15, 2004, the City of Carlsbad HMP was approved, and state and federal permits were issued to implement the city's MHCP (City of Carlsbad 2004). The Carlsbad Subarea Plan is the first to be approved and permitted under the MHCP Subregional Plan. The subarea encompasses 24,570 acres (8,758 acres is habitat). At build-out, the preserve system is expected to cover approximately 6,786 acres, consisting mostly of natural upland and wetland habitats, including coastal sage scrub, chaparral, oak woodland, riparian scrub, riparian forest, freshwater marsh, and grasslands. The Carlsbad Subarea Plan provides for the conservation of 43 species.

Notes: MSCP = Multiple Species Conservation Program; MHPA = Multi-Habitat Planning Area; MHCP = Multiple Habitation Conservation Program; HMP = Habitat Management Plan.

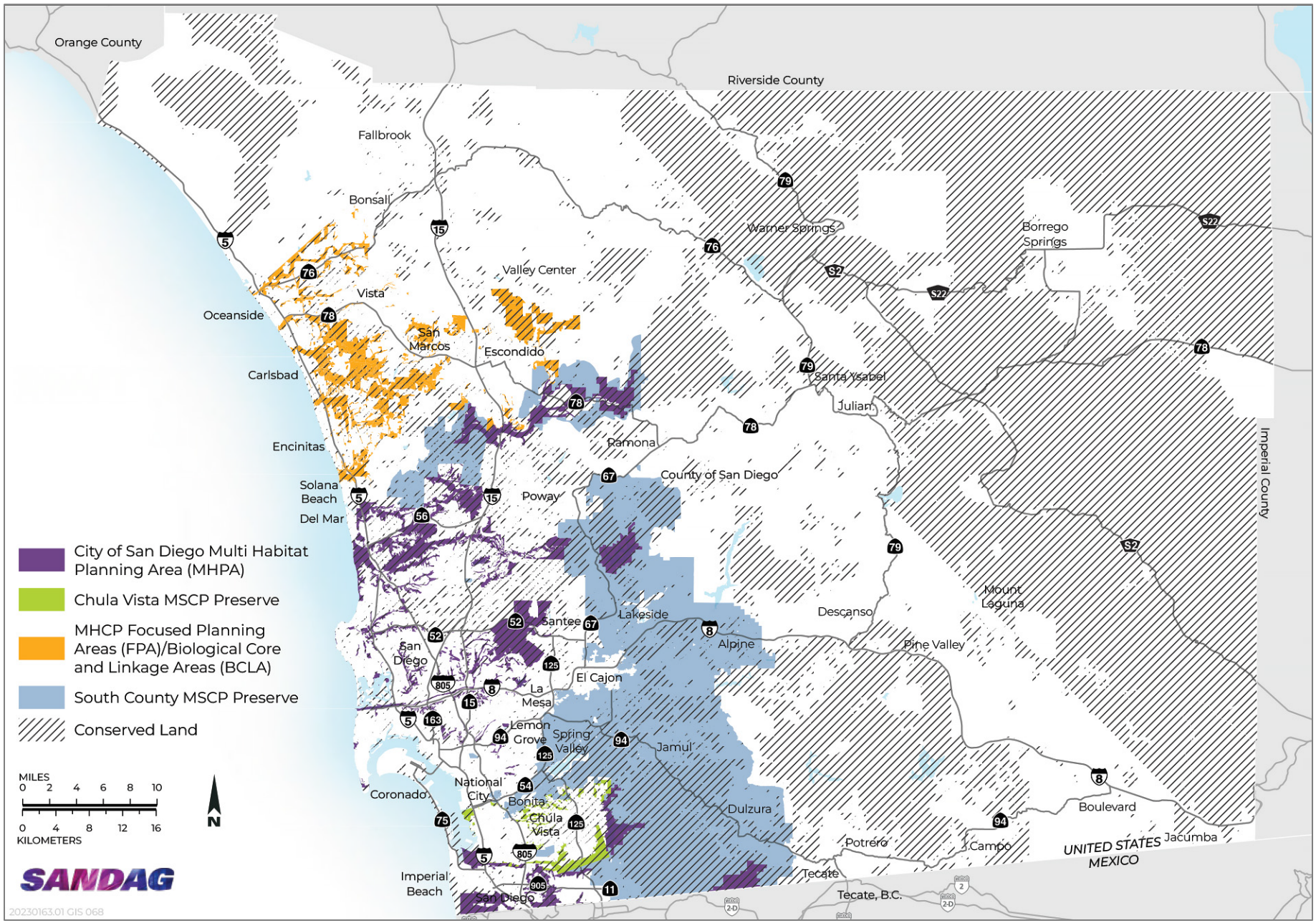
Multiple Habitat Conservation Program

The MHCP is an NCCP and HCP for the northwestern portion of the San Diego region (cities of Carlsbad, Encinitas, Escondido, Oceanside, San Marcos, Solana Beach, and Vista) and was approved by the SANDAG Board of Directors on March 28, 2003 (SANDAG 2003). The MHCP encompasses 111,908 acres (29,962 acres of natural habitat) and provides conservation for 77 species in a 20,593-acre reserve. Similar to the MSCP, the MHCP serves as an umbrella document for local jurisdictions that implement their respective portions of the MHCP through subarea plans. The MHCP subarea plans contribute collectively to the conservation of vegetation communities and species in the MSCP study area. The MHCP also received a 50-year Implementing Agreement (IA) from USFWS and CDFW; gains and losses to the overall preserve system is tracked similarly as those for the MSCP.

On November 15, 2004, the City of Carlsbad Habitat Management Plan (HMP) (City of Carlsbad 2004) was approved, and state and federal permits were issued. The Cities of Encinitas, Escondido, Oceanside, San Marcos, and Vista do not have adopted subarea plans under the MHCP. The City of Encinitas implements an Open Space Management Plan that identifies local conservation goals according to the MHCP. The City of Oceanside in collaboration with the USFWS and CDFW implements the Oceanside Draft MHCP Subarea Plan through the city's plan check approvals (City of Oceanside 2021; Gamble, pers. comm. 2025). The City of Solana Beach does not require take authorizations and therefore did not prepare a subarea plan. The status of the subarea plans under the MHCP is summarized in Table 4.4-5. Regional habitat conservation planning areas and conservation lands (which consists of the preserve design comprised of biological cores and linkages consistent with the MHCP preserve design) are illustrated in Figure 4.4-17.

San Diego County Water Authority Natural Community Conservation Plan/Habitat Conservation Plan

The San Diego County Water Authority (SDCWA) adopted a combined NCCP/HCP to address potential impacts on sensitive resources associated with new construction and typical expansion of existing infrastructure; ongoing installation, use, maintenance, and repair of its aqueduct and water conveyance, treatment, and storage systems; and acquisition of new and management/monitoring of all existing preserve area lands throughout the plan area (SDCWA 2011). The plan area covers approximately 992,000 acres in western San Diego and southwestern Riverside counties. The implementing agreement for the plan was issued by USFWS and CDFW on September 28, 2011. The plan covers 28 plant species and 38 wildlife species for a total of 66 covered species. Of the approximately 1,920 acres of preserve area committed to be conserved by the plan, 1,220 acres have been set aside as compensation for previously permitted projects, and approximately 700 acres are available or will be created to be used as credits to compensate for project impacts on upland and wetland habitats. In addition, SDCWA has previously conserved 1,147 acres of regionally important habitat lands (i.e., managed mitigation areas) that contribute to the baseline of conservation within the plan area.



Sources: BIOS 2025a, 2025b; Hoang, pers. comm., 2025; SANGIS 2025b; SDMMP 2020, 2024; adapted by Ascent in 2025.

Figure 4.4-17 San Diego Conservation Planning Areas and Conserved Lands

San Diego Gas and Electric Subregional NCCP

In 1995, San Diego Gas and Electric (SDG&E 1995) developed the first NCCP in the region for linear projects and specified operation and maintenance activities in SDG&E's service area from southern Orange County south to the Mexico border. The NCCP covers 110 plant and animal species and emphasizes avoidance of impacts while establishing mitigation requirements that may include revegetation or use of mitigation credits set aside in several land parcels purchased by SDG&E as a conservation bank. SDG&E's properties and easements play an important role in the NCCP region in providing habitat connectivity in areas where little natural habitat remains. The NCCP authorizes up to 400 acres of permanent and temporary impacts on habitat for covered species; an amendment would be required to authorize additional take. SDG&E received approval of a low-effect HCP for Quino checkerspot butterfly (*Euphydryas editha quino*) in 2008. On March 15, 2017, USFWS issued an ITP (TE26660C-0) for the *Low-Effect Habitat Conservation Plan for Areas Where San Diego Gas and Electric Company Conducts Its Routine Utility Operations and Maintenance,* which provided coverage for an additional 60 acres supporting 37 covered species and extended the permit term by 5 years (USFWS 2017).

On April 10, 2024, SDG&E requested that USFWS and CDFW coordinate to issue a Fish and Game Code Section 2080.1 consistency determination as an alternative to a full NCCP amendment due to agency timing limitations, and this state process is still ongoing at the time of Draft EIR preparation. Finally, on ~~November 16~~ October 20, 2023, USFWS approved the amendment to SDG&E's HCP (PRT-809637) providing coverage for additional species for the remaining 27-years of the permit. The plan covers 41 listed species and 11 nonlisted species.

TransNet Environmental Mitigation Program

An important component in regional conservation planning is the TransNet Extension Ordinance and Expenditure Plan, which was approved countywide by voters in November 2004 and includes the Environmental Mitigation Program (EMP) administered by SANDAG and implemented by the Regional Conservation Task Force. The EMP consists of direct mitigation of planned transportation projects and the regional habitat acquisition, management, and monitoring activities necessary to implement ongoing regional habitat conservation planning efforts (SANDAG 2025). Through the Regional Conservation Task Force, SANDAG works collaboratively with representatives from the City of San Diego, County of San Diego, the four SANDAG subregions, state and federal wildlife agencies (CDFW and USFWS), other regulatory agencies (CCC, USACE, EPA, and RWQCB), and representatives of various stakeholder groups, including conservation and habitat management organizations, the environmental community, and the science/technical community (SANDAG 2025). The EMP provides funding for the acquisition, restoration, and management costs associated with mitigation for impacts on habitat resulting from regional and transportation projects and local streets and road, and for the implementation of the local NCCPs.

The SDMMP, established in 2008, facilitates and assists SANDAG, local jurisdictions, wildlife agencies, and other regional stakeholders and land managers in the implementation of conservation management and monitoring within the San Diego region. This region-wide effort was created to implement long-term management strategies identified in the San Diego NCCPs and is partially funded through SANDAG's EMP. The SDMMP's goal is to assist with the alignment of regional efforts to implement activities identified in the Management Strategic Plan (MSP) (SDMMP 2017). The MSP identifies priority species, and has developed and is currently developing, best management practices (BMPs) and protocols for sensitive plants and animals, wildlife movement, fire management, and grazing management. The SDMMP developed and maintains a conserved lands and species database (Master Occurrence Matrix, MOM) that is frequently updated (Figure 4.4-17) and a library containing studies and reports relevant to the regional conservation efforts funded by the TransNet Program.

Local Jurisdiction General Plan Policies and Ordinances

Local jurisdictions have adopted ordinances or general plan policies to protect and preserve open space, trees, sensitive habitats, and waters and wetlands. The County of San Diego has promulgated biological protection ordinances, regulations, and guidelines, including the BMO for implementing the South County MSCP Subarea Plan; the RPO for regulating impacts on sensitive biological resources and wetlands; the HLP Ordinance consistent

with the Special 4(d) Rule under ESA (50 CFR 17.41[b]); and the Zoning Ordinance that applies specific restrictions and provisions.

Several ordinances or regulations, such as the City of Chula Vista's Habitat Loss and Incidental Take regulations, and the City of San Diego's ESL Regulations and accompanying Biology, Steep Hillside, and Coastal Bluffs and Beaches Guidelines, are used to implement their respective city's adopted subarea plans. Local jurisdictions have general plan policies and various resource protection ordinances that must be addressed on a project-specific level and may result in added level of protection of biological resources.

Table 4.4-6 Relevant General Plan Policies and Biological Resource Protection Ordinances in the San Diego Region by Local Jurisdiction

Ordinance/General Plan	Purpose
Carlsbad	
Chapter 21.210, "Habitat Preservation and Management Requirements"	Preserves the diversity of natural habitats and unique biological resources in Carlsbad through implementing the goals and objectives of the land use and the open space/conservation elements of the City of Carlsbad General Plan and the city's HMP under the MHCP (see Table 4.4-5) and the regulations for development review.
Chapter 21.203, "Coastal Resource Protection Overlay Zone"	Preserves, protects, and enhances the habitat resource values; provides regulations in areas that provide the best wildlife habitat characteristics; deters soil erosion; and implements conservation of sensitive habitats and the approved Carlsbad LCP.
Chapter 21.95, "Hillside Development Regulations"	When grading occurs, assures that alteration of natural hillsides is done in an environmentally sensitive manner to reduce impacts on lagoons, riparian systems, wildlife habitats, and native vegetation.
Chapter 21. 33, "Open Space Zone"	Provides for open space and recreational uses. This zone also protects areas preserved as natural habitat and the biological resources located in the areas in conformance with the Carlsbad HMP.
Chapter 21.45, "Planned Developments"	Provides a method for clustered property development on environmentally and topographically constrained land.
Chapter 20.22, "Environmental Subdivisions"	Provides provisions for perpetual maintenance of the habitat and that perpetual easement will be recorded that prohibits construction of improvements except for those specifically identified.
Chapter 15.16, "Grading and Erosion Control"	Requires compliance with grading regulations, protection of public facilities, protection of adjacent property, and preservation of adjacent environmental resources from impacts of the grading operation.
Chapter 21.42, "Minor Conditional Use Permits and Conditional Use Permits"	Guides the minor use permit process, including the application of a biological habitat preserve.
General Plan	The Open Space, Conservation, and Recreation Element of the Carlsbad General Plan contains Goal 4-G.3, which aims to protect environmentally sensitive lands, wildlife habitats, and sensitive plant and animal communities, and Policy 4-G.4, which aims to promote conservation of hillsides and ridgelines. Policies 4-P.9 through 4-P.19 include habitat and open space conservation policies.
Chula Vista	
Chapter 17.30, "Otay Ranch Grazing"	Implements the Otay Ranch general development plan and resource management plan within Chula Vista.
Chapter 17.35, "Habitat Loss and Incidental Take"	Protects and conserves native habitat within Chula Vista and the viability of the species supported by those habitats.
Chapter 19.86, "Bayfront Specific Plan—Environmental Management Program"	Reduces and mitigates impacts on the refuge from new development within the bayfront.

Ordinance/General Plan	Purpose
General Plan	The Environment Element of the Chula Vista General Plan contains Policy E 1.1 to implement the MSCP Subarea Plan and Policy E 5.3 to ensure that approved mining reclamation plans fully comply with applicable requirements regarding the restoration of biological habitats and the creation of trails and parkland.
Coronado	
Chapter 86.38, "Open Space Zone"	Provides for the protection and preservation of open space areas within Coronado that are unique due to natural resources, visual amenities, public safety purposes, or recreational opportunities.
Chapter 86.64, "Wildlife Preserve Zone (Modifying Overlay Zone)"	Protects and preserves valuable and unique environmental resources for the enjoyment and benefit of present and future generations of Californians.
Chapter 86.72, "Diking, Dredging, Filling, and Dredge Spoils Disposal"	Requires issuance of a coastal permit from the city for diking, dredging, filling, and dredge spoils disposal in open coastal waters and wetlands.
Chapter 86.76, "Protection of Natural Ocean and Bay Processes"	Requires the issuance of a coastal permit from the city for the construction or placement of any improvement that may significantly affect the natural erosion process resultant from the interaction of water bodies upon their shores, or cause significant adverse alteration of the bay or ocean environment.
Chapter 61.04, "Stormwater and Urban Runoff Management Program"	Establishes requirements for the management of stormwater flows from development projects, both to prevent erosion and to protect and enhance existing water-dependent habitats.
Chapter 61.08, "Discharge Regulations and Requirements"	Implements postconstruction best management practices for permanent control of erosion from slopes, including structures to convey water, vegetation to stabilize disturbed slopes, and velocity controls.
General Plan	The Open Space and Conservation Elements of the Coronado General Plan contain objectives to protect biological resources, natural resources, wildlife, and promote habitat preservation.
Del Mar	
Chapter 30.53, "Lagoon Overlay Zone"	Protects the wetland resources of these lagoon areas and their sensitive upland habitats by requiring that all development activities are designed and implemented in a manner that is consistent with wetland habitat protection and enhancement.
Chapter 30.52, "Bluff, Slope, and Canyon Overlay Zone"	Protects downstream resources from the adverse impacts of erosion and sedimentation.
Chapter 23.50, "Trees"	Encourages conservation of trees and the application of management techniques to create a healthy, diverse urban forest.
Chapter 23.33, "Land Conservation Ordinance"	Regulates soil disturbances of existing or natural terrain and vegetation to prevent soil erosion, silting of lower slopes, slide damage, flooding problems, or severe cutting or scarring.
General Plan	The Del Mar Community Plan contains objectives to preserve or restore habitat and biological resources.
El Cajon	
Chapter 17.155, "O-S (Open Space) Zone"	Protects and preserves open space land as a limited and valuable resource, permits a reasonable use of open space while preserving and protecting inherent open space characteristics, and implements the open space provisions of the general plan.
Chapter 16.60, "Standard Urban Stormwater Mitigation Plan"	Requires a drainage study report prepared by a registered civil engineer of downstream conditions following field reconnaissance, including the susceptibility to erosion or habitat alteration from altered flow.
General Plan	The City of El Cajon General Plan does not contain policies or regulations specific to biological resources.
Encinitas	
Chapter 23.24, "Grading, Erosion, and Sediment Control"	Establishes minimum requirements for grading, excavating and filling of land, to provide for the issuance of grading permits.

Ordinance/General Plan	Purpose
General Plan	The Resource Management Element of the Encinitas General Plan contains policies to preserve significant mature trees, vegetation, and wildlife habitat and integrates the California Coastal Commission-certified LCP for the city.
Escondido	
Chapter 33-3, "Open Space Zone"	Implements the open space/conservation element of the general plan and the public lands/parks land use designation, while also including protection of unique or rare plant and/or animal habitat.
Chapter 33-75, "San Dieguito River Valley Focus Planning Area"	Establishes appropriate design guidelines and provides for comprehensive planning of the San Dieguito River Valley Focus Planning Area in conjunction with general plan policies and preservation of significant natural resources.
Chapter 33-55, "Grading and Erosion Control"	Ensures that development occurs in a manner that protects the natural and topographic character and identity of the environment.
Chapter 33-5: "Open Space Development Standards"	Establishes standards for the development of lands identified by the open space/conservation element of the general plan.
General Plan	Residential Clustering Policy 5.6 of the Land Use and Community Form Element and Biological and Open Space Resources and Policies 1.1 through 1.12 of the Resource Conservation Element of the Escondido General Plan aim to protect biological resources. In addition, as stated in the Land Use and Community Form Element of the General Plan, core themes including, "smart growth principles [that] represent a shift in focus from how to development vacant land to how to reinvest in existing neighborhoods."
Imperial Beach	
Chapter 19.29, "OS Open Space Zone"	Provides for land set aside for the protection of sensitive and fragile natural resources. This zone is intended to limit and control access and intensity of uses in these areas. This zone applies to the Tijuana River Valley.
General Plan	The City of Imperial Beach General Plan and Local Coastal Plan contain Policies 4.3.1 through 4.3.5 to protect, restore, and enhance the viability of key coastal habitats and species.
La Mesa	
Chapter 24.09, "Scenic Preservation Overlay Zone"	Retains and incorporates into each proposed development natural topography, vegetation, and scenic features of the site.
General Plan	The Recreation and Open Space Element of the La Mesa General Plan contain policies and conservation objectives to preserve and restore open space and natural features consistent with the city's Habitat Conservation Plan.
Lemon Grove	
Chapter 18.08, "Grading and Excavating"	Ensures that development occurs in a manner that protects environmentally sensitive areas as defined as areas designated as Areas of Special Biological Significance by SWRCB and the RWQCB.
General Plan	The Conservation and Recreation Element of the Lemon Grove General Plan contains Policy 3.1, which aims to limit impacts on biological habitats.
National City	
Chapter 18.28, "Open Space Reserve Zone"	Provides a use category to uses shown in the open space and conservation element of National City's general plan and LCP.
Chapter 18.27, "Open Space Zone"	Provides for public and private improved and unimproved open space.
General Plan	The Open Space and Agriculture Element of the National City General Plan contains Policies OS-1.1 through OS 1.4, which protect and conserve the landforms and open spaces that serve as core biological areas and wildlife linkages, or are wetland habitats; encourage the removal of invasive plant species and the planting of native plants; and limits development of open spaces; and Policies OS-2.1 through OS-2.8, which require the preservation of sensitive habitat areas.

Ordinance/General Plan	Purpose
Oceanside	
Chapter 6, "Building Construction Regulations"	Section 6.44 includes provisions for flood hazard reduction
General Plan	The Environmental Resource Management Element and Vital and Sustainable Resources Development of the Oceanside General Plan contains implementation strategies and policies for preservation of natural resources.
Poway	
Chapter 12.32, "Urban Forestry"	Sets forth all tree-related policies, regulations, and generally accepted standards on public property and public rights-of-way. Maintains the practice of protecting native trees and heritage trees.
Chapter 17.24, "OS-RM Open Space–Resource Management Zone"	This zone is intended for lands where valuable natural resources are located. The mountainous areas, prominent ridges, riparian areas, wildlife corridors, areas of high biological value, areas with geologic hazards, and areas with valuable historic and prehistoric resources are included within this zone.
General Plan	The Natural Resources Element of the City of Poway General Plan identifies biological resources within the city.
City of San Diego	
Chapter 14, "General Regulations"; Article 2, "General Development Regulations"; Division 4, "Landscape Regulations"	Minimizes the erosion of slopes and disturbed lands through revegetation; conserves energy by the provision of shade trees; conserves water; reduces the risk of fire; and improves the appearance of the built environment by increasing the quality and quantity of landscaping.
Chapter 13, "Zones"; Article 2, "Overlay Zones"; Division 6, "Sensitive Coastal Overlay Zone"	Helps protect and enhance the quality of sensitive coastal bluffs, coastal beaches, and wetlands.
Chapter 14, "General Regulations"; Article 3, "Supplemental Development Regulations"; Division 1, "Environmentally Sensitive Lands Regulations"	Protects, preserves, and where damaged restores, the environmentally sensitive lands of San Diego and the viability of the species supported by those lands. Includes development regulations for Environmentally Sensitive Lands to serve as standards for the determination of impacts and mitigation. These standards also serve to implement the city's MSCP by placing priority on the preservation of biological resources within the MHPA, as identified in the City of San Diego Subarea Plan (see Table 4.4-5).
Land Development Manual, "Biology Guidelines"	The Biology Guidelines aid in the implementation and interpretation of the city's Environmentally Sensitive Lands Regulations, San Diego Land Development Code, Chapter 14, Division 1, Section 143.0101 et seq., and the Open Space Residential (OR-1-2) Zone, Chapter 13, Division 2, Section 131.0201 et seq. Section III of the Guidelines ("Biological Impact Analysis and Mitigation Procedures") also serves as standards for the determination of impact and mitigation CEQA and the Coastal Act.
General Plan	The Conservation Element of the City of San Diego General Plan includes the goal for the preservation and long-term management of spaces that serve as core biological areas and wildlife linkages. Policy CE-B.1 protects and conserves important landforms, canyon lands, and open spaces, and Policy CE-B.2 applies the appropriate zoning and regulations to limit development of floodplains and sensitive biological areas.
San Marcos	
Chapter 18.04, "Environmental Protection"	Provides for enhancement and protection of the environment within the city by establishing principles, objectives, criteria, definitions, and procedures for evaluation of the environmental impact of public and private projects in an orderly manner.
Chapter 23.330, "Water Efficient Landscape Standards"	Establishes that landscape plans must address all BMPs, coincide with grading plans, address brush management Zones, and address biological constraints.
Chapter 20.260, "Ridgeline Protection and Management Overlay Zone"	Interfaces with Biological Reserves/Subarea Plan (Focused Planning Areas) Preserved Design. All development within the zone must be consistent with the city's Multiple Habitat Conservation/Subarea Plan.

Ordinance/General Plan	Purpose
General Plan	The City of San Marcos General Plan, in the Conservation Element, includes Policies COS-1.1 to support the protection of biological resources, COS 1.2 to ensure that new development maintain the value of sensitive biological habitats, COS 1.3 to continue to implement SANDAG's MHCP, COS-2.2 to limit the conversion of open space to urban uses, and COS-2.6 to preserve healthy mature trees where feasible.
Santee	
Chapter 13.22.040, "Hillside Overlay District"	Maintains natural open space character; protects natural land forms; minimizes erosion; provide for public safety; protects water, flora, and fauna resources; and establishes design standards to provide for limited development in harmony with the environment.
General Plan	The Conservation Element of the Santee General Plan includes Policies 2.1 through 2.7 and Policies 7.1 through 7.4 to protect biological resources.
Solana Beach	
Chapter 17.40, "Open Space/Recreation Zone"	Preserves, protects, and enhances the value of natural resources, including topographical and geological features, plant and wildlife habitats, coastal wetlands, beaches, coastal bluffs, watershed areas, resource buffer areas, and scenic areas.
Chapter 17.42, "Open Space/Preserve"	Preserves and protects open space; scenic views; the natural environment; and habitat for aesthetic, conservation, and ecological purposes.
Chapter 18.04, "Environmental Protection"	Provides for enhancement and protection of the environment within the city by establishing principles, objectives, criteria, definitions, and procedures for evaluation of the environmental impact of public and private projects in an orderly manner.
General Plan	The City of Solana Beach Municipal Code contains Objective 5.0 to preserve important biological habitat and protect sensitive, rare, and endangered species of flora and fauna. Policies 5.a through 5.f identify specific requirements to protect biological resources.
Local Coastal Program: Land Use Plan	The land use policies in the City of Solana Beach map ESHA and identify policies to protect ESHAs. ESHAs shall be protected against any significant disruption of habitat values, and development in areas adjacent to ESHAs and parks and recreation areas shall be sited and designed to prevent impacts.
Vista	
Chapter 15.04, "Environment"	Implements CEQA and the CEQA Guidelines for the city by applying the provisions and procedures contained in CEQA to development projects proposed within the city.
Chapter 18.15, "BPO Biological Preserve Overlay Zone"	Establishes the biological preserve overlay zone to protect valuable natural resources in accordance with the provisions of the MSCP, ensures that development minimizes disturbance to sensitive natural habitats, as feasible, and enhances or improve natural resources.
General Plan	The City of Vista General Plan contains policies specific to Resource Conservation and Sustainability (RCS) Element Goal 5 to preserve and protect the range of natural biological communities and species native to the city and region, and conserve viable populations of key sensitive species and their habitats; RCS Goal 6 to implement the provisions of the regional MHCP; and RCS Goal 7 to conserve, enhance, and restore open space areas.
County of San Diego	
Chapter 5, "Biological Mitigation Ordinance"	Protects the County's biological resources and prevents their degradation and loss by guiding development outside of biological resource core areas, and by establishing mitigation standards. Chapter 5 also enables the County of San Diego to achieve the conservation goals set forth in the Subarea Plan for the MSCP. Further, native tree protection and appropriate mitigation ratios are provided under this ordinance.
Chapter 6, "Resource Protection Ordinance"	Protects sensitive lands and prevents their degradation. Chapter 6 also preserves and protects the County's unique topography, natural beauty, diversity, and natural resources.

Ordinance/General Plan	Purpose
General Plan	The San Diego County General Plan includes several policies in the Conservation and Open Space (COS) Element related to the protection of biological resources. Policies COS-1.1 through COS-1.11 relate to a regionally managed, interconnected preserve system; Policies COS-2.1 and COS-2.2 are related to sustainable ecosystems; and Policies COS-3.1 and COS-3.2 ensure protection and enhancement of wetlands.
Subregional Plan for the Otay Ranch	Implements the Otay Ranch general development plan and resources management plan within the County of San Diego.

Notes: MSCP = Multiple Species Conservation Program; MHCP = Multiple Habitation Conservation Program; HMP = Habitat Management Plan MHPA = Multi-Habitat Planning Area; ESHA = environmentally sensitive habitat area; LCP = local coastal program.

Sources: City of Carlsbad 2015, 2025; City of Chula Vista 2005, 2022; City of Coronado 2003, 2025; City of Del Mar 1976, 2025; City of El Cajon 2001, 2025; City of Encinitas 1995, 2025; City of Escondido 2012, 2025; City of Imperial Beach 2019, 2025; City of La Mesa 2013, 2025; City of Lemon Grove 1996, 2025; City of National City 2011, 2025; City of Oceanside 2002, 2025; City of Poway 1991, 2025; City of San Diego 2024, 2025b; City of San Marcos 2012, 20252021; City of Santee 2003, 2025; City of Solana Beach 2014, 2025; City of Vista 2012, 2025; County of San Diego 2011, 2025.

4.4.3 Significance Criteria

Appendix G of the CEQA Guidelines provides criteria for determining the significance of a project's environmental impacts in the form of initial study checklist questions. Unless otherwise noted, the significance criteria specifically developed for this EIR are based on the checklist questions that address the criteria in CEQA Guidelines Appendix G. In some cases, SANDAG has combined checklist questions, edited their wording, or changed their location in the document in an effort to develop significance criteria that reflect the programmatic level of analysis in this EIR, and the unique characteristics of the proposed Plan.

Checklist questions for biological resources are provided in Section IV (a–f) of CEQA Guidelines Appendix G. To better focus the potential impacts associated with the proposed Plan, the CEQA Guidelines Appendix G questions have been combined and modified. Specifically, checklist questions (b) and (c), which address impacts on sensitive natural communities and protected aquatic resources, are addressed in BIO-1. Question (a), effects on special-status species, is addressed in BIO-2. Question (d), effects on migration and wildlife nurseries, is addressed in BIO-3. Questions (e) and (f), conflicts with local policies, ordinances, or HCPs, are addressed in BIO-4.

Therefore, implementation of the proposed Plan would have a significant biological resources impact if it would:

BIO-1 Have a substantial adverse effect on any sensitive natural communities identified in local or regional plans, policies, regulations, or by CDFW or USFWS; or have a substantial adverse effect on state or federally regulated waters and wetlands through direct removal, filling, hydrological interruption, or other means.

BIO-2 Have a substantial adverse effect, either directly or indirectly, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or listed by CDFW or USFWS, including their federally designated critical habitat, or species that are considered sensitive in CEQA Guidelines Section 15380.

BIO-3 Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

BIO-4 Conflict with the provisions of an adopted HCP, NCCP, or other conservation plan, or with any local policies or ordinances protecting biological resources.

4.4.4 Environmental Impacts and Mitigation Measures

This analysis examines whether regional growth and land use change or planned transportation network improvements would physically displace or alter biological resources. Impacts are assessed quantitatively or qualitatively based on the project description, the regional growth and land use change forecasts mapped as areas and the transportation network improvement footprint. The transportation network footprints are estimated through a coordinated effort by SANDAG transportation modeling, GIS, engineering, and planning staff. Buffer-size assumptions are specific to each travel mode and rely on engineering plan estimates from similar project improvements to calculate footprint width using model input geographies. The assumptions for each travel mode were presented at a peer review, and SANDAG staff are in agreement regarding the overall process and assumptions used.

Highway transportation and regional arterial improvement project footprints are defined by buffering line segment project geographies from the SANDAG highway model network. These layers are an early approximation of the dimensions of the planned improvements, which factor in lane width and buffer/movable barrier size assumptions from engineering drawings of similar projects, and the proposed number of lanes and auxiliary lanes from the SANDAG transportation model network. For highways, it was assumed that each travel lane is 12 feet wide, multiplied by the total number of proposed lanes. Shoulder widths added an additional 24 feet, accounting for a 12-foot outer shoulder and 12-foot inner shoulder in the highway footprint. Express Lane buffers are assumed to be 8 feet, or 4 feet in each direction. Where a movable barrier is assumed, another 4-foot buffer is applied. In addition, where there are ramps or connectors, it is assumed that each lane on the ramp or connector is 12 feet wide with an added 8 feet to account for inner and outer ramp shoulders. For regional arterials, each lane is assumed to be 12 feet wide, and a 4-foot buffer in each direction is assumed to account for sidewalks.

Rail transit improvement project footprints, specifically Trolley, Los Angeles–San Diego–San Luis Obispo (LOSSAN), and SPRINTER lines only in areas where there are new extensions or alignment changes, are defined by a rail-width buffer of 50 feet. Bus transit improvement footprints are not developed because routes would use existing or planned road or highway or Express Lane segments. New bikeway footprints (i.e., active transportation elements) are estimated assuming bikeways are 14 feet wide. Bikeway footprints are not developed in situations where they would occur within existing or planned road or highway segments.

Direct impacts are evaluated using GIS methods by overlaying transportation improvement project footprints (i.e., area encompassing permanent and temporary land disturbance) and regional growth and land use change with the baseline biological datasets identified in "Analysis Methodology" subsections for each significance criterion (BIO-1 through BIO-4) below. The analysis evaluates permanent and temporary direct and indirect impacts as defined in the introduction to this chapter.

- *Direct:* Direct impacts are caused by the project and occur at the same time and place as the project.
- *Indirect:* Indirect impacts may have an effect later in time or are farther removed in distance but are still reasonably foreseeable and attributable to project-related activities.
- *Permanent:* All impacts that result in irreversible effects or removal of biological resources are considered permanent.
- *Temporary*: Any impacts considered to have reversible effects on biological resources may be viewed as temporary. The period of time under which an impact would be viewed as "temporary" will vary by habitat type, project context, and local regulations. As a general rule, impacts are considered temporary only if timely efforts would ensure the impact is corrected to conditions equal to or superior to the conditions that existed prior to impact.

BIO-1 HAVE A SUBSTANTIAL ADVERSE EFFECT ON ANY SENSITIVE NATURAL COMMUNITIES IDENTIFIED IN LOCAL OR REGIONAL PLANS, POLICIES, REGULATIONS, OR BY CDFW OR USFWS; OR HAVE A SUBSTANTIAL ADVERSE EFFECT ON STATE OR FEDERALLY REGULATED WATERS AND WETLANDS THROUGH DIRECT REMOVAL, FILLING, HYDROLOGICAL INTERRUPTION, OR OTHER MEANS

Analysis Methodology

Direct Impacts

Direct impacts on sensitive natural communities and regulated aquatic resources are quantified using the GIS methods outlined below. Direct impacts include permanent and temporary impacts to wetland and non-wetland waters. Wetlands are considered "three-parameter" (i.e. presence of hydrophytic vegetation, hydric soils and wetland hydrology) vegetated aquatic resources and may include riparian forests and scrub, marshes and meadows; however, not all these vegetation communities would be considered jurisdictional. Non-wetland waters are streams, channels and drainages that may lack extensive vegetation, but typically feature an Ordinary High Water Mark (OHWM) or other mean high tide line by which the aquatic resource limits can be delineated. Permanent impacts to aquatic resources, including both wetland and non-wetland features, were not quantified using GIS or qualitatively described because specific spatial impact calculations would be generated through a formal wetland delineation method and qualitative analysis would also rely on project-specific level context of a particular activity and site, which will be available in the future for projects that would be covered by this EIR. However, likely direct impacts to wetland vegetation communities and non-wetland waters potentially under the jurisdiction of regulatory agencies (i.e., USACE, RWQCB, CDFW, and/or CCC) were estimated based on the best regional data available and likely future project areas. Temporary impacts such as access routes, equipment staging, trenching, etc. were not analyzed using GIS methods because they would also require project-level details that are not currently known. This EIR assumes that all temporary impacts would be restored to pre-project conditions.

Regional Growth and Land Use Change

Regional growth and land use change impacts are evaluated by identifying the extent of currently undeveloped areas (2021 data) that contain sensitive and wetland vegetation communities and that would be converted to developed land uses for each horizon year. Polygon layers from the land use layers up to years 2035, and 2036 through 2050 that include all developed land use categories were created in GIS. The developed land use layers were overlaid on the baseline vegetation layer (see "Sensitive Vegetation Communities" in Section 4.4.1, "Existing Conditions") to determine the areas that would be converted from undeveloped to developed land uses for each horizon year.

Regional growth and land use impacts are quantified based on two categories of land use: spaced rural residential land use and all other developed land uses. Impacts from these two categories are summed together to present an estimate of the total impact from regional growth and land use. Rural residential land use impacts were quantified by determining the maximum portion of those areas that would be developed based on required MSCP, MHCP, General Plan, County Guidelines, and respective identified mitigation ratios. The adopted NCCPs and their subarea plans contain percentages of the amount of land to be conserved[11] within identified preserve categories.

All MSCP Preserves are considered 90–100% conserved and the MHCP hardline preserves were considered 100% conserved. Softline preserves and Subarea Plan preservation areas were assigned a range of conservation values. For the purpose of the programmatic evaluation of this EIR, the County MSCP PAMA was assigned an 80% conservation value. All other Softline and Subarea Plan preserves were assigned a 75% conservation value,

[11] The term "conserved" reflects the projected conservation of habitats and biological resources as identified in the HCPs. Hardline preserves cannot be developed, and impacts will be avoided. When allowed development occurs in other preserve dedications, such as the PAMA, FPA, or MHPA, the conservation component required by the respective HCP will be implemented through the dedication of conservation easements or other site protection instruments that require the conservation, management, and monitoring of the conserved resources in perpetuity. Note: the transportation network impacts were removed from the regional growth and land use change impacts to avoid double counting.

including the MHPA for the City of San Diego and City of Chula Vista MSCP, and MHCP Focused Planning Area [FPA]. The Biological Core and Linkage Area (BCLA) for the MHCP was considered 70% conserved. Major Amendment Areas for the South County MSCP received a 50% conservation multiplier respectively. According to County of San Diego Guidelines, single-family residential development in the unincorporated areas of the County on parcels of 10 acres or less fall within the Minor Amendment Areas of the South County MSCP. According to the County's BMO, the parcels within the PAMA were considered 80% conserved, and outside the PAMA 50% conserved.

The County of San Diego does not assign conservation goals to anything except hardline preserves and evaluates all other development proposals on a case-by-case basis. However, the overall MSCP goal is to conserve approximately 75% of sensitive lands within the PAMA. Major Amendment Areas may be completely developed but require mitigation according to prescribed mitigation ratios identified in the BMO. For the purpose of the programmatic analysis, this analysis assigned an average mitigation ratio of 2:1 to impacts in the Major Amendment Area, which would translate to a 50% conservation goal. The take-authorization areas within the South County MSCP assume that MSCP-covered species and habitats can be developed; therefore, this analysis assigned no conservation value to the take-authorization areas. All other developed land use categories are considered 100% developed; that is, the entire parcel would be considered permanently converted from its previous condition to fully developed, with no habitat value. Some preserve designations, specifically the MHCP FPA, the City of Chula Vista MSCP preserve, and City of San Diego MHPA, have varying degrees of conservation percentages. For the purpose of this programmatic analysis, the highest conservation percentages were used where available to calculate impacts from regional growth and land use changes. This method results in an overestimation of impacts, i.e. impacts are estimated to occur to the highest level of conservation. This is a conservative approach and assumes that impacts on sensitive vegetation communities would be mitigated at approved offsite mitigation banks (assuming several additional wetland mitigation banks would be established in the County), which has become common practice in San Diego County. The rationale and detailed methodology to quantify impacts for each category are described below. Appendix ~~E~~D-5 details which land use classifications are categorized as undeveloped and developed (i.e., spaced rural residential land use and other developed land uses) for purposes of this EIR.

Development under the spaced rural residential land use designation occurs at a much lower density than other developed areas. The majority of this type of development occurs in the unincorporated county and is subject to County of San Diego ordinances that restrict development to varying degrees; none set a limit on the amount of parcels or lots that can be developed except for areas covered by the South County and Draft North County MSCPs. Habitat mitigation ratios or conservation levels, determined by MSCP guidance or County of San Diego Guidelines for Determining Significance for Biological Resources, ultimately limit the amount of habitat that can be developed within the unincorporated areas.

Other developed land use areas, (i.e., not designated spaced rural residential) would also require mitigation for biological resources impacts, but development in these areas typically occurs at a higher density than spaced rural residential lands. All assumptions detailed above may overestimate biological resources impacts on vegetation communities and wetlands because exact conservation and mitigation measures can only be quantified once a specific site and footprint has been identified and evaluated against conservation and mitigation requirements identified in plans, policies and ordinances.

Transportation Network Improvements and Programs

Sensitive wetlands and uplands vegetation community impacts are evaluated through GIS by overlaying transportation improvement project footprints onto with the baseline vegetation dataset described in Section 4.4.1, "Existing Conditions." Transportation improvement project impacts to vegetation communities and land cover types are calculated for each project that requires new construction in undeveloped areas. Transportation improvement project footprints are based on what is known about planned transportation network improvements contained in the proposed Plan at the time of analysis (see Chapter 2.0 "Project Description" of this EIR). Refer to Section 4.2, "Agricultural and Forestry Resources," for a detailed discussion regarding the development of the transportation network footprint used for this analysis.

Indirect Impacts

Indirect impacts that may occur on sensitive vegetation communities and regulated aquatic resources in proximity to areas experiencing regional growth and land use change or transportation network improvements cannot be quantified because they may be project-specific and are not always foreseeable. They are, therefore, qualitatively analyzed on a broad scale.

Impact Analysis

2035

Regional Growth and Land Use Change

Direct Impacts

Direct impacts on sensitive vegetation and wetlands communities for the 2035 horizon year are provided in Table 4.4-7.

Table 4.4-7 Estimated Direct Impacts on Sensitive Vegetation Communities and Regulated Aquatic Resources within the San Diego Region up to Year 2035 (acres)

Vegetation Community	Regional Growth and Land Use Change	Transportation Network Improvements	Total
Riparian and wetlands			
Beach/coastal dunes/saltpan/mudflats*	—	—	—
Marsh*	14	36	50
Meadows and seeps*	26	—	26
Open water and streams*	11	18	29
Riparian forest/woodland*	171	54	225
Riparian scrub*	39	16	54
Vernal pools*	—	—	—
Riparian and wetlands total	*261*	*123*	*384*
Uplands			
Chaparral*	5,042	47	5,089
Coastal sage scrub*	1,623	29	1,652
Desert dunes	0.1	—	0.1
Desert scrub	1,024	—	1,024
Oak woodlands*	454	7	461
Forest/woodland	150	2	152
Grasslands*	545	245	790
Uplands total	*8,838*	*330*	*9,168*
Grand total	**9,099**	**453**	**9,552**

Source: Data downloaded from SDMMP, CBDDB, USFWS, and SANGIS in 2025; adapted by Ascent in 2025.

The riparian and wetland vegetation communities with the largest impact acreage as a result of land use change through 2035 are riparian forest/woodland followed by riparian scrub, meadows and seeps and marsh (including coastal salt marshes) (Table 4.4-7). Mapped and highly sensitive vernal pools would be avoided as much as feasible (due to the coarse mapping unit, small vernal pool habitats are not reported in the vegetation communities data; however, the critical habitat data for endemic vernal pool species indicate that vernal pools would likely be impacted). The upland vegetation communities with the greatest amount of impacts are chaparral, followed by the regionally protected coastal sage scrub and desert scrub (Table 4.4-7).

Up to the 2035 plan year, regional growth and land use change is relatively evenly spread across the County and in the majority of the urban centers, including Borrego Springs, where desert scrub is the most affected vegetation community. The most intense growth is centered in the South County around Chula Vista and Otay Mesa in chaparral and coastal sage scrub habitats. Regional growth and land use change is primarily focused in existing urban areas and currently undeveloped areas adjacent to the existing urbanized area in the western third of the County, except for Otay Mesa and the city of Chula Vista Otay Ranch neighborhood, which will continue to encroach into currently undeveloped land (Figure 4.4-16). Shrubland vegetation communities bear the majority of projected impacts to wetlands and riparian communities. These habitats are generally limited in distribution and unique to the San Diego region, and therefore are important for the survival of many special-status plant and animal species. Coastal sage scrub, one of the most sensitive vegetation communities in the County, receives the second highest impact quantities (after chaparral).

Indirect Impacts

Indirect impacts from regional growth and land use change on sensitive natural communities and regulate aquatic resources would be associated with the spread of invasive plant species through introductions from outside the County or from disturbed areas within the County. Indirect impacts may also occur as type conversion from fires, floods, landslides, or other disturbances or the lack of management of conservation lands. Indirect impacts may also occur from edge effects of increasingly urbanized areas through the spread of ornamental vegetation into natural lands and open spaces, effects from irrigation of adjacent ornamental landscapes, or land disturbance by unauthorized pedestrian, mountain bike and off-road vehicles uses.

Summary

Although adherence to the existing laws, regulations, and programs detailed in Section 4.4.2 would reduce impacts of the proposed Plan on biological resources, it cannot be concluded that adherence would ensure impacts would be less than significant for all projects.

Considering both direct and indirect impacts, ground-disturbing activities related to land use change under the proposed Plan would result in substantial adverse change to sensitive natural communities and regulated aquatic resources. This would be a significant impact.

Transportation Network Improvements and Programs

Direct Impacts

Transportation network improvements are primarily focused within and adjacent to existing urbanized areas along all major highways through linear construction (including managed freeway lanes and rail projects) and the construction of transportation hubs. Many improvements are located in the coastal and western portion of the County (i.e., along the entire stretch of I-5, managed lanes in the western portion of I-8 and western portions of State Routes 76 and 78). The majority of transportation improvements occur via bikeways and transportation hubs in urban areas that have little direct impacts on sensitive vegetation communities. Likewise, most road improvement projects would impact urban and developed land cover types and disturbed habitats rather than sensitive vegetation communities. The highest impacts to vegetation communities, including wetlands and upland communities, occur from the various planned regional rail projects (i.e. Pacific Surfliner Los Angeles to San Diego [LOSSAN] corridor improvements, realignment, and double tracking projects) that would impact significant amounts of open water, riparian forest/woodlands, marshes (including coastal salt marsh, i.e. Los Peñasquitos Lagoon), chaparral, coastal sage scrub and grasslands habitats. New ground-disturbing activities through improved connections in the rural East County would impact sensitive vegetation communities and regulated waters, including wetlands.

Estimated direct impacts on vegetation communities due to transportation network improvements between 2026 and 2035 are provided in Table 4.4-7. Table ~~E~~D-6-1 in Appendix ~~E~~D-6 summarizes the project-by-project impacts on vegetation communities for each horizon year. The riparian and wetland vegetation communities with the greatest amount of impacts as a result of transportation network improvements are riparian forest/woodland followed by marsh (including coastal salt marshes as a result of rail construction projects) (Table 4.4-7). The upland

vegetation communities with the greatest amount of impacts as a result of transportation network improvements are grasslands, chaparral, and coastal scrub (Table 4.4-7).

Indirect Impacts

The type and nature of indirect impacts would be similar to those described above for regional growth and land use change.

Summary

By 2035, implementation of the transportation network improvements included as part of the proposed Plan would impact wetlands and sensitive vegetation communities, specifically coastal sage scrub. Adherence to existing federal, state, and local laws, regulations, and programs would help reduce impacts but would not ensure impacts would be less than significant.

Considering both direct and indirect impacts, ground-disturbing activities related to transportation network improvements under the proposed Plan would result in a substantial adverse change to sensitive natural communities and regulated aquatic resources. This would be a significant impact.

2035 Conclusion

Implementation of the regional growth and land uses changes and the transportation network improvements for between 2026 and 2035 would result in substantial adverse effects on sensitive natural communities and regulated aquatic resources. These impacts (BIO-1) would be significant in the year 2035.

2050

Regional Growth and Land Use Change

Direct Impacts

The type and nature of direct impacts on regional growth and land uses changes would be same as described above for the 2035 horizon year. Overall, the amount of regional growth and land use change is significantly reduced from the 2035 horizon year and mainly occurs as expansion of 2035 land use patterns in the South County along a swath between La Mesa, Lemon Grove and National City (Figure 4.4-16). Rural growth in form of residential land use patterns is mainly centered around Bonsall in the North County and Alpine in South/Central San Diego County. Estimated direct impacts on vegetation communities and regulated aquatic resources between 2036 and 2050 are provided in Table 4.4-8.

Table 4.4-8 Estimated Direct Impacts on Sensitive Vegetation Communities and Regulated Aquatic Resources within the San Diego Region 2036-2050 (acres)

Vegetation Community	Regional Growth and Land Use Change	Transportation Network Improvements	Total
Riparian and wetlands			
Beach/coastal dunes/saltpan/mudflats	—	1	1
Marsh	2	32	34
Meadows and seeps	—	1	1
Open water and streams	1	18	19
Riparian forest/woodland	1	52	53
Riparian scrub	3	29	32
Vernal pools	—	—	—
Riparian and wetlands total	*7*	*133*	*140*
Uplands			
Chaparral	95	50	145

Vegetation Community	Regional Growth and Land Use Change	Transportation Network Improvements	Total
Coastal sage scrub	167	86	253
Desert dunes	—	—	—
Desert scrub	2	—	2
Oak woodlands	5	40	45
Forest/woodland	3	5	8
Grasslands	167	124	291
Uplands total	*439*	*304*	*743*
Grand total	**446**	**437**	**883**

Source: Data downloaded from SDMMP, CBDDB, USFWS, and SANDGIS in 2025; adapted by Ascent in 2025.

Overall, direct impacts on sensitive vegetation communities are significantly less than for the plan years up to 2050 due to a reduction in projected developments. The riparian and wetland vegetation communities with the largest impact acreage as a result of land use change through 2050 is riparian scrub followed by marsh (including coastal salt marshes) (Table 4.4-8). The upland vegetation communities with the greatest amount of impacts are grasslands and coastal sage scrub, followed by chaparral (Table 4.4-8).

By 2050, regional growth and land use change is primarily focused in the South County, specifically around Santee (Fanita Ranch), Lemon Grove, the city of Chula Vista Bayfront and Otay Ranch neighborhoods, and Otay Mesa. Shrubland vegetation communities, specifically coastal sage scrub, experience the majority of the projected impacts. Coastal sage scrub is limited in distribution and unique to the San Diego region, and is also sensitive to the effects of fire and type conversion. This vegetation community is important for the survival of many special-status plant and animal species. Coastal sage scrub, one of the most sensitive vegetation communities in the region, receives the highest impact quantities (after grasslands).

Indirect Impacts

The type and nature of indirect impacts would be similar to those described above for 2035.

Summary

As discussed for 2035, although adherence to the existing laws, regulations, and programs detailed in Section 4.4.2, "Regulatory Setting," would reduce impacts of the proposed Plan on biological resources, it cannot be concluded that adherence would ensure impacts would be less than significant for all projects. However, growth and transportation related impacts are significantly less than those anticipated for the 2035 plan year.

Considering both direct and indirect impacts, ground-disturbing activities related to land use change under the proposed Plan would result in substantial adverse change to sensitive natural communities and regulated aquatic resources. This would be a significant impact.

Transportation Network Improvements and Programs

Direct Impacts

Similar to 2035, transportation network improvements are primarily focused within and adjacent to existing urbanized areas in the western one-third of the San Diego Region for the 2050 horizon year (see Figures 2-1 through 2-21), but also include major transportation corridors in the North and East County along State Routes 76, 78 and 79 and in the South County along State Routes 52, 56 and 94. New ground-disturbing activities would impact sensitive marsh habitats, specifically coastal salt marsh.

Estimated direct impacts that would occur on vegetation communities as a result of transportation network improvements up to the 2050 horizon year are provided in Table 4.4-8. Table ~~E~~D.6-2 summarizes the project-by-project impacts on vegetation communities for each horizon year. The three riparian and wetland vegetation communities with the greatest amount of impacts as a result of transportation network improvements are riparian

forest/woodlands marsh (including coastal salt marsh of 11.4 acres of impact), and riparian scrub (Table 4.4-8). Significant impacts on coastal salt marsh occurs from the construction of the rail corridors, specifically Regional Rail 398 and 598. The upland vegetation communities with the greatest amount of impacts are grasslands and coastal scrub from improvements to the above-mentioned state routes (Table 4.4-8).

Indirect Impacts

The type and nature of indirect impacts would be similar to those described above for 2035.

Summary

By 2050, transportation network improvements included as part of the proposed Plan would impact wetlands and sensitive vegetation communities. However, impacts are significantly less than for the 2035 plan year. As discussed under regional growth and land use change for 2050, adherence to existing federal, state, and local laws, regulations, and programs discussed in Section 4.4.2 would help reduce impacts but would not ensure impacts would be less than significant.

Considering both direct and indirect impacts, ground-disturbing activities related to transportation network improvements under the proposed Plan would result in substantial adverse change to sensitive natural communities and regulated aquatic resources. This would be a significant impact.

2050 Conclusion

Implementation of the regional growth and land uses changes and the transportation network improvements for the 2050 horizon year, although substantially reduced compared to 2035, would result in substantial adverse effects on sensitive natural communities and regulated aquatic resources. These impacts (BIO-1) would be significant in the year 2050.

Impacts of the Proposed Plan with Future Climate Change

With future climate change, growth and land use change and transportation network improvements would cause greater impacts on sensitive natural communities, regulated waters, and wetlands. The vegetation communities most affected by climate change, regional growth, and land use change include riparian forest/woodland, riparian scrub, marsh, waters and streams, grasslands, coastal sage scrub, and chaparral.

High temperatures and extended periods of drought could affect forests, and warmer winter temperatures may promote survival and reproduction of pests that can cause damage to trees (Messner et al. 2011) Coastal sage scrub in Southern California is moderately vulnerable to climate change due to its sensitivity to climate stressors; increased wildfire frequency and intensity could shift scrublands to nonnative grasslands (EcoAdapt 2017). For all vegetation communities, higher temperatures and shifting rainfall patterns could affect plant germination and habitat composition, which in turn may also impact soil carbon sequestration levels and rates (EcoAdapt 2017; Bradford et al. 2016; Ren et al. 2020).

Sea-level rise could increase saltwater intrusion into freshwater ecosystems and higher temperatures could cause thermal stress in streams (ICLEI 2012, Jennings et al. 2018). More frequent and intense drought conditions may also change stream levels and damage riparian habitats (EcoAdapt 2017; Jennings et al. 2018). Sea-level rise could also result in coastal flooding and inundate coastal wetlands (Heberger et al. 2009).

The proposed Plan's impacts would be worsened by climate change. Climate change would disrupt sensitive natural communities and regulated aquatic resources, leaving them more susceptible to changing environmental conditions and the proposed Plan's impacts.

MITIGATION MEASURES

BIO-1 HAVE A SUBSTANTIAL ADVERSE EFFECT ON ANY SENSITIVE NATURAL COMMUNITIES IDENTIFIED IN LOCAL OR REGIONAL PLANS, POLICIES, REGULATIONS, OR BY CDFW OR USFWS; OR HAVE A SUBSTANTIAL ADVERSE EFFECT ON STATE OR FEDERALLY REGULATED WATERS AND WETLANDS THROUGH DIRECT REMOVAL, FILLING, HYDROLOGICAL INTERRUPTION, OR OTHER MEANS.

2035, 2050

BIO-1a: Implement Design, Minimization, and Avoidance Measures for Sensitive Natural Vegetation Communities and Regulated Aquatic Resources. During project planning, design, project-level CEQA review, and construction of transportation network improvements or development projects, SANDAG shall, and other transportation project sponsors, the County of San Diego, cities, and other local jurisdictions can and should, avoid impacts on sensitive natural communities and regulated aquatic resources when feasible. Avoidance measures include, but are not limited to, the following:

- Conduct early coordination with the wildlife agencies and the respective local jurisdictions to design alignments that avoid sensitive resources and preserved lands.
- During the site identification and project design process, to the extent feasible, prioritize the least environmentally constrained site, and select a design that avoids and minimizes impacts on biological resources and NCCP lands, and maintains habitat integrity.
- Confine development footprints to the minimum amount of undeveloped area necessary for construction and safe, reliable operation. Limit access routes and staging areas to existing roadways and developed or disturbed areas. Direct drainages away from sensitive habitats, such as canyons. Clearly delineate all construction areas, staging areas, and access routes in the final engineering plans.
- Limit grading and earth-moving activities to the permitted impact footprint. Install environmentally sensitive area fencing or flagging along the limits of disturbance prior to the start of construction to avoid incidental loss of sensitive habitat types.
- Require biological monitoring and regular inspections for construction in the vicinity of and adjacent to sensitive habitats to avoid impacts on these habitats. Report any special-status species and natural communities detected during project surveys to the CNDDB.

BIO-1b: Provide Compensatory Mitigation. Where impacts are unavoidable, during project planning, design and project-level CEQA review of transportation network improvements or development projects, SANDAG shall, and other transportation project sponsors, the County of San Diego, cities, and other local jurisdictions can and should, provide compensatory mitigation, as specified by and consistent with adopted MSCP or MHCP guidelines and agreements, applicable federal and state regulatory requirements for mitigating impacts on wetlands and regulated aquatic resources, and applicable local regulations protecting sensitive natural communities, or through consultation with resource agencies (including federal and state wildlife and regulatory agencies, such as USFWS, CDFW, USACE and RWQCB). SANDAG shall, and other implementing agencies can and should, establish appropriate mitigation ratios where ratios have not already been established through ordinances and guidelines, specifically for impacts on sensitive coastal, riparian, and shrubland communities. SANDAG shall, and other implementing agencies can and should, design compensatory mitigation to result in the conservation, establishment, or creation of self-sustaining sensitive natural and native communities, replacing the lost habitat or habitat value as required to offset those lost from project implementation. Otherwise, mitigation measures would include the requirement for and financing of long-term conservation and management requirements of the mitigation projects.

For impacts outside the coastal zone, provide compensatory mitigation in the form of project- and habitat-specific onsite or offsite mitigation. Offsite mitigation would occur through several options, including (1) the purchase of credits at an existing authorized mitigation bank within or adjacent to the ecoregion or watershed within which the impacts occurred; (2) in-lieu fee program; or (3) project-specific (permittee responsible) mitigation, such as habitat enhancement, establishment (creation), or reestablishment (restoration). Mitigation should occur as close to the impact and in the same local watershed as feasible, unless compelling ecological benefits, as supported by the state and federal wildlife agencies, would result from mitigation located in another area.

Compensatory mitigation for impacts inside the North Coast Public Works Plan/Transportation and Resource Enhancement Program (PWP/TREP, 2014) should be consistent with Chapter 6B Resources Enhancement and Mitigation Program. Compensatory mitigation for impacts inside the coastal zone and outside the PWP/TREP should be provided within the coastal zone as close as feasible to the impact. Consistent with the resource

agencies' approval and applicable adopted plans, ordinances, and policies, provide compensatory mitigation for sensitive upland vegetation communities through the following:

- Onsite restoration and post-restoration monitoring for temporary impacts using appropriate native species and natural habitat configurations similar to or better than those impacted.
- On- or offsite preservation of existing habitats through acquisition or restoration using TransNet and other (e.g., project-specific) mitigation funds for permanent impacts. Protect mitigation lands in perpetuity (e.g., through a conservation easement or similar legal conservation assurance to be approved by the regulatory agencies), fund long-term management (e.g., through the establishment of an endowment for habitat management and for easement management), and adequately manage such lands to maintain the originally intended biological quality and function in perpetuity.
- Offsite mitigation requirements met through TransNet or other (e.g., project specific) mitigation funds. When mitigation is provided outside of an adopted NCCP/HCP plan area, the following conditions should apply:
  - Give priority to mitigation lands connected to existing conserved open space.
  - Consider contributing to the establishment of large blocks of habitat or lands that are otherwise critical for covered species or providing for biological core areas and habitat linkages consistent with current regional conservation planning goals.
  - Mitigate impacts on critical habitat within the same Critical Habitat Unit where the impacts occurred.
  - Purchase of habitat credits at an approved mitigation bank, or through payment into an in-lieu mitigation fee program applicable to the impacts and as approved by the wildlife agencies.
  - Construction within regulated aquatic resources would be subject to prior authorization by USACE, the RWQCB, CDFW, and CCC (as applicable in the coastal zone). Consistent with the resource agencies' permitting and applicable adopted plans, ordinances, and policies, provide project-specific mitigation for impacts on regulated aquatic resources, including waters and wetlands, and associated state-regulated riparian habitat, through one of the following, in order of priority:
  - Purchase of credits at an existing authorized mitigation bank (as available) or in-lieu fee program, except within the coastal zone. Provide compensatory mitigation for impacts inside the coastal zone at sites within the coastal zone close to the impact. Mitigation of impacts to aquatic resources within the coastal zone may require offsets outside the coastal zone and would be negotiated with CCC on a case-by-case basis.
  - Project-specific (permittee responsible) mitigation. Apply an appropriate mitigation ratio for regulated aquatic resources in consultation with the regulatory agencies (i.e., following the USACE Standard Operating Procedure and any other applicable standards) to ensure no net loss of wetlands functions and services, account for temporal losses, and set in coordination with USACE, the RWQCB, and CDFW. Use bioengineered soft structure creek and wetland restoration methods where feasible. Impacts on vernal pools in the city of San Diego would require mitigation consistent with the VPHCP (City of San Diego 2017); impacts on vernal pools outside the city of San Diego would require permitting through the RWQCB.

BIO-1c: Prepare a Habitat Restoration Plan. During planning, design, and project-level CEQA review of transportation network improvements or development projects, and as part of the regulatory permitting process, SANDAG shall, and other transportation project sponsors, the County of San Diego, cities, and other local jurisdictions can and should—as specified through consultation with and as approved by the resource agencies, and consistent with adopted MSCP or MHCP guidelines and agreements, and applicable federal and state regulatory requirements—prepare and implement a habitat restoration plan for impacts on sensitive natural communities or a habitat mitigation and monitoring plan consistent with the requirements of and approved by USACE, the RWQCB, and CDFW for all impacts on regulated waters, including wetlands. This mitigation measure applies provided that mitigation does not occur through credit purchase at a mitigation bank. The restoration plan should include the following:

- Details regarding the location of the site, site conditions and functions, site preparation (e.g., grading, bioengineering methods), recontouring, planting specifications (including native seed mixes and plant palettes), irrigation design (if determined necessary), and measures to control exotic vegetation.
- Details on avoidance of impacts on any extant sensitive biological resources that may occur as the result of habitat restoration, including direct loss and indirect effects related to changes in hydrology and associated potential effects on species composition.
- Identification of locally appropriate plant species for the plan, sourcing (e.g., seed collection, contract-growing of container plants), and outline of performance standards (success criteria). Success should be measured by comparing a similar, natural (undisturbed) reference site containing the same vegetation communities and located within the same watershed as the restoration site, and should use statistical metrics in consideration of the temporal difference between an established reference site and an immature restoration site.
- Performance standards sufficient to create self-sustaining habitat providing the functions and values required to offset those lost to the impacts and meet the requirements of applicable agency and adopted plans, ordinances, and policies. After final performance standards have been met and any relevant permitting agencies have approved the mitigation project as complete, the mitigation areas must be conserved and managed in perpetuity (see BIO-1d).
- Maintenance and monitoring procedures (including post-restoration monitoring and reporting). Any habitat restoration and mitigation site should be monitored for a minimum of 5 years or as required by regulatory agencies but continue maintenance and monitoring until performance standards are met.
- Identification of remedial measures if the mitigation efforts fall short of the performance standards. Remedial measures typically consist of, but are not limited to, replanting, reseeding, topographical/surface contour adjustments, supplemental irrigation, access control, increased weed control, and extended maintenance and monitoring periods.
- Climate science and climate change resiliency and adaptation measures, to be developed as adaptive management strategies for restoration and long-term management planning, to reflect the latest available information on climate change impacts and adaptation measures, such as seed storage and adaptation of the seed mixes and planting palettes to adapt to changing climate conditions and sea-level rise.

BIO-1d: Prepare Habitat/Long-Term Management Plans. During project-level CEQA review of transportation network improvements or development projects and as part of the regulatory permitting process, SANDAG shall, and other transportation project sponsors, the County of San Diego, cities, and other local jurisdictions should—as specified through consultation with and approved by the resource agencies, and consistent with adopted MSCP or MHCP guidelines and agreements, and applicable federal and state regulatory requirements—prepare and implement a long-term management plan (LTMP) consistent with the requirements of USACE, the RWQCB, and CDFW for all impacts on regulated waters, including wetlands, or an HMP or resources management plan (RMP) for upland mitigation areas. The management plans can and should be consistent with the SDMMP MSP and be prepared by qualified and experienced ecologists to develop appropriate management and monitoring measures. The management plans should describe management in perpetuity of the mitigation and conservation areas, illustrate adaptive management measures, outline management goals and objectives, and identify management tasks consistent with these goals and objectives. Management goals should include adaptive management measures for climate adaptation and resiliency. Furthermore, SANDAG shall, and other transportation project sponsors, the County of San Diego, cities, and other local jurisdictions can and should, prepare a management cost analysis to identify long-term management costs pursuant to measures outlined in the LTMP, HMP, or RMP. Long-term management should be funded using endowments or other financial assurances to generate sufficient annual interest to manage mitigation areas in perpetuity. In addition to the funding requirements, the management plans should also identify the habitat manager and propose a site protection instrument, such as an agency-approved conservation easement (CE), restrictive covenant, long-term conservation assurances (i.e., through an approved NCCP), or other title restriction that identifies the mitigation site to be conserved in perpetuity. In some cases, compensatory mitigation would occur through adding lands through public lands that are already preserved (e.g., National Wildlife Refuge).

BIO-1e: Implement Best Management Practices to Avoid Indirect Impacts. During planning, design, project-level CEQA review, and construction of transportation network improvements or development projects, SANDAG shall, and other transportation project sponsors, the County of San Diego, cities, and other local jurisdictions can and should, include location-specific measures to avoid and minimize construction-generated dust, erosion, runoff, and sedimentation, and exotic plant invasion, within or into sensitive natural habitats and jurisdictional waters. Location-specific measures consist of, but are not limited to, the following:

- Place construction materials, staging, storage, dispensing, fueling, and maintenance activities in upland areas outside of sensitive habitat, and take adequate measures to prevent any runoff from entering regulated waters, including wetlands.
- Fuel equipment on existing paved roads. Check contractor equipment for leaks prior to operation and repaired as necessary.
- Monitor construction activities using a qualified biologist when construction is occurring in, or adjacent to, sensitive natural communities and grant the biologist the authority to stop work if it deviates from approved plans and mitigation measures.
- Prohibit planting or seeding of invasive plant species that appear on the most recent version of the California Invasive Plant Council (Cal-IPC) California Invasive Plant Inventory, including the development of an integrated invasive plant control plan describing protocols and enforcement schedules for maintenance, construction, and emergency activities working within and moving between important habitat areas.

SIGNIFICANCE AFTER MITIGATION

2035, 2050

Implementation of Mitigation Measures BIO-1a through BIO-1e would reduce or minimize this impact (BIO-1). However, while projects under SANDAG's control would implement these measures, there is no assurance that these mitigation measures would be implemented by non-SANDAG project sponsors or would be equally effective for all projects due to the wide variety of circumstances, such as lack of available mitigation sites, shortage of acreage at mitigation banks, mitigation complexity and cost, lack of long-term management and monitoring, and lack of enforcement. For some projects, impacts may not be reduced to less-than-significant levels. Therefore, this impact (BIO-1) would remain significant and unavoidable.

BIO-2 HAVE A SUBSTANTIAL ADVERSE EFFECT, EITHER DIRECTLY OR INDIRECTLY, ON ANY SPECIES IDENTIFIED AS A CANDIDATE, SENSITIVE, OR SPECIAL-STATUS SPECIES IN LOCAL OR REGIONAL PLANS, POLICIES, OR REGULATIONS, OR LISTED BY CDFW OR USFWS, INCLUDING THEIR FEDERALLY DESIGNATED CRITICAL HABITAT, OR SPECIES THAT ARE CONSIDERED SENSITIVE IN CEQA GUIDELINES SECTION 15380

Analysis Methodology

Direct Impacts

As described in the above "Data Mapping Sources and Methods" subsection in Section 4.4.1, the identification of species locations requires direct field observations. In order to quantify impacts on special-status species populations, project-specific focused surveys would need to be conducted when project-level detail is available, including for new candidate species for listing, such as Crotch's bumble bee, monarch butterfly, southwestern pond turtle (*Actinemys pallida*), western spadefoot, and western burrowing owl, which has no federal critical habitat designation and, therefore, cannot be accurately assessed on a programmatic level. Some of these species, such as western burrowing owl and monarch butterfly, may occur in nonsensitive habitats, such as fallow agricultural habitats, disturbed ruderal habitats and eucalyptus woodland; others, such as the Crotch's bumble bee, are habitat generalists and may occur in many of the upland habitats in the County that feature nectaring and flowering plant species. Therefore, no programmatic impact quantification was conducted for these species.

This EIR's analysis considers impacts on nonlisted special-status species based on a more general habitat level and qualitative analysis, including impacts on those regionally sensitive, but not listed species, such as the coastal cactus wren (*Campylorhynchus brunneicapillus*), in addition to narrow endemic plant species and other NCCP-covered species. Direct impacts on the habitats of listed special-status plant and animal species (which for purposes of this EIR include species proposed for listing) and designated critical habitat are quantified using the GIS methods described under Impact BIO-1. Impacts identified for vegetation communities and land cover types in the GIS analysis described under Impact BIO-1 are used to classify suitable sensitive plant and animal species habitats and generally describe direct impacts that may occur on non-listed special-status species based on their habitat preferences. Direct impacts to species occurrences were not quantified because this information is not uniformly reliable and would be collected on the project-specific level. However, where available, Appendix ~~E~~D-7 identifies whether special-status species would potentially be affected by the regional growth and land use change and transportation network improvement projects. This method provides a conservative estimate of impacts on special-status species because it uses the assumption that suitable habitats within 500 feet of identified projects would be occupied by special-status species, which is not always the case and can only be verified on a project-specific basis.

Temporary impacts were not analyzed using GIS methods because they are not known until project-specific plans have been prepared. It is assumed that all temporary impacts would be restored to or superior to preconstruction conditions.

Regional Growth and Land Use Change

Special-status species impacts were evaluated using both GIS and qualitative methods. Typically, USFWS protocol surveys would be required to identify presence and quantify impacts for these species; however, these data are not practical or necessary on a programmatic level. In lieu of species- and site-specific information, analysis in this EIR conservatively assumes that special-status species are present within the areas that would be converted from undeveloped to developed land use (i.e., regional growth and land use change data) if there are mapped special-status species occurrences or suitable habitat present within these areas or within 500 feet thereof (taking into consideration any impacts on sensitive species from such sources as noise and lighting, as commonly required by the wildlife agencies and pursuant to local regulations and ordinances, such as the implementation documents for the local NCCPs).

Specifically, the GIS analysis used data on known occurrences of plant and animal species listed or proposed for listing (including candidate species) under ESA and CESA. GIS layers were developed to identify the extent of undeveloped areas that would be converted to developed land uses or rural residential land uses, and rural residential land uses that would be converted to developed land uses for each horizon year (see "Regional Growth and Land Use Change" under the analysis methodology for Impact BIO-1). These layers were superimposed over known occurrences for special-status plant and animal species and USFWS-designated critical habitat layers developed from the dataset identified in Section 4.4.1, "Existing Conditions."

The EIR analysis considers impacts on nonlisted and non-proposed-for-listing special-status species based on a more general habitat level and qualitative analysis. Impacts on vegetation communities identified in the GIS analysis are used to generally identify direct impacts that may occur on nonlisted special-status species that inhabit these vegetation communities. Impacts on nonlisted special-status species that are covered by an NCCP typically require mitigation in accordance with the implementing entity's guidelines.

Transportation Network Improvements and Programs

Analysis in the EIR conservatively assumes that special-status species would be present within the transportation project footprint if there are known special-status species occurrences or suitable habitat is present within project footprints or within 500 feet thereof (understanding that special-status species may occur outside the 500-foot radius). For each horizon year, species occurrences from three regional species occurrence databases—the CNDDB (CNDDB 2025), the SanBIOS (SANGIS 2025a) points and areas, and the USFWS Carlsbad Field Office sensitive species occurrences (USFWS 2024)—were overlaid within 500 feet of the identified projects and tabulated. Special-status species impacts were evaluated using both GIS and qualitative methods described for the regional

growth and land use change. GIS layers were developed for transportation improvements project footprints (see the definition provided in Section 4.4.4 describing road, transit and bikeway footprints, and "Transportation Network Improvements and Programs" in the analysis methodology for Impact BIO-1, and analyzed as discussed for the regional growth and land use change methods).

Indirect Impacts

Indirect impacts that may occur on special-status species or their habitat (including critical habitat) in proximity to areas experiencing regional growth and land use change as well as transportation network improvements are qualitatively described on a broad scale.

Impact Analysis

2035

Regional Growth and Land Use Change

Direct Impacts

Regional growth and land use change would be the same as previously described under the 2035 analysis for Impact BIO-1. Approximately 14 special-status species would be affected by regional growth and land use change between 2026 and 2035, including 20 listed plant species and 14 listed or candidate wildlife species. Tables ~~E~~D-7-1 and ~~E~~D-7-2 in Appendix ~~E~~D-7 provide a detailed list of listed plant and wildlife species that would be affected by regional growth and land use change by 2035, respectively. Locations that would have the most impacts on listed species would coincide with the areas that would experience the most extensive loss of sensitive vegetation communities and regulated waters, including wetlands, by 2035, as described in Impact BIO-1, because these areas provide habitat for listed species.

Estimated direct impacts that would occur on critical habitat as a result of regional growth and land use change between 2026 and 2035 are provided in Table 4.4-9. Of species that have designated critical habitat, the species with the greatest acreage of impacts on critical habitat as a result of regional growth and land use change are the California gnatcatcher, Quino checkerspot butterfly, Hermes copper butter, and arroyo toad, which reflects that projected growth for the 2035 plan year would mainly occur in sensitive scrubland habitats but also affect streams that are occupied by arroyo toad (Table 4.4-9). Furthermore, impacts to highly sensitive vernal pool–associated endemic species would also occur. This estimate is based on the regional growth and land use change impacts on critical habitat, which grossly overestimate the actual impact on the species. Most of the sensitive plant and animal species identified herein are covered by the regional NCCPs and impacts on these species would be regulated and mitigated consistent with the NCCP regulations and programs and regulatory mitigation requirements, which would substantially reduce the quantitative impacts to these species.

As stated above, special-status or candidate species that lack a federal critical habitat designation and occupy nonsensitive habitats or are habitat generalists were not captured in the data However, the last remaining breeding nodes for the western burrowing owl are concentrated in the City and County of San Diego Otay Mesa and City of Chula Vista Otay Ranch areas where a large amount of regional growth and land use change is planned for the 2035 plan year. Therefore, significant impacts on this species are expected. The species is an MSCP-covered species, and avoidance, minimization, and mitigation provisions are required by regional programs and regulations on a project-specific level. Impacts on federally listed plant species would be addressed at a project-specific level under CEQA if a federal nexus is absent, in which case a federal consultation would be required.

In addition to listed species, many nonlisted special-status species and their habitat would be impacted by regional growth and land use change because nonlisted special-status species inhabit sensitive vegetation communities and regulated waters, including wetlands, that would be impacted, as described in Impact BIO-1. In general, nonlisted special-status species that would be most impacted are those that inhabit the vegetation communities most impacted, including riparian forest/woodland, riparian scrub, meadows and seeps, chaparral, grasslands, forest/woodland, and coastal scrub. Because forecasted development is concentrated in the western

third of the San Diego region, coastal and shrublands would bear the majority of projected impacts; however, species occupying desert scrub in the eastern portion of the County would also be affected. Species with larger home ranges, such as raptors, bats, and large mammals, may be more susceptible to impacts from regional growth and land use change that occurs away from current urban areas as opposed to regional growth and land use change that is concentrated around urban areas. Appendices ~~E~~D-2 and ~~E~~D-3 list the vegetation communities where nonlisted special-status species and their habitat may occur.

Indirect Impacts

The type and nature of indirect impacts would be similar to those described for Impact BIO-1.

Table 4.4-9 Forecasted Direct Impacts on Areas Designated as Final Critical Habitat within the San Diego Region between 2026 and 2035 (acres)

Common Name	Scientific Name	Regional Growth and Land Use Change	Transportation Network Improvements	Total
Plants				
San Diego thornmint	*Acanthomintha ilicifolia*	217	—	217
San Diego ambrosia	*Ambrosia pumila*	57	—	57
Thread-leaved brodiaea	*Brodiaea filifolia*	173	—	173
Otay tarplant	*Deinandra conjugens*	263	—	263
Spreading navarretia	*Navarretia fossalis*	69	—	69
Plants total		*778*	—	*778*
Invertebrates				
Quino checkerspot butterfly	*Euphydryas editha quino*	2,098	—	2,098
Hermes copper butterfly	*Lycaena hermes*	1,160	—	1,160
San Diego fairy shrimp	*Branchinecta sandiegonensis*	123	—	123
Riverside fairy shrimp	*Streptocephalus wootoni*	19	—	19
Invertebrates total		*3,400*	—	*3,400*
Fish				
Tidewater goby	*Eucyclogobius newberryi*	10	—	10
Fish total		*10*	—	*10*
Reptiles and amphibians				
Arroyo toad	*Anaxyrus californicus*	1,254	7	1,261
Reptiles and amphibians total		*1,254*	7	*1,261*
Birds				
California gnatcatcher	*Polioptila californica*	3,224	8	3,232
Least Bell's vireo	*Vireo bellii pusillus*	460	14	474
Southwestern willow flycatcher	*Empidonax traillii extimus*	87	—	87
Birds total		*3772*	*21*	*3,793*
Grand total		**9,213**	**28**	**9,241**

Source: Data downloaded from USFWS in 2025; adapted by Ascent in 2025.

Summary

By 2035, regional growth and land use change would result in development that would significantly impact special-status species and their habitat. Although adherence to the existing laws, regulations, and programs detailed in Section 4.4.2, "Regulatory Setting," would reduce impacts on special-status species and their habitat, it cannot be concluded that impacts would be less than significant for all projects. Considering both direct and

indirect impacts, ground-disturbing activities related to land use change under the proposed Plan would result in a substantial adverse change to species identified as candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS. This is a significant impact.

Transportation Network Improvements and Programs

Direct Impacts

Transportation network improvements would be the same as previously described in the 2035 analysis for Impact BIO-1. The total number of listed species occurrences impacted by all transportation network improvements in place between 2026 and 2035 includes 18 listed plant species and 17 listed wildlife species, including those associated with riparian habitats. The 2035 horizon year includes the majority of Complete Corridor construction, including river and creek crossings that may result in impacts on least Bell's vireo and arroyo toad. Tables ~~E~~D-7-1 and ~~E~~D-7-2 in Appendix ~~E~~D-7 summarizes the project-by-project impact on listed plant and wildlife species that would occur by 2035.

Of species that have designated critical habitat, the three species impacted as a result of transportation network improvements are arroyo toad, least Bell's vireo, and coastal California gnatcatcher (Table 4.4-9).

In addition to listed species, many nonlisted special-status species would be affected by regional growth and land use change because nonlisted special-status species inhabit sensitive vegetation communities and regulated waters, including wetlands, that would be impacted, as described in Impact BIO-1. In general, nonlisted special-status species that would be most impacted are those that inhabit the vegetation communities most impacted, including riparian forest/woodland, riparian scrub, meadows and seeps, chaparral, grasslands, forest/woodland, and coastal scrub. Appendices ~~E~~D-2 and ~~E~~D-3 describe the vegetation communities where nonlisted special-status species and their habitat may occur.

Indirect Impacts

The type and nature of indirect impacts would include impacts from noise, lighting, edge effects, and effects of recreations, especially mountain biking, off-road vehicles and equestrian uses.

Summary

By 2035, the transportation network improvements projected in the proposed Plan would impact special-status species. As discussed for 2025, although adherence to the existing laws, regulations, and programs detailed in Section 4.4.2 would reduce impacts on special-status species, it cannot be concluded that impacts would be less than significant for all projects. Considering both direct and indirect impacts, ground-disturbing activities related to transportation network improvements under the proposed Plan would result in a substantial adverse change to species identified as candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS, and the habitat of these species. This is a significant impact.

2035 Conclusion

Implementation of the regional growth and land use change as well as transportation improvements and programs would result in substantial adverse change to species identified as candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS, and the habitat of these special-status species. Therefore, this impact (BIO-2) in the year 2035 would be significant.

2050

Regional Growth and Land Use Change

Direct Impacts

Regional growth and land use change would be the same as previously described in the 2050 analysis under Impact BIO-1. The types and nature of the direct impacts that may occur on special-status species and their habitat are similar to 2035. The total number of listed species occurrences impacted by regional growth and land use change between 2036 and 2050 includes 15 listed plant species and 14 listed wildlife species. Tables ~~E~~D-7-3

and ~~E~~D-7-4 in Appendix ~~E~~D-7 provides a detailed list of listed plant and animal species that would be impacted by regional growth and land use change by 2050. As stated above, impacts to federally listed plant species would be addressed at a project-specific level under CEQA if a federal nexus is absent, in which case on federal consultation would be required.

Estimated direct impacts that would occur on critical habitat as a result of regional growth and land use change between 2036 and 2050 are provided in Table 4.4-10. Of species that have designated critical habitat, the three species with the greatest acreage of impacts on critical habitat as a result of regional growth and land use change are coastal California gnatcatcher, Hermes copper butterfly, and Otay tarplant due to development projects planned in the South County (specifically Chula Vista and Otay Mesa) (Table 4.4-10).

Table 4.4-10 Forecasted Direct Impacts on Areas Designated as Final Critical Habitat within the San Diego Region, 2036–2050 (acres)

Common Name	Scientific Name	Regional Growth and Land Use Change	Transportation Network Improvements	Total
Plants				
San Diego ambrosia	*Ambrosia pumila*	2	—	2
Thread-leaved brodiaea	*Brodiaea filifolia*	8	—	8
Otay tarplant	*Deinandra conjugens*	476	—	476
Spreading navarretia	*Navarretia fossalis*	71	0.1	71
Plants total		*557*	*0.1*	*557*
Invertebrates				
Quino checkerspot butterfly	*Euphydryas editha quino*	180	—	180
Hermes copper butterfly	*Lycaena hermes*	824	—	824
San Diego fairy shrimp	*Branchinecta sandiegonensis*	210	0.1	210
Riverside fairy shrimp	*Streptocephalus woottonii*	56	0.1	56
Invertebrates total		*1,270*	*0.2*	*1,270*
Fish				
Tidewater goby	*Eucyclogobius newberryi*	—	—	—
Fish total		—	—	—
Reptiles and amphibians				
Arroyo toad	*Anaxyrus californicus*	149	—	149
Reptiles and amphibians total		149	—	*149*
Birds				
California gnatcatcher	*Polioptila californica*	1,044	6	1,050
Least Bell's vireo	*Vireo bellii pusillus*	111	—	111
Southwestern willow flycatcher	*Empidonax traillii extimus*	33	—	33
Birds total		1,188	*6*	*1,194*
Grand total		**3,162**	**6**	**3,168**

Source: Data downloaded from USFWS in 2025; adapted by Ascent in 2025.

In addition to listed species, many nonlisted special-status species and their habitat would be affected by regional growth and land use change because nonlisted special-status species inhabit sensitive vegetation communities and regulated waters, including wetlands, that would be impacted, as described in Impact BIO-1. In general, nonlisted special-status species that would be most impacted are those that inhabit the vegetation communities most impacted, including riparian forest/woodland, riparian scrub, meadows and seeps, chaparral, grasslands,

forest/woodland, and coastal scrub. Because forecasted development is concentrated in the western third of the San Diego region, coastal and montane nonlisted species would bear the majority of projected impacts. Species with larger home ranges, such as raptors, bats, and large mammals, may be more susceptible to impacts from regional growth and land use change that occurs away from current urban areas as opposed to regional growth and land use change that is concentrated around urban areas. Appendices ~~E~~D-2 and ~~E~~D-3 describe the vegetation communities where nonlisted special-status species and their habitat may occur.

Indirect Impacts

The type and nature of indirect impacts would be similar to those described for 2035.

Summary

By 2050, regional growth and land use change would result in development and redevelopment that would affect special-status species and their habitat. As discussed for 2025 and 2035, although adherence to the existing laws, regulations, and programs detailed in Section 4.4.2, "Regulatory Setting," would reduce impacts on special-status species, it cannot be concluded that impacts would be less than significant for all projects. Considering both direct and indirect impacts, ground-disturbing activities related to land use change under the proposed Plan would result in a substantial adverse change to species identified as candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS, and habitat for these species. This is a significant impact.

Transportation Network Improvements and Programs

Direct Impacts

Transportation network improvements would be the same as previously described in 2050 analysis under Impact BIO-1. The total number of listed species occurrences impacted by all transportation network improvements in place between 2036 and 2050 includes 20 listed plant species and 17 listed wildlife species. Tables ~~E~~D-7-3 and ~~E~~D-7-4 in Appendix ~~E~~D-7 summarizes the project-by-project impact on listed plant and wildlife species that would occur by 2050.

Of species that have designated critical habitat, the species with the greatest amount of impacts on critical habitat as a result of transportation network improvements are coastal California gnatcatcher and vernal pool species, such as San Diego fairy shrimp and spreading navarretia (Table 4.4-10).

In addition to listed species, many nonlisted special-status species would be affected by forecasted regional growth and land use change because nonlisted special-status species inhabit sensitive vegetation communities and regulated waters, including wetlands, that would be impacted, as described in Impact BIO-1. In general, nonlisted special-status species that would be most affected are those that inhabit the vegetation communities most impacted, including riparian forest/woodland, riparian scrub, meadows and seeps, chaparral, grasslands, forest/woodland, and coastal scrub. Appendices ~~E~~D-2 and ~~E~~D-3 describe the vegetation communities where nonlisted special-status species may occur.

Indirect Impacts

The type and nature of indirect impacts would be the similar to those described for 2035.

Summary

By 2050, the transportation network improvements projected in the proposed Plan would affect special-status species and their habitat, although to a much lesser extent than for the 2035 plan year. Although adherence to the existing laws, regulations, and programs detailed in Section 4.4.2, "Regulatory Setting," would reduce impacts on special-status species, it cannot be concluded that impacts would be less than significant for all projects. Considering both direct and indirect impacts, ground-disturbing activities related to transportation network improvements under the proposed Plan would result in substantial adverse change to species identified as candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS, and habitat for these species. This is a significant impact.

2050 Conclusion

Implementation of the regional growth and land use change as well as transportation improvements and programs would result insubstantial adverse change to species identified as candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS, and habitat for these species-status species. Therefore, this impact (BIO-2) in the year 2050 would be significant.

Impacts of the Proposed Plan with Future Climate Change

With future climate change, growth and land use change and transportation network improvements would cause greater effects on special-status species and their habitat. Changing temperature, precipitation patterns, and wildfire associated with climate change could force species to shift their ranges to survive, and species may diminish, die, or relocate to new habitats if their current habitats become inhospitable. For example, habitat fragmentation due to land use change and other factors associated with the proposed Plan may reduce the ability for species displaced by climate change to seek refuge (EcoAdapt 2017). Increased temperatures could also cause reduced fitness, increased mortality, and reduced reproductive success, and alter timing of breeding, flowering, or emergence of pests and disease incidence (Jennings et al. 2018). Increased drought incidence can cause die-off of plants that serve as sources of food or shelter, and changing fire regimes may damage habitats or create conditions for invasive species to thrive (Jennings et al. 2018). Changes in plant biomass production due to reduced growth rates or increased mortality can also impact soil carbon sequestration levels and rates (Bradford et al. 2016; Ren et al. 2020). For aquatic species, warmer temperatures and changes in stream flow rates could degrade aquatic ecosystems and introduce invasive species (Jennings et al. 2018).

The proposed Plan is expected to adversely affect the habitats of many special-status species, including the California gnatcatcher, San Diego fairy shrimp, arroyo toad, least Bell's vireo, and Otay tarplant. Climate change could also adversely affect these habitats:

- Climate change could threaten coastal sage scrub, which serve as habitat to the Quino checkerspot butterfly and California gnatcatcher (EcoAdapt 2017).
- Climate change may alter hydrology patterns, affecting riparian-dependent species, such as the least Bell's vireo (Rogers et al. 2020).
- Hotter and drier conditions could reduce germination rates or misalign plant phenology with pollinator phenology for the Otay tarplant (USFWS 2021).

The proposed Plan's impacts would be worsened by these and other climate change impacts. Habitat fragmentation due to land use change and transportation projects associated with the proposed Plan may reduce the ability for species displaced by climate change to seek refuge (EcoAdapt 2017).

MITIGATION MEASURES

BIO-2 HAVE A SUBSTANTIAL ADVERSE EFFECT, EITHER DIRECTLY OR INDIRECTLY, ON ANY SPECIES IDENTIFIED AS A CANDIDATE, SENSITIVE, OR SPECIAL-STATUS SPECIES IN LOCAL OR REGIONAL PLANS, POLICIES, OR REGULATIONS, OR LISTED BY CDFW OR USFWS, INCLUDING THEIR FEDERALLY DESIGNATED CRITICAL HABITAT, OR SPECIES THAT ARE CONSIDERED SENSITIVE IN CEQA GUIDELINES SECTION 15380

2035, 2050

Mitigation Measures BIO-1a through BIO-1~~d~~e are also applicable to, and avoid, minimize, and mitigate impacts on, sensitive vegetation communities that provide habitat for special-status species.

BIO-2a: Implement Design, Minimization, and Avoidance Measures for Special-Status Animal Species. During planning, design, project-level CEQA review, regulatory permitting process, and construction of transportation network improvements or development projects, SANDAG shall, and other transportation project sponsors, the County of San Diego, cities, and other local jurisdictions can and should, incorporate measures to avoid and minimize impacts on special-status animal species.

Construction

Construction measures consist of, but are not limited to, the following:

- Identify potential habitats using regionally available data sources and conduct biological field habitat assessments and species surveys as required by regional programs, protocols, or regulatory requirements.
- Avoid construction during the nesting or breeding season of special-status animal species.
- If the nesting or breeding seasons cannot be avoided, conduct focused surveys (by certified or trained biologists approved by the wildlife agencies) and implement mitigation measures. For indirect impacts, noise attenuation measures (e.g., temporary noise barriers) may be required if construction noise levels are found by the focused survey to disturb special-status animal species, specifically during the breeding season.
- Backfill all wildlife pitfalls (trenches, bores, and other excavations) at the end of each work day. If backfilling is not feasible, slope all trenches, bores, and other excavations at a 3:1 ratio at the ends to provide wildlife escape ramps or cover completely to prevent wildlife access.
- Delineate permitted work areas, including staging areas, equipment access, and placement of soils, with fencing or stakes prior to construction to prevent access to areas occupied by special-status species.
- Require monitoring of construction activities by qualified or certified biologists when construction occurs in, or adjacent to (i.e., within buffer areas approved by the regulatory agencies), areas suitable for or occupied by special-status species, with authority to stop work if it deviates from approved plans and mitigation measures. Avoidance buffers may vary by species and should be approved by the wildlife agencies.
- Avoid nighttime construction or minimize lighting. When activities must occur at night, direct lighting (e.g., staging areas, equipment storage sites, roadway) downward and away from sensitive vegetation communities. Use light glare shields to reduce the extent of illumination into adjoining areas.
- Remove spoils, trash, or any debris to an offsite, approved disposal facility. Contain trash and food items in closed containers and remove daily to reduce the attractiveness to opportunistic predators, such as coyotes and feral dogs and cats that may prey on sensitive species. Prohibit workers from bringing pets and firearms to the site.
- Clear vegetation outside of the typical breeding season of special-status animal species as determined by the wildlife agencies or qualified biologist. If activities must occur during special-status species breeding season timeframes, conduct a preconstruction survey by a qualified biologist to determine whether the species of concern, including special-status birds protected under the MBTA, are present within the proposed work area or appropriate buffer (buffer distance may vary depending on the type of activity and the species and other site conditions). If the species of concern are found onsite, implement measures, surveys, and construction monitoring to avoid impacts as determined by the regulatory agencies or the qualified biologist.

Operation and Maintenance

Operation and maintenance measures may incorporate the same measures as detailed above and consist of, but are not limited to, the following:

- If permanent lighting is necessary, use motion sensitive lighting rather than steady burning, and direct downward and away from natural vegetation communities. Use light glare shields to reduce the extent of illumination into adjoining areas.
- In the event that vegetation clearing or other vegetation maintenance is required, schedule vegetation clearing outside special-status animal species breeding seasons.
- Implement operational noise-reduction measures described in Section 4.13, "Noise and Vibration" (see Mitigation Measure N-1b).

BIO-2b: Provide Compensatory Mitigation for Special-Status Plant Species. Where impacts are unavoidable, during planning, design, regulatory permitting, and project-level CEQA review of transportation network improvements or development projects, SANDAG shall, and other transportation project sponsors, the County of San Diego, cities, and other local jurisdictions can and should, provide compensatory mitigation for impacts on special-status plant species as specified through consultation with resource agencies, and consistent with adopted MSCP or MHCP guidelines and agreements, federal and State regulatory requirements, or local regulations.

Federally and State-Listed Plant Species

- If an individual project would result in take of a federally or state-listed plant species, consult with the wildlife agencies or require the applicant to obtain appropriate take authorizations (e.g., Section 2081 Incidental Take Permit, NCCP, Section 7, Section 10 HCP) prior to construction as required by state and federal law. Federally listed plant species may not fall under this requirement if no federal project nexus is provided. If the area is covered by an adopted NCCP (e.g., MSCP, MHCP), provide mitigation according to the requirements of the NCCP, subarea plan, and associated ordinances and guidelines.
- Establish appropriate habitat mitigation ratios—depending on the location of the impact and the species—that are also consistent with the requirements of resource agencies and applicable adopted plans, ordinances, and policies that include the appropriate habitat, area, and species in compensation lands. If appropriate, require the applicant to acquire suitable mitigation habitat as part of the SANDAG EMP or use a mitigation bank or in-lieu fee program to compensate for impacts.
- Prepare a species and habitat mitigation plan to identify effective methods for reestablishing the affected species and habitat, consisting of, but not limited to, seed collection, salvage of whole plants and soil/root masses (i.e., for impacts to San Diego ambrosia), translocation of transplantation of populations or plant parts, and planting seeds or root masses in an area with suitable conditions as approved by the wildlife agencies or authorized jurisdiction. Include in the mitigation plan success criteria for reestablishing the affected species and habitat, and remedial measures that must be implemented if the project is not meeting specified performance criteria.
- Implement habitat and species-specific mitigation measures that may include habitat restoration with species-specific habitat components, such as constructing artificial burrowing owl burrows; creating vernal pools in the appropriate historical habitat context; establishing habitat components for sensitive amphibians and reptiles, such as cover boards; and including nectaring and flowering plant species in the restoration planting specifications for sensitive invertebrates.
- Include a monitoring program designed to maintain the resources on lands used as mitigation. Design the monitoring program to evaluate the current and probable future health of the resources and their ability to sustain populations following the completion of the program.
- Design remedial measures appropriate for the species and habitat. Appropriate remedial measures consist of, but are not limited to, exotic species management, access control, replanting and reseeding of appropriate habitat elements, maintenance of habitat structures (i.e., artificial burrows), and propagation and seed bulking programs.
- Conserve any restoration and translocation sites in perpetuity, fund a long-term management endowment, identify a long-term habitat manager, and provide long-term adaptive habitat management measures through an HMP.

Nonfederally and Nonstate-Listed Special-Status Plant Species

- For plant species covered by adopted NCCPs or other ordinances, such as the San Diego County RPO, obtain all appropriate authorizations prior to construction as required by state, federal, and regional conservation plan (NCCP/HCP) regulations and local ordinances. This may include species-specific mitigation for covered narrow endemic plant species according to MSCP or MHCP requirements.

- Mitigate loss of habitat using mitigation banks or through project-specific mitigation. Mitigate habitat impacts through preservation, translocation/transplantation, restoration, or creation of self-sustaining suitable habitat as described above for federally and state-listed species. Establish appropriate habitat mitigation ratios, depending on the location of the impact and the species, to meet the requirements of resource agencies and applicable adopted plans, ordinances, and policies.

BIO-2c: Provide Compensatory Mitigation for Special-Status Animal Species. Where impacts are unavoidable, during planning, design, regulatory permitting, and project-level CEQA review of transportation network improvements or development projects, SANDAG shall, and other transportation project sponsors, the County of San Diego, cities, and other local jurisdictions can and should, provide compensatory mitigation for impacts on special-status animal species as specified through consultation with resource agencies, and in adopted MSCP or MHCP guidelines and agreements, federal and state regulatory requirements, or local regulations.

Federally or State-Listed Animal Species and Plant Species with Federal Nexus

- If an individual project would result in take of a federally or state-listed animal species, consult with the wildlife agencies and require the project applicant to obtain appropriate take authorizations (e.g., Section 2081 Incidental Take Permit, Section 7, NCCP, HCP) prior to construction as required by state and federal law. If the area is covered by an adopted NCCP (e.g., MSCP, MHCP), provide mitigation according to the requirements of the NCCP, subarea plan, and associated ordinances and guidelines. As identified through the appropriate take authorizations, develop mitigation plans and long-term conservation and management strategies, as required and approved by the wildlife agencies.
- Mitigate loss of habitat through open space conservation, using mitigation banks (as available) or through project-specific mitigation. Mitigate habitat impacts through preservation, restoration, or creation of self-sustaining suitable habitat following the most recent scientific information and guidance available.
- Establish appropriate habitat mitigation ratios—depending on the location of the impact and the species—that are also consistent with the requirements of resource agencies and applicable adopted NCCP plans, and local ordinances, and policies that include the appropriate habitat, area, and species in compensation lands. If appropriate, require the applicant to acquire suitable mitigation habitat as part of the SANDAG EMP or use a mitigation bank or in-lieu fee program to compensate for impacts.
- Prepare a species and habitat mitigation plan to identify effective methods for reestablishing the affected species and habitat based on available scientific information and as recommended by the respective species experts. If appropriate and approved by the regulatory agencies, mitigation may include translocation (active or passive) of the species (plants and animals). Include in the mitigation plan success criteria for reestablishing the affected species and habitat, and remedial measures that must be implemented if the project is not meeting specified performance criteria.
- Include a monitoring program designed to maintain the resources on lands used as mitigation. Design the monitoring program to evaluate the current and probable future health of the resources, and their ability to sustain populations following the completion of the program.
- Design remedial measures appropriate for the species and habitat. Appropriate remedial measures consist of, but are not limited to, exotic species management, access control, habitat restoration, species translocation, and predator control programs.

Nonfederally and Nonstate-Listed Special-Status Animal Species

- Obtain all appropriate authorizations prior to construction as required by state, federal, and regional conservation plan (NCCP/HCP) regulations and local ordinances (such as the County RPO).
- Follow guidelines that identify mitigation requirements, such as local biology guidelines and mitigation ordinances, or MOU between the respective jurisdiction and wildlife agencies.

- Mitigate loss of habitat using mitigation banks or through project-specific mitigation. Mitigate habitat impacts through preservation, restoration, or creation of self-sustaining suitable habitat. Create species-specific breeding opportunities and protect mitigation areas from edge effects (e.g., roadkill). Establish appropriate habitat mitigation ratios, depending on the location of the impact and the species, to meet the requirements of resource agencies and applicable adopted plans, ordinances, and policies.

SIGNIFICANCE AFTER MITIGATION

2035, 2050

Implementation of Mitigation Measures BIO-1a through BIO-1~~d~~e, and BIO-2a through BIO-2c would reduce this impact (BIO-2). However, there is no assurance that these mitigation measures would be implemented for all projects or be equally effective due to the wide variety of circumstances, complexity of some sites, and complexity of impacts on special status species. Therefore, this impact (BIO-2) would remain significant and unavoidable.

BIO-3 INTERFERE SUBSTANTIALLY WITH THE MOVEMENT OF ANY NATIVE RESIDENT OR MIGRATORY FISH OR WILDLIFE SPECIES OR WITH ESTABLISHED NATIVE RESIDENT OR MIGRATORY WILDLIFE CORRIDORS, OR IMPEDE THE USE OF NATIVE WILDLIFE NURSERY SITES

Analysis Methodology

Impacts to wildlife movement may occur through reducing connectivity and thereby reductions in gene flow that would lead to inferior genetic diversity and population fitness. Habitat fragmentation due to creating impermeable barriers to wildlife movement could also result in direct mortality, increased vulnerability to stochastic events or extreme conditions, decreased ability to recover from disturbance events, decreased resiliency to climate change, and population loss due to blocked access to critical habitats (Spencer et al. 2010).

Regional Growth and Land Use Change

Direct Impacts

Regional corridor impacts are analyzed by broadly reviewing regional growth and land use change across the region and qualitatively and quantitatively assessing impacts on the wildlife movement corridors described in Section 4.4.1, "Existing Conditions." The review is based on modeled wildlife movement corridors across San Diego County (Jennings et al. 2020; Jennings et al. 2019) and GIS data for MSCP and MHCP linkages. The SDMMP is conducting a variety of local and regional wildlife movement studies and provides baseline data (SDMMP 2025); however, these studies are still in progress. Wildlife usually moves across large expanses of the landscape, and site-specific information may overlook comprehensive movement corridors and connections. Therefore, for the purpose of the programmatic analysis appropriate for this EIR, the discussion identifies regional corridors that occur in areas that would experience extensive land use change and development. Mapped movement corridors from ~~SDSU's~~ MSCP and MHCP Multi-Species Linkages models and SDSU's Southern California Climate Resilient Connectivity Prioritized Linkage Network (Jennings et al. 2019) (see Figure 4.4-15) were overlaid with the GIS layers for those areas that would be converted to developed land uses for each horizon year (see "Regional Growth and Land Use Change" in the analysis methodology for Impact BIO-1). This overlay is used to qualitatively and quantitatively identify where potential conflicts with mapped wildlife corridors could occur. Wildlife nursery sites are included in the discussion about wildlife movement corridors to note species in Southern California that use specific vegetation communities for nursery sites (i.e., areas for raising offspring); a specific discussion was not included because no regional data on nursery sites are available. Any direct impact on regional or local wildlife corridors is considered a "substantial adverse effect" on the movement of resident or migratory fish or wildlife species because it could significantly affect the survival of the species and interfere with wildlife movement for the purpose of climate change adaptation.

Indirect Impacts

Indirect impacts that may occur on wildlife corridors in proximity to the areas experiencing regional growth and land use change are qualitatively described on a broad scale. Indirect impacts are due to an increase of human presence in and around wildlife movement corridors and include noise and light levels that would preclude animals from traveling through a given area. Wildlife movement corridors that lead to a dead end or that would increase roadkill risk (i.e., through lacking or inadequately planned or constructed directional fencing) would also be an indirect impact as this could increase mortality or impact breeding success.

Transportation Network Improvements and Programs

Direct Impacts

Most of the regional data compiled as part of the statewide habitat connectivity model and the South Coast Wildlands Linkages modeling efforts are relatively coarse-scaled and were, therefore, not used for the analysis presented in this EIR. Finer-scaled models, including the MSCP cores and linkages maps (County of San Diego 1998) and the climate resilient wildlife movement models developed by SDSU (Jennings et al. 2019) were used for the quantitative analysis described in this EIR.

Regional corridor impacts were quantitatively analyzed by overlaying the transportation network footprint on the modeled wildlife movement network developed by SDSU (Jennings et al. 2019) and by reviewing the intersection of the transportation network improvements with mapped wildlife movement corridors described in Section 4.4.1, "Existing Conditions." The analysis overlays the transportation network project footprints (see Section 4.4.4 description of the road, transit and bikeway footprint, and "Transportation Network Improvements and Programs" in the analysis methodology for Impact BIO-1) with the mapped movement corridors described above to calculate where potential conflicts with mapped wildlife corridors could occur. The discussion identifies specific regional corridors that occur in areas with transportation network improvements for each horizon year and quantifies the acreage that could potentially be impacted by the transportation network improvement program's linear projects. The impact analysis includes wildlife movement corridors that would be used by wildlife to move to and from wildlife nursery sites (nursery sites were not specifically assess because regional data on nursery sites are not available).

Indirect Impacts

Indirect impacts that may occur on wildlife corridors in proximity to the areas subject to transportation network improvements are qualitatively described on a broad scale, and are similar to those described under regional growth and land use change indirect impacts.

Impact Analysis

2035

Regional Growth and Land Use Change

Direct Impacts

Direct impacts on wildlife corridors reflect physical changes to the corridor itself and typically include the direct removal of habitat or the creation of obstructions that would bisect linear wildlife movement corridors and prevent wildlife from moving across their dispersal habitats. Direct impacts on wildlife corridors are those actions that result in the elimination of a corridor, the creation of a barrier across a corridor, the widening of a barrier, the lengthening of a corridor that might preclude wildlife from reaching habitat, or the narrowing of a corridor through removal of habitat and/or topographical changes. Removal of habitat that narrows wildlife corridors and/or increases the distance wildlife would have to travel through, under, and/or over the urban matrix created by regional growth/land use change and transportation network improvements is a direct impact. Riparian corridors through developed areas are critical to regional connectivity if they function properly and do not result in an ultimate reduction of productivity (e.g., ecological sink). For example, direct impacts on corridors, including urban and riparian corridors, fragment the landscape and can impact species by isolating populations. Additionally, direct impacts on aquatic habitat from dams, diversions, grade-control structures, and highway

crossings in streams can inhibit movements of resident or migratory fish and fragment aquatic habitat for native aquatic wildlife. These structures can prevent aquatic species' access to spawning and rearing habitats. Finally, some species in Southern California use specific vegetation communities for nursery sites (i.e., areas for raising offspring). Amphibian species, in particular, require access to upland habitat for foraging and wintering habitat and return to riparian habitat to breed. Other species, such as bats and birds, use particular areas to establish maternity or breeding colonies. Direct impacts adjacent to these areas or between foraging/wintering habitat and breeding habitat can impede the use of these nursery sites.

As discussed above, regional growth and land use change is relatively evenly spread across the County and in most of the urban centers and would constrain some regional movement corridors and eliminate or narrow corridors and further increase the permeability of existing barriers. Regional growth and land use change would directly and indirectly impact several wildlife movement corridors, specifically by spaced rural residential development in the East County (including Borrego Springs) and developments in open space context in Chula Vista (Otay Ranch), Otay Mesa, San Marcos, Santee, and adjacent to the existing urbanized area in the western third of the County. Large-scale impacts would occur to both the MSCP and the MHCP cores and linkages (Table 4.4-11).

Indirect Impacts

Indirect impacts on wildlife corridors reflect changes that reduce the suitability of corridors for species that use them. Corridors with degraded functionality can result in species choosing not to use the corridor or in increased rates of mortality or reduced reproduction rates among those individuals that do choose to use the corridor. When the rate of mortality a species experiences within a corridor exceeds the breeding and health benefits provided by the corridor, it acts as a population sink for the species.

Indirect impacts on wildlife corridors would occur as a result of increased human disturbance, noise, and/or lighting due to regional growth and land use change. As noted in Section 4.4.1, riparian corridors are important to regional connectivity in Southern California and often are the only connections left to large core habitat patches. Increased human presence and/or density, noise, and/or lighting may deter wildlife species from using wildlife corridors, including riparian corridors, and impede use of wildlife nursery sites. Indirect impacts driven by edge effects on corridors vary depending on the scale of the corridor. Most edge effects have a given range of influence from the source. A given edge effect (e.g., lighting) may affect the entire width of a narrow local corridor and thus seriously impede its function but would reach only a short distance into a wide corridor and thus have a negligible effect on its function. The increased presence of humans in some riparian habitat may alter wildlife behavior relative to current conditions, but many of these areas are already heavily disturbed by human presence.

As discussed above, many terrestrial species can utilize agricultural land that is adjacent to native habitat for supplemental forage or cover depending on the intensity and type of the agricultural activity present. Additionally, agricultural land situated between native habitat patches can provide movement corridors for terrestrial species. Conversion of agricultural land to urban uses further limits wildlife movement through these areas. Dredge and fill activities in riverine and riparian habitats can affect fisheries habitat in a number of ways. Indirect impacts can include changes in water flow rates, water quality, and increased predation and can lead to the loss or deterioration of upstream or downstream habitat. These negative changes can be detrimental to upstream and downstream fish migration.

Increased predation from domestic animals and/or mesopredators adapted to urban conditions makes it less likely native species would survive while using a corridor. Roads can function as a particularly hostile matrix to native wildlife species, at times forming an impenetrable barrier to necessary movement. Negative indirect effects of highways on wildlife can include habitat fragmentation and changes in movement and distribution patterns (Trombulak and Frissell 2000; Schaefer et al. 2003; Brehme et al. 2013). Additional effects of roads can also include alteration of chemical environment, spread of exotic species, and increased alteration and use of habitat by humans (Trombulak and Frissell 2000). There have been many studies of carnivores in Southern California reflecting various responses to habitat fragmentation and roads (Crooks 1999, 2002; Crooks and Soulé 1999; ~~Lyren 2001;~~ Fedriani et al. 2000; Tigas et al. 2002; Riley et al. 2003; Riley 2006; George and Crooks 2006; ~~Lyren et al. 2006;~~

Riley et al. 2006; ~~Morin 2007~~Beier et al. 2008, Ordenana et al. 2010). These responses include changes in behavior as well as patterns of spatial occurrence.

Even in regionally preserved core areas of Southern California, continued development and road construction negatively impact and alter general movement patterns and survival of some native species (~~Lyren et al. 2006~~ Spencer et al. 2010, Ordenana et al. 2010). Riley et al. (2006) found a Southern California freeway, US-101, to operate as a genetic barrier to both bobcats and coyotes, suggesting that, even when these animals are crossing the highway, there is still a social barrier reflected in a lack of reproductive success of migrants. These genetic consequences threaten overall population health despite limited structural connectivity. The fact that coyotes, a common, adaptive, and opportunistic predator, are impacted by fragmentation indicates the effects on other more sensitive species may be even more pronounced.

Summary

As discussed in Section 4.4.2, numerous federal, state, and local laws, regulations, and programs are in place that protect sensitive species; however, wildlife movement corridor conservation is not mandated by any federal regulations, and only recommended on the State level where wildlife movement corridors are identified. Federal laws and regulations including FESA, MBTA, and BGEPA specifically protect federally listed species, migratory birds, and eagles, and State laws and regulations, including CESA and CFGC, protect state- listed and other sensitive species and their habitats. The local NCCP and HCP programs implemented in the San Diego region identify core and linkage areas, protect linkages, and provide a process to strategically facilitate connectivity between open space habitats (cores). Conservation of agricultural lands discussed in Section 4.2 may help to maintain connectivity in some locations because many avian species and medium to large mammal species can utilize agricultural lands as habitat for foraging and/or temporary cover to traverse between native habitats.

While adherence to the existing federal, state, and local laws, regulations, and programs discussed in Section 4.4.2 would reduce impacts on wildlife movement, it cannot be concluded that adherence would result in less- than-significant impacts for all projects. Considering both direct and indirect impacts, land use change under the proposed Plan would interfere substantially with fish and wildlife movement, wildlife corridors, and nursery sites. This is a significant impact.

Transportation Network Improvements and Programs

Direct Impacts

As discussed for Bio-1, transportation network improvements are primarily focused within and adjacent to existing urbanized areas along all major highways and in the coastal and western portion of the County. The majority of transportation improvements occur via bikeways and transportation hubs in urban areas that have little direct impacts on wildlife movement. However, additional lanes and highway and rail improvements planned along major highways by 2035 would impact wildlife corridors and linkages. These impacts would include impacts on riparian corridors as a result of bridge crossings or existing bridge widenings or impacts to wetlands buffers.

Also, transportation network improvements may create migratory fish passage barriers. As with development projects, direct impacts on aquatic habitat from dams, diversions, grade-control structures, pipes and culverts, and highway or railway crossings in streams and lagoons can inhibit movements of resident or migratory fish and fragment aquatic habitat for native aquatic wildlife. These structures can prevent aquatic species' access to spawning and rearing habitats.

Transportation network improvements that would impact wildlife corridors are planned for existing highways, rail and transit projects, or arterials that already act as wildlife barriers. New road construction would likely require wildlife over- and underpasses (e.g., the Beyer Boulevard extension for the Southwest Village Specific Plan includes a wildlife overpass). However, they may make existing crossings less attractive for use by wildlife species or result in ecological sinks because migration corridors would be cut off, and the greater width may lead to additional highway mortality for terrestrial and avian species that attempt to cross transportation corridors at grade. Direct impacts to and effects between modeled wildlife movement corridors and linkages from the linear transportation network projects are presented in Table 4.4-11.

Almost the entire planned transportation network could potentially affect regional wildlife corridors and linkages. The majority of arterials are existing roads in highly urbanized areas and do not cross canyons or riparian areas that provide movement corridors for wildlife. Bikeways would have relatively little impact on corridors because most are within or directly adjacent to developed areas. However, the planning of new rail corridors, double tracking, and relocation of rail corridors through undeveloped areas (i.e., the relocation of LOSSAN Rail Corridor along Los Peñasquitos Lagoon) may significantly inhibit the movement of wildlife species.

Table 4.4-11 Forecasted Encroachments into Wildlife Movement Corridors and Linkages within the San Diego Region 2026–2035 (acres)

Corridor and Linkage Categories	Regional Growth and Land Use Change	Transportation Network Improvements	Total
SDSU climate resilient wildlife movement corridors	9,880	138	10,018
MSCP core and linkages	2,887	352	3,239
MHCP core and linkages (BCLA)	491	19	510
Total	**13,258**	**509**	**13,767**

Note: SDSU = San Diego State University; MSCP = Multiple Species Conservation Program; MHCP = Multiple Habitat Conservation Program; BCLA = Biological Core and Linkage Area.

Source: Data downloaded by SDMMG in 2025; adapted by Ascent 2025.

Indirect Impacts

The type and nature of indirect impacts that may occur on wildlife movement by 2035 include impacts from light and noise pollution, development encroachment and edge effects (i.e. wildlife may get lured into dead-ends of vegetated spaces such as parks or greenbelts), poorly designed and installed wildlife underpasses and directional fencing (wildlife may get trapped or discouraged from crossing or may experience effects from lack of food or shelter).

Summary

By 2035, the transportation network improvements projected in the proposed Plan would impact wildlife movement. Although adherence to the existing laws, regulations, and programs detailed in Section 4.4.2, "Regulatory Setting," would reduce impacts on wildlife movement, it cannot be concluded that adherence would result in less-than-significant impacts for all projects. Considering both direct and indirect impacts, transportation network improvements under the proposed Plan would interfere substantially with fish and wildlife movement, wildlife corridors, and nursery sites. This is a significant impact.

2035 Conclusion

Implementation of the regional growth and land use change as well as transportation network improvements and programs would interfere substantially with fish and wildlife movement, wildlife corridors, and nursery sites. Therefore, this impact (BIO-3) in the year 2035 would be significant.

2050

Regional Growth and Land Use Change

Direct Impacts

As discussed above, regional growth and land use change is significantly reduced relative to the 2035 horizon year and occurs mainly from La Mesa to National City, and in Bonsall and Alpine (Table 4.4-12).The types and nature of the direct impacts that may occur on wildlife movement by 2050 are similar to those reported for the 2035 horizon year, but substantially reduced. By 2050, as discussed for 2035, regional growth and land use change would directly and indirectly impact several corridors as a result of development adjacent to open space and expansion into modeled wildlife movement corridors (linkages identified in the MSCP and MHCP plans are conserved and impacts would be limited). Spaced rural residential development would further impact the

corridors already identified as impacted in 2035, specifically in rural East and South County where most of the wildlife movement occurs.

Indirect Impacts

The type and nature of indirect impacts that may occur on wildlife movement are similar to the impacts that may occur by 2035.

Summary

As discussed for 2035, while adherence to the existing laws, regulations, and programs detailed in Section 4.4.2, "Regulatory Setting," would reduce impacts on wildlife movement, it cannot be concluded that adherence would result in less-than-significant impacts for all projects. Considering both direct and indirect impacts, land use change under the proposed Plan would interfere substantially with fish and wildlife movement, wildlife corridors, and nursery sites. This is a significant impact.

Transportation Network Improvements and Programs

Direct Impacts

Similar to 2035, transportation network improvements are primarily focused within and adjacent to existing urbanized areas in the western one-third of the San Diego Region, but also include major transportation corridors in the North and East County along State Routes 76, 78 and 79 and in the South County along State Routes 52, 56 and 94. Wildlife movement impacts are most frequent along linear projects that cross major movement corridors. The types and nature of direct impacts that may occur on wildlife movement by 2050 are similar to the 2035 horizon year. Additional lanes and improvements planned along major highways by 2050 would impact riparian corridors. Transportation network improvements that would impact wildlife corridors are planned for existing highways, rail and transit projects, or arterials that already act as wildlife barriers. Widening these transportation corridors would not necessarily cut off these corridors because bridges that would be widened would likely be designed to allow for continued wildlife movement. However, as discussed above for regional growth and land use change, they may make existing crossings less attractive for use by wildlife species, and the greater width may lead to additional highway mortality for terrestrial and avian species that attempt to cross transportation corridors at grade. Direct impacts to modeled wildlife movement corridors and linkages from the linear transportation network projects are presented in Table 4.4-12.

Table 4.4-12 Forecasted Encroachments into Wildlife Movement Corridors and Linkages within the San Diego Region, 2036–2050 (acres)

Corridor and Linkage Categories	Regional Growth and Land Use Change	Transportation Network Improvements	Total
SDSU climate resilient wildlife movement corridors	532	313	845
MSCP core and linkages	1,205	370	1,575
MHCP core and linkages (BCLA)	27	21	48
Total	**1,764**	**704**	**2,468**

Notes: SDSU = San Diego State University; MSCP = Multiple Species Conservation Program; MHCP = Multiple Habitat Conservation Program; BCLA = Biological Core and Linkage Area.

Source: Data downloaded by SDMMG in 2025; adapted by Ascent 2025.

Bikeways in 2050 would have relatively little impact on corridors because most are within or directly adjacent to developed areas. The increased presence of humans in some riparian areas may alter wildlife behavior, but these areas are already heavily disturbed by human presence.

Indirect Impacts

The type and nature of indirect impacts that may occur on wildlife movement by 2050 are similar to the indirect impacts that may occur by 2035.

Summary

By 2050, the transportation network improvements projected in the proposed Plan would impact wildlife movement. As discussed for 2035, although adherence to the existing laws, regulations, and programs detailed in Section 4.4.2, "Regulatory Setting," would reduce impacts on wildlife movement, it cannot be concluded that adherence would result in less-than-significant impacts for all projects.

Considering both direct and indirect impacts, transportation network improvements under the proposed Plan would interfere substantially with fish and wildlife movement, wildlife corridors, and nursery sites. This is a significant impact.

2050 Conclusion

Implementation of the regional growth and land use change as well as transportation improvements and programs would interfere substantially with fish and wildlife movement, wildlife corridors, and nursery sites. Therefore, this impact (BIO-3) in the year 2050 would be significant.

Impacts of the Proposed Plan with Future Climate Change

With future climate change, growth and land use change and transportation network improvements would cause greater impacts on the movement of fish and wildlife species or wildlife corridors. Climate change could increase the rate at which plant and animal species require corridors by rapidly changing temperature and precipitation patterns and thus altering habitats. Vegetation specifically may not be able to move as quickly to keep up with changing climate, and some habitats may expand while others are lost (Moser et al. 2012). Increased temperatures and drought could also affect the Pacific Flyway, which encompasses the San Diego region and provides areas for migratory birds to stop and feed (Murphy 2018). Climate change could also affect migratory corridors themselves because changes to temperature, precipitation, drought, and wildfire patterns may affect the corridor vegetation and fragment or completely remove the corridors.

The proposed Plan's impacts would be worsened by climate change. Habitat fragmentation due to land use change, transportation network improvements, and other factors associated with the proposed Plan may interfere more with habitat and migratory corridors and reduce the ability for species displaced by climate change to seek refuge (EcoAdapt 2017).

MITIGATION MEASURES

BIO-3 INTERFERE SUBSTANTIALLY WITH THE MOVEMENT OF ANY NATIVE RESIDENT OR MIGRATORY FISH OR WILDLIFE SPECIES OR WITH ESTABLISHED NATIVE RESIDENT OR MIGRATORY WILDLIFE CORRIDORS, OR IMPEDE THE USE OF NATIVE WILDLIFE NURSERY SITES

2035, 2050

BIO-3a: Facilitate Wildlife Movement. During planning, design, and project-level CEQA review of transportation network improvements or development projects, SANDAG shall, and other transportation project sponsors, the County of San Diego, cities, and other local jurisdictions can and should, implement project designs that provide for continued movement of wildlife by limiting edge effects and assisting wildlife navigation through or across barriers in areas where wildlife corridors and nursery sites are impacted, as determined by best available information, modeled wildlife corridors, linkages identified in adopted HCP/NCCPs, studies conducted by the SDMMP with their partners, or project-specific wildlife movement studies. When second-tier projects are evaluated in the future, information and linkages identified in draft HCPs may be also be considered as part of best available information. Wildlife movement studies, and before-after-control-impact-studies where data are lacking, shall be conducted prior to project design, including identifying corridor widths and wildlife crossing structures and balancing conservation and recreation. Adaptive management and monitoring measures in the CEQA review and mitigation measures, shall be included in project design. Design measures consist of, but are not limited to, the following:

- Incorporate wildlife movement and corridor planning and utilize data generated by SDMMP into project design.
- Allow corridor buffer zones and wide movement corridors to remain or incorporate periodic larger habitat patches along a corridor's length.
- Where feasible, site linear projects, including pedestrian trails, away from wildlife corridors and conserved lands or NCCP lands.
- Where feasible, prohibit nighttime trail use and enforce seasonal trail closure, and plan access points and infrastructure carefully to minimize the effects on biological resources and wildlife corridors.
- As feasible, within 200 feet of a wildlife corridor, use nonreflective glass or glass treated with nonreflective coating for all exterior windows and building surfaces.
- Use only native species for landscaping within at least 200 feet of identified wildlife corridors.
- Incorporate dimmed, shielded, and directed lighting in areas near corridors that only illuminate the project site; consider high-pressure sodium or cut-off fixtures as feasible, and provide vegetative screening to reduce light pollution on corridors.
- Include permanent noise barriers and sound-attenuating features as part of the project design and incorporate temporary noise barriers and noise-reduction devices on equipment during construction; require the use of hydraulically or electrically powered tools, as feasible. Barriers could be in the form of outdoor barriers, sound walls, buildings, or earth berms to attenuate noise at adjacent sensitive uses.
- Install physical barriers (e.g., wildlife fencing) that prevent human and domestic predator entry into the corridor and, if appropriate, limit the amount of noise and lighting that enters the corridor. Use techniques such as grade separation, buffer zones, landscaped berms, dense plantings, sound walls, reduced-noise paving materials (i.e., rubberized asphalt), and traffic calming measures.
- Minimize the number of road and rail crossings through identified wildlife corridors.
    - Incorporate the appropriate wildlife crossing infrastructure into project design. Wildlife crossing infrastructure will be designed following the latest scientific information and should include upgrading existing culverts to facilitate functional wildlife movement, installing crossing and directional fencing at roadkill hotspots, installing wildlife bridges (overpasses) or undercrossing, and managing in perpetuity both sides of the wildlife crossings. Construct or retrofit with features such as open span bridges instead of closed culverts to allow for wildlife movement under linear transportation corridors.
    - Maximize the use of overpasses strictly for the use of wildlife movement when feasible (i.e., not paired with other recreational uses that may interfere with the use of the overpass by wildlife). However, if the construction of or retrofitting with wildlife bridges is infeasible, incorporate undercrossings or other crossing structures that use scientifically accepted openness ratios to allow for continued movement of wildlife where transportation facilities create barriers to wildlife movement and use of nursery sites. Evaluate size-class-specific crossing structures and movement enhancement features (e.g., habitat refugia within structure, soft bottom undercrossings) for each species to ensure that crossings are functional for movement.
    - Additionally, within aquatic habitat ~~impacting~~ and identified fish migration corridors for ~~species such as southern steelhead~~ migratory fish, address fish passage for anadromous species pursuant to SHC 156.3, and implement project designs that provide adequate fish passage, and create passable aquatic barriers ~~for migratory fish species~~ in order to provide fish access to spawning and rearing habitats.
    - Maintain undercrossings and other crossing structures as needed to ensure wildlife movement. Prepare a fencing and wildlife crossing structure maintenance plan for projects with edge effects to maintain permeability for wildlife across corridors.
    - Install directional fencing, where appropriate, to reduce vehicle mortality and guide wildlife to proposed bridges, undercrossings, and other crossing structures. Where fencing stops, extend the fence and angle it away from the roadways to deter wildlife from being funneled to roadways. Because it is not possible to

install a continuous fence, use one-way gates or jump-outs so animals that do get around fence end runs can safely exit roadways.

- In addition, consistent with the California Ecosystems Protection Act (AB 1788), ban the use of anticoagulant rodenticides near open space, conserved lands, and areas identified as core, linkages, wildlife corridors, or other connectivity areas. The use of anticoagulant rodenticides causes secondary poisoning in predators and may contribute to reduced functional connectivity in an already constrained landscape.

SIGNIFICANCE AFTER MITIGATION

2035, 2050

Implementation of Mitigation Measure BIO-3a would reduce this impact (BIO-3). However, there is no assurance that this mitigation measure would be implemented for all projects or equally effective due to the wide variety of circumstances, complexity of some sites, and complexity of impacts on them. Therefore, this impact (BIO-3) would remain significant and unavoidable.

BIO-4 CONFLICT WITH THE PROVISIONS OF AN ADOPTED HCP, NCCP, OR OTHER CONSERVATION PLAN, OR WITH ANY LOCAL POLICIES OR ORDINANCES PROTECTING BIOLOGICAL RESOURCES

Analysis Methodology

The proposed Plan is designed to comply with the applicable provisions of all approved local, regional, state, and federal regulations, policies, ordinances, and finalized conservation plans (HCP/NCCP, specifically the MSCP and MHCP and their respective subregional plans).

The locally adopted MSCP and MHCP and their respective subregional plans identify and map lands that are targeted for conservation in the future but within which some development is allowed (i.e., softline preserves, partial land conservation targets, amendment areas, PAMA, etc.). By the year 2035, the County of San Diego North County MSCP would likely be approved. No additional NCCP subarea plans are anticipated for the 2035 and 2050 horizon years, and the City of Oceanside has rescinded their Draft MHCP Subarea Plan (although the city still implements certain Draft Subarea Plan provisions through their General Plan update; the policies are generally embodied in the Draft Vital & Sustainable Resources Development). These conservation plans describe the processes by which future development impacts on target habitats and species both inside and outside preserves are evaluated and approved while meeting conservation targets, including consistency with these conservation plans during the project-specific interim review process between the County and the wildlife agencies for projects subject to discretionary permits. The proposed Plan is designed to follow the policies and procedures of the adopted MSCP and MHCP (County of San Diego 1998; SANDAG 2003) and their adopted subregional plans, and it can safely be assumed that all development within the plan areas would comply with all associated guidelines and ordinances, and that project-specific review and analysis would ensure compliance. Furthermore, plans, such as the South County MSCP, have specific accommodations for implementation of the adopted circulation network.

It should be noted that the MSCP IA is a 50-year permit issued by the USFWS and CDFW. The IAs for the Poway Subarea Plan (1996), the County of San Diego MSCP (1997), and the City of San Diego Subarea Plan (1997) expire prior to the 2050 horizon year. The County applied for an amendment to the MSCP in 2020. This EIR assumes that the IA for each plan would be amended and extended past the 2050 horizon year. For the purpose of this EIR, it is assumed that all permits associated with the MSCP and its subarea plans (e.g., City of Poway 1996, both the County and City of San Diego 1997) would be renewed, and the analysis for the horizon year 2050 was conducted accordingly.

The analysis methodology includes a quantitative analysis of potential encroachment into MSCP and MHCP Preserves (i.e., areas currently protected, or partially protected, from development or permanently conserved) identified and mapped in locally adopted HCP/NCCPs and their corresponding implementing ordinances. This may also include vacating and replacing conservation easements, for example for the extension of Beyer

Boulevard to serve the Southwest Village Specific Plan in Otay Mesa. Allowable development and uses within these preserves are generally limited to activities considered compatible with conservation goals, for example passive recreation, scientific study, and essential public safety activities, such as fuel management, fire response and suppression, law enforcement, border patrol use, and repair of infrastructure. Development of homes, businesses, and new or expanded infrastructure, and similar community elements are not allowed within NCCP preserve areas except where identified in the subregional plans. Softline preserves and minor and major amendment areas are excluded from the analysis because these areas would be impact-neutral, meaning that loss of these areas would be compensated by adding and conserving lands of equal or higher habitat value into the NCCP preserve system consistent with the requirements of the respective NCCP and IA.

Any regional growth and land use change or transportation network improvement that encroaches into NCCP preserve areas would have the potential to conflict with the HCP/NCCP and violate the NCCP permits; it is assumed that the majority of impacts on NCCP preserves would be avoided due to provisions in the local NCCP implementation policies and ordinance that require avoidance of and adjustments to NCCP preserve boundaries. For example, under the adopted NCCP subarea plans and associated ordinances, procedures are in place to process preserve boundary line adjustments (e.g., City of San Diego 2018), or major or minor amendments to the NCCP subarea plans (e.g., County of San Diego 2010). Boundary adjustment or amendment approvals would require biologically equivalent or superior habitat compensation or project redesign when there is encroachment into NCCP preserve areas; major amendments also require approval by the regional offices of USFWS and CDFW. There may be cases where a preserve boundary adjustment is not possible, and a project would be redesigned to avoid the preserve area as necessary. GIS data layers are used to identify existing NCCP preserve areas in the San Diego region. This database makes it possible to determine whether any elements of the proposed Plan encroach into NCCP preserve areas that prohibit development, notwithstanding the possibility of a boundary adjustment that would compensate for impacts of encroachment, and to quantitatively assess the encroachment into NCCP preserves.

Some NCCP preserves are already conserved, whereas others are still in the planning stage. In order to avoid double-counting of overlay in areas where NCCP preserves are already conserved, the impact acreage in the tables below for each horizon year is assigned to the "Conserved Lands and Habitat Preserves" category rather than in the respective NCCP preserve layer. The overlay of already conserved areas on the NCCP preserves is illustrated in Figure 4.4-17.

Furthermore, the analysis also includes potential encroachments into lands conserved outside the NCCP boundaries, including open space preserves and mitigation sites. Impacts on these conserved lands are highly unlikely due to the agreements that govern the conservation agreements that govern many, if not most, of these lands. The analysis is based on programmatic impact footprints; on a project-specific level, most of these impacts would likely be avoided through project redesign. The Public Park Preservation Act of 1971 (Public Resources Code Sections 5400–5409) requires that any "take" of public parkland may require compensation that is sufficient to acquire substantially equivalent substitute parkland or provide substitute parkland of comparable characteristics.

In addition, local policies and ordinances are qualitatively reviewed for potential conflicts with regional growth and land use change or transportation improvement projects. Table 4.4-6 identifies policies and ordinances that regulate the implementation of the respective NCCP plans (see Table 4.4.-5). All future projects are required to comply with these policies and ordinances.

Impact Analysis

2035

Regional Growth and Land Use Change

Regional growth and land use change by 2050 would be the same as previously described in the 2035 analysis for Impact BIO-1. By 2035, implementation of the regional growth and land use change in the proposed Plan would encroach into conservation areas and lands designated for conservation in all approved NCCP Plans in the County, including the existing South County MSCP preserves, the City of San Diego MHPA 100% preservation areas, Chula Vista MSCP preserve, and MHCP FPA (Table 4.4-13). The majority of encroachment is a result of spaced rural

residential development within the South County MSCP and the MHCP FPA/BCLA. Impacts to the City of San Diego MSCP include land exchanges in Otay Mesa due to boundary line adjustments for the Southwest Village Specific Plan Project, which will be mitigated through land exchanges. Impact acreages for spaced rural residential development overestimate impacts within NCCP preserves because development occurs at a much lower density than other developed areas and only portions of properties are developed and impacts on NCCP preserves will likely be avoided consistent with land use policies. However, because any developed land use category for lands within NCCP preserve conflicts with the compatible land use designated for NCCP preserves, the entire acreage is quantified. Encroachment into MHPA 100% preservation areas consist of small fragments of urban development. Such development as Fanita Ranch in Santee would occur based on a development-specific HCP that would include conservation and mitigation strategies.

By 2035, the regional growth and land use change projected in the proposed Plan would allow for development and redevelopment within NCCP Preserve areas identified by adopted HCP/NCCPs from regional growth. The majority of impacts occur to South County MSCP preserve lands. However, significant conservation gains occurred with the acquisition of 1,291 acres of formerly planned development property in Proctor Valley in southwestern San Diego County. The area is located adjacent to CDFW's Rancho Jamul Ecological Reserve and USFWS's San Diego National Wildlife Refuge and was added to the CDFW Rancho Jamul Ecologist Reserve on January 31, 2024[12]. Project-specific planning, review by local agencies, regulatory agencies, and wildlife agencies, and CEQA review of development projects would minimize any potential conflict with policies and ordinances protecting biological resources. Because avoidance of conflicts with regional conservation plans and programs are built into these programs by way of local policies and ordinances, and the regulations guiding the implementation of the programs (i.e. boundary line adjustment requirements), no conflicts are expected with any approved local regional, state, or federal regulations, policy, ordinance, or plan, except for encroachment into NCCP preserve areas identified by adopted HCP/NCCPs. Regional growth and land use change associated with the proposed Plan would be unlikely to violate policies and procedures of the adopted HCP/NCCPs, and MSCP and MHCP preserve conflicts would be resolved through boundary adjustments, compensation, or project redesign, so that impacts would be less than significant.

Table 4.4-13 Forecasted Encroachments into Conservation Areas and Lands Designated for Conservation by Regional Conservation Plans within the San Diego Region, 2026–2035 (acres)

Corridor and Linkage Categories	Regional Growth and Land Use Change	Transportation Network Improvements	Total
City of San Diego MHPA	4	140	144
City of Chula Vista MSCP	—	0.2	0.2
South County MSCP	1,677	67	1,744
MHCP	388	28	416
Conserved lands and habitat preserves[13]	28	8	36
Total	*2,096*	*244*	***2,340***

Notes: MSCP = Multiple Species Conservation Program; MHCP = Multiple Habitat Conservation Program.

Source: Data downloaded from SANGIS in 2025; adapted by Ascent in 2025.

Transportation Network Improvements and Programs

Transportation network improvements would be the same as previously described in the 2035 analysis for Impact BIO-1. By 2035, more encroachment would occur from the transportation network improvements into the MHCP

[12] At the time of this document, the acquired and conserved lands have not yet been added to the conserved lands layer in the San Diego County conserved lands database (SDMMP 2025).

[13] Conserved lands and habitat preserves are derived from the San Diego County Conserved Lands Database (SDMMP 2025) and include mitigation lands preserved in perpetuity, lands owned or managed by lands trusts (i.e. San Diego Habitat Conservancy) and land conservancies (i.e. San Diego River Park Conservancy, Endangered Habitat Conservancy, etc.), and ecological or wildlife reserves and preserves managed by federal and state wildlife agencies.

FPA/BCLA, County MSCP preserve, and City of San Diego MHPA 100% preservation areas (Table 4.4-13). The City of Chula Vista MSCP preserve would not experience any significant encroachments or changes.

By 2035, the transportation network improvements projected in the proposed Plan would impact NCCP preserve areas identified by adopted HCP/NCCPs, although hardline preserves would largely be avoided (except for a small impact on MHCP hardline preserves (most jurisdictions within the MHCP do not operate under approved Subarea Plans and the majority of impacts to the MHCP would be analyzed and mitigated on a project-specific basis). Impacts to the NCCP lands, specifically the City of San Diego's MHPA, would be offset through Boundary Line Adjustments with lands of biologically equal or higher quality, Project-specific planning, review by local agencies, regulatory agencies, and wildlife agencies, and CEQA review of transportation projects would minimize any potential conflict with policies and ordinances protecting biological resources. Because avoidance of conflicts with regional conservation plans and programs are built into these programs by way of local policies and ordinances, and the regulations guiding the implementation of the programs (i.e. boundary line adjustment requirements), no conflicts are expected with any approved local, regional, state, or federal regulations, policy, ordinance, or plan, with the exception of encroachment into NCCP preserve areas identified by adopted HCP/NCCPs. Transportation network improvements associated with the proposed Plan would be unlikely to violate policies and procedures of the adopted HCP/NCCPs, and MSCP and MHCP, and preserve conflicts would be resolved through boundary adjustments, compensation, or project redesign so that impacts would be less than significant.

2035 Conclusion

Implementation of regional growth and land use change and transportation network improvements and programs associated with the proposed Plan would result in less-than-significant impacts related to conflicts with adopted conservation plans. Regional growth and land use change associated with the proposed Plan would be unlikely to violate policies and procedures of the adopted HCP/NCCPs, Projects implementing the proposed Plan would require biologically equivalent or superior habitat compensation or project redesign when there is encroachment into NCCP preserve areas. Project-specific planning, review by local agencies, regulatory agencies, and wildlife agencies, and CEQA review of land use and transportation projects would minimize or remove any potential conflict with policies and ordinances protecting biological resources. Pursuant to the review of local NCCP implementation policies and ordinances, no conflicts are expected with any approved local, regional, state, or federal regulations, policy, ordinance, or plan. Therefore, this impact (BIO-4) in the year 2035 would be less than significant.

2050

Regional Growth and Land Use Change

Regional growth and land use change by 2050 would be the same as previously described in the 2050 analysis for Impact BIO-1. By 2050 implementation of the regional growth and land use change in the proposed Plan would encroach into conservation areas and lands designated for conservation in all approved NCCP Plan areas across the County, including the existing Chula Vista MSCP preserve, mainly as a result of development in the Otay Ranch preserve, and in Otay Mesa due to development of the specific plan (Table 4.4-14). Impact acreages for spaced rural residential development overestimate impacts within NCCP preserves because development occurs at a much lower density than other developed areas and only portions of properties are developed. However, because any developed land use category for lands within NCCP preserves conflicts with the compatible land use designated for NCCP preserves, the entire acreage is quantified.

By 2050, the regional growth and land use change projected in the proposed Plan would allow for more development and redevelopment within NCCP preserve areas identified by adopted HCP/NCCPs (except for the City of Chula Vista's MSCP preserve lands), including hardline preserves. Because avoidance measures are built into the plans, no conflicts are expected with any approved local, regional, state, or federal regulations, policy, ordinance, or plan, with the exception of encroachment into NCCP preserve areas identified by adopted HCP/NCCPs. As discussed above for 2035, regional growth and land use change associated with the proposed Plan would be unlikely to violate policies and procedures of the adopted HCP/NCCPs, and MSCP and MHCP preserve conflicts would be resolved through boundary adjustments, compensation, or project redesign, so that impacts are less than significant.

Table 4.4-14 Forecasted Encroachments into Conservation Areas and Lands Designated for Conservation by Regional Conservation Plans within the San Diego Region, 2036–2050 (acres)

Corridor and Linkage Categories	Regional Growth and Land Use Change	Transportation Network Improvements	Total
City of San Diego MSCP MHPA (including VPHCP)	2	151	153
City of Chula Vista MSCP	_	1	1
South County MSCP	437	122	559
MHCP	15	30	45
Conserved lands and habitat preserves[14]	19	22	41
Total	*47*	*326*	**799**

Notes: MSCP = Multiple Species Conservation Program; MHCP = Multiple Habitat Conservation Program.

Source: Data downloaded from SANGIS in 2025; adapted by Ascent in 2025.

Transportation Network Improvements and Programs

Transportation network improvements would be the same as previously described in the 2050 analysis for BIO-1. By 2050, implementation of the transportation network improvements in the proposed Plan would encroach into any existing NCCP preserves (Table 4.4-14). Because avoidance measures are built into the plans and implementation policies and ordinances, no conflicts are expected with any approved local, regional, state, or federal regulations, policy, ordinance, or plan, with the exception of encroachment into NCCP preserve areas identified by adopted HCP/NCCPs.

As discussed above for the 2035 horizon year, transportation network improvements associated with the proposed Plan would be unlikely to violate policies and procedures of the adopted HCP/NCCPs, and NCCP preserve conflicts would be resolved through boundary adjustments, compensation, or project redesign, so that impacts are less than significant.

2050 Conclusion

Implementation of regional growth and land use change and transportation network improvements and programs associated with the proposed Plan would result in less-than-significant impacts related to conflicts with adopted conservation plans. Regional growth and land use change associated with the proposed Plan would be unlikely to violate policies and procedures of the adopted HCP/NCCPs, and projects implementing the proposed Plan would require biologically equivalent or superior habitat compensation or project redesign when there is encroachment into NCCP preserve areas. Project-specific planning, review by local agencies, regulatory agencies, and wildlife agencies, and CEQA review of land use and transportation projects would minimize or remove any potential conflict with policies and ordinances protecting biological resources because of built-in provisions in the NCCP implementation policies and ordinances to avoid impacts to the preserve system. Pursuant to the review of local NCCP implementation policies and ordinances, no conflicts are expected with any approved local, regional, state, or federal regulations, policy, ordinance, or plan. Therefore, this impact (BIO-4) in the year 2050 would be less than significant.

Impacts of the Proposed Plan with Future Climate Change

With future climate change, growth and land use change and transportation network improvements would cause similar impacts related to conflicts with an HCP, NCCP, other conservation plan, local biological protection policies, or ordinance.

[14] Conserved lands and habitat preserves are derived from the San Diego County Conserved Lands Database and include mitigation lands preserved in perpetuity, lands owned or managed by lands trusts (i.e. San Diego Habitat Conservancy) and land conservancies (i.e. San Diego River Park Conservancy, Endangered Habitat Conservancy, etc.), and ecological or wildlife reserves and preserves managed by federal and state wildlife agencies (SDMMP 2025).

MITIGATION MEASURES

BIO-4 CONFLICT WITH THE PROVISIONS OF AN ADOPTED HCP, NCCP, OR OTHER CONSERVATION PLAN, OR WITH ANY LOCAL POLICIES OR ORDINANCES PROTECTING BIOLOGICAL RESOURCES

2035, 2050

No mitigation measures are needed because no significant impacts would occur.

4.4.5 Cumulative Impacts Analysis

C-BIO-1 MAKE A CUMULATIVELY CONSIDERABLE CONTRIBUTION TO ADVERSE EFFECTS ON BIOLOGICAL RESOURCES

The area of geographic consideration for cumulative impacts on biological resources is the Southern California and northern Baja regions. Biological resources have common characteristics across the expanse of this region while also having very unique and specific attributes in more discrete locations. Biological resources extend beyond jurisdictional boundaries and can be impacted by development and projects across an expansive area; thus, it is necessary to consider the entire region to adequately include broad-reaching impacts and overall effects to sensitive resources.

A hybrid approach to considering cumulative biological impacts includes evaluation of general patterns of regional urbanization, growth, and land use changes while also allowing for explicit analysis of individual large-scale probable future projects with impacts on specific biological resources per their available environmental documents.

Information on planned residential development and land use changes in Southern California is available in adopted land use plans for individual cities and counties. The plans considered and relied on for this cumulative biological analysis include the SCAG 2024-2050 RTP/SCS and its EIR (SCAG 2024); SANDAG MHCP and associated EIS/EIR (SANDAG 2003); County of San Diego Multiple Species Conservation Plan (MSCP) and associated EIR (County of San Diego 1998); SDCWA Subregional Natural Community Conversation Plan/Habitat Conservation Plan (NCCP/HCP) and associated EIR/EIS (SDCWA 2010); Western Riverside County Multi-Species Habitat Conservation Plan (MSHCP) and associated EIR/EIS (County of Riverside 2003); Coachella Valley MSHCP and associated EIR/EIS (Coachella Valley Association of Governments 2007); Strategic Plan of the Commission for Environmental Cooperation 2010-2015 (Commission for Environmental Cooperation 2010); and California-Baja 2021 California Border Master Plan (Caltrans 2021).

The cumulative impact is the combination of the impacts of the proposed Plan, probable future projects, and impact projections in adopted plans. Significant cumulative impacts related to biological resources would occur if the land use changes and transportation network improvements associated with the proposed Plan, together with adopted plans and related projects, would have a substantial adverse effect on any sensitive natural vegetation community or regulated aquatic resources; have a substantial adverse effect on any candidate, sensitive, or special-status species; interfere substantially with the movement of any native resident or migratory fish or wildlife species; or conflict with an adopted conservation plan or local policy or ordinance protecting biological resources.

Impacts of the Proposed Plan

Implementation of the proposed Plan's regional growth and land use change and transportation network improvements would result in substantial direct and indirect adverse effects on sensitive natural communities and regulated aquatic resources (Impact BIO-1); and species identified as candidate, sensitive, or special-status species in local or regional plans, policies or regulations, or by CDFW or USFWS (Impact BIO-2). Implementation of the proposed Plan's regional growth and land use change and transportation network improvements would also interfere substantially with fish and wildlife movement, wildlife corridors, and nursery sites in 2035 and 2050 (Impact BIO-3). These impacts would remain significant and unavoidable even with mitigation.

The proposed Plan is designed to comply with all approved HCPs, NCCPs, other conservation plans, and local biological protection policies and ordinances. Therefore, no conflicts would occur (Impact BIO-4). Any encroachment into hardline preserve areas would not conflict with HCPs and NCCPs because biologically equivalent or superior compensation of habitat or project redesign would be required when there is encroachment into hardline preserve areas. Thus, the proposed Plan would result in a less-than-significant impact related to conflicts with HCPs, NCCPs, and other conservation plans in 2035 and 2050.

Impacts of Related Projects

Projects identified in the "Cumulative Projects" section of Chapter 4, "Environmental Impact Analysis Approach," include the California High-Speed Rail Los Angeles–San Diego Segment, Midway Rising Specific Plan, Navy Old Town Revitalization Project, San Diego International Airport Development Plan, City of San Diego Pure Water North City Project, and San Diego Unified Port District Port Master Plan Update. The California High-Speed Rail Train (HST) project routes would affect the region of Southern California from Los Angeles to San Diego.

According to the HST EIR/EIS, sufficient information is not available at the program level to conclude with certainty that mitigation will reduce impacts on affected resources to a less-than-significant level in all circumstances (HSRA 2005). Therefore, the EIR/EIS concludes that the "impacts to biological resources and wetlands are considered significant at the program level even with the application of mitigation strategies.". The Naval Base Point Loma Old Town Campus (OTC) Revitalization EIS (U.S. Navy n.d.) and the City of San Diego Pure Water North City project EIR (City of San Diego 2018) concluded there would be less-than-significant impacts related to biological resources. The San Diego Unified Port District Port Master Plan Update PEIR (San Diego Unified Port District 2024), Midway Rising Specific Plan SEIR (City of San Diego 2025b), and San Diego International Airport Development Plan EIR (SDCRAA 2008) determined that impacts on biological resources would be less than significant with the implementation of mitigation.

Impacts of Projections in Adopted Plans

According to the EIR for the SCAG 2024-2050 RTP/SCS, which analyzes impacts through 2050, growth and projects would result in a wide variety of significant and unavoidable biological impacts. While site-specific analyses would be required to identify and minimize the impacts of each particular transportation and/or development project, the SCAG 2024-2050 RTP/SCS would substantially affect vegetation communities and habitat, some of which are utilized by special-status species. The EIR identified the potential to contribute to a cumulatively considerable loss of habitat and biological resources (SCAG 2024).

The MHCP is the Subregional Plan for the northwestern portion of San Diego County that encompasses 111,908 acres (29,962 acres of natural habitat) and provides conservation for 77 species in a 20,593-acre reserve. The EIS/EIR for the MHCP concluded that, because the project has the potential to cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; and reduce the number or restrict the range of an endangered, rare, or threatened species, a significant impact on some biological resources would occur (SANDAG 2003).

The San Diego County MSCP Subregional Plan is a cooperative effort by the County of San Diego and other city jurisdictions in southwestern San Diego County to implement a regional NCCP and HCP and contribute collectively to the conservation of vegetation communities and species in the MSCP study area. The associated EIR/EIR identified significant but mitigable direct and indirect impacts on biological resources (County of San Diego 1997).

The SDCWA NCCP/HCP is a comprehensive program designed to facilitate conservation and management of covered species and habitats associated with SDCWA activities and contribute to ongoing regional conservation efforts. The EIR/EIS found that implementation of the NCCP/HCP would result in less-than-significant impacts on biological resources after mitigation (SDCWA 2010).

The Western Riverside MSHCP encompasses approximately 1,966 square miles and provides for the creation of a Conservation Area that protects and manages 500,000 acres of habitat for 146 covered species. The associated EIR/EIS found significant and unavoidable impacts on sensitive upland communities as well as noncovered species;

however, no cumulative biological impacts were identified as the plan would preserve sufficient acreage of the sensitive vegetation communities present in western Riverside County (County of Riverside 2003).

The Coachella Valley MSHCP protects 240,000 acres of open space and 27 species. The associated EIR/EIS found that effective implementation of the plan will help ensure that impacts on biological resources in the plan area will be less than significant (Coachella Valley Association of Governments 2007).

The Strategic Plan of the Commission for Environmental Cooperation 2021-2025 includes Pillar 2.4, which supports the conservation and sustainable use of biological diversity and protection of ecosystems. While there is no associated environmental analysis document, the intent of the plan is to develop capacity to implement an ecosystem approach to conservation and sustainable use and monitor relevant outcomes in internationally shared ecosystems, with attention to both terrestrial and marine ecosystems (Commission for Environmental Cooperation 2021).

The California-Baja California Border Master Plan is a binational comprehensive approach to coordinate planning and delivery of projects at land Ports of Entry (POEs) and transportation infrastructure serving those POEs in the California-Baja California region (Caltrans 2021). The projects included in the Master Plan would have construction and operational impacts that could have an adverse effect on biological resources. No detailed analysis of biological impacts was conducted for this Master Plan.

Cumulative Impacts and Impact Conclusions

2035

The planned growth and projects throughout Southern California and northern Baja region and implementation of the proposed Plan resulting in regional growth and land use change and transportation network improvements would contribute to the cumulative loss of biological resources due to conversion of undeveloped lands to developed lands, including direct and indirect adverse effects on sensitive natural communities and regulated aquatic resources; and on species identified as candidate, sensitive, or special-status species in local or regional plans, policies or regulations, or by the CDFW or USFWS. Cumulative substantial interference with fish and wildlife movement, wildlife corridors, and nursery sites would also occur.

Implementation of the proposed Plan growth and transportation network improvements and programs would have significant impacts related to biological resources in the San Diego Region by the year 2035. Land use changes and transportation network improvements associated with both the proposed Plan and regional projects and plans developed in Southern California and northern Baja by 2035 would allow for more development and redevelopment to occur, and would therefore result in substantial direct and indirect adverse effects on sensitive natural communities and regulated aquatic resources; on species identified as candidate, sensitive, or special-status species in local or regional plans, policies or regulations, or by the CDFW or USFWS; and on substantial interference with fish and wildlife movement, wildlife corridors, and nursery sites. Thus, the combination of the proposed Plan and continued growth and development through the rest of the Southern California and northern Baja region would result in significant cumulative biological resource impacts. Because cumulative biological resource impacts throughout the Southern California and northern Baja region by 2035 would be significant, and because the proposed Plan's incremental biological resource impacts are significant, the proposed Plan's incremental biological resource impacts are cumulatively considerable and thus significant (Impact C-BIO-1).

The proposed Plan's impacts related to conflicts with adopted policies of HCPs and NCCPs and other local policies and ordinances protecting biological resources, in combination with similar impacts in adopted plans and other cumulative projects, would not cause a significant cumulative impact in 2035, and the proposed Plan's incremental contribution would not be cumulatively considerable.

2050

As described in the 2035 analysis, the planned growth and projects throughout Southern California and northern Baja region and implementation of the proposed Plan resulting in regional growth and land use change and transportation network improvements would contribute to the cumulative loss of biological resources as result of conversion of undeveloped lands to developed lands, including substantial direct and indirect adverse effects on

sensitive natural communities and regulated aquatic resources; and on species identified as candidate, sensitive, or special-status species in local or regional plans, policies or regulations, or by the CDFW or USFWS. Cumulative substantial interference with fish and wildlife movement, wildlife corridors, and nursery sites would also occur.

Implementation of the proposed Plan growth and transportation network improvements and programs would have significant impacts related to biological resources in the San Diego Region by the year 2050. Land use changes and transportation network improvements associated with both the proposed Plan as well as regional projects and plans developed in Southern California and northern Baja by 2050 would allow for more development and redevelopment to occur, and would therefore result in substantial direct and indirect adverse effects on sensitive natural communities and regulated aquatic resources; and species identified as candidate, sensitive, or special-status species in local or regional plans, policies or regulations, or by the CDFW or USFWS. The proposed Plan as well as regional projects and plans developed in Southern California and northern Baja by 2050 would also interfere substantially with fish and wildlife movement, wildlife corridors, and nursery sites. Thus, the combination of the proposed Plan and continued growth and development through the rest of the Southern California and northern Baja region would result significant cumulative biological resource impacts.

Because cumulative biological resource impacts throughout the Southern California and northern Baja region by 2050 would be significant, and because the proposed Plan's incremental biological resource impacts are significant, the proposed Plan's incremental biological resource impacts are cumulatively considerable (Impact C-BIO-1).

Similar to the 2035 analysis, the proposed Plan's impacts related to conflicts with adopted policies of HCPs and NCCPs and other local policies and ordinances protecting biological resources, in combination with similar impacts in adopted plans and other cumulative projects, would not cause a significant cumulative impact in 2050, and the proposed Plan's incremental contribution would not be cumulatively considerable.

MITIGATION MEASURES

C-BIO-1 MAKE A CUMULATIVELY CONSIDERABLE CONTRIBUTION TO ADVERSE EFFECTS ON BIOLOGICAL RESOURCES

Implementation of mitigation measures BIO-1a through BIO-1e, BIO-2a through BIO-2c, and BIO-3a would reduce direct and indirect impacts of the proposed Plan. Measures BIO-1a through BIO-1e include design and avoidance measures to be incorporated into projects to avoid impacts on sensitive natural vegetation communities and aquatic resources; provide compensatory mitigation when impacts are unavoidable; implement mitigation and monitoring plans per agency requirements; prepare habitat restorations plans; prepare habitat/long-term management plans; and implement BMPs to avoid indirect impacts. Measures BIO-2a, through BIO-2c include design and avoidance measures to be incorporated into projects to avoid and reduce impacts on special-status wildlife and plant species and provide compensatory mitigation. Measure BIO-3 includes measures to provide for movement of wildlife. Impacts of some projects on sensitive natural communities and regulated aquatic resources; species identified as candidate, sensitive, or special-status species in local or regional plans, policies or regulations, or by the CDFW or USFWS; and interference with wildlife movement and wildlife corridors remain significant and unavoidable after implementation of all applicable mitigation measures.

Similar types of mitigation measures are provided in other regional plans, such as the SCAG 2024-2050 RTP/SCS EIR, and individual project EIRs have project-specific biological mitigation. The SCAG 2024-2050 RTP/SCS EIR concluded that even with implementation of mitigation, biological resource impacts would remain significant. The HST EIR/EIS provided biological mitigation strategies, but concluded that it could not be determined that all biological impacts would be fully mitigated to below a level of significance. Thus, there is no assurance that the proposed mitigation would reduce impacts of adopted plans and related projects in Southern California and northern Baja to a less-than-significant level.

Mitigation measures BIO-1a through BIO-1e, BIO-2a through BIO-2c, BIO-3a would not reduce the proposed Plan's incremental impacts to less than significant. Therefore, the proposed Plan's incremental contributions to cumulative biological impacts in years 2035 and 2050 would remain cumulatively considerable and thus significant post-mitigation.

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