

3.3 BIOLOGICAL RESOURCES AND OPEN SPACE

This section describes the current biological resources and open space in the SCAG region, discusses the potential impacts of the 2012-2035 Regional Transportation Plan/Sustainable Communities Strategies (2012-2035 RTP/SCS or Plan) on biological resources and open space, identifies mitigation measures for the impacts, and evaluates the residual impacts.

The SCAG region includes a rich assemblage of biological resources supported by a variety of elevation, landform, soil and rock types, and climate zones. This varied landscape contains a high diversity and abundance of species, including relatively recently-evolved species and localized habitats with species that occur only in Southern California. In addition, this section describes the existing ecosystems, sensitive species, and sensitive communities that occur in the SCAG region (shown on **Map 3.3-1** located in Chapter 8 (Maps)) and discusses current threats and protection efforts for these biological resources. Most of these biological resources exist within the open space of the SCAG region see **Map 3.3-2** located in Chapter 8 (Maps).

REGULATORY FRAMEWORK

Federal

Federal Endangered Species Act. The Endangered Species Act and subsequent amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Section 7 of the Endangered Species Act requires federal agencies to aid in the conservation of listed species, and to ensure that the activities of federal agencies will not jeopardize the continued existence of listed species or adversely modify designated critical habitat. At the federal level, the U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration (NOAA) are responsible for administration of the Endangered Species Act.

Clean Water Act (CWA). At the federal level, the CWA (33 U.S.C. 1251) is the primary law regulating wetlands and waters. CWA regulates the discharge of dredged or fill material into waters of the United States, including wetlands. Waters of the United States include navigable waters, interstate waters, territorial seas, and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purposes of the CWA, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils subject to saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the CWA.

Section 404 of the CWA establishes a regulatory program that provides that no discharge of dredged or fill material can be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by the U.S. Army Corps of Engineers (ACOE) with oversight by the Environmental Protection Agency (EPA).

Executive Order for Wetland Protection. The Executive Order for the Protection of Wetlands (E.O. 11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, this executive order states that a federal agency, such as the Federal Highway Administration, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: 1) that there is no practicable alternative to the construction and 2) the proposed project includes all practicable measures to minimize harm.

Migratory Bird Treaty Act (MBTA). The MBTA (16 U.S.C. Sections 703–711) includes provisions for the protection of migratory birds, including the non-permitted take of migratory birds, under the authority of the USFWS and the CDFG. The MBTA protects over 800 species, including geese, ducks, shorebirds, raptors, songbirds, and many common species.

Marine Protection, Research, and Sanctuaries Act of 1972 (MPRSA). The MPRSA, also known as the Ocean Dumping Act, prohibits the dumping of material into the ocean that would unreasonably degrade or endanger human health or the marine environment. Ocean dumping cannot occur unless a permit is issued under the MPRSA. In the case of dredged material, the decision to issue a permit is made by the U.S. Army Corps of Engineers, using EPA's environmental criteria and subject to EPA's concurrence.

State

California Endangered Species Act. The California Department of Fish and Game (CDFG) is responsible for the administration of the California Endangered Species Act. Unlike the federal Endangered Species Act, there are no State agency consultation procedures under the California Endangered Species Act. For projects that affect both a State and federal listed species, compliance with the federal Endangered Species Act will satisfy the California Endangered Species Act if the CDFG determines that the federal incidental take authorization is "consistent" with the California Endangered Species Act. Projects that result in a take of a State-only listed species require a take permit under the California Endangered Species Act. The federal and/or State acts also lend protection to species that are considered rare enough by the scientific community and trustee agencies to warrant special consideration, particularly with regard to protection of isolated populations, nesting or den locations, communal roosts, and other essential habitat.

California Fish and Game Code Sections 3500 through 3705, Migratory Bird Protection. Sections 3500 through 3705 of the California Fish and Game Code regulate the taking of migratory birds and their nests. These codes prohibit the taking of nesting birds, their nests, eggs, or any portion thereof during the nesting season. Typically, the breeding/nesting season is from March 1st through August 30th. Depending on each year's seasonal factors, the breeding season can start earlier and/or end later.

The Migratory Bird Treaty Act decrees that all migratory birds and their parts (including eggs, nests, and feathers) are fully protected. Under the act, taking, killing, or possessing migratory birds is unlawful. Projects that are likely to result in the taking of birds protected under the Migratory Bird Treaty Act will require the issuance of take permits from the USFWS. Activities that would require such a permit would include, but not be limited to, the destruction of migratory bird nesting habitat during the nesting season when eggs or young are likely to be present. Under the act, surveys are required to determine if nests will be disturbed and, if so, a buffer area with a specified radius around the nest would be established so that no disturbance or intrusion would be allowed until the young had fledged and left the nest. If not otherwise specified in the permit, the size of the buffer area would vary with species and local circumstances (e.g., presence of busy roads), and would be based on the professional judgment of the monitoring biologist.

California Coastal Act. Through the Coastal Act, the California Coastal Commission has unusually broad authority to regulate development in the Coastal Zone. A permit is required for any project that might change the intensity of land use in the Coastal Zone including projects that would require a building or grading permit from the city or county, major vegetation clearing, or subdividing. The coastal zone generally extends three miles seaward and about 1,000 yards inland. In particularly important and generally undeveloped areas where there can be considerable impact on the coastline from inland development, the coastal zone extends to a maximum of five miles inland from mean high tide line. In developed urban areas, the coastal zone extends substantially less than 1,000 yards inland.

State Agency Wetland Regulation. At the State level, wetlands and waters are regulated primarily by the CDFG and the Regional Water Quality Control Boards (RWQCBs). The RWQCBs were established under

the Porter-Cologne Water Quality Control Act to oversee water quality. The RWQCB also issues water quality certifications in compliance with Section 401 of CWA. In certain circumstances, the Coastal Commission (or Bay Conservation and Development Commission) may also be involved. Sections 1600-1607 of the Fish and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify CDFG before beginning construction. If CDFG determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. CDFG jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of the ACOE may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the CDFG.

Local

In addition to federal and State regulations, cities and counties in the SCAG region may also provide regulatory advisement regarding biological resources. Jurisdictions may incorporate policies related to biological resources into their General Plans or municipal codes. Examples of these types of local regulations include tree preservation ordinances.

EXISTING SETTING

Ecosystems in the SCAG Region

An ecosystem is the dynamic complex of plant and animal communities and their associated non-living environment. The exceptionally diverse plant and animal communities of the SCAG region call for a broad approach to their description. Habitat categories appropriate for this scale of diversity will be used here, generally following Barbour and Major's (1977) description of major vegetation types, as well as vegetation and habitat descriptions from Mayer and Laudenslayer (1988) and *California Wildlife: Conservation Challenges* from CDFG, 2007. Typical natural communities and species will be described for each ecosystem type, as well as representative and special status species. **Map 3.3-3**, located in Chapter 8 (Maps) shows the general location of natural vegetation types that represent the variety of ecosystems within the SCAG region. **Map 3.3-4**, also found in Chapter 8 (Maps) shows the general location of National Wetland Inventory wetlands in the SCAG region. The following is a description of each of these ecosystems within the region.

Desert Shrub (Scrub) and Woodland

The vast interior of Southern California is primarily desert, divided into two major regions – the Colorado Desert Region and the Mojave Desert Region. Both regions encompass a diversity of habitats and wildlife species.

Colorado Desert Scrub Vegetation. The Colorado Desert extends from southern San Bernardino and eastern Riverside Counties to Imperial County and ending at the Mexican border. It encompasses approximately 7 million acres and is part of the larger Sonoran Desert that extends into Arizona. The region is bordered by the Peninsular mountain range in the west and the Colorado River in the east. The majority of the region lies at a relatively low elevation, below 1,000 feet, with the lowest point found in the Salton Trough at 275 feet below sea level. The Colorado Desert experiences two rainy seasons per year (winter and late summer) and infrequent winter frosts. Creosote bush scrub habitat characterizes much of the Colorado Desert along with alkali desert scrub, desert succulent scrub, and desert wash vegetation. Species found in the region include creosote bush (*Larrea tridentata*), ocotillo (*Fouquieria splendens*), cholla (*Opuntia* spp.), yucca spp., desert agave (*Agave deserti*), mesquite (*Prosopis* spp.), catclaw acacia (*Acacia gregii*), and shrubby saltbushes (*Atriplex* spp.). Rare plants found in the region include Orcutt's woody aster (*Xylorhiza*

orcutti), Orocopia sage (*Salvia graetae*), Coachella Valley milk vetch (*Astragalus lentiginosus coachellae*), and crown of thorns (*Euphorbia milii*). Desert fan palm oases are rare ecological communities found only in the Colorado Desert. These oases attract large numbers of birds entering California from the southeast. Especially important oases in the SCAG region include Palm Springs, Cottonwood Spring, and Thousand Palms Oasis in Riverside County and Morongo Valley, and Twenty-nine Palms, Box "S" Spring, Old Woman Spring, and Saratoga Springs in San Bernardino County. These oasis habitats attract breeding populations of several species that are not commonly found west of central Arizona, including vermilion flycatchers (*Pyrocephalus rubinus*), brown-crested flycatchers (*Myiarchus tyrannulus*), Lucy's warblers (*Vermivora lucida*), and summer tanagers (*Pyrranga rubra*).

Resident birds of the Colorado Desert region include Gambel's quail (*Callipepla gambeli*), black-throated sparrows (*Amphispiza bilineata*), Abert's towhees (*Pipilo aberti*), cactus wrens (*Campylorhynchus brunneicapillus*), Crissal thrashers (*Toxostoma dorsale*), phainopeplas (*Phainopepla nitens*), white-winged doves (*Zenaida asiatica*), and roadrunners (*Geococcyx californianus*).

Aside from a few species of toads along the Colorado River, amphibians are rare or absent from the deserts in the SCAG region. In contrast, a diverse array of reptiles occur in these desert habitats. Typical species include desert night lizards (*Xantusia vigilis*), chuckwallas (*Sauromalus obesus*), desert iguanas (*Dipsosaurus draconoides*), zebra-tailed lizards (*Uma* spp.), leopard lizards (*Gambelia wislizenii*), collared lizards (*Crotaphytus collaris*), sidewinders (*Crotalus cerastes*), Mojave rattlesnakes (*C. scutulatus*), and western diamondback rattlesnakes (*C. atrox*). Other common desert vertebrates include mule deer (*Odocoileus Hemionus*), bobcat (*Lynx rufus*), desert kangaroo rat (*Dipodomys deserti*), and black-tailed jackrabbit (*Lepus californicus*).

Some special status vertebrates found in desert scrub habitat include the desert tortoise (*Gopherus agassizii*), Bell's sage sparrow (*Amphispiza belli*), silvery legless lizard (*Anniella pulchra pulchra*), Palm Springs round-tailed ground squirrel (*Spermophilus tereticaudus chlorus*), and Peninsular bighorn sheep (*Ovis Canadensis nelsoni dps*). The desert slender salamander (*Batrachoseps major aridus*), Palm Springs pocket mouse (*Perognathus longimembris bangsi*), Coachella valley fringe-toed lizard (*Uma inornata*), and Sandstone night lizard (*Xantusia gracilis*) are special status species endemic to the Colorado Desert Region.

There are 15 invertebrate taxa found in the Colorado Desert Region that are special status species, 8 of which are endemic to the region.

Mojave Desert Scrub Vegetation. The Mojave Desert covers much of San Bernardino County and extends west into northern Los Angeles County and south into portions of northern Riverside County. It lies in the rain shadow of the southern Sierra Nevada and Southern California's Transverse and Peninsular Ranges, is generally higher in elevation than other regional deserts, and experiences regular winter frosts and occasional snows. Much of the Mojave Desert vegetation and wildlife is similar to that of the Colorado Desert. Creosote bush scrub and a variety of saltbush vegetation primarily dominate the Mojave Desert. Other common habitats include desert wash, alkali scrub, and Joshua tree scrub. Joshua trees (*Yucca brevifolia*) cover large areas of the Mojave Desert and are a dominant species of Joshua Tree National Monument east of the San Bernardino Mountain range. Some plants commonly found in Joshua Tree habitat include Mojave yucca (*Y. schidegera*), Nevada ephedra (*Ephedra nevadensis*), California buckwheat (*Eriogonum fasciculatum* ssp.), Cooper goldenbush (*Ericameria cooperi*), big galleta (*Pleuraphis rigida*), and desert needlegrass (*Achnatherum speciosum*). Rare plant species endemic to this region include ash-gray Indian paint brush (*Castilleja cinerea*), Parish's daisy (*Erigeron parishii*), Cushenbury milk-vetch (*Astragalus albens*), and Cushenbury buckwheat (*Eriogonum ovalifolium* var. *vineum*).

In pure stands, Mojave scrub habitat produces large numbers of seeds that provide large numbers of small mammals with their primary food source. These mammals include ground squirrels (*Spermophilus* spp. and *Ammospermophilus* spp.), kangaroo rats (*Dipodomys* spp.), deer mice (*Peromyscus* spp.), wood rats

(*Neotoma lepida*) and kangaroo mice (*Microdipidops* spp.). Desert oases used by migrating birds can also be found in this region. Conspicuous birds include common ravens (*Corvus corax*), prairie falcons (*Falco mexicanus*), American kestrels (*Falco sparverius*), barn owls (*Tyto alba*), quail, and mourning doves (*Zenaida macroura*).

Some special status invertebrates endemic to the Mojave desert include Inyo California towhee (*Pipilo crissalis eremophilus*), Amargosa vole (*Microtus californicus scirpensis*), Mojave tui chub (*Gila bicolor mohavensis*), Panamint kangaroo rat (*Dipodomys panamintinus panamintinus*), Saratoga springs pupfish (*Cyprinodon nevadensis nevadensis*), black toad (*Bufo exsul*), and Eagle Mountain scrub jay (*Aphelocoma californica cana*).

Beach and Dune (Coastal and Interior)

Beach and dune environments are relatively uncommon along the California coast; beach and dune occupies less than one-fourth of the coastline.¹ Within the SCAG region, substantial beach and dune environments are found only near Ventura and Los Angeles. The largest remaining area is the El Segundo Dunes, just north of the Los Angeles Airport. Dune environments also occur in desert areas where wind causes sand accumulation. Like beach dunes, desert dunes are uncommon in the SCAG region. The largest and most spectacular desert dunes are at the Kelso Dunes, the Barchan Dunes near the Salton Sea, and the dunes near Thousand Palms.

Beach and dune vegetation is generally low in plant cover and species richness. Most plant species in this habitat are perennials, usually prostrate plants adapted to an unstable, shifting substrate. The farther from the beach itself (or, in the case of desert dunes, the farther from the sand-bearing prevailing winds), the more stable the dunes and their vegetation become. Typical vegetation series in beach dunes are the sand-verbena-beach bursage (*Abronia* spp. *Ambrosia chamissonis*) series and dune lupine-goldenbush (*Lupinus chamissonis-Isocoma menziesii*) series. In disturbed areas, the iceplant (*Carpobrotus* spp., *Mesembryanthemum* spp., and *Malephora crocea*) series may be found. In desert dunes, typical vegetation is the desert sand-verbena (*Abronia villosa*) series.

Although few vertebrate species are endemic to beach and dune habitats, there are a number of insects and other invertebrates found only in sand ecosystems. These species include the Globose dune beetle (*Coelus globosus*) and the El Segundo blue butterfly (*Euphilotes battoides allyni*) in the coastal dunes and Hardy's dune beetle (*Anomala hardyorum*) in the desert dunes. Coastal beaches protected from human disturbance provide seasonal nesting habitats for California least terns (*Sterna antillarum browni*) and western snowy plovers (*Charadrius alexandrius nivosus*).

Conifer Forests and Woodlands

The montane and subalpine vegetation in the SCAG region consists of conifer-dominated forests and woodland. These generally occur at elevations of 3,000 feet or more in the Transverse and Peninsular Ranges. At the lower elevations, Coulter pine forms an open woodland, with canyon live oak, black oak (*Quercus kelloggii*), ponderosa pine, and Jeffrey pine. At somewhat higher elevations, yellow (ponderosa and Jeffrey) pine forest dominate. Farther upslope, upper montane conifer forests are present, consisting of white fir and sugar pine, followed by mountain juniper (*Juniperus occidentalis* ssp. *australis*) woodland on open slopes and ridges, and lodgepole pine (*Pinus contorta*) forest on flats and gentle slopes. The highest elevation forests are dominated by limber pine. These forests are found at the highest elevations of the San Bernardino Mountains. The actual elevation range of each forest type is dependent on other site factors, such as precipitation, moisture-holding capability of the soil, slope, and aspect.

¹Barbour, M. G., Todd Keeler-Wolf, Allan A. Schoenherr, (Eds.), *Terrestrial Vegetation of California*. University of California Press, Berkeley and Los Angeles, 2007.

There are no true alpine areas within the highest mountains of the Transverse Range; that is, no areas that are climatically unable to support high-elevation conifer species. However, there are some treeless areas of talus, meadow, and exfoliating rock. Alpine vegetation is found in the talus and scree of Mt. San Gorgonio. Such vegetation includes several species of sedge, rush, and various perennial herbs.

No State or federally listed species occur in the alpine barren and rock habitat. One special status plant species, Sierra podistera (*Podistera nevadensis*), is known from this habitat in the mountains of San Bernardino County, although it is currently believed to be extirpated there. A few special status wildlife species can be found in alpine barrens and rocky, talus slopes of the SCAG region including bighorn sheep (*Ovis canadensis*).

Conifer forests offer multi-layered vegetation that provides foraging, nesting, and roosting substrates for a diversity of wildlife species. Many species, including neotropical migrant bird species, use the bark, branches, and foliage of these forests, including Great horned owls (*Bubo virginiana*), hairy woodpeckers, pileated woodpeckers (*Drycopus pileatus*), olive-sided flycatchers (*Contopus borealis*), western wood pewees (*C. sordidulus*), Steller's jays (*Cyanocitta stelleri*), brown creepers (*Certhia americana*), white-breasted nuthatches (*Sitta carolinensis*), golden-crowned kinglets (*Regulus satrapa*), solitary vireos, yellow-rumped warblers, western tanagers, black-headed grosbeaks, and purple finches (*Carpodacus purpureus*). Black bears (*Ursus americanus*) and black-tailed deer (*Odocoileus hemionus*) also frequent these forests.

Special status plant species of coniferous forests and woodlands include the Peirson's spring beauty (*Claytonia lanceolata* var. *peirsonii*), Mexican flannelbush (*Fremontodendron mexicanum*), Tahquitz ivesia (*Ivesia callida*), San Bernardino Mountains bladderpod (*Lesquerella kingii* ssp. *bernardina*), Parish's checkerbloom (*Sidalcea hickmanii* ssp. *parishii*), Hidden Lake bluecurls (*Trichostema austromontanum* ssp. *compactum*), Munz's onion (*Allium munzii*), Bear Valley sandwort (*Arenaria ursina*), Cushenbury milk vetch (*Astragalus albens*), Parish's daisy (*Erigeron parishii*), Cushenbury buckwheat (*Eriogonum ovalifolium* var. *vineum*), and Cushenbury oxytheca (*Oxytheca parishii* var. *goodmaniana*).

Special status wildlife species associated with conifer forests of the SCAG region include southern rubber boas (*Charina (bottai) umbratica*), and white-eared pocket mice (*Perognathus alticolus alticolus*).

The Tecate cypress (*Cyprinus forbesii*), is a fire-adapted conifer species found only on low fertility soils. This species grows in several stands in the SCAG region in the vicinity of Sierra Peak in Orange County. Tecate cypress forest is considered a special status natural community by the California Natural Diversity Database (CNDDB), and the Tecate cypress itself is a California Native Plant Society listed species.

Hardwood Forests and Woodlands

Oak-dominated woodlands and forests are found at low- to mid-elevations of the Transverse and Peninsular Ranges. Canyon live oak (*Quercus chrysolepis*) forms forests with Coulter pine (*Pinus coulteri*), bigcone-fir (*Pseudotsuga macrocarpa*), Douglas-fir (*P. menziesii*), and interior live oak (*Quercus wislizenii*) on the higher and inner slopes of the mountains, as well as forming riparian forests along seasonal streams. Coast live oak woodland forms on more coastal slopes, while Engelmann oak (*Q. engelmannii*) woodland and valley oak (*Q. lobata*) woodland grow on deeper alluvial slopes and valleys. California walnut (*Juglans californica*) is found associated with coast live oak, usually on north slopes, and in some places becomes the dominant species. Woodland consists of trees with an understory of grasses and herbs. Introduced grasses dominate the understory, although in some cases native bunchgrasses may be present.

The CDFG recognizes valley oak woodland, Engelmann oak woodland, and California walnut woodland as sensitive woodland communities in the SCAG region. These communities have shown a dramatic decline due to urban and agricultural development in this century. Hardwood upland forests are found on higher, moister sites than oak woodlands and are distinguished from woodlands by a higher tree density. Walnut

forests found on the south side of the San Gabriel Mountains to the Santa Ana Mountains, mainland cherry forest historically found in Los Angeles County, island cherry (*Prunus ilicifolia* ssp. *lyonii*) forest and island ironwood (*Lyonothamnus floribundus*) forest found on the Channel Islands are considered sensitive natural communities.

Hardwood woodlands and forests of the SCAG region are especially attractive to wildlife because they provide important forage and cover for a large number of ground, shrub, and tree nesting raptors. Woodpeckers excavate nest holes in live and dead oaks, and these cavities are subsequently used by other cavity-nesting species, such as American kestrels (*Falco sparverius*), western screech owls (*Otus kennecottii*), tree swallows (*Tachycineta bicolor*), ash-throated flycatchers (*Myiarchus cinerascens*), white-breasted nuthatches, plain titmice, and western bluebirds (*Sialia mexicana*). Oak acorns provide an important food source for many species including scrub jays (*Aphelocoma coerulesens*), western gray squirrels, and black-tailed deer (*Odocoileus hemionus*).

Oak foliage and bark attract insects that are important to the diet of birds such as white-breasted nuthatches, plain titmice, Bewick's wrens (*Thryomanes bewickii*), ruby-crowned kinglets (*Regulus calendula*), American robins (*Turdus migratorius*), solitary vireos (*Vireo solitarius*), Hutton's vireos (*V. huttoni*), warbling vireos (*V. gilvus*), orange-crowned warblers (*Vermivora celata*), Nashville warblers (*V. ruficapilla*), yellow-rumped warblers (*Dendroica coronata*), black-throated gray warblers (*D. nigrescens*), western tanagers (*Piranga ludoviciana*), black-headed grosbeaks, fox sparrows (*Passerella iliaca*), northern orioles (*Icterus galbula*), and house finches (*Carpodacus mexicanus*).

The grassland understories of oak woodlands offer foraging habitat and cover for Pacific treefrogs (*Pseudacris* (= *Hyla*) *regilla*), western fence lizards (*Sceloporus occidentalis*), California quail (*Callipepla californica*), northern flickers (*Colaptes aureus*), black-tailed hares (*Lepus californicus*), deer mice (*Peromyscus maniculatus*), gray fox, and black-tailed deer (*Odocoileus hemionus*).

Hardwood woodland is habitat for several special status plant species, including Orcutt's brodiaea (*Brodiaea orcuttii*), Laguna Beach dudleya (*Dudleya stolonifera*), Mexican flannelbush (*Fremontodendron mexicanum*), heart-leaved pitcher sage (*Lepechinia cardiophylla*) and Nevin's barberry (*Berberis nevinii*). Hardwood upland forest is also habitat for the Ojai fritillary (*Fritillaria ojaiensis*).

Special status wildlife that frequent hardwood forests and woodlands of the SCAG region include San Diego mountain kingsnakes (*Lampropeltis zonata pulchra*), Cooper's hawks (*Accipiter cooperii*), golden eagles (*Aquila chrysaetos*), western yellow-billed cuckoos (*Coccyzus americanus occidentalis*), long-eared owls (*Asio otus*), southwestern willow flycatchers (*Empidonax traillii extimus*), brown-crested flycatchers (*Myiarchus tyrannulus*), and Santa Catalina shrews (*Sorex inornatus willetti*).

Grasslands

Grasslands of the SCAG region historically occurred in the deep soils of the larger valleys and coastal plains. These were prime development areas and the native grasslands have been largely eliminated. The remaining grasslands tend to be found in steeper, more rocky or remote parts of the SCAG region. The following describes the vegetation and wildlife found in grassland areas, as well as the special status species found.

Introduced annual grasses dominate the grasslands in the SCAG region. In areas that are relatively undisturbed, a significant portion of the vegetation may consist of native perennial bunch grasses, including members of the genera needlegrass (*Nassella*, *Stipa*), melic (*Melica*), Junegrass (*Koeleria*), and muhly (*Muhlenbergia*). The composition and structure of the grasslands in prehistoric times cannot be known with certainty, because so many non-native herbs and grasses have become dominant in the grasslands of today. The California annual grassland series is common in the lower elevation grasslands of the coastal areas. At higher elevations in the Transverse and Peninsular Ranges, perennial grasses are more abundant, including

the purple needlegrass (*Nassella* (= *Stipa*) *pulchra*), foothill needlegrass (*N. lepida*), and nodding needlegrass (*N. cernua*) series, as well as the one-sided bluegrass (*Poa secunda*) series. Valley needlegrass grassland is a special status community that occurs at scattered locations throughout the western part of the SCAG region.

Because grasslands have been greatly reduced in extent, remaining grasslands offer important habitat for raptors, such as golden eagles, northern harriers (*Circus cyaneus*), and black-shouldered kites (*Elanus caeruleus*). Turkey vultures (*Cathartes aura*), red-tailed hawks (*Buteo jamaicensis*), Say's phoebes (*Sayornis saya*), western kingbirds (*Tyrannis verticalis*), water pipits (*Anthus spinoletta*), horned larks (*Eremophila alpestris*), American crows (*Corvus brachyrhynchos*), lark sparrows (*Chondestes grammacus*), western meadowlarks (*Sturnella neglecta*), black-tailed hares (*Lepus californicus*), California ground squirrels (*Spermophilus beechyi*), and black-tailed deer (*Odocoileus hemionus*) are typical wildlife observed in grasslands.

Special status plant species that occur in specialized habitat within grasslands include Munz's onion (*Allium munzii*), San Diego ambrosia (*Ambrosia pumila*), Braunton's milk-vetch (*Astragalus brauntonii*), thread-leaved brodiaea (*Brodiaea filifolia*), Orcutt's brodiaea (*Brodiaea orcuttii*), many-stemmed dudleya (*Dudleya multicaulis*), Conejo dudleya (*Dudleya parva*), Conejo buckwheat (*Eriogonum crocatum*), Orcutt's linanthus (*Linanthus orcuttii*), and Lyon's pentachaeta (*Pentachaeta lyonii*). Most of these species also occur in communities other than grassland and are restricted to specific soil types, hydrologic regimes, elevation range, and geographic distribution.

A variety of special status wildlife species occur in grassland habitats of the SCAG region, including western spadefoot toads (*Spea hammondi*), Swainson's hawks (*Buteo swainsoni*), prairie falcons (*Falco mexicanus*), white-tailed kites (*Elanus leucurus*), golden eagles (*Aquila chrysaetos*), burrowing owls (*Athene cunicularia*), Los Angeles pocket mice (*Perognathus longimembris brevinasus*), Stephen's kangaroo rats (*Dipodomys stephensi*), and the Palos Verde blue (*Glaucopsyche lygdamus palosverdesensis*) and Quino checkerspot (*Euphydryas editha quino*) butterflies.

Scrub (Shrub)

California Chaparral. Chaparral is a fire-adapted community of evergreen shrubs, often with small, thickened or leathery leaves. Chaparral is found at middle elevations in the foothills of the Transverse and Peninsular Ranges, often on steep or rocky sites. Deeper soils and lower elevations tend to support grasslands or sage scrub, while higher elevations with cooler temperatures and more rainfall tend to support woodlands.

One of the most common chaparral plant species is chamise (*Adenostoma fasciculatum*); other important shrubs include scrub oak (*Quercus berberidifolia*), manzanitas (*Arctostaphylos* spp.), and ceanothus (*Ceanothus* spp.) species. The chamise series, as well as a number of series in which chamise is co-dominant with bigberry manzanita (*A. glauca*), black sage (*Salvia mellifera*), cupleaf ceanothus (*Ceanothus greggii*), hoaryleaf ceanothus (*C. crassifolius*), white sage (*S. apiana*), and Eastwood manzanita (*A. glandulosa*), are common vegetation series found in chaparral within the SCAG region. The scrub oak series, red shank (*Adenostoma sparsifolium*) series, interior live oak (*Q. wislizenii*) series, and chaparral whitethorn (*C. leucodermis*) series are also common in chaparral. Although chaparral covers a large portion of the SCAG region, none of the chaparral community types are considered sensitive by the CDFG.

Chaparral provides dense cover for a variety of shrub-dependent wildlife species. The wrentit (*Chamaea fasciata*) is a bird found primarily in the chaparral belt of California. Other species often associated with chaparral habitats in the SCAG region include California quail, Anna's hummingbirds, bushtits, Bewick's wrens, northern mockingbirds (*Mimus polyglottos*), California thrashers (*Toxostoma redivivum*), orange-crowned warblers, rufous-sided towhees, California towhees, white-crowned sparrows (*Zonotrichia albicollis*), golden-crowned sparrows (*Z. atricapilla*), and lesser goldfinches (*Carduelis psaltria*). Western

fence lizards, southern alligator lizards (*Gerrhonotus multicarinatus*), western rattlesnakes (*Crotalus viridis*), and black-tailed deer (*Odocoileus hemionus*) also frequent chaparral habitats. Chaparral provides habitat for several special status plant species that usually occur in openings among the shrubs and often on uncommon soils or parent materials. The endangered slender-horned spineflower (*Dodecahema leptoceras*) occurs in chaparral, as well as in coastal sage scrub. Other special status plant species occurring in chaparral include summer holly (*Comarostaphylos diversifolia* ssp. *diversifolia*), dune larkspur (*Delphinium parryi* ssp. *blochmaniae*), Santa Monica Mountains dudleya (*Dudleya cymosa* ssp. *ovatifolia*), San Gabriel Mountains dudleya (*D. densiflora*), Laguna Beach dudleya (*D. stolonifera*), Conejo buckwheat (*Eriogonum crocatum*), Mexican flannelbush (*Fremontodendron mexicanum*), Santa Susana tarplant (*Deinandra minthornii*), Nevin's barberry (*Berberis nevinii*), Lyon's pentachaeta (*Pentachaeta lyonii*), Parish's checkerbloom (*Sidalcea hickmanii* ssp. *parishii*), and crownbeard (*Verbesina dissita*). Few special status wildlife species exclusively require chaparral habitats. The CNDDB lists only the desert monkey grasshopper (*Psychomastix deserticola*) and the Santa Monica shieldback katydid (*Aglaothorax longipennis*) as sensitive species occurring in this habitat.

Southern Coastal Scrub. Coastal sage scrub is a drought-deciduous Mediterranean climate community characterized by soft-leaved, shallow-rooted shrubs. It once covered more than 4,000 square miles in Southern California. As a result of urban and agricultural development, more than 80 percent of this habitat has been eliminated and many of plants and wildlife associated with this community have experienced similar declines. Dominant species include California sagebrush (*Artemisia californica californica*), California buckwheat (*Eriogonum fasciculatum*), beavertail cactus (*Opuntia* spp.) and black sage (*Salvia mellifera*). The CNDDB lists three sensitive coastal scrub communities for the SCAG region: southern coastal bluff scrub at localized points along the coast, maritime succulent scrub which occurs on San Clemente and Catalina Islands, and riversidian alluvial fan sage scrub.

The San Diego horned lizard (*Phrynosoma coronatum blainvillei*), coastal western whiptail (*Aspidoscelis tigris stejnegeri*), orange-throated whiptail (*Aspidoscelis (=Cnemidophorus) hyperythra*), San Bernardino kangaroo rat (*Dipodomys merriami parvus*), northwestern San Diego pocket mouse (*Chaetodipus (=perognathus) fallax*), and California gnatcatcher (*Polioptila californica*) occur nearly exclusively in coastal sage scrub. The largest assemblage of special status wildlife species in the SCAG region is mapped within coastal sage scrub habitats. In addition to these dependent species, coastal sage scrub also provides habitat for a number of more widespread species that are adapted to chaparral and desert scrub habitats. Several special status plant species, such as the Santa Ana River woollystar (*Eriastrum densifolium* ssp. *sanctorum*), slender-horned spineflower (*Dodecahema leptoceras*), Munz's onion (*Allium munzii*), several dudleya species (*Dudleya* spp.), Santa Susana tarplant (*Deinandra minthornii*), and Nevin's barberry (*Berberis nevinii*), occur in coastal sage scrub.

Wetlands

Generally, wetlands are lands where saturation with water is the dominant factor determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface. Wetlands vary widely because of regional and local differences in soils, topography, climate, hydrology, water chemistry, vegetation, and other factors, including human disturbance. Wetlands include riparian areas, inland waters, and marine and estuarine environments. Each supports a diverse array of biological communities, described below. **Map 3.3-4**, located in Chapter 8 (Maps), displays the wetlands in the SCAG region identified in the National Wetlands Inventory. **Table 3.3-1** provides information on the larger natural wetlands in the SCAG region. This chapter focuses on the habitats and species that occur in these water bodies. Section 3.13 Water Resources, of this PEIR discusses the characteristics of these surface waters.

TABLE 3.3-1: NATURAL WETLANDS IN THE SCAG REGION			
Wetland	Counties Where Located	Protected and Enhanced Area Size, if any	# of Known Special Status Species
Aliso Creek Wetlands	OR, RIV, SBD	1 acre protected, 3 acres enhanced	unknown
Anaheim Bay	OR	956 acres enhanced	12
Bolsa Chica Wetlands	OR	880 acres protected	12
Ballona Lagoon	LA	16.3 acres enhanced	4
Ballona Creek Wetlands	LA	192 acres protected	9
BSA	SBD	118 acres protected	unknown
Calvary Chapel	SBD	100 acres protected	unknown
Colorado Desert District	SBD, IMP, RIV	146 acres enhanced	unknown
Colorado Lagoon	LA	14 acres protected	unknown
Deep Creek	SBD	300 acres protected	unknown
Emma Wood State Beach	VEN	5 acres enhanced	unknown
Hellman Ranch Wetlands	OR	27.1 acres protected	10
Henrietta Marsh	LA	5 acres enhanced	unknown
Hidden Valley Wildlife Area	RIV	70 acres enhanced	unknown
Huntington Beach Wetlands	OR	115 acres protected	10
Imperial Wildlife Area	IMP	325 acres enhanced	unknown
Klondike Canyon PV	LA	160 acres enhanced	unknown
Laguna Lakes	OR	30 acres restored; 3 acres enhanced	6
Lombardi	SBD	102 acres protected	unknown
Los Angeles River	LA	234 acres protected	3
Los Cerritos Wetlands	LA	129.5 acres protected	6
Malibu Lagoon	LA	92 acres protected	8
McGrath Lake	VEN	>10 acres protected	3
Mugu Lagoon	VEN	1,474 acres protected	33
Mystic Lake	RIV	175 acres protected	unknown
Ormond Beach Wetlands	VEN	217 acres protected	12
Picacho State Rec Area	IMP	20 acres enhanced	unknown
San Joaquin Marsh	OR	492 acres protected	15
San Juan Creek	OR	3 acres protected	1
Santa Ana River Mouth	OR	168 acres protected	17
San Jacinto Wildlife Area	RIV	360 acres enhanced	unknown
Santa Clara River Estuary	VEN	133 acres protected	8
Santa Margarita River/Lagoon	RIV, SDG	250 acres protected; 600 acres restored	20
Topanga Lagoon	LA	2.1 acres protected	0
Trancas Lagoon	LA	2 acres protected	0
Upper Newport Bay	OR	1,357 acres protected	6
Ventura River Estuary	VEN	110 acres enhanced	10
SOURCE: Southern California Wetlands Inventory, available at: http://ceres.ca.gov/wetlands/geo_info/so_cal/so_cal_wetland_index.html , accessed August 11, 2011.			

Vernal pools are a special example of interior wetlands. They are seasonal freshwater pools that form in depressions over an impermeable soil layer (claypan or hardpan) or parent material. Annual species with low cover and a short life cycle primarily comprise the vegetation in vernal pools. The vernal pools of the Santa Rosa Plateau are isolated from other areas of California in the Central Valley and San Diego County, and they support a distinctive flora with a number of endemic species. Special status invertebrates found in Riverside County vernal pools include the vernal pool fairy shrimp (*Branchinecta lynchi*) and the Riverside fairy shrimp (*Streptocephalus woottoni*).

Interior lakes that are especially important to wildlife in the SCAG region include Silverwood Lake, Lake Arrowhead, Big Bear Lake, and Baldwin Lake in the San Bernardino Mountains, and Lake Hemet in the San Jacinto Mountains. There are a number of lakes, including Lake Matthews, Lake Skinner, and the Prado

Basin in western Riverside County, which serve primarily as reservoirs of potable water, or for flood control, water conservation, or emergency storage, but which also support numerous species of wildlife. The open water, mudflats, and emergent vegetation associated with these aquatic habitats are of great importance to birds and other wildlife.

The Salton Sea in Imperial County is by far the largest aquatic habitat in the SCAG region and attracts water birds that are otherwise rare or entirely absent in Southern California. The lakeshore of the sea is largely barren, but extensive marshes exist at the mouths of the Whitewater River at the north end, the New and Alamo Rivers at the south end, and Salt Creek at the eastern shoreline. Finney and Ramer Lakes near the southeast corner of the Salton Sea also provide extensive wetland habitats that attract a variety of wildlife species.

Freshwater marshes are habitat for several special status species, including the endangered marsh sandwort (*Arenaria paludicola*) and Gambel's water cress (*Nasturtium gambelii*). Localized alkali meadows with unusual soil or water characteristics are habitat for a number of special status plants, including slender-petaled thelypodium (*Thelypodium stenopetalum*), silver-haired ivesia (*Ivesia argyrocoma*), Baldwin Lake linanthus (*Linanthus killipii*), and San Bernardino ragwort (*Packera bernardina*). Plants associated with alkaline meadows in the desert areas include alkali mariposa lily (*Calochortus striatus*), Tecopa bird's-beak (*Cordylanthus tecopensis*), and Parish's alkali grass (*Puccinellia parishii*).

Special status wildlife associated with freshwater marshes of the SCAG region include California red-legged frogs (*Rana aurora draytonii*), southwestern pond turtles (*Actinemys (=Clemmys) marmorata pallida*), great blue herons (*Ardea herodias*), great egrets (*A. alba*), and bald eagles (*Haliaeetus leucocephalus*). Freshwater marshes along the Colorado River support the endangered Yuma clapper rail (*Rallus longirostris yumanensis*).

Coastal Salt Marsh and Estuaries. Coastal wetlands include estuarine and salt marsh wetland communities subject to tidal influence. In the SCAG region, some of the largest estuaries and salt marshes are the Santa Clara River estuary and Mugu Lagoon in Ventura County, Malibu Lagoon and Ballona wetlands in Los Angeles County, and Seal Beach marshes, Bolsa Chica Lagoon, and Upper Newport Bay in Orange County.

Vegetation in coastal salt marsh is generally emergent herbaceous perennial species. The dominant plants all have features that allow them to live in saline soils and to absorb water despite its dissolved salts. Typical vegetation series in coastal salt marsh includes the cordgrass (*Spartina foliosa*) series, in the areas of deepest inundation, pickleweed (*Salicornia* spp.) series in areas flooded frequently but at less depth, and saltgrass series (*Distichlis spicata*) in marginally flooded areas that accumulate salts through evaporation.

Southern California's extensive mainland and island coastal areas include some of the richest habitats for marine birds and mammals in North America. The ocean waters, lagoons, beaches, bays, estuaries, saltwater marshes, and tidal flats provide habitat for an abundance of seabirds, shorebirds, wading birds, and waterfowl. Typical birds of rocky coasts include double-crested (*Phalacrocorax auritus*) and pelagic cormorants (*P. pelagicus*), black oystercatchers (*Haematopus bachmani*), black turnstones (*Arenaria melanocephala*), wandering tattlers (*Heteroscelus incanus*), and surfbirds (*Aphriza virgata*). Sandy beaches experience heavy human use, but undisturbed areas attract marbled godwits (*Limosa fedoa*), sanderlings (*Calidris alba*), and special status species, such as western snowy plovers and California least terns.

Several special status plant species occur in southern coastal salt marshes, including the endangered salt marsh bird's-beak (*Cordylanthus maritimus* ssp. *maritimus*), recorded in eight locations in Ventura and Los Angeles Counties. Coastal salt marshes also support the endangered light-footed clapper rails (*Rallus longirostris levipes*) and Belding's savannah sparrows (*Passerculus sandwichensis beldingi*).

Riparian Habitats

Riparian plant communities are tree or shrub-dominated communities that occur along streams and rivers. Historically, the most well-developed riparian vegetation occurred on the largest coastal streams, such as the Santa Clara, Los Angeles, Santa Ana, San Gabriel and Santa Margarita Rivers. Typical dominant species in the forests, woodlands, and scrubs along these rivers are Fremont cottonwood (*Populus fremontii*), California sycamore (*Platanus racemosa*), various species of willow (*Salix* spp.), coast live oak (*Quercus agrifolia*), canyon live oak (*Q. chrysolepis*) and white alder (*Alnus rhombifolia*). Vegetation series represented in riparian vegetation of the SCAG region include Fremont cottonwood, arroyo willow (*S. lasiolepis*), black willow (*S. gooddingii*), Hooker willow (*S. hookeriana*), red willow (*S. laevigata*), and mixed willow, as well as coast live oak and canyon live oak series. The characteristics of the major coastal rivers in the SCAG region are provided in **Table 3.3-2**.

River	Watershed Area (acres)	Natural Waterway Miles	% River in Protected Lands	# Stream Crossings	# Special Status Species	# Dams
Santa Barbara Coastal	240,720	633	1%	951	23	11
Santa Clara	1,032,302	2,624	21%	2,649	26	8
Los Angeles	534,420	801	0%	1,440	20	51
San Gabriel	453,960	828	19%	1,405	20	26
Santa Ana	1,082,540	2,033	3%	2,916	73	52
Santa Margarita	473,562	1,033	5%	1,488	45	9
San Luis Rey	495,650	961	2%	1,311	44	18

SOURCE: CARA – ICE, *Watershed Info*, available at: <http://endeavor.des.ucdavis.edu/newcara/>, accessed August 11, 2011.

Desert riparian vegetation occurs along permanent streams, intermittent streams, desert washes, permanent springs, and alkali sinks. Desert riparian vegetation includes Mojave riparian forests, Sonoran cottonwood-willow riparian forest, mesquite (*Prosopis glandulosa* and *P. pubescens*) bosque, desert dry wash woodland, and desert fan palm oasis woodland (mesquite series, fan palm series, arroyo willow, narrowleaf willow (*Salix exigua*), and Fremont cottonwood series).

Where the riparian habitat has been degraded, either through alteration of the hydrology or direct disturbance to the vegetation, the non-native tamarisk (*Tamarix* spp.; in tamarisk series) is often dominant. Most remaining high-quality desert riparian vegetation is considered special status by the CDFG. Major desert riparian systems occur along the Amargosa, Mojave, and Colorado Rivers.

Riparian habitats support the densest and most diverse wildlife communities in Southern California. The diversity of plant species, multi-layered vegetation, and perennial water provides a variety of foods and microhabitat conditions for wildlife. Mature willows, oaks, sycamores, and other riparian trees provide high-quality nesting habitat for wildlife, such as raptors. Cavity-nesting wildlife, such as the Nuttall’s woodpeckers (*Picoides nuttalli*), downy woodpeckers (*Picoides pubescens*), northern flickers (*Colaptes auratus*), plain titmice (*Parus inornatus*), white-breasted nuthatches (*Sitta carolinensis*), bats, and western gray squirrels (*Sciurus griseus*), require mature stands of trees. California grape (*Vitis californicus*) vines, blackberries (*Rubus* spp.), elderberries (*Sambucus* spp.), and oaks (*Quercus* spp.) produce important fall and winter foods for birds and mammals. Common wildlife species that depend on the nectar, fruits, and seeds of riparian plants include Anna’s hummingbirds (*Calyptes anna*), black-headed grosbeaks (*Pheucticus melanocephalus*), rufous-sided towhees (*Pipilo erythrophthalmus*), California towhees (*Pipilo fuscus*), raccoons (*Procyon lotor*), striped skunks (*Mephitis mephitis*), and gray foxes (*Urocyon cinereoargenteus*).

Riparian vegetation supports an abundance of insect prey that feed on foliage and stems during the growing season. These insects, in turn, support a high density of migratory and resident birds, including the Pacific-

slope flycatchers (*Empidonax difficilis*), western wood pewees (*Contopus sordidulatus*), yellow warblers (*Dendroica petechia*), MacGillivray's warblers (*Oporomis tolmiei*), Wilson's warblers (*Wilsonia pusilla*), warbling vireos (*Vireo gilvus*), bushtits (*Psaltriparus minimus*), and house wrens (*Troglodytes aedon*).

Special status plant species of riparian habitats include Nevin's barberry (*Berberis nevinii*), Davidson's bush mallow (*Malacothamnus davidsonii*), triple-ribbed milkvetch (*Astragalus tricarinatus*), short-joint beavertail (*Opuntia basilaris* var. *brachyclada*) and Parish's gooseberry (*Ribes divaricatum* var. *parishii*).

Some birds typical of riparian habitats such as willow flycatchers (*Empidonax traillii*), least Bell's vireos (*Vireo bellii pusillus*), and yellow-billed cuckoos (*Coccyzus americanus occidentalis*) have been eliminated from most of their historical range in Southern California. Riparian habitats in the SCAG region support small populations of special status wildlife species such as least Bell's vireos (*Vireo bellii pusillus*), southwestern willow flycatchers (*Empidonax traillii extimus*), yellow warblers (*Dendroica petechia brewsteri*), arroyo toads (*Bufo californicus*) and southwestern pond turtles (*Actinemys (=Clemmys) marmorata pallida*).

The ephemeral and semiarid nature of the rivers of the SCAG region have not supported an abundance of native fish, and many native fish found in the SCAG region are currently of endangered or threatened status because of habitat loss and water quality degradation. Native fish commonly found in the rivers of the SCAG region are probably limited to the speckled dace (*Rhinichthys osculus*), and the staghorn sculpins (*Leptocottus armatus*). Less common are special status fish found in rivers of the SCAG region. These include the threespine unarmored stickleback (*Gasterosteus aculeatus*), the tidewater goby (*Eucyclogobius newberryi*), the Mohave tui chub (*Gila bicolor mohavensis*), bonytail (*Gila elegans*), the Colorado squawfish, (*Ptychocheilus lucius*), the desert pupfish (*Cyprinodon macularius*), the southern coastal population of steelhead (*Onchorynchus mykiss*), the razorback sucker (*Xyrauchen texanus*), and the Santa Ana sucker (*Catostomus santaanae*), all of which are on the Federal threatened/endangered species list.

Coastal Marine Resources

The coastal waters of Southern California are extremely rich in fisheries and other marine resources. Not only is the ecosystem diverse, with 144 families and over 500 species of fish reported, but it is also very productive. Fish families prominent in the SCAG coastal waters include 23 species of viviparous perch (*Embiotocidae*), more than 60 species of sea bass (*Sebastes*), about 60 species of sculpin (*Cottidae*), over 20 species of flounder (*Pleuronectidae*), five species of salmon (*Salmonidae*), various rockfish (*Scorpaenidae*), and other small bottom fish (*Stichaeidae*, *Blenniidae*, *Clinidae*). Coastal waters in Southern California also support a rich assemblage of sea mammals. Pinnepeds include the California sea lion (*Zalophus californicus*), the federally endangered Guadalupe fur seal (*Arctocephalus townsendi*), and the stellar sea lion (*Eumetopius jubatus*). Cetacan residents of Southern California coastal waters include at least 18 species of whales and dolphins, many of which are federally endangered. Prominent among those are the Gray whales (*Eschrichtius robustus*) that migrate through the area to coastal birthing and rearing lagoons in Baja California.

Kelp forest, rock-bottom, and shallow sand-bottom communities are the predominant near-shore habitats in Southern California. Several marine species of special status are dependent on kelp forests. These include the federally endangered brown pelican (*Pelecanus occidentalis*), gray whale (*Eschrichtius robustus*) and the sea otter (*Enhydra lutris*).

Farmland and Rangeland

Farmlands and rangelands are agricultural lands that are part of the region's open landscape and entail various types and degrees of modifications to natural lands. Farmlands include irrigated and non-irrigated crop production. Rangelands include any expanse of natural land that is not fertilized, irrigated, or cultivated and is predominately used for grazing by livestock and wildlife. Based on 2008-2010 estimates prepared by

the California Department of Conservation (CDC), there are approximately 2.6 million acres of agricultural lands in the SCAG region: approximately 1.1 million acres of farmland and 1.4 million acres of rangeland. This estimate is substantially higher than the estimate in the 2005 SCAG land use inventory because the latter includes substantial areas of rangeland under the “vacant” category. It also should be noted that the CDC estimate is based on a selective inventory of agricultural lands, and the SCAG inventory is based on aerial imagery interpretation. As indicated in **Table 3.3-3**, there is substantially more farmland than rangeland in Riverside and Imperial counties and the reverse in Los Angeles, Orange, and San Bernardino counties. Ventura County has similar amounts of farmland and rangeland.

TABLE 3.3-3: ESTIMATED FARMLANDS AND RANGELANDS IN THE SCAG REGION (2008-2010)							
County	Ventura	Los Angeles	Orange	Riverside	San Bernardino	Imperial	SCAG Region
Total Land Acres	1,180,800	2,599,040	504,960	4,612,480	12,833,280	2,672,000	24,402,560
FARMLANDS AND RANGELANDS							
Farmland of Local Importance	16,218	6,855	0	229,157	1,829	32,109	286,168
Prime Farmland	43,790	30,876	3,243	122,936	14,089	195,589	410,523
Farmland of Statewide Importance	33,841	952	367	44,651	6,747	311,048	397,606
Unique Farmland	28,643	1,129	3,654	37,135	2,661	2,196	75,418
All Farmland	122,492	39,812	7,264	433,879	25,326	540,942	1,169,715
Grazing	195,674	231,475	37,639	111,221	901,666	0	1,477,675
Total	318,166	271,287	44,903	545,100	926,992	540,942	2,647,390
SOURCE: SCAG and TAHA, 2011.							

Historically, development patterns in the region have been tied as much to the conversion of agricultural lands as to the consumption of natural lands for urban uses. A key issue in the region today is whether the high rate of farmland conversion in recent years can be slowed to prevent irreversible losses. An estimated 230,000 acres of farmland and grazing land were converted to non-agricultural uses and/or applied for development entitlements between 1996 and 2004. If this trend continues unabated, the existing inventory of agricultural lands could be reduced by approximately 660,000 acres before 2035.

Special Status Species and Natural Communities

A number of species known to occur in the SCAG region are accorded “special status” because of their recognized rarity or vulnerability to habitat loss or population decline. Federal and/or State endangered species listings provide specific protection for some of these species. To meet conservation objectives, State agencies, local jurisdictions, and other organizations apply designations, such as “rare” or “sensitive” to species that have been formally listed as threatened or endangered. These species are referred to collectively as “special status species.” **Table 3.3-4**, below, lists by county, the scientific and common name and protection status for special status species found within the SCAG area. The list contains several hundred species—plants, fish, amphibians, reptiles, mammals, birds, mollusks, insects and crustaceans. Site-specific information on each of these species is maintained by the CNDDDB, including the population size, habitat quality and extent, threats, and when last observed.

TABLE 3.3-4: SPECIAL STATUS SPECIES REPORTED IN THE SCAG REGION

Scientific Name	Common Name	Status				Counties Where Reported
		Federal	State	CDFG	CNPS/a/	
NON-VASCULAR PLANTS						
<i>Graphis saxorum</i>	Baja Rock Lichen	None	None			LA
VASCULAR PLANTS						
<i>Achnatherum aridum</i>	Mormon Needle Grass	None	None		2	SB
<i>Acleisanthes logniflora</i>	Angel Trumpets	None	None		2	RIV
<i>Allium munzii</i>	Munz's Onion	Endangered	Threatened		1B	RIV
<i>Allium nevadense</i>	Nevada Onion	None	None		2	SB
<i>Ambrosia pumila</i>	San Diego Ambrosia	Species of Concern	None		1B	RIV
<i>Ammoselinum giganteum</i>	Desert Sand Parsley	None	None		2	RIV
<i>Androstephium breviflorum</i>	Small-Flowered Androstephium	None	None		2	RIV, SB
<i>Antennaria marginata</i>	White-Margined Everlasting	None	None		2	SB
<i>Antirrhinum cyathiferum</i>	Deep Canyon Snapdragon	None	None		2	RIV
<i>Aphanisma blitoides</i>	Aphanisma	Species of Concern	None		1B	LA, OR, VEN
<i>Arabis breweri var pecuniaria</i>	San Bernardino Rock Cress	Species of Concern	None		1B	SB
<i>Arabis dispar</i>	Pinyon Rock Cress	None	None		2	RIV, SB
<i>Arabis hoffmannii</i>	Hoffman's Rock Cress	Endangered	None		1B	VEN
<i>Arabis johnstonii</i>	Johnston's Rock Cress	Species of Concern	None		1B	RIV
<i>Arabis parishii</i>	Parish's Rock Cress	Species of Concern	None		1B	SB
<i>Arabis pulchra var munciensis</i>	Darwin Rock Cress	None	None		2	RIV, SB
<i>Arabis shockleyi</i>	Shockley's Rock Cress	None	None		2	SB
<i>Arctomecon merriamii</i>	White Bear Poppy	Species of Concern	None		1B	SB
<i>Arctostaphylos catalinae</i>	South Catalina Island Manzanita	Species of Concern	None		1B	LA
<i>Arctostaphylos gabriellensis</i>	San Gabriel Manzanita	Species of Concern	None		1B	LA
<i>Arctostaphylos peninsularis ssp peninsularis</i>	Peninsular Manzanita	None	None		2	RIV
<i>Arctostaphylos rainbowensis</i>	Rainbow Manzanita	None	None		1B	RIV
<i>Arenaria paludicola</i>	Marsh Sandwort	Endangered	Endangered		1B	RIV, SB
<i>Arenaria ursina</i>	Big Bear Valley Sandwort	Threatened	None		1B	SB
<i>Argyrochosma limitanea var limitanea</i>	Cloak Fern	None	None		2	SB
<i>Astragalus albens</i>	Cushenbury Milk-Vetch	Endangered	None		1B	SB
<i>Astragalus allochrous var playanus</i>	Playa Milk-Vetch	None	None		2	SB
<i>Astragalus brauntonii</i>	Braunton's Milk-Vetch	Endangered	None		1B	LA, OR, VEN
<i>Astragalus cimae var cimae</i>	Cima Milk-Vetch	None	None		1B	SB

TABLE 3.3-4: SPECIAL STATUS SPECIES REPORTED IN THE SCAG REGION

Scientific Name	Common Name	Status				Counties Where Reported
		Federal	State	CDFG	CNPS/a/	
<i>Astragalus insularis var harwoodii</i>	Harwood's Milk Vetch	None	None		2	IMP, RIV
<i>Astragalus jaegerianus</i>	Lane Mountain Milk-Vetch	Endangered	None		1B	SB
<i>Astragalus lentiginosus var antonius</i>	San Antonio Milk-Vetch	Species of Concern	None		1B	LA, SB
<i>Astragalus lentiginosus var cachellae</i>	Coachella Valley Milk-Vetch	Endangered	None		1B	RIV
<i>Astragalus lentiginosus var sierrae</i>	Big Bear Valley Milk-Vetch	Species of Concern	None		1B	SB
<i>Astragalus leucolobus</i>	Big Bear Valley Woollypod	Species of Concern	None		1B	LA, RIV, SB, VEN
<i>Astragalus magdalenae var personii</i>	Peirson's Milk-Vetch	Threatened	Endangered		1B	IMP
<i>Astragalus nevinii</i>	San Clemente Island Milk-Vetch	Species of Concern	None		1B	LA
<i>Astragalus pachypus var jaegeri</i>	Jaeger's Milk-Vetch	Species of Concern	None		1B	RIV
<i>Astragalus preussii var laxiflorus</i>	Lancaster Milk-Vetch	Species of Concern	None		1B	LA
<i>Astragalus preussii var preussii</i>	Preuss's Milk-Vetch	None	None		2	SB
<i>Astragalus pyncnostachyus var lanosissimus</i>	Ventura Marsh Milk-Vetch	Proposed Endangered	Endangered		1A	LA, OR, VEN
<i>Astragalus traskiae</i>	Trask's Milkvetch	Species of Concern	Rare		1B	VEN
<i>Astragalus tricarinatus</i>	Triple-Ribbed Milk Vetch	Endangered	None		1B	RIV, SB
<i>Astroleps cochisensis</i>	Scaly Cloak Fern	None	None		2	SB
<i>Atriplex coronata var notatior</i>	San Jacinto Valley Crownscale	Endangered	None		1B	RIV
<i>Atriplex coulteri</i>	Coulter's Saltbrus	None	None		1B	LA, OR, SB
<i>Atriplex pacifica</i>	South Coast Saltscale	Species of Concern	None		1B	LA, OR, RIV, VEN
<i>Atriplex parishii</i>	Parish's Brittlecale	Species of Concern	None		1B	LA, OR, RIV, SB
<i>Atriplex serenana var davidsonii</i>	Davidson's Saltscale	None	None		1B	LA, OR, VEN
<i>Ayenia compacta</i>	Ayenia	None	None		2	RIV, SB
<i>Baccharis malibuensis</i>	Malibu Baccharis	None	None			LA
<i>Berberis nevinii</i>	Nevin's Barberry	Endangered	Endangered		1B	LA, RIV, SB
<i>Berberis pinnata ssp insularis</i>	Island Barberry	Endangered	Endangered		1B	VEN
<i>Bergerocactus emoryi</i>	Golden-Spined Cereus	None	None		2	LA
<i>Botrychium crenulatum</i>	Scalloped Moonwort	Species of Concern	None		1B	LA, SB
<i>Bouteloua trifida</i>	Red Grama	None	None		2	SB
<i>Brodiaea flifolia</i>	Thread-Leaved Brodiaea	Threatened	Endangered		1B	LA, OR, RIV, SB
<i>Brodiaea kinkiensis</i>	San Clemente Island Brodiaea	Species of Concern	None		1B	LA
<i>Brodiaea orcutti</i>	Orcutt's Brodiaea	Species of Concern	None		1B	RIV
<i>Bursera microphylla</i>	Elephant Tree	None	None		2	IMP
<i>Calliandra eriophylla</i>	Fairyduster	None	None		2	IMP

TABLE 3.3-4: SPECIAL STATUS SPECIES REPORTED IN THE SCAG REGION

Scientific Name	Common Name	Status				Counties Where Reported
		Federal	State	CDFG	CNPS/a/	
<i>Calochortus clavata var gracilis</i>	Slender Mariposa Lily	Species of Concern	None		1B	LA
<i>Calochortus palmeri var munzii</i>	Munz's Mariposa Lily	Species of Concern	None		1B	RIV
<i>Calochortus palmeri var palmeri</i>	Palmer's Mariposa Lily	Species of Concern	None		1B	LA, RIV, SB, VEN
<i>Calochortus plummerae</i>	Plummer's Mariposa Lily	Species of Concern	None		1B	LA, OR, RIV, SB, VEN
<i>Calochortus striatus</i>	Alkali Mariposa Lily	Species of Concern	None		1B	LA, SB
<i>Calochortus weedii var intermidius</i>	Intermediate Mariposa Lily	Species of Concern	None		1B	LA, OR, RIV, SB
<i>Calochortus weedii var vestus</i>	Late-Flowered Mariposa Lily	Species of Concern	None		1B	VEN
<i>Calystegia peirsonii</i>	Peirson's Morning-Glory	Species of Concern	None		4	LA
<i>Calystegia sepium ssp binghamiae</i>	Santa Barbara Morning-Glory	None	None		1B	LA
<i>Camissonia guadalupensis ssp clementina</i>	San Clemente island Evening-Primrose	Species of Concern	None		1B	LA
<i>Canbya candida</i>	Pygmy Poppy	None	None		1B	LA, SB
<i>Carex comosa</i>	Bristly Sedge	None	None		2	SB
<i>Carnegiea gigantea</i>	Saguaro	None	None		2	IMP, SB
<i>Castela emoryi</i>	Crucifixion Thorn	None	None		2	IMP, RIV, SB
<i>Castilleja cinerea</i>	Ash-Gray Indian Paintbrush	Threatened	None		1B	SB
<i>Castilleja gleasonii</i>	Mt. Gleason Indian Paintbrush	Species of Concern	Rare		1B	LA
<i>Castilleja grisea</i>	San Clemente Island Indian Paintbrush	Endangered	Endangered		1B	LA
<i>Castilleja lanata ssp hololeuca</i>	White-Felted Indian Paintbrush	None	None		1B	VEN
<i>Castilleja lasiorhyncha</i>	San Bernardino Mountains Owl-Clover	Species of Concern	None		1B	RIV, SB
<i>Caulanthus simulans</i>	Payson's Jewel-Flower	Species of Concern	None		4	OR, RIV, SB
<i>Ceanothus cyaneus</i>	Lakeside Ceanothus	Species of Concern	None		1B	RIV
<i>Ceanothus ophiochilus</i>	Vail Lake Ceanothus	Threatened	Endangered		1B	RIV
<i>Cercocarpus traskiae</i>	Catalina Island Mountain-Mohagany	Endangered	Endangered		1B	LA
<i>Chaenactis carphoclinia var peirsonii</i>	Peirson's Pincushion	None	None		1B	IMP
<i>Chamaesyce arizonica</i>	Arizona Spurge	None	None		2	RIV
<i>Chamaesyce platysperma</i>	Flat-Seeded Spurge	Species of Concern	None		1B	RIV, SB
<i>Cheilanthes wootonii</i>	Wooton's Lace Fern	None	None		2	SB
<i>Chorizanthe parryi var fernandina</i>	San Fernando Valley Spineflower	Species of Concern	Candidate Endangered		1A	LA
<i>Chorizanthe parryi var parryi</i>	Parry's Spineflower	Species of Concern	None		3	LA, RIV, SB

TABLE 3.3-4: SPECIAL STATUS SPECIES REPORTED IN THE SCAG REGION

Scientific Name	Common Name	Status				Counties Where Reported
		Federal	State	CDFG	CNPS/a/	
<i>Chorizanthe polygonoides var longispina</i>	Long-Spined Spineflower	Species of Concern	None		1B	RIV
<i>Claytonia lanceolata var peirsonii</i>	Peirson's Spring Beauty	Species of Concern	None		1B	SB
<i>Comarostaphylis diversifolia ssp diversifolia</i>	Summer Holly	Species of Concern	None		1B	OR, RIV
<i>Cordylanthus maritimus ssp maritimus</i>	Salt Marsh Bird's-Beak	Endangered	Endangered		1B	LA, OR, SB, VEN
<i>Cordylanthus parviflorus</i>	Purple Bird's-Beak	None	None		1B	SB
<i>Cordylanthus tecopensis</i>	Tecopa Bird's-Beak	Species of Concern	None		1B	SB
<i>Croton wigginsii</i>	Wiggin's Croton	None	Rare		2	IMP
<i>Cryptantha clokeyi</i>	Clokey's Cryptantha	None	None		1B	SB
<i>Cryptantha traskiae</i>	Trask's Cryptantha	Species of Concern	None		1B	LA, VEN
<i>Cupressus forbesii</i>	Tecate Cypress	Species of Concern	None		1B	OR, RIV
<i>Cymopterus deserticola</i>	Desert Cymopterus	Species of Concern	None		1B	LA, SB
<i>Cymopterus gilmanii</i>	Gilman's cymopterus	None	None		2	SB
<i>Delphinium hesperium ssp cuyamaca</i>	Cuyamaca Larkspur	Species of Concern	Rare		1B	RIV
<i>Delphinium parryi ssp blochmaniae</i>	Dune Larkspur	Species of Concern	None		1B	VEN
<i>Delphinium variegatum ssp kinkiense</i>	San Clemente Island Larkspur	Endangered	Endangered		1B	LA
<i>Delphinium variegatum ssp thornei</i>	Thorne's Royal Larkspur	Species of Concern	None		1B	LA
<i>Dendromecon harfordii var rhamnoides</i>	Island Tree Poppy	Species of Concern	None		1B	LA
<i>Dissantheium californicum</i>	California Dissantheium	Species of Concern	None		1A	LA
<i>Ditaxis californica</i>	California Ditaxis	Species of Concern	None		1B	RIV
<i>Ditaxis clariana</i>	Glandular Ditaxis	None	None		2	IMP, SB
<i>Dithyrea maritima</i>	Beach Spectaclepod	Species of Concern	Threatened		1B	LA, VEN
<i>Dodecahema leptoceras</i>	Slender-Horned Spineflower	Endangered	Endangered		1B	LA, RIV, SB
<i>Dryopteris filix-mas</i>	Male Fern	None	None		2	SB
<i>Dudleya abramsii ssp affinis</i>	San Bernardino Mountains Dudleya	Species of Concern	None		1B	SB
<i>Dudleya abramsii ssp parva</i>	Conejo Dudleya	Threatened	None		1B	VEN
<i>Dudleya blochmaniae ssp blochmaniae</i>	Blochman's Dudleya	Species of Concern	None		1B	LA, OR, VEN
<i>Dudleya cymosa ssp crebrifolia</i>	San Gabriel River Dudleya	Species of Concern	None		1B	LA
<i>Dudleya cymosa ssp marcescens</i>	Marcescent Dudleya	Threatened	Rare		1B	LA, VEN
<i>Dudleya cymosa ssp ovatifolia</i>	Santa Monica Mountains Dudleya	Threatened	None		1B	LA, OR, VEN
<i>Dudleya densiflora</i>	San Gabriel Mountains Dudleya	Species of Concern	None		1B	LA
<i>Dudleya multicaulis</i>	Many-Stemmed Dudleya	Species of Concern	None		1B	LA, OR, RIV, SB

TABLE 3.3-4: SPECIAL STATUS SPECIES REPORTED IN THE SCAG REGION

Scientific Name	Common Name	Status				Counties Where Reported
		Federal	State	CDFG	CNPS/a/	
<i>Dudleya stolonifera</i>	Laguna Beach Dudleya	Threatened	Threatened		1B	OR
<i>Dudleya verityi</i>	Verity's Dudleya	Threatened	None		1B	VEN
<i>Dudleya virens</i>	Bright Green Dudleya	Species of Concern	None		1B	LA, VEN
<i>Dudleya viscida</i>	Stick Dudleya	Species of Concern	None		1B	OR, RIV
<i>Echinocereus engelmannii var howei</i>	Howe's Hedgehog Cactus	Species of Concern	None		1B	SB
<i>Enneapogon desvauxii</i>	Nine-Awned Pappus Grass	None	None		2	SB
<i>Eriastrum densifolium ssp sanctorum</i>	Santa Ana River Woollystar	Endangered	Endangered		1B	OR, RIV, SB
<i>Erigeron breweri var bisanctus</i>	Pious Daisy	None	None		1B	LA, SB
<i>Erigeron parishii</i>	Parish's Daisy	Threatened	None		1B	RIV, SB
<i>Erigeron uncialis var uncialis</i>	Limesone Daisy	None	None		2	SB
<i>Eriogonum bifurcatum</i>	Forked Buckwheat	Species of Concern	None		1B	SB
<i>Eriogonum crocatum</i>	Conejo Buckwheat	Species of Concern	Rare		1B	VEN
<i>Eriogonum ericifolium var thornei</i>	Thorne's Buckwheat	Species of Concern	Endangered		1B	SB
<i>Eriogonum foliosum</i>	Leafy Buckwheat	None	None		1B	RIV
<i>Eriogonum giganteum var formosum</i>	San Clemente Island Buckwheat	Species of Concern	None		1B	LA
<i>Eriogonum grande var timorum</i>	San Nicolas Island Buckwheat	Species of Concern	Endangered		1B	VEN
<i>Eriogonum kennedyi var alpigenum</i>	Southern Alpine Buckwheat	None	None		1B	LA, SB
<i>Eriogonum kennedyi var austromontanum</i>	Southern Mountain Buckwheat	Threatened	None		1B	SB
<i>Eriogonum microthecum var johnstonii</i>	Johnston's Buckwheat	Species of Concern	None		1B	LA, SB
<i>Eriogonum ovalifolium var vineum</i>	Cushenbury Buckwheat	Endangered	None		1B	SB
<i>Eriogonum umbellatum var juniporinum</i>	Juniper Buckwheat	None	None		2	SB
<i>Erioneuron pilosum</i>	Hair Erioneuron	None	None		2	SB
<i>Eriophyllum mohavense</i>	Barstow Woolly Sunflower	Species of Concern	None		1B	SB
<i>Eriophyllum nevinii</i>	Nevin's Woolly Sunflower	Species of Concern	None		1B	LA
<i>Eryngium aristulatum var parishii</i>	San Diego Button Celery	Endangered	Endangered		1B	RIV
<i>Erysimum insulare ssp insulare</i>	Island Wallflower	Species of Concern	None		1B	VEN
<i>Eschscholzia minutiflora ssp twisselmannii</i>	Red Rock Poppy	Species of Concern	None		1B	SB
<i>Escobaria vivipara var alversonii</i>	Foxtail Cactus	Species of Concern	None		1B	RIV, SB
<i>Escobaria vivipara var rosea</i>	Viviparous Foxtail Cactus	None	None		1B	SB
<i>Eucnide repenstris</i>	Rock Nettle	None	None		2	IMP
<i>Euphorbia exstipulata var exstipulata</i>	Clark Mountain Spurge	None	None		2	SB

TABLE 3.3-4: SPECIAL STATUS SPECIES REPORTED IN THE SCAG REGION

Scientific Name	Common Name	Status				Counties Where Reported
		Federal	State	CDFG	CNPS/a/	
<i>Euphorbia misera</i>	Cliff Spruce	None	None		2	LA, OR, RIV
<i>Fimbristylis thermalis</i>	Hot Springs Fimbristylis	None	None		2	SB
<i>Fritillaria ojaiensis</i>	Ojai Fritillary	Species of Concern	None		1B	VEN
<i>Fremontodendrom mexicanum</i>	Mexican Flannelbush	Endangered	Rare		1B	LA
<i>Galium angustifolium ssp jacinticum</i>	San Jacinto Mountains Bedstraw	None	None		1B	RIV
<i>Galium californicum ssp primum</i>	California Bedstraw	Species of Concern	None		1B	RIV, SB
<i>Galium catalinense ssp acrispum</i>	San Clemente Island Bedstraw	Species of Concern	Endangered		1B	LA
<i>Galium grande</i>	San Gabriel Bedstraw	Species of Concern	None		1B	LA
<i>Galium hilendiae ssp kingstonense</i>	Kinston Mountains Bedstraw	Species of Concern	None		1B	SB
<i>Gallium wrightii</i>	Wright's Bedstraw	None	None		2	SB
<i>Galvezia speciosa</i>	Island Snapdragon	Species of Concern	None		1B	LA
<i>Gentiana fremontii</i>	Moss Gentian	None	None		2	SB
<i>Geraea viscida</i>	Sticky Geraea	None	None		2	IMP
<i>Gilia maculata</i>	Little San Bernardino Mountains Gilia	Species of Concern	None		1B	RIV, SB
<i>Gilia ripleyi</i>	Ripley's Gilia	None	None		2	SB
<i>Githopsis diffusa ssp filicaulis</i>	Mission Canyon Bluecup	Species of Concern	None		1B	RIV
<i>Glossopetalon pungens</i>	Pungent Glossopetalon	Species of Concern	None		1B	SB
<i>Harpagonella palmeri</i>	Palmer's Grapplinghook	Species of Concern	None		2	LA, OR, RIV
<i>Hazardia cana</i>	San Clemente Island Hazardia	Species of Concern	None		1B	LA
<i>Helianthemum greenei</i>	Island Rush-Rose	Threatened	None		1B	LA
<i>Helianthus niveus ssp tephrodes</i>	Algodones Dune's Sunflower	Species of Concern	Endangered		1B	IMP
<i>Helianthus nuttallii ssp parishii</i>	Los Angeles Sunflower	Species of Concern	None		1A	LA, OR, SB
<i>Hemizonia minthornii</i>	Santa Susana Tarplant	Species of Concern	Rare		1B	LA, VEN
<i>Hemizonia mohavensis</i>	Mojave Tarplant	Species of Concern	Endangered		1A	RIV, SB
<i>Hemizonia parryi ssp australis</i>	Southern Tarplant	Species of Concern	None		1B	LA, OR, VEN
<i>Hemizonia pungens ssp laevis</i>	Smooth Tarplant	Species of Concern	None		1B	RIV, SB
<i>Herissantia crispa</i>	Curly Herissantia	None	None		2	IMP
<i>Heuchera hirsutissima</i>	Shaggy-Haired Alumroot	None	None		1B	RIV
<i>Heuchera maxima</i>	Island Alumroot	Species of Concern	None		1B	VEN
<i>Heuchera parishii</i>	Parish's Alumroot	None	None		1B	RIV, SB
<i>Horkelia wilderae</i>	Barton's Flat Horkelia	Species of Concern	None		1B	SB

TABLE 3.3-4: SPECIAL STATUS SPECIES REPORTED IN THE SCAG REGION

Scientific Name	Common Name	Status				Counties Where Reported
		Federal	State	CDFG	CNPS/a/	
<i>Hulsea mexicana</i>	Mexican Hulsea	None	None		2	IMP
<i>Ipomopsis effusa</i>	Baja California Ipomopsis	None	None		2	IMP
<i>Ipomopsis tenuifolia</i>	Slender-leaved Ipomopsis	None	None		2	IMP
<i>Ivesia argyrocoma</i>	Silver-Haired Ivesia	Species of Concern	None		1B	SB
<i>Ivesia callida</i>	Tahquitz Ivesia	Species of Concern	Rare		1B	RIV
<i>Koeberlinia spinosa ssp tenuispina</i>	Crown-of-Thorns	None	None		2	IMP
<i>Lasthenia glabrata ssp coulteri</i>	Coulter's Goldfields	Species of Concern	None		1B	LA, OR, RIV, SB, VEN
<i>Lavatera assurgentiflora ssp assurgentiflora</i>	Island Mallow	Species of Concern	None		1B	VEN
<i>Lavatera assurgentiflora ssp glabra</i>	Southern Island Mallow	Species of Concern	None		1B	LA
<i>Layia heterotricha</i>	Pale-Yellow Layia	Species of Concern	None		1B	VEN
<i>Lepechenia cardiophylla</i>	Heart-Leaved Pitcher Sage	Species of Concern	None		1B	OR, RIV
<i>Lepidium virginicum var robinsonii</i>	Robinson's Pepper-Grass	None	None		1B	LA, OR, RIV, SB
<i>Leptodactylon jaegeri</i>	San Jacinto Prickly Phlox	None	None		1B	RIV
<i>Lesquerella kingii ssp bernardina</i>	San Bernardino Mountains Bladderpod	Endangered	None		1B	SB
<i>Lilium parryi</i>	Lemon Lily	Species of Concern	None		1B	LA, RIV, SB
<i>Limnanthes gracilis ssp parishii</i>	Parish's Meadowfoam	Species of Concern	Endangered		1B	RIV
<i>Linanthus arenicola</i>	Sand Linanthus	None	None		2	SB
<i>Linanthus concinnus</i>	San Gabriel Linanthus	Species of Concern	None		1B	LA, SB
<i>Linanthus floribundus ssp hallii</i>	Santa Rosa Mountains Linanthus	None	None		1B	RIV
<i>Linanthus killipii</i>	Baldwin Lake Linanthus	Species of Concern	None		1B	SB
<i>Linanthus orcuttii</i>	Orcutt's Linanthus	Species of Concern	None		1B	RIV, SB
<i>Linanthus pygmaeus ssp pygmaeus</i>	Pygmy Linanthus	None	None		1B	LA
<i>Lithophragma maximum</i>	San Clemente Island Woodland Star	Endangered	Endangered		1B	LA
<i>Loeflingia squarrosa var artemisiarum</i>	Sagebrush leflingia	None	None		1B	LA
<i>Lomatium insulare</i>	San Nicolas Island Lomatium	Species of Concern	None		1B	LA, VEN
<i>Lotus argophyllus var adsurgens</i>	San Clemente Island Bird's-Foot Trefoil	Species of Concern	Endangered		1B	LA
<i>Lotus argyraeus var multicaulis</i>	Scrub Lotus	None	None		1B	SB
<i>Lotus argyraeus var notitius</i>	Providence Mountains Lotus	None	None		1B	SB
<i>Lotus dendroideus var traskiae</i>	San Clemente Island Lotus	Endangered	Endangered		1B	LA

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Scientific Name	Common Name	Status				Counties Where Reported
		Federal	State	CDFG	CNPS/a/	
<i>Lupinus excubitus var medius</i>	Mountain Springs Bush Lupine	Species of Concern	None		1B	IMP
<i>Lupinus guadalupensis</i>	Guadalupe Island Lupine	Species of Concern	None		1B	LA
<i>Lycium brevipes var hassei</i>	Santa Catalina Island Desert-Thorn	None	None		1B	LA
<i>Lycium parishii</i>	Parhish's Desert-Thorn	None	None		2	IMP, RIV, SB
<i>Lycium verrucosum</i>	San Nicolas Island Desert-Thorn	None	None		1A	VEN
<i>Lycurus phleoides var phleoides</i>	Wolftail	None	None		2	SB
<i>Lyonothamnus floribundus ssp asplenifolius</i>	Santa Cruz Island Ironwood	Species of Concern	None		1B	LA
<i>Lyonothamnus floribundus ssp floribundus</i>	Santa Catalina Island Ironwood	Species of Concern	None		1B	LA
<i>Machaeranthera canescens var ziegleri</i>	Ziegler's Aster	None	None		1B	RIV
<i>Malacothamnus clementinus</i>	San Clemente Island Bush Mallow	Endangered	Endangered		1B	LA
<i>Malacothamnus davidsonii</i>	Davidson's Bush Mallow	Species of Concern	None		1B	LA
<i>Malacothamnus parishii</i>	Parish's Bush Mallow	Species of Concern	None		1A	SB
<i>Malacothrix squalida</i>	Island Malacothrix	Endangered	None		1B	VEN
<i>Malaxis monophyllos ssp brachypoda</i>	Adder's-Mouth	None	None		2	RIV, SB
<i>Malperia tenuis</i>	Brown Turbans	None	None		2	IMP
<i>Marina orcuttii var orcuttii</i>	California Marina	Species of Concern	None		1B	RIV
<i>Matelea parvifolia</i>	Spearleaf	None	None		2	RIV, SB
<i>Maurandya antirrhiniflora ssp antirrhiniflora</i>	Violet Twining Snapdragon	None	None		2	SB
<i>Mentzelia hirsutissima</i>	Hairy Stickleaf	None	None		2	IMP
<i>Mimulus exiguus</i>	San Bernardino Mountains Monkeyflower	Species of Concern	None		1B	SB
<i>Mimulus mohavensis</i>	Mohave Monkeyflower	Species of Concern	None		1B	SB
<i>Mimulus purpureus</i>	Purple Monkeyflower	Species of Concern	None		2	SB
<i>Mimulus traskiae</i>	Santa Catalina Island Monkeyflower	Species of Concern	None		1A	LA
<i>Monardella hypoleuca ssp lanata</i>	Felt-Leaved Monardella	None	None		1B	OR
<i>Monardella linoides ssp oblonga</i>	Flax-Like Monardella	Species of Concern	None		1B	VEN
<i>Monardella macrantha ssp hallii</i>	Hall's Monardella	None	None		1B	LA, OR, RIV, SB
<i>Monardella pringlei</i>	Pringle's Monardella	Species of Concern	None		1A	RIV, SB
<i>Monardella robisonii</i>	Robison's Monardella	Species of Concern	None		1B	RIV, SB

TABLE 3.3-4: SPECIAL STATUS SPECIES REPORTED IN THE SCAG REGION

Scientific Name	Common Name	Status				Counties Where Reported
		Federal	State	CDFG	CNPS/a/	
<i>Muhlenbergia appressa</i>	Appressed Muhly	None	None		2	LA, SB
<i>Muhlenbergia arsenei</i>	Tough Muhly	None	None		2	SB
<i>Muhlenbergia californica</i>	California Muhly	None	None		1B	LA, SB
<i>Muhlenbergia fragilis</i>	Delicate Muhly	None	None		2	SB
<i>Muhlenbergia pauciflora</i>	Few-Flowered Muhly	None	None		2	SB
<i>Muilla clevelandii</i>	San Diego Goldenstar	Species of Concern	None		1B	RIV
<i>Munroa squarrosa</i>	False Buffalo-Grass	None	None		2	SB
<i>Myosurus minimus ssp apus</i>	Little Mousetail	Species of Concern	None		3	RIV
<i>Nama dichotomum var dichotomum</i>	Forked Purple Mat	None	None		2	SB
<i>Nama stenocarpum</i>	Mud Nama	None	None		2	IMP, LA
<i>Navarretia fossalis</i>	Spreading Navarretia	Threatened	None		1B	RIV
<i>Navarretia peninsularis</i>	Baja Navarretia	None	None		1B	SB, VEN
<i>Nemacaulis denudata var denudata</i>	Coast Woolly-Heads	None	None		2	LA, OR
<i>Nemacaulis denudata var gracilis</i>	Slender Woolly-Heads	None	None		2	IMP, RIV, SB
<i>Opuntia basilaris var brachyclada</i>	Short-Joint Beavertail	Species of Concern	None		1B	LA, SB
<i>Opuntia curvospina</i>	Curved-Spine Beavertail	None	None		2	SB
<i>Opuntia munzii</i>	Munz's Cholla	Species of Concern	None		1B	IMP, RIV
<i>Opuntia wigginsii</i>	Wiggin's Cholla	None	None		3	IMP, RIV
<i>Orcuttia californica</i>	California Orcutt Grass	Endangered	Endangered		1B	LA, RIV, VEN
<i>Orobanche parishii ssp brachyloba</i>	Short-Lobed Broom-Rape	Species of Concern	None		1B	LA, VEN
<i>Orobanche valida ssp valida</i>	Rock Creek Broom-Rape	Species of Concern	None		1B	LA, VEN
<i>Oxytheca parishii var abramsii</i>	Abram's Oxytheca	None	None		1B	VEN
<i>Oxytheca parishii var cienegensis</i>	Cienega Seca Oxytheca	Species of Concern	None		1B	SB
<i>Oxytheca parishii var goodmaniana</i>	Cushenbury Oxytheca	Endangered	None		1B	SB
<i>Palafoxia arida var gigantea</i>	Giant Spanish-Needle	Species of Concern	None		1B	IMP
<i>Pellaea truncata</i>	Cliff Brake	None	None		2	SB
<i>Penstemon calcareus</i>	Limestone Beardtongue	None	None		2	SB
<i>Penstemon californicus</i>	California Beardtongue	None	None		1B	RIV
<i>Penstemon stephensii</i>	Stephen's Beardtongue	Species of Concern	None		1B	SB
<i>Pentachaeta lyonii</i>	Lyon's Pentachaeta	Endangered	Endangered		1B	LA, VEN
<i>Perideridia parishii ssp parishii</i>	Parish's Yampah	None	None		2	SB
<i>Phacelia anelsonii</i>	Aven Nelson's Phacelia	None	None		1B	SB
<i>Phacelia cinerea</i>	Ashy Phacelia	Species of Concern	None		1A	VEN

TABLE 3.3-4: SPECIAL STATUS SPECIES REPORTED IN THE SCAG REGION

Scientific Name	Common Name	Status				Counties Where Reported
		Federal	State	CDFG	CNPS/a/	
<i>Phacelia floribunda</i>	Many-Flowered Phacelia	Species of Concern	None		1B	LA
<i>Phacelia mustelina</i>	Death Valley Round-Leaved Phacelia	None	None		1B	SB
<i>Phacelia parishii</i>	Parish's Phacelia	Species of Concern	None		2	SB
<i>Phacelia pulchella var gooddingii</i>	Goodding's Phacelia	None	None		2	SB
<i>Phacelia stellaris</i>	Brand's Phacelia	None	None		1B	LA
<i>Phacelia suaveolens ssp keckii</i>	Santiago Peak Phacelia	Species of Concern	None		1B	OR, RIV
<i>Phaseolus filiformis</i>	Slender-Stem Bean	None	None		2	RIV
<i>Phlox dolichantha</i>	Big Bear Valley Phlox	Species of Concern	None		1B	SB
<i>Pholisma sonorae</i>	Sand Food	Species of Concern	None		1B	IMP
<i>Pholistoma auritum var arizonicum</i>	Arizona Pholistoma	None	None		2	SB
<i>Physalis lobata</i>	Lobed Ground-Cherry	None	None		2	SB
<i>Pilosyles thurberi</i>	Thurber's Pilosyles	None	None		4	IMP
<i>Piptatherum micranthus</i>	Small-Flowered Rice Grass	None	None		2	SB
<i>Poa atropurpurea</i>	San Bernardino Blue Grass	Endangered	None		1B	SB
<i>Poliomintha incana</i>	Frosted Mint	None	None		1A	SB
<i>Populus angustifolia</i>	Narrow-Leaved Cottonwood	None	None		2	SB
<i>Potentilla glandulosa ssp ewanii</i>	Ewan's Cinquefoil	None	None		1B	LA
<i>Potentilla multijuga</i>	Ballona Cinquefoil	Species of Concern	None		1A	LA
<i>Potentilla rimicola</i>	Cliff Cinquefoil	None	None		1B	RIV
<i>Puccinellia parishii</i>	Parish's Alkali Grass	Species of Concern	None		1B	SB
<i>Pyrrocoma uniflora var gossypina</i>	Bear Valley Pyrrocoma	Species of Concern	None		1B	SB
<i>Quercus dumosa</i>	Nuttall's Scrub Oak	Species of Concern	None		1B	OR
<i>Ribes divaricatum var parishii</i>	Parish's Gooseberry	Species of Concern	None		1B	LA, SB
<i>Rorippa gambelii</i>	Gambel's Water Cress	Endangered	Threatened		1B	SB
<i>Sagittaria sanfordii</i>	Sanford's Arrowhead	Species of Concern	None		1B	OR, VEN
<i>Salvia greatae</i>	Orocopia Sage	Species of Concern	None		1B	RIV, SB
<i>Sanvitalia abertii</i>	Abert's Sanvitalia	None	None		2	SB
<i>Satureja chandleri</i>	San Miguel Savory	None	None		4	OR, RIV
<i>Scleropogon brevifolius</i>	Burro Grass	None	None		2	SB
<i>Scrophularia villosa</i>	Santa Catalina Figwort	Species of Concern	None		1B	LA
<i>Scutellaria bolanderi ssp austromontana</i>	Southern Skullcap	None	None		1B	LA, RIV, SB
<i>Selaginella eremophila</i>	Desert Spike-Moss	None	None		2	IMP, RIV

TABLE 3.3-4: SPECIAL STATUS SPECIES REPORTED IN THE SCAG REGION

Scientific Name	Common Name	Status				Counties Where Reported
		Federal	State	CDFG	CNPS/a/	
<i>Senecio aphanactis</i>	Rayless Ragwort	None	None		2	LA, OR, VEN
<i>Senecio bernardinus</i>	San Bernardino Ragwort	Species of Concern	None		1B	SB
<i>Senna covesii</i>	Coves's Cassia	None	None		2	RIV, SB
<i>Sibara filifolia</i>	Santa Cruz Island Rock Cress	Endangered	None		1B	LA
<i>Sidalcea hickmanii ssp parishii</i>	Parish's Checkerbloom	Candidate	Rare		1B	SB
<i>Sidalcea neomexicana</i>	Salt Spring Checkerbloom	None	None		2	LA, RIV, SB, VEN
<i>Sidalcea pedata</i>	Bird-Foot Checkerbloom	Endangered	Endangered		1B	SB
<i>Sphaeralcea rusbyi var eremicola</i>	Rusby's Desert-Mallow	Species of Concern	None		1B	SB
<i>Sphenopolis obtusata</i>	Prairie Wedge Grass	None	None		2	SB
<i>Stephanomeria blairii</i>	Blair's Stephanomeria	Species of Concern	None		1B	LA
<i>Streptanthus bernardinus</i>	Laguna Mountains Jewel-Flower	None	None		1B	RIV, SB
<i>Streptanthus campestris</i>	Southern Jewel-Flower	None	None		1B	RIV, SB
<i>Stylocline masonii</i>	Mason's Neststraw	Species of Concern	None		1B	LA
<i>Stylocline sonorensis</i>	Mesquite Neststraw	None	None		2	RIV
<i>Taraxacum californicum</i>	California Dandelion	Endangered	None		1B	SB
<i>Tetracoccus dioicus</i>	Parry's Tetracoccus	Species of Concern	None		1B	OR, RIV
<i>Thelypodium stenopetalum</i>	Slender-Petaled Thelypodium	Endangered	Endangered		1B	SB
<i>Thelypteris puberula var sonorensis</i>	Sonoran Maiden Fern	None	None		2	LA, RIV, SB
<i>Trichocoronis wrightii var wrightii</i>	Wright's Trichocoronis	None	None		1B	RIV
<i>Trichostema austromontanum ssp compactum</i>	Hidden Lake Bluecurls	Threatened	None		1B	RIV
<i>Triteleia clementina</i>	San Clemente Island Tritoleia	Species of Concern	None		1B	LA
<i>Verbesina dissita</i>	Crownbeard	Threatened	Threatened		1B	OR
<i>Viola aurea</i>	Golden Violet	None	None		2	SB
<i>Wislizenia refracta ssp refracta</i>	Jackass-Clover	None	None		2	RIV, SB
<i>Woodsia plummerae</i>	Plummer's Woodsia	None	None		2	SB
<i>Xylorhiza cognata</i>	Mecca-Aster	Species of Concern	None		1B	IMP, RIV
<i>Xylorhiza orcuttii</i>	Orcutt's Woody-Aster	Species of Concern	None		1B	IMP
SNAILS AND SLUGS						
<i>Eremarionta immaculata</i>	White Desertsnail	Species of Concern	None			RIV
<i>Eremarionta morongoana</i>	Morongo (=Colorado) Desertsnail	Species of Concern	None			RIV
<i>Eremarionta rowelli mccoiana</i>	California McCoy Snail	Species of Concern	None			RIV

TABLE 3.3-4: SPECIAL STATUS SPECIES REPORTED IN THE SCAG REGION

Scientific Name	Common Name	Status				Counties Where Reported
		Federal	State	CDFG	CNPS/a/	
<i>Haplotrema catalinense</i>	Santa Catalina Lancetooth	None	None			LA
<i>Helminthoglypta ayresiana sanctaecrucis</i>	Ayer's Snail	None	None			VEN
<i>Helminthoglypta mohaveana</i>	Victorville Shoulderband	Species of Concern	None			SB
<i>Micrarionta feralis</i>	San Nicolas Islandsnail	Species of Concern	None			VEN
<i>Micrarionta gabbi</i>	San Clemente Islandsnail	Species of Concern	None			LA
<i>Micrarionta opuntia</i>	Pricklypear Islandsnail	Species of Concern	None			VEN
<i>Pristiloma shepardae</i>	Shepard's Snail	None	None			LA
<i>Radiocentrum (=oreohelix) avalonense</i>	Catalina Mountain Snail	Species of Concern	None			LA
<i>Sterkia clementina</i>	San Clemente Island Blunt-Top Snail	None	None			LA, VEN
<i>Tryonia imitator</i>	Mimic Tryonia (=CA Brackwaterish Snail)	Species of Concern	None			LA, OR, VEN
<i>Xerarionta intercisa</i>	Horseshoe Snail	None	None			LA
<i>Xerionata redimita</i>	Wreathed Island Snail	None	None			LA
CRUSTACEANS						
<i>Branchinecta lynchi</i>	Vernal Pool Fairy Shrimp	Threatened	None			RIV, VEN
<i>Branchinecta sandiegonensis</i>	San Diego Fairy Shrimp	Endangered	None			OR
<i>Streptocephalus woottoni</i>	Riverside Fairy Shrimp	Endangered	None			OR, RIV, VEN
GRASSHOPPERS, KATYDIDS, AND CRICKETS						
<i>Ammopelmatus kelsoensis</i>	Kelso Jerusalem Cricket	Species of Concern	None			SB
<i>Macrobaenetes kelsoensis</i>	Kelso Giant Sand Treader Cricket	Species of Concern	None			SB
<i>Macrobaenetes valgum</i>	Coachella Giant Sand Treader Cricket	Species of Concern	None			RIV
<i>Neduba longipennis</i>	Santa Monica Shieldback Katydid	Species of Concern	None			LA
<i>Psychomastix deserticola</i>	Desert Monkey Grasshopper	Species of Concern	None			SB
<i>Stenopelmatus cahuilensis</i>	Coachella Valley Jerusalem Cricket	Species of Concern	None			RIV
TRUE BUGS						
<i>Belostoma saratogae</i>	Saratoga Springs Belostoman Bug	Species of Concern	None			SB
<i>Pelocoris shosone</i>	Amargosa Naucorid Bug	Species of Concern	None			SB
LACEWINGS						
<i>Oliarces clara</i>	Cheeseweed Owlfly	Species of Concern	None			RIV, SB

TABLE 3.3-4: SPECIAL STATUS SPECIES REPORTED IN THE SCAG REGION						
Scientific Name	Common Name	Status				Counties Where Reported
		Federal	State	CDFG	CNPS/a/	
BEETLES						
<i>Anomala carlsoni</i>	Carlson's Dune Beetle	None	None			IMP
<i>Anomala hardyorum</i>	Hardy's Dune Beetle	None	None			IMP
<i>Cicindela gabbii</i>	Tiger Beetle	None	None			OR
<i>Cicindela hirticollis gravida</i>	Sandy Beach Tiger Beetle	Species of Concern	None			LA, VEN
<i>Cicindela senilis frosti</i>	Tiger Beetle	None	None			LA, OR, VEN
<i>Coelus globosus</i>	Globose Dune Beetle	Species of Concern	None			LA, VEN
<i>Hydroporus simplex</i>	Simple Hydroporous Diving Beetle	Species of Concern	None			SB
<i>Polyphylla eratica</i>	Death Valley June Beetle	Species of Concern	None			SB
<i>Onychobaris langei</i>	Lange's El Segundo Dune Weevil	Species of Concern	None			LA
<i>Pseudocotalpa andrewsi</i>	Andrew's Dune Scarab Beetle	Species of Concern	None			IMP
<i>Trigonoscuta dorothea dorothea</i>	Dorothy's El Segundo Dune Weevil	Species of Concern	None			LA, OR
FLIES						
<i>Brennania belkini</i>	Belkin's dune Tabanid Fly	None	None			LA
<i>Rhaphiomidas terminatus abdominalis</i>	Delhi Sands Flower-Loving Fly	Endangered	None			SB
BUTTERFLIES AND MOTHS						
<i>Danaus plexippus</i>	Monarch Butterfly	None	None			LA, OR, VEN
<i>Eucosma hennei</i>	Henne's Eucosman Moth	Species of Concern	None			LA
<i>Euchloe hyantis andrewsi</i>	Andrew's Marble Butterfly	Species of Concern	None			SB
<i>Euphilotes battoides allyni</i>	El Segundo Blue Butterfly	Endangered	None			LA
<i>Euphydryas editha quino</i>	Quino Checkerspot Butterfly	Endangered	None			RIV
<i>Glaucopsyche lygdamus palosverdesensis</i>	Palos Verdes Blue Butterfly	Endangered	None			LA
<i>Panoquina errans</i>	Wandering (=Saltmarsh) Skipper	Species of Concern	None			LA, OR, VEN
FISH						
<i>Catostomus santaanae</i>	Santa Ana Sucker	Threatened	None	SC		LA, OR, RIV, SB, VEN
<i>Cyprinodon macularius</i>	Desert Pupfish	Endangered	Endangered			IMP, RIV
<i>Cyprinodon nevadensis amargosae</i>	Armagos Pupfish	None	None	SC		SB
<i>Cyprinodon nevadensis williamsoni</i>	Saratoga Springs Pupfish	None	None	SC		SB

TABLE 3.3-4: SPECIAL STATUS SPECIES REPORTED IN THE SCAG REGION

Scientific Name	Common Name	Status				Counties Where Reported
		Federal	State	CDFG	CNPS/a/	
<i>Eucyclogobius newberryi</i>	Tidewater Goby	Endangered (proposed de-listing north of Orange County)	None	SC		LA, OR, VEN
<i>Gasterosteus aculeatus williamsoni</i>	Unarmored Threespine Stickleback	Endangered	Endangered			LA, SB, VEN
<i>Gila bicolor mohavensis</i>	Mohave Tui Chub	Endangered	Endangered			LA, SB
<i>Gila orcutti</i>	Arroyo Chub	Species of Concern	None	SC		LA, OR, RIV, VEN
<i>Oncorhynchus mykiss irideus</i>	Southern Steelhead	Endangered	None	SC		LA, VEN
<i>Ptychocheilus lucius</i>	Colorado Squawfish	Endangered	Endangered			IMP
<i>Rhinichthys osculus ssp 1</i>	Amargosa Canyon Speckled Dace	Species of Concern	None	SC		SB
<i>Xyrauchen texanus</i>	Razorback Sucker	Endangered	Endangered			IMP, RIV, SB
AMPHIBIANS						
<i>Ambystoma californianse</i>	California Tiger Salamander	Candidate	None			RIV
<i>Batrachoseps aridus</i>	Desert Slender Salamander	Endangered	Endangered	SC		RIV
<i>Batrachoseps sp 5</i>	Guadalupe Creek Slender Salamander	None	None			RIV
<i>Bufo microscaphus californicus</i>	Arroyo Toad	Endangered	None	SC		LA, OR, RIV, SB, VEN
<i>Ensatina eschscholtzii klauberi</i>	Large-Blotched Salamander	Species of Concern	None	SC		RIV
<i>Rana aurora draytonii</i>	California Red-Legged Frob	Threatened	None	SC		LA, RIV, SB
<i>Rana muscosa</i>	Mountain Yellow-Legged Frog	Species of Concern	None	SC		LA, RIV
<i>Scaphiopus hammondii</i>	Western Spadefoot	Species of Concern	None	SC		LA, OR, RIV, VEN
<i>Taricha torosa torosa</i>	Coast Range Newt	None	None	SC		LA, OR
REPTILES						
<i>Anniella pulchra pulchra</i>	Silvery Legless Lizard	Species of Concern	None	SC		LA, RIV
<i>Charina bottai umbratica</i>	Southern Rubber Boa	Species of Concern	Threatened			RIV, SB, VEN
<i>Clemmys marmorata pallida</i>	Southwestern Pond Turtle	Species of Concern	None	SC		LA, OR, RIV, SB, VEN
<i>Cnemidophorus hyperythrus</i>	Orange-Throated Whiptail	Species of Concern	None	SC		LA, OR, RIV, SB
<i>Cnemidophorus tigris multiscutatus</i>	Coastal Western Whiptail	Species of Concern	None			LA, RIV, SB, VEN
<i>Coleonyx switaki</i>	Bare-footed Banded Gecko	Species of Concern	Threatened			IMP

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Scientific Name	Common Name	Status				Counties Where Reported
		Federal	State	CDFG	CNPS/a/	
<i>Crotalus ruber ruber</i>	Northern Red-Diamond Rattlesnake	Species of Concern	None	SC		OR, RIV
<i>Diadophis punctatus modestus</i>	San Bernardino Ringneck Snake	Species of Concern	None			SB
<i>Gambelia sila</i>	Blunt-Nosed Leopard Lizard	Endangered	Endangered			VEN
<i>Heloderma suspectum cinctum</i>	Banded Gila Monster	Species of Concern	None	SC		SB
<i>Lampropeltis zonata parvirubra</i>	San Bernardino Mountain Kingsnake	None	None			LA, SB
<i>Lampropeltis zonata pulchra</i>	San Diego Mountain Kingsnake	Species of Concern	None	SC		LA, OR
<i>Phrynosoma coronatum blainvillei</i>	San Diego Horned Lizard	Species of Concern	None	SC		LA, OR, RIV, SB, VEN
<i>Phrynosoma coronatum frontale</i>	California Horned Lizard	Species of Concern	None	SC		LA
<i>Phrynosoma mcalli</i>	Flat-Tailed Horned Lizard	None	None	SC		IMP, RIV
<i>Salvadora hexalepsis virgultea</i>	Coast Patch-Nosed Snake	Species of Concern	None	SC		OR
<i>Thamnophis couchi ssp</i>	Santa Catalina Garter Snake	None	None			LA
<i>Thamnophis hammondi</i>	Two-Striped Garter Snake	Species of Concern	None	SC		OR, RIV, SB, VEN
<i>Uma inornata</i>	Coachella Valley Fringe-Toed Lizard	Threatened	Endangered			RIV
<i>Xantusia riversiana</i>	Island Night Lizard	Threatened	None			LA, VEN
<i>Xerobates agassizii</i>	Desert Tortoise	Threatened	Threatened			IMP, LA, RIV, SB
BIRDS						
<i>Accipiter cooperii</i> (nesting)	Cooper's Hawk	None	None	SC		IMP, LA, OR, RIV, SB, VEN
<i>Agelaius tricolor</i> (nesting colony)	Tricolored Blackbird	Species of Concern	None	SC		LA, OR, RIV, VEN
<i>Aimophila ruficeps canescens</i>	Southern California Rufous-Crowned Sparrow	Species of Concern	None	SC		RIV, VEN
<i>Amphispiza belli clementeae</i>	San Clemente Sage Sparrow	Threatened	None			LA, RIV
<i>Aquila chrysaetos</i> (nesting and wintering)	Golden Eagle	None	None	SC		OR, RIV, SB
<i>Ardea alba</i>	Great Egret	None	None			IMP, RIV
<i>Ardea herodias</i> (rookery)	Great Blue Heron	None	None			IMP, RIV
<i>Asio flammeus</i> (nesting)	Short-Eared Owl	None	None	SC		IMP, LA,
<i>Asio otus</i> (nesting)	Long-Eared Owl	None	None	SC		RIV, SB

TABLE 3.3-4: SPECIAL STATUS SPECIES REPORTED IN THE SCAG REGION

Scientific Name	Common Name	Status				Counties Where Reported
		Federal	State	CDFG	CNPS/a/	
<i>Athene cunicularia</i> (burrow sites)	Burrowing Owl	Species of Concern	None	SC		IMP, LA, OR, RIV, SB, VEN
<i>Buteo swainsoni</i> (nesting)	Swainson's Hawk	None	Threatened			LA, SB
<i>Campylorhynchus brunneicapillus couesi</i>	Coastal Cactus Wren	None	None	SC		OR
<i>Cardinalis cardinalis superba</i>	Northern Cardinal	None	None	SC		RIV, SB
<i>Charadrius alexandrinus nivosus</i> (nesting)	Western Snowy Plover	Threatened	None	SC		LA, OR, RIV, SB, VEN
<i>Circus cyaneus</i> (nesting)	Northern Harrier	None	None	SC		OR
<i>Coccyzus americanus occidentalis</i> (nesting)	Western Yellow-Billed Cuckoo	Candidate	Endangered			LA, IMP, RIV, SB, VEN
<i>Colaptes chrysoides</i>	Gilded Flicker	None	Endangered			IMP, RIV
<i>Cypseloides niger</i> (nesting)	Black Swift	None	None	SC		LA, RIV, SB
<i>Dendroica petechia brewsteri</i> (nesting)	Yellow Warbler	None	None	SC		IMP, RIV, SB, VEN
<i>Dendroica petechia sonorana</i> (nesting)	Sonoran Yellow Warbler	None	None	SC		IMP, RIV, SB
<i>Egretta thula</i> (rookery)	Snowy Egret	None	None			RIV
<i>Elanus leucurus</i> (nesting)	White-Tailed Kite	None	None			RIV
<i>Empidonax traillii</i> (nesting)	Willow Flycatcher	None	Endangered			IMP, RIV, SB
<i>Falco mexicanus</i>	Prairie Falcon	None	None	SC		IMP, LA, RIV, SB, VEN
<i>Gymnogyps californianus</i>	California Condor	Endangered	Endangered			LA, VEN
<i>Haliaeetus leucocephalus</i> (nesting and wintering)	Bald Eagle	Threatened	Endangered			RIV, SB
<i>Icteria virens</i> (nesting)	Yellow-Breasted Chat	None	None	SC		IMP, OR, RIV, SB, VEN
<i>Junco hyemalis caniceps</i> (nesting)	California Gray-Headed Junco	None	None	SC		IMP, RIV, SB
<i>Lanius ludovicianus mearnsi</i>	San Clemente Loggerhead Shrike	Endangered	None			LA
<i>Laterallus jamaicensis coturniculus</i>	California Black Rail	Species of Concern	Threatened			IMP, LA, OR
<i>Melanerpes uropygialis</i>	Gila Woodpecker	None	Endangered			IMP, RIV, SB
<i>Micrathene whitneyi</i> (nesting)	Elf Owl	None	Endangered			IMP, RIV, SB
<i>Myiarchus tyrannulus</i> (nesting)	Brown-Crested Flycatcher	None	None	SC		IMP, RIV, SB
<i>Nycticorax nycticorax</i>	Black-Crowned Night Heron	None	None			RIV
<i>Passerculus sandwichensis beldingi</i>	Belding's Savannah Sparrow	Species of Concern	Endangered			LA, OR, VEN

TABLE 3.3-4: SPECIAL STATUS SPECIES REPORTED IN THE SCAG REGION

Scientific Name	Common Name	Status				Counties Where Reported
		Federal	State	CDFG	CNPS/a/	
<i>Pelecanus occidentalis californicus</i> (nesting colony)	California Brown Pelican	Endangered	Endangered			VEN
<i>Phalacrocorax auritus</i> (rookery site)	Double-Crested Cormorant	None	None	SC		VEN
<i>Piranga flava</i> (nesting)	Hepatic Tanager	None	None	SC		SB
<i>Piranga rubra</i> (nesting)	Summer Tanager	None	None	SC		IMP, RIV, SB
<i>Polioptila californica</i>	California Gnatcatcher	Threatened	None	SC		LA, OR, RIV, SB, VEN
<i>Polioptila melanura</i>	Black-Tailed Gnatcatcher	None	None			IMP, RIV
<i>Pyrocephalus rubinus</i> (nesting)	Vermilion Flycatcher	None	None	SC		IMP, RIV, SB
<i>Rallus longirostris levipes</i>	Light-Footed Clapper Rail	Endangered	Endangered			OR, VEN
<i>Rallus longirostris yumanensis</i>	Yuma Clapper Rail	Endangered	Threatened			IMP, RIV, SB
<i>Rallus niger</i> (nesting colony)	Black Skimmer	None	None	SC		IMP
<i>Riparia riparia</i> (nesting)	Bank Swallow	None	Threatened			VEN
<i>Sterna antillarum browni</i> (nesting colony)	California Least Tern	Endangered	Endangered			LA, OR, VEN
<i>Sterna caspia</i> (nesting colony)	Caspian Tern	None	None			IMP
<i>Sterna nilotica vanrossemei</i> (nesting colony)	Van Rossem's Gull-Billed Tern	Species of Concern	None	SC		IMP, RIV
<i>Toxostoma bendirei</i>	Bendire's Thrasher	None	None	SC		RIV, SB
<i>Toxostoma crissale</i>	Crissal Thrasher	None	None	SC		IMP, RIV, SB
<i>Toxostoma lecontei</i>	Le Conte's Thrasher	None	None	SC		IMP, LA, RIV, SB
<i>Vermivora virginiae</i> (nesting)	Virginia's Warbler	None	None	SC		SB
<i>Vireo bellii arizonae</i> (nesting)	Arizona Bell's Vireo	None	Endangered			IMP, SB
<i>Vireo bellii pusillus</i> (nesting)	Least Bell's Vireo	Endangered	Endangered			LA, OR, RIV, SB, VEN
<i>Vireo vicinior</i> (nesting)	Gray Vireo	None	None	SC		SB
MAMMALS						
<i>Antrozous pallidus</i>	Pallid Bat	None	None	SC		IMP, OR, RIV, SB
<i>Chaetodipus (=perognathus) fallax fallax</i>	Northwestern San Diego Pocket Mouse	Species of Concern	None	SC		RIV, SB
<i>Corynorhinus townsendii pallenscens</i>	Pale Big-Eared Bat	Species of Concern	None	SC		IMP, RIV, SB
<i>Dipodomys merriami parvus</i>	San Bernardino Kangaroo Rat	Endangered	None	SC		SB
<i>Dipodomys stephensi</i>	Stephen's Kangaroo Rat	Endangered	Threatened			RIV, SB
<i>Enhydra lutris nereis</i>	Southern Sea Otter	Threatened	None			VEN

TABLE 3.3-4: SPECIAL STATUS SPECIES REPORTED IN THE SCAG REGION

Scientific Name	Common Name	Status				Counties Where Reported
		Federal	State	CDFG	CNPS/a/	
<i>Eumops perotis californicus</i>	California Mastiff Bat	Species of Concern	None	SC		IMP, OR, RIV, SB, VEN
<i>Lepus californicus bennettii</i>	San Diego Black-Tailed Jackrabbit	Species of Concern	None	SC		RIV
<i>Macrotus californicus</i>	California Leaf-Nosed Bat	Species of Concern	None	SC		IMP, SB
<i>Myotis ciliolabrum</i>	Small-Footed Myotis	Species of Concern	None	SC		SB
<i>Myotis evotis</i>	Long-Eared Myotis	Species of Concern	None			SB
<i>Myotis thysanodes</i>	Fringed Myotis	Species of Concern	None			RIV
<i>Myotis velifer</i>	Cave Myotis	Species of Concern	None	SC		RIV
<i>Myotis volans</i>	Long-Legged Myotis	Species of Concern	None			SB
<i>Neotoma albigula venusta</i>	Colorado Valley Woodrat	None	None			IMP, RIV, SB
<i>Neotoma lepida intermedia</i>	San Diego Desert Woodrat	Species of Concern	None	SC		LA, SB, VEN
<i>Nyctinomops femorasaccus</i>	Pocket Free-Tailed Bat	None	None	SC		RIV
<i>Ovis canadensis cremnobates</i>	Peninsular Bighorn Sheep	Endangered	Threatened			IMP, RIV
<i>Ovis canadensis nelsoni</i>	Nelson's Bighorn Sheep	None	None			IMP, LA, SB
<i>Perognathus alticola alticola</i>	White-Eared Pocket Mouse	Species of Concern	None	SC		SB
<i>Perognathus inornatus inornatus</i>	San Joaquin Pocket Mouse	Species of Concern	None			LA, VEN
<i>Perognathus longimembris brevinasus</i>	Los Angeles Pocket Mouse	Species of Concern	None	SC		RIV
<i>Perognathus longimembris pacificus</i>	Pacific Pocket Mouse	Endangered	None	SC		LA, OR
<i>Sigmodon hispidus eremicus</i>	Yuma Hispid Cotton Bat	Species of Concern	None	SC		IMP
<i>Sorex ornatus willetti</i>	Santa Catalina Shrew	Species of Concern	None	SC		LA
<i>Spermophilus mohavensis</i>	Mohave Ground Squirrel	Species of Concern	Threatened			LA, SB
<i>Spermophilus tereticaudus chlorus</i>	Coachella Valley Round-Tailed Ground Squirrel	Species of Concern	None	SC		RIV
<i>Tamias panamintinus acrus</i>	Kingston Mountain Chipmunk	None	None			SB
<i>Urocyon littoralis</i>	Island Fox	Species of Concern	Threatened			LA, VEN

a/ California Native Plant Society: 1A = Plants Presumed Extinct in California; 1B = Plants Rare, Threatened, or Endangered in California and Elsewhere; 2 = Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere; 3 = Plants About Which We Need More Information; 4 = Plants of Limited Distribution
SOURCE: CDFG. (1999). *Natural Diversity Database*. Sacramento, CA; U.S. Department of Fish and Wildlife. (1999-2003). *The Federal Register*. Washington D.C.

The Natural Heritage Division of CDFG identifies special status natural communities. These communities include both those that are naturally rare and those that have been greatly diminished through changes in land use. The CDFG tracks 135 special status natural communities in pursuit of their mandate to seek the long-term perpetuation of the areas in which these communities occur. In some cases, these areas have been established as protected reserves.

The CNDDDB reports 45 special status natural communities in the six-county SCAG region. **Table 3.3-5**, below, presents these communities, and the counties in which they have been reported. These locations are shown on **Map 3.3-5** located in Chapter 8 (Maps).

Natural Lands

Natural lands are areas that are largely undeveloped and in their natural state. This type of open space is characterized by its biological resources and ecological functions. Natural lands generally are classified into three categories: cores, connectors, and fragments.

Cores are blocks of natural lands that are greater than 1,000 acres in area and have minimal edge-to-area ratio. Two types of connectors are identified: landscape and stepping stone linkages. Landscape linkages are contiguously connected lands that provide biotic connectivity between two or more cores; they typically are narrower than cores and have a higher edge-to-area ratio. Stepping stone linkages are natural lands that run between cores but are broken by small areas of development including major roads; they have a higher edge-to-area ratio than landscape linkages or cores. Some of the landscape linkages in the region have been further identified based on studies conducted as part of the statewide and Southern California Missing Linkages project and are identified separately as wildlife linkages and linkage design areas.

Wildlife linkages are regional landscape connectors that allow for animal movement and genetic flow necessary to maintain the ecological functions of larger ecosystems. Linkage design areas are wildlife linkages where a conservation strategy has been proposed to maintain a specific configuration of the linkage. The linkages identified in the statewide and regional studies are in locations where existing or proposed development limits options for maintaining and/or threatens to eliminate existing connections between cores. Fragments are patches of habitat smaller than 1,000 acres located either within one mile (satellite fragments), or further than one mile (isolated fragments) from a core.

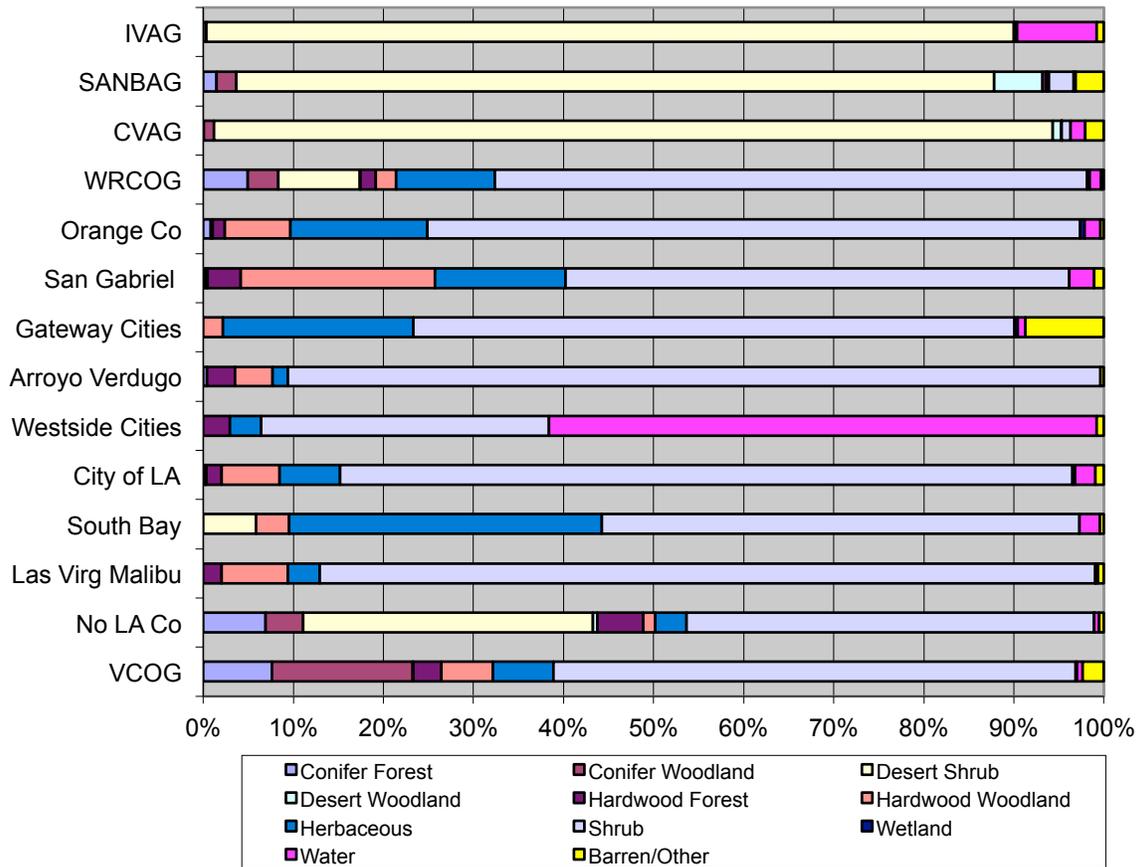
Natural lands also are categorized as protected or unprotected. Protected lands are areas maintained in their natural state because they are in public ownership and designated for some level of conservation, are subject to easements or other agreements that preclude or limit conversion to other uses, or are subject to legal mandates that preclude their development. The level and type of protection vary widely, as do the allowed uses of the lands.

Unprotected lands are areas that are not subject to requirements or arrangements that would keep them in a natural state. Nearly 21 million acres in the region are considered natural lands. This estimate includes more than 20 million acres with various types of vegetation, about 500,000 acres of barren/disturbed lands, and 300,000 acres of water. This section describes the natural lands in terms of their land cover/vegetation types, biological values and ecological context, and ownership and protection status.

TABLE 3.3-5: SPECIAL STATUS COMMUNITIES REPORTED IN THE SCAG REGION	
Natural Communities	Counties Where Reported
Active desert dunes	IMP
Alkali seep	SB
Amargosa river	SB
Arizonan woodland	SB
California walnut woodland	LA, SB, VEN
Canyon live oak forest	LA
Canyon live-oak ravine forest	RIV, SB, VEN
Cismontane alkali marsh	VEN
Coastal and valley freshwater marsh	RIV, SB, VEN
Crucifixion thorn woodland	IMP, SB
Desert fan palm oasis woodland	IMP, RIV, SB
Island cherry forest	LA
Mainland cherry forest	LA
Maritime succulent scrub	LA, VEN
Mesquite bosque	IMP, RIV, SB
Mojave mixed steppe	SB
Mojave riparian forest	LA, SB
Mojave yucca scrub and steppe	SB
Open engelmann oak woodland	LA
Pebble plains	SB
Riversidian alluvial fan sage scrub	LA, RIV, SB
Sonoran cottonwood willow riparian forest	IMP, RIV
Southern california arroyo chub/santa ana sucker stream	LA, OR, RIV, SB
Southern california coastal lagoon	LA, VEN
Southern california steelhead stream	LA, VEN
Southern california threespine stickleback stream	LA, SB, VEN
Southern coast live oak riparian forest	LA, OR, RIV, SB, VEN
Southern coastal bluff scrub	LA, VEN
Southern coastal salt marsh	LA, OR, VEN
Southern cottonwood willow riparian forest	LA, OR, RIV, SB, VEN
Southern dune scrub	LA, OR, VEN
Southern foredunes	LA, OR, VEN
Southern interior basalt flow vernal pool	RIV
Southern interior cypress forest	OR, RIV
Southern mixed riparian forest	LA, OR, RIV, SB, VEN
Southern riparian forest	LA, RIV, SB, VEN
Southern riparian scrub	LA, OR, RIV, SB, VEN
Southern sycamore alder riparian woodland	LA, OR, RIV, SB, VEN
Southern willow scrub	LA, OR, RIV, SB, VEN
Stabilized and partially stabilized desert dunes	IMP
Transmontane alkali march	IMP, SB
Valley needlegrass grassland	LA, OR, RIV, VEN
Valley oak woodland	LA, VEN
Walnut forest	LA, VEN
Wildflower field	LA
SOURCE: CDFG. (1999). <i>Natural Diversity Database</i> . Sacramento, CA; US. Department of Fish and Wildlife. (1999-2003). <i>The Federal Register</i> . Washington D.C.	

The data compiled on land cover and vegetation types in the region are primarily from the Fire and Resource Assessment Program (FRAP) developed by the California Department of Forestry and Fire Protection and USDA Forest Service. **Figure 3.3-1** shows the proportion of natural lands in each subregion as of 2007; while amounts of lands may have changed somewhat since 2007, because of the slowdown in growth as a result of the Great Recession, it is anticipated that the relative proportions remain approximately the same.

Figure 3.3-1: Natural Lands in Each SCAG Subregion (Percentage Per Type)



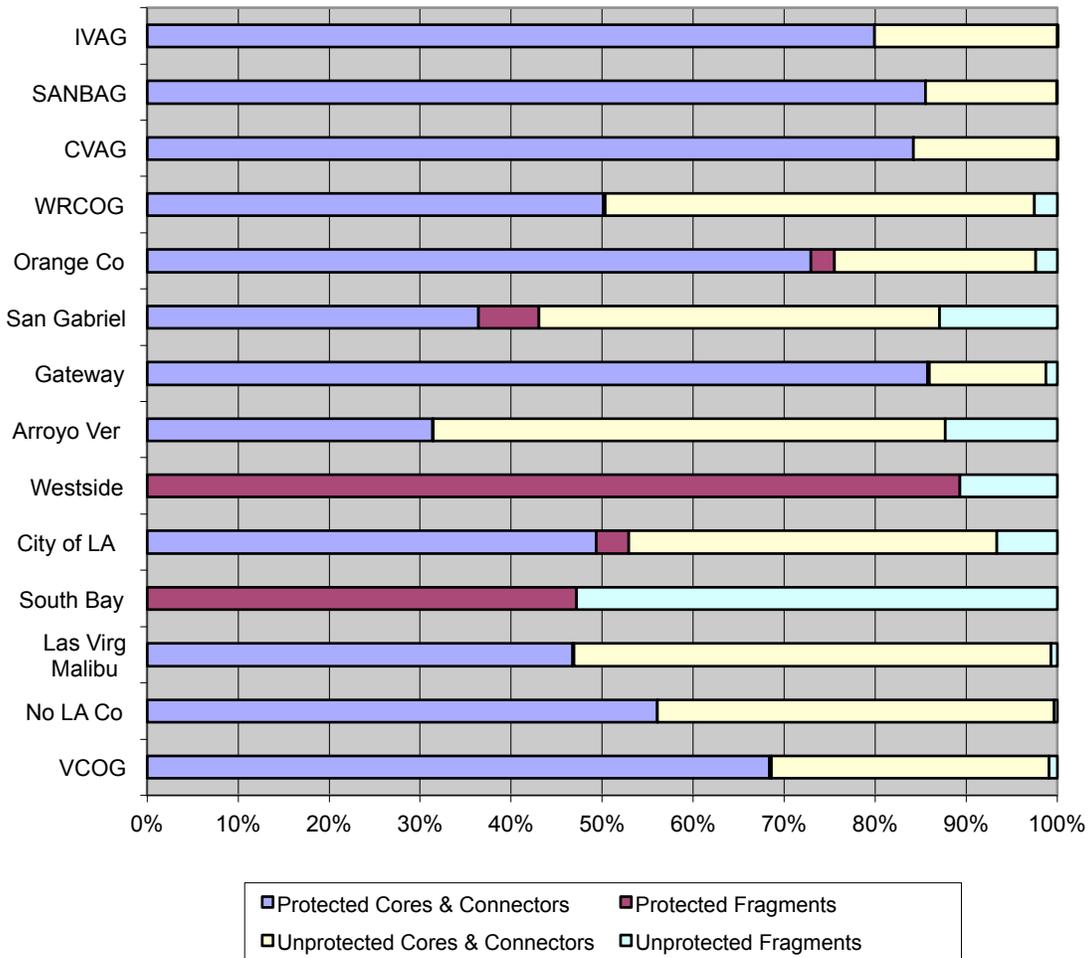
SOURCE: SCAG, 2007.

Figure 3.3-2 shows the proportion of natural lands in each subregion within the “protected” and “unprotected” categories as of 2007 (similar to Figure 3.3-1 numbers may have changed since 2007 but not substantially because of the Great Recession). Approximately 80 percent (more than 16 million acres) of natural lands in the SCAG region are in public ownership or in reserves. Nearly 90 percent of these lands occur in San Bernardino, Riverside, and Imperial Counties. Los Angeles County has nearly 900,000 acres of public natural lands, largely concentrated in its northern tier. Ventura County and western Riverside County each have more than 500,000 acres; Orange County has 130,000 acres.

Also concentrated in the eastern half of the region are the remaining 20 percent of lands that are in private ownership: 1.7 million acres in San Bernardino County, 950,000 acres in Riverside County, and 440,000 in Imperial County. Los Angeles County has 660,000 acres (mainly in the north), Ventura County has nearly 300,000 acres, and Orange County has about 40,000 acres.

Additional information about conservation efforts in the region is included in the bioregion chapters of the CDFG Wildlife Action Plan (WAP), the South Coast Missing Linkages reports, and CDFG’s Natural Community Conservation Program (NCCP).

Figure 3.3-2: “Protected” and “Unprotected” Natural Lands in Each SCAG Subregion (percentage per category)



SOURCE: SCAG, 2007.

Threats to Biological Resources in the SCAG Region

Major threats to biological resources in the SCAG region include habitat loss, fragmentation and degradation, increased urbanization, water diversion projects, encroachment of non-native, invasive species, and other human activities, such as off-road vehicle activity.

Residential and agricultural development in the region has reduced open space and substantially limited the range of most of the natural communities. Natural habitat fragmentation caused by urbanization creates isolated "islands" of vegetation that may not provide sufficient area to support sustainable populations and can adversely impact genetic and species diversity. Habitat divided into islands, rather than continuous natural habitat, presents multiple problems to resident animals, including increased predation and direct mortality when attempting to move across developed areas, especially roads.²

²De Maynadier, P. G. & ML Hunter Jr., Road Effects on Amphibian Movements in a Forested Landscape. *Natural Areas Journal*, 20(1), 56-65. January 2000.

Within California, approximately 95 percent of the State's historic wetlands have been converted to other land uses. An estimated 5 million acres of wetlands were present in California in the 1780s; by the 1980s the acreage of wetlands in California were reduced to only 450,000 acres.³ The loss of wetlands has been more pronounced in the SCAG region, because of the intense development experienced by all wetlands along the South Coast, and the relative scarcity of surface waters.

Water management activities such as the operation of dams and diversions, development and operation of irrigation canal systems, and extraction of groundwater disrupt natural aquatic and riparian habitat. These types of habitat support diverse ecological communities, including many special status species. Alterations in freshwater flows result in the loss of natural riverine habitat, disruption of fish migration routes, and the loss of many native species.

The deliberate or accidental introduction of non-native plant species which can out compete native plant species for light, water, and soil results in habitat loss and degradation and creates unsuitable habitat for many native animal species. Changes to native habitat also bring altered fire regimes that can have unforeseen impacts on human settlements. Invasive animal and insect species can disrupt local ecosystems and bring diseases that native species have no defense against. Other wildlife stressors include excessive livestock grazing in sensitive plant communities, recreational pressures on wildlife habitat, and the loss and degradation of dune habitats through disruption of sand transport processes and inappropriate off-road vehicle use.⁴

Protection of Biological Resources in the SCAG Region

Table BIO-1, included in the technical appendix, presents a list of protected areas and agencies that administer the protected areas that provide large, un-fragmented natural habitats within the SCAG region. It should be noted that different ownership and designations of each area by the various agencies affords differing levels of protection. Some agencies protect the land for its natural value and recreational uses only, other agencies are more permissive in uses of the land, allowing activities such as grazing, forestry, or off-road vehicle use. A variety of regional planning efforts have been undertaken in the SCAG region to more efficiently and effectively achieve the purposes of the State and federal endangered species legislation. In addition to the traditional project-by-project approach to compliance, the federal Endangered Species Act includes a provision for permitting incidental take of listed species on private lands when a Habitat Conservation Plan (HCP) identifying the anticipated impacts of specific projects and implementing appropriate conservation measures is prepared and approved.

The Natural Community Conservation Planning Program (NCCP), established by the California Resources Agency under the Natural Community Conservation Planning Act of 1991, is a voluntary, collaborative effort between local landowners, jurisdictions and the State of California. The program provides protection and identifies mitigation areas to offset future impacts to coastal scrub habitat and conserve the California gnatcatcher. The NCCP pilot program area encompasses 3,840,000 acres (6,000 square miles), including portions of Riverside, Los Angeles, Orange, and San Bernardino Counties. Each county has one or more subregional planning areas.⁵ In recent years, NCCPs have extended beyond the boundaries of the original pilot area into Imperial County, the rest of Riverside County, and other parts of the State. **Table 3.3-6** provides the status of NCCP programs in the SCAG region.

³Dahl, T.E (1990). *Wetlands losses in the United States 1780's to 1980's*. U.S. Department of the Interior, Fish and Wildlife Service, Washington DC. 13pp, available at: http://www.fws.gov/wetlands/_documents/gSandT/NationalReports/WetlandsLossesUS1780sto1980s.pdf, accessed August 10, 2011.

⁴California Department of Fish and Game (2007), *California Wildlife: Conservation Challenges*, available at: <http://www.dfg.ca.gov/wildlife/WAP/docs/report/ch3-threats.pdf>, accessed August 6, 2011.

⁵CDFG, *Southern California Coastal Sage Scrub NCCP Conservation Guidelines*, available at: www.nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=15550, accessed August 6, 2011.

TABLE 3.3-6: NATURAL COMMUNITIES CONSERVATION PLANS

County	Plan	Lead Agency	Planning Area Covered (acres)	Area set aside for reserve/preserve (acres)	Plan Status
Imperial	Imperial Valley Natural Community Conservation Plan and Habitat Conservation Plan	Imperial Irrigation District	500,000	Under development	Developing Draft Plan. NCCP agreement signed February 2006.
Los Angeles	Palos Verdes Peninsula Subregional Plan	City of Rancho Palos Verdes	8,661	1,507	Final Plan approved August 2004 by City Council. Awaiting permits.
Orange	Orange County Central-Coastal NCCP/HCP Subregional Plan	Orange County	208,000	37,380	Permits Issued July 1996.
Orange	Orange County Southern Subregion HCP/a/	Orange County	132,000	32,818	Permits issued January 2007.
Riverside	Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP)	Coachella Valley Association of Governments	1,100,000	745,900	Permits Issued September 2008.
Riverside	Western Riverside County Multiple Species Habitat Conservation Plan	Riverside County	1.2 million	500,000	Permits issued June 2004.
<p>/a/ Plan is a combination HCP, special area management plan, and master streambed alteration agreement. Final plan does not meet NCCP standards and any state listed species take will be permitted under California Endangered Species Act. SOURCE: CDFG website, available at: http://www.dfg.ca.gov/habcon/nccp/status/index.html, accessed August 15, 2011; U.S. Fish and Wildlife Service website, available at: http://www.fws.gov/carlsbad/HCPs/FAQ%20Orange%20County%20Southern%20Subregion%20HCPsjw%20web.pdf, accessed August 15, 2011.</p>					

THRESHOLDS OF SIGNIFICANCE

Based on CEQA Guidelines Appendix G and as appropriate for the 2012-2035 RTP/SCS, the Plan would have a significant impact related to biological resources and open space if it would:

- Have a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or US Fish and Wildlife Service;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native residents or migratory wildlife corridors or impeded the use of native wildlife nursery sites;
- Conflict with any local polices or ordinance protecting biological resources, such as a tree preservation policy or ordinance; and/or
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other adopted local, regional, or State habitat conservation plan.

Methodology

This section summarizes the methodology used to evaluate the expected impacts of implementation of the 2012-2035 RTP/SCS on biological and open space resources in the SCAG region. The 2012-2035 RTP/SCS's transportation projects and growth projections for the year 2035 are regional, cumulative, and long-term in nature, and provide a conservative estimate of potential environmental impacts.

Cumulative Analysis

The 2012-2035 RTP/SCS addresses transportation projects and land use distribution patterns, including land use scenarios. These land use distribution patterns identify growth distribution and anticipated land use development to accommodate growth projections. The Regional Travel Demand Model (RTDM) used for this analysis captures pass-through traffic that does not have an origin or destination in the region, but does impact the region, so that too is included in the project analysis. Although a similar level of development is anticipated even without the 2012-2035 RTP/SCS, this Plan would influence growth, including distribution patterns, throughout the region. To address this, the analysis in the PEIR covers overall impacts of all transportation projects and land development described in the 2012-2035 RTP/SCS. In addition, this PEIR considers cumulative impacts from other regional plans (e.g., the South Coast Air Quality Management Plan), which could result in additional impacts inside and outside the region.

Comparison with the No Project Alternative

The analysis of biological and open space resources includes a comparison between the expected future conditions with the Plan and the expected future conditions if no Plan were adopted (No Project). This evaluation is not included in the determination of the significance of impacts (which is based on a comparison to existing conditions); however, it provides a meaningful perspective on the effects of the 2012-2035 RTP/SCS.

Determination of Significance

The impact assessment for biological resources and open space focuses on the potentially significant effects of the Plan on biological and open space resources contained within the SCAG region. The methodology for determining the significance of these impacts compares a regional-level analysis of the future Plan conditions to existing biological and open space resources.

To assess potential impacts to biological resources and open space, Geographic Information Systems (GIS) was used to identify where 2012-2035 RTP/SCS major freeway, rail, and transit projects would be near biological resources or open space and, therefore, be likely to cause a potential impact. Specifically, using GIS spatial data, potential regional-level adverse effects were identified by overlaying 2012-2035 RTP/SCS projects upon the distribution and locations of known biological and open space resources, including natural vegetation, wetlands and water resources, special status species and communities, natural lands, and agricultural lands. The methodology for determining the significance of these impacts compares the future Plan conditions to the existing setting.

The impacts-analysis identifies a direct intersection between Plan projects and existing biological and open space resources, and identifies the potential cumulative impact of the transportation projects and associated growth on habitat loss, degradation, and fragmentation. The analysis also includes a review of adopted habitat conservation plans to identify potential conflicts with their provisions.

The development of the SCS included a substantial effort to identify resource areas and to avoid locating future development in more areas. In doing so, the Plan generally reduces the potential for disturbance of biological resources.

Implementation of the 2012-2035 RTP/SCS would affect biological resources and open space. Expected significant impacts include disturbance and removal of natural vegetation that may be utilized by sensitive species, habitat fragmentation and the associated decrease in habitat quality, litter, trampling, light pollution and road noise in previously undisturbed natural areas, displacement of riparian and wetland habitat, siltation of streams and other water bodies during construction, and the loss of prime farmlands, grazing lands, open space and recreation lands. The increased urban development anticipated by the Plan would result in similar cumulative impacts.

Two basic types of impacts would potentially occur from transportation projects identified in the 2012-2035 RTP/SCS and anticipated growth. These include short-term construction related impacts, and long-term or permanent displacement as well as any potential off-site impacts from new facilities.

This PEIR analyzes these impacts on biological resources and open space on a program level only. Project-level analysis of impacts will also be necessary. For example, whenever a project is located near biological resources of concern or within habitats capable of supporting such resources, a biological resources evaluation will need to be conducted and project-specific impacts with appropriate feasible mitigation measures identified.

IMPACTS

Impact 3.3-1: Potential to develop previously undisturbed land and displace natural vegetation, and thus habitat, which includes sensitive species habitat.

The significance of this impact would relate to the extent, and type, of natural vegetation displaced. In general all areas of natural vegetation contain potentially significant biological value.

Impacts to sensitive species would not be expected to be limited to those mapped by the CNDDDB (**Map 3.3-1** located in Chapter 8 (Maps)). The CNDDDB system relies on reported sightings of sensitive species, and it is not a complete inventory of sensitive species habitat. For example, the Mixed Flow Improvement along Highway 395 that would be located in sensitive animal species habitat could result in a direct loss of habitat. Similarly, the High Quality Transit Area (HQTAs) along the I-15 in Riverside County corresponds to known locations of listed animal and plant sensitive species. Although specific projects are not as yet identified for the HQTAs, development would be targeted in these areas. Therefore, it is possible that direct impacts could occur due to development within the HQTAs, or indirect impacts could occur if habitat was encroached upon to the extent that it could no longer support species. However, HQTAs generally aim to encourage compact development that consumes less land, and therefore, less habitat than traditional development. Nonetheless, impacts would be expected to occur. The site-specific significance of projects would include the relative scarcity and importance to other valuable biological resources. Additionally, the nature of the site-specific project would affect the size of the disruption. The addition of a traffic lane would be expected to cause less disruption than an entirely new road, for example.

The 2012-2035 RTP/SCS would substantially affect vegetation communities and habitat, some of which is utilized by special status species. Implementation of Mitigation Measures **BIO/OS1** through **BIO/OS35**, **BIO/OS44** through **BIO/OS46**, **BIO/OS49**, **BIO/OS51** through **BIO/OS53**, and **BIO/OS55** through **BIO/OS59** would reduce habitat displacement impacts; however, impacts would remain significant.

Impact 3.3-2: Potential to contribute to the fragmentation of existing habitat, decreasing habitat sizes, reducing habitat connectivity, and causing direct injury to wildlife. The 2012-2035 RTP/SCS includes new transportation corridors and development that may form barriers to animal migration and/or foraging routes.

Wildlife-roadway interactions often injure or kill wildlife. Road building and widening results in barriers between existing habitat areas in the SCAG region. This serves to isolate habitats and divide them into smaller and smaller areas thereby reducing the quality of the habitats, especially for species with large home ranges.⁶ Similar impacts would occur as a result of development both in urban areas where habitat fragments exist within largely urban areas (such as parks and hillside areas) and in parts of the region that are currently undeveloped but would be developed as a result of the Plan. The intensity of the effect would be dependent on the size and quality of the habitat impacted by each individual project and the ability of the project to provide specific mitigation for its impacts.

Where development results in a barrier, such disturbances can lead to further ecological disruptions including disruption of prey-predator interactions and species alterations. The linear nature of transportation projects increases the potential extent and significance of this effect. Where entirely new roadways and rail lines would be constructed, there would be a high potential for a significant barrier effect. Conversely, where the project involves only an addition of lanes to an existing roadway, the barrier impact would likely not be significant because the existing roadway has already formed a barrier and the new lanes would incrementally increase the existing barrier effect.

The anticipated growth pattern associated with the Plan would consume less land than a more dispersed pattern, but as discussed under Impact 3.3-2, the potential remains for development associated with the Plan to contribute to the fragmentation of existing habitat. As with transportation projects, the degree of the impact would depend on the quality of the habitat, the amount of planned development, and the ability to mitigate on a case-by-case basis. Impacts in urban areas (including in HQTAs) could be more severe because even impacts to a small amount of open space tends to impact a high percentage of open space in that area.

⁶Frankham, R., J.D. Ballou and D.A. Briscoe, (2002). *Introduction to conservation genetics*. Cambridge University Press. Cambridge, MA.

Additional indirect impacts would be expected to occur as a result of the 2012-2035 RTP/SCS. For example, in areas where development would occur near existing habitat, the introduction of human elements such as dogs and cats could result in further loss of wildlife through hunting. Implementation of Mitigation Measures **BIO/OS36** through **BIO/OS40** would reduce habitat fragmentation impacts; however, impacts would remain significant.

Impact 3.3-3: Potential to increase near-road human disturbances such as litter, trampling, light pollution, and road noise in previously relatively inaccessible and undisturbed natural areas.

Many wild animals are negatively affected by human disturbance and will avoid or vacate areas where human activities have become prevalent. Such losses might shift species abundance favoring more tolerant species over more sensitive species near well-used roadways. Often the more tolerant species is a non-native pest species and the species that vacate are more desirable native species. In some cases, the animals affected are of special concern.

As discussed above, the Plan includes entirely new roadways, such as the High Desert Corridor and therefore, will newly expose biological resources and open space to human disturbances. Site-specific analyses of alternative alignments/locations are necessary as projects are developed. As development occurs under the 2012-2035 RTP/SCS, additional urban features could be added to non-urban areas. Although more than half of the anticipated development would occur in HQTAs that have existing infrastructure and are urbanized, some development would occur in undisturbed natural areas. The Plan would consume 334 square miles (213,800 acres) of previously undisturbed land. Due to the number of projects included in the 2012-2035 RTP/SCS and anticipated land consumption from development project impacts would be significant.

Implementation of Mitigation Measures **BIO/OS41** and **BIO/OS42** would reduce near-road human disturbance impacts; however, impacts would remain significant.

Impact 3.3-4: Potential to damage natural vegetation and other habitat components as a result of trampling or off-road machinery during construction activities. Direct fatalities to wildlife would also potentially occur.

Trampling or driving over areas with native vegetation can not only destroy existing vegetation and cause short-term disruptions to associated wildlife uses, but it can also result in soil hardening. Soil hardening often causes a longer-term change in species composition, with non-native invasive species often displacing more valuable native vegetation. Without mitigation, construction equipment has the potential to directly kill wildlife.

Construction activities are more likely to have significant effects with greater duration if occurring over a large area of natural vegetation. These effects are also more likely to be significant when the disruption affects habitat of special status species. Soil hardening and vegetation losses can also increase erosion, causing the siltation effects. Timing of the activity would also be important in situations where a critical life stage of an animal is affected (e.g., bird nesting).

Implementation of Mitigation Measures **BIO/OS7**, **BIO/OS8**, **BIO/OS 10**, **BIO/OS12**, and **BIO/OS13** would reduce construction related natural vegetation trampling impacts; however, impacts would remain significant.

Impact 3.3-5: Potential to create noise, smoke, lights and/or other disturbances to biological resources during construction and operation of projects.

Construction activities have the potential to negatively affect animal behavior that may result in harm to an individual or population (e.g., causing a nesting failure of a sensitive bird). If the animal is a special status species, and the effect is likely, the potential for a significant impact is increased.

Operation of projects included in the Plan would have the potential to disturb biological resources. Projects such as HST, LOSSAN, and light rail would all generate noise and light that could affect biological resources. Similarly goods movement projects such as truckways could also result in noise, light or other disturbances that would affect biological resources. Development would introduce new human elements such as nighttime lighting and noise that could also affect previously undisturbed areas. Implementation of Mitigation Measures **BIO/OS7** through **BIO/OS9**, **BIO/OS12**, **BIO/OS13**, and **BIO/OS43** would reduce construction related impacts; however, due to the substantial amount of construction that would occur with implementation of the Plan, impacts would remain significant.

Impact 3.3-6: Potential to displace riparian or wetland habitat.

The significance of this impact would depend on the amount and kind of habitat removed and the ability of individual projects to mitigate their impact. Removal of large riparian trees, for example, can reduce stream shading and increase temperatures. Removal of riparian shrubs or grasses can increase erosion and cause siltation impacts discussed below. Removal of aquatic vegetation such as rushes, cattails, or sedges can remove valuable aquatic food sources, spawning or cover habitat, and decrease the water resource's ability to recycle nutrients.

Lane additions achieved through re-striping would have less or no impact compared to lane additions and new roadways. Potential wetland impacts from the 2012-2035 RTP/SCS projects, including future toll facilities in northern Los Angeles County that also pose an impact as they head east into central western San Bernardino County. Further, development that would occur as a result of implementation of the Plan would also have the potential to result in the loss of riparian habitat. However, the majority of the development under the Plan would be in urbanized areas that do not have substantial amounts of valuable habitat. Nonetheless, due to the large number of projects that would be implemented as a result of, the 2012-2035 RTP/SCS, and the large area affected by development (consumption of 334 square miles), it is anticipated that the Plan would substantially affect riparian and wetland habitat. Implementation of Mitigation Measures **BIO/OS11** through **BIO/OS19** would reduce riparian and wetland habitat displacement impacts; however, impacts would remain significant.

Impact 3.3-7: Potential to increase siltation of streams and other water resources from exposures of erodible soils during construction activities.

Excessive siltation can significantly degrade habitat for fish and other aquatic organisms. Heavy sediment deposition can bury slow-moving or sessile bottom-dwelling organisms, fish eggs, and larval forms of many aquatic organisms. These losses are not only of direct concern, but also represent a loss of food sources for larger fishes and other organisms, such as birds and mammals, that are not directly affected by sediments. Increased sediment can also decrease light penetration for aquatic plant production and increase water temperature from greater insulation. Higher water temperatures can affect aquatic organisms through direct stress of temperature-sensitive organisms (e.g., steelhead require cold water streams), and by increasing nitrate productivity that can exacerbate eutrophication if the sediments contain or are accompanied by excessive nutrients (i.e., algal blooms).

The degree of this impact would depend on several factors including the following:

- *Length of occurrence.* The longer the period of sedimentation, the greater the potential for significance.
- *Timing of occurrence.* The effect would be of greater significance during particularly sensitive times of year, such as during fish spawning seasons when the eggs and larvae which are particularly sensitive to siltation would be present; and,
- *Significance of Resource.* The effect would be of greater significance where a special status species might be affected, such as near a steelhead spawning stream.

As discussed above, the 2012-2035 RTP/SCS includes transportation project and development that would require substantial construction activities. It is likely that some of this construction would occur in areas near streams or other water resources resulting in potential impacts. Implementation of Mitigation Measure **BIO/OS50** would reduce siltation impacts; however, impacts would remain significant.

Impact 3.3-8: Conflict with any provisions of an adopted Habitat Conservation Plan or Natural Community Conservation Plan (NCCP).

Planned projects in Riverside County are included as “Covered Activities” in the adopted Riverside County Multiple Species Habitat Conservation Plan. The adopted Natural Community Conservation Plans in Orange County is not in conflict with any of the projects included in the 2012-2035 RTP/SCS, nor would development be anticipated in protected conservation planning areas in general. No other impacts to HCPs or NCCPs are anticipated. Impacts would be less than significant.

Impact 3.3-9: Substantial disturbance and/or loss of open space and rangelands used for foraging.

Implementation of the 2012-2035 RTP/SCS could result in long-term impacts to open space and rangelands in the region that are used by birds and animals for foraging. Rangelands and open spaces in the SCAG region are interspersed throughout urban areas and are also located in less developed portions of the counties. Where there would be new development outside of the urbanized areas, undisturbed/vacant land could be utilized for transportation projects and development. Those lands may have historically been farmed or may currently be used for agriculture. Some lands may be planned for Multi Species Habitat Conservation Plans (MSHCP) or Natural Community Conservation Program (NCCP) open space preserves. Depending upon the characteristics of the surrounding preserves, the underlying soils and the particular roadway improvements or development, there may be impacts to species that use such lands for foraging including a number of bird species.

Transit improvements included in the 2012-2035 RTP/SCS are generally located in urbanized areas and, therefore, are more likely to impact smaller-scale open spaces or parks, although in general, because of the scarcity of parks in urban areas of the SCAG region, impacts to parks are generally avoided to the maximum extent feasible.

Several types of projects identified in the 2012-2035 RTP/SCS would have the potential to create significant impacts to open spaces and rangelands, such as the Mixed Flow and High Occupancy Vehicle (HOV) lane improvements in central western Riverside County along the I-215. Also the Mixed Flow and HOV improvements along the I-15 and I-215 in southwestern San Bernardino County. Proposed projects that could result in a significant impact include construction of roadway improvements, such as grade separated facilities for busways, goods movement roadway facilities, and HOV connectors in areas that currently serve as agricultural lands. Additional rangelands would be affected by the growth associated with the 2012-2035 RTP/SCS.

Additional impacts could occur in urban areas, such as HQTAs where development will be targeted. In these areas, densification of the HQTA may result in the conversion of open space to urban uses. Implementation of Mitigation Measures **BIO/OS46** through **BIO/OS49** and **BIO/OS54** would reduce open space/rangelands impacts; however, impacts would remain significant.

Cumulative Impacts 3.3-10: Potential to contribute to a cumulatively considerable loss of habitat and biological resources.

Under the 2012-2035 RTP/SCS habitat fragmentation and loss as well as disturbance would occur. Many of these impacts would be the direct result of either transportation improvements or development. Loss of habitat as well as habitat fragmentation would contribute to statewide impacts to protected species. Many important habitat corridors cross the SCAG region's boundaries. As a result, the loss of an important corridor, or fragmentation of habitat in the SCAG region could limit the movement of wildlife species resulting in additional cumulative impacts. Similarly, fragmentation could reduce the viability of a species beyond the SCAG region. Therefore, the 2012-2035 RTP/SCS would contribute to a cumulative biological resources impact. Implementation of Mitigation Measures **BIO/OS1** through **BIO/OS59** would reduce cumulative impacts; however, impacts would remain significant.

MITIGATION MEASURES

Mitigation Measures **MM-BIO/OS1** through **MM-BIO/OS43** and Mitigation Measures **MM-BIO/OS47** through **MM-BIO/OS59** can and should be implemented by project sponsors (for both development and transportation projects) as applicable. Project specific environmental documents may adjust these mitigation measures as necessary to respond to site-specific conditions. Projects taking advantage of CEQA Streamlining provisions of SB 375 can and should apply mitigation measures as appropriate to site-specific conditions. Mitigation Measures **MM-BIO/OS44** through **MM-BIO/OS46** shall be implemented by SCAG over the lifetime of the 2012-2035 RTP/SCS.

Ecosystems in the SCAG Region

- MM-BIO/OS1:** Project sponsors can and should assess displacement of habitat due to removal of native vegetation during route planning/project location planning. Routes/project sites can and should be planned in coordination with state and local resources agencies and should consider inventories of natural resources, such as CDFG and CNDDDB. Routes can and should be planned in order to avoid and/or minimize removal of native vegetation, by comparing proposed infrastructure with state and local conservation plans and by creating maps of resource habitat overlaid with the transportation network. Projects located in or adjacent to habitat areas can and should incorporate buffers to minimize lighting, noise, and other project impacts that can severely disrupt wildlife. Vegetation buffers can and should be appropriate to the adjacent vegetation association and protect the genetic integrity of the adjacent habitat. If avoidance is not possible, agencies/project sponsors can and should consult with the appropriate resource agencies to develop mitigation activities.
- MM-BIO/OS2:** When avoidance of native vegetation removal is not possible, project sponsors can and should replant disturbed areas with commensurate native vegetation of high habitat value adjacent to the project (i.e., as opposed to ornamental vegetation with relatively less habitat value). When possible, habitat rehabilitation can and should use recycled material from rehabilitated infrastructure.

MM-BIO/OS3: Project sponsors can and should include on-site habitat enhancement as a first priority and offsite habitat enhancement or restoration to compensate for unavoidable habitat losses from each project site as appropriate and necessary.

Special Status Species and Natural Communities

MM-BIO/OS4: Pre-construction special status species surveys can and should be conducted by a qualified biologist to verify presence or absence of species at risk. Species surveys can and should occur during the portion of the species' life cycle where the species is most likely to be identified within the appropriate habitat. In all cases, impacts on special status species and/or their habitat can and should be avoided during construction to the maximum extent feasible.

MM-BIO/OS5: For projects located in sensitive habitat areas, project sponsors can and should develop and implement a Worker Awareness Program (environmental education) to inform project workers of their responsibilities in regards to avoiding and minimizing impacts on sensitive biological resources.

MM-BIO/OS6: Project sponsors can and should appoint an Environmental Inspector to serve as a contact for issues that may arise concerning implementation of mitigation measures, and to document and report on adherence to these measures.

MM-BIO/OS7: Project sponsors can and should schedule construction activities to avoid sensitive times for biological resources (e.g. steelhead spawning periods during the winter and spring) and to avoid the rainy season when erosion and sediment transport is increased.

MM-BIO/OS 8: Project sponsors can and should schedule projects to avoid construction during critical life stages or sensitive seasons (e.g. the nesting season; see **MM-BIO/OS25**, and **MM-BIO/OS15** through **MM-BIO/OS35**).

MM-BIO/OS9: Project sponsors can and should precede construction, as appropriate, by pre-construction monitoring to ensure no sensitive species' habitat would be unnecessarily destroyed (also see **MM-BIO/OS4** through **MM-BIO/OS13**). All discovered sensitive species habitat can and should be avoided where feasible, or disturbance should be minimized.

MM-BIO/OS10: Project sponsors can and should fence and/or mark sensitive habitat to prevent unnecessary machinery or foot traffic during construction activities.

MM-BIO/OS11: Project sponsors can and should ensure that sensitive habitats (native vegetative communities identified as rare and/or sensitive by the CDFG) and special-status plant species (including vernal pools) impacted by projects can and should be restored and augmented, if impacts are temporary, at a 1:1 ratio (compensation acres to impacted acres). Permanent impacts can and should be compensated for by creating or restoring habitats at a 3:1 ratio as close as possible to the site of the impact. The CDFG may recommend mitigation ratios that vary on a project-by-project basis and may exceed those recommended in **MM-BIO/OS17**.

MM-BIO/OS12: When work is conducted in or adjacent to identified sensitive habitat areas, and/or areas of intact native vegetation, construction protocols can and should require the salvage of perennial plants and the salvage and stockpile of topsoil (the surface material from 6 to 12 inches deep) and can and should be used in restoring native vegetation to all areas of temporary disturbance within the project area.

- MM-BIO/OS13:** When removal and/or damage to sensitive species habitat are unavoidable during construction, project sponsors can and should ensure that any disturbed natural areas are replanted with appropriate native vegetation following the completion of construction activities. In the case of permanent losses to sensitive species habitat, mitigation can and should follow the offsite habitat compensation guidance.
- MM-BIO/OS14:** A qualified wetland scientist can and should review construction drawings as part of each project-specific environmental analysis to determine whether wetlands will be impacted, and if necessary, perform a formal wetland delineation. Appropriate state and federal permits can and should be obtained, but each project EIR will contain language clearly stating the provisions of such permits, including avoidance measures, restoration procedures, and in the case of permanent impacts compensatory creation or enhancement measures to ensure a no net loss of wetland extent or function and values.
- MM-BIO/OS15:** Suitable habitat for listed vernal pool crustaceans can and should be avoided to the extent feasible. If infeasible, impacts should be mitigated in accordance with the Programmatic Biological Opinion (PBO) for vernal pool invertebrates, issued by the USFWS Sacramento Field Office in 1995. Surveys should be conducted, with USFWS approval, in accordance with the 1996 *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods*, to establish whether or not listed invertebrates are present.
- MM-BIO/OS16:** Project sponsors can and should avoid removal of wetland or riparian vegetation. Specific vegetation that is not to be removed should be so marked during construction. Wetland and riparian vegetation removal should be minimized as much as possible.
- MM-BIO/OS17:** Project sponsors can and should replace any disturbed wetland, riparian or aquatic habitat, either on-site or at a suitable off-site location at ratios to ensure no net loss. See **MM-BIO/OS1** through **MM-BIO/OS14**.
- MM-BIO/OS18:** Project sponsors can and should ensure that when individual projects include unavoidable losses of riparian or aquatic habitat, adjacent or nearby riparian or aquatic habitat should be enhanced (e.g., through removal of non-native invasive wetland species and replacement with more ecologically valuable native species).
- MM-BIO/OS19:** For projects near water resources project sponsors can and should implement Best Management Practices (BMPs) at construction sites to minimize erosion and sediment transport from the area. BMPs include encouraging growth of vegetation in disturbed areas, using straw bales or other silt-catching devices, and using settling basins to minimize soil transport. (See also Water Resources Mitigation Measures.)
- Mitigation for occupied habitat impacted is likely to be compensatory off-site acquisition or protection of similar habitats at a ratio of 3:1 (compensation acres to that impacted) or other similar ratio with the approval of the USFWS.
- MM-BIO/OS20:** If specific project area trees are designated as “Landmark Trees” or “Heritage Trees”, then approval for removals can and should be obtained through the appropriate entity, and appropriate mitigation measures can and should be developed at that time, to ensure that the trees are replaced. Mitigation trees can and should be locally-collected native species.
- MM-BIO/OS21:** Retention of trees on-site can and should be prioritized consistent with local regulations. Adequate protection can and should be provided during the construction period for any trees that are to remain standing, including the following, plus any recommendations of an arborist:

- a. Before the start of any clearing, excavation, construction or other work on the site, every protected tree deemed to be potentially endangered by said site work, can and should be securely fenced off. Such fences can and should remain in place for duration of all such work. All trees to be removed can and should be clearly marked. A scheme can and should be established for the removal and disposal of logs, brush, earth and other debris that will avoid injury to any protected tree.
- b. Where proposed development or other site work could encroach upon the protected perimeter of any protected tree, special measures can and should be incorporated to allow the roots to breathe and obtain water and nutrients. Any excavation, cutting, filing, or compaction of the existing ground surface within the protected perimeter should be minimized. No change in existing ground level should occur from the base of any protected tree at any time. No burning or use of equipment with an open flame should occur near or within the protected perimeter of any protected tree.
- c. No storage or dumping of oil, gas, chemicals, or other substances that may be harmful to trees should occur from the base of any protected trees, or any other location on the site from which such substances might enter the protected perimeter. No heavy construction equipment or construction materials should be operated or stored within a distance from the base of any protected trees. Wires, ropes, or other devices should not be attached to any protected tree, except as needed for support of the tree. No sign, other than a tag showing the botanical classification, should be attached to any protected tree.
- d. Periodically during construction, the leaves of protected trees can and should be thoroughly sprayed with water to prevent buildup of dust and other pollution that would inhibit leaf transpiration.
- e. If any damage to a protected tree should occur during or as a result of work on the site, the project sponsor can and should immediately notify the appropriate local agency of such damage. If, such tree cannot be preserved in a healthy state, the local agency can and should require replacement of any tree removed with another tree or trees on the same site deemed adequate by the local agency to compensate for the loss of the tree that is removed.
- f. All debris created as a result of any tree removal work can and should be removed by the project sponsor from the property within two weeks of debris creation, and such debris can and should be properly disposed of by the project sponsor in accordance with all applicable laws, ordinances, and regulations.

MM-BIO/OS22: Project sponsors with projects within the range and within suitable habitat for species listed as threatened or endangered under California Endangered Species Act (such as the Mohave ground squirrel) or the Federal Endangered Species Act (such as the Arroyo toad) can and should conduct surveys, with CDFG and/or USFWS approval, in accordance with established and approved survey methods appropriate for the species of interest, such as the 1999 USFWS *Survey Protocol for the Arroyo Toad*, to establish whether or not the species is present. If species is determined present then the following applies:

- A pre-construction survey shall be conducted by a qualified biologist at each site to identify suitable habitat for the species of interest and to determine what avoidance measures, including relocation, fencing installation, and avoidance of breeding season will be required.
- Mitigation for occupied habitat impacted is likely to be compensatory off-site acquisition or protection of similar habitats at a ratio of 3:1 (compensation acres to that impacted)) or other similar ratio with the approval of the USFWS and/or CDFG).

- Project sponsors must obtain an Incidental Take Permit under Section 2081 of the Fish and Game Code before proceeding with authorization of any project subject to CESA. Additional authorization may be required by the USFWS for take of federal-listed species or their occupied habitat.

MM-BIO/OS23: Project sponsors with projects within the range and within suitable habitat for the blunt-nosed leopard lizard can and should conduct surveys, with USFWS approval, in accordance with the 2004 CDFG *Approved Survey Methodology for the Blunt-Nosed Leopard Lizard*, to establish whether or not the species is present. If species is determined present then the following applies: Mitigation for occupied habitat impacted is likely to be compensatory off-site acquisition or protection of similar habitats at a ratio of 3:1 (compensation acres to that impacted) or other similar ratio with the approval of the USFWS and/or CDFG). No direct taking of the blunt-nosed leopard lizard should occur as this is a CDFG fully protected species with no regulatory mechanism to authorize direct taking (killing) of individuals.

MM-BIO/OS24: Project sponsors with projects within the range and within suitable habitat for the California red-legged frog can and should implement the measures detailed in the Programmatic Biological Opinion (PBO) for construction impacts to the red-legged frog that was issued by the USFWS (Federal Register 1999) to the USACE. The measures listed below are taken largely from the PBO and, if applied to the western pond turtle as well as the frog, would be adequate as standard mitigation for both species. A similar level of effort for survey protocol can also be applied to the Mountain yellow-legged frog, with adjustments to its climate, habitat, and breeding requirements.

- The name and credentials of a biologist qualified to act as a construction monitor will be submitted to USFWS for approval at least 15 days prior to commencement of work;
- The USFWS-approved biologist can and should survey the site two weeks prior to the onset of work activities and immediately prior to commencing work. If red-legged frog adults, tadpoles, or eggs are found, the approved biologist can and should contact USFWS to determine whether relocating any life stages is appropriate;
- The USFWS-approved biologist can and should ensure that the introduction or spread of invasive exotic plant species is avoided to the maximum extent possible, by removing weeds from areas of exposed bare soil within the construction zone where construction occurs in riparian vegetation.
- The number and size of access routes, staging areas, and total area of activity should be limited to the minimum necessary to achieve the project goal;
- If work sites require dewatering, the intakes can and should be screened with a maximum mesh sizes of 5 millimeters;
- The USFWS-approved biologist can and should permanently remove and destroy from within the project area any individuals of exotic species, such as bullfrogs, crayfish, and centrarchid fishes, to the maximum extent practicable.

MM-BIO/OS25: Project sponsors with projects within the range and within suitable habitat for the California tiger salamander can and should conduct surveys, with USFWS approval, in accordance with the 2003 USFWS *Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander*, to establish whether or not the species is present. In addition to measures described for the California red-legged frog, which would also serve to protect the California tiger salamander, the following measures can and should be implemented to further minimize adverse effects to the California tiger salamander.

- A pre-construction survey can and should be conducted at each site to identify suitable pond and upland burrow aestivation areas. As feasible within the context of the work area, aestivation areas should be temporarily fenced and avoided.
- At locations where upland aestivation habitat is identified and cannot be avoided, aestivation burrows can and should be excavated by hand prior to construction and individual animals moved to natural burrows or artificial burrows constructed of PVC pipe within 0.25 miles of the construction site as approved by the USFWS.
- To ensure compliance with these measures and minimize California tiger salamander take, a qualified biological monitor can and should be present during all new site disturbance construction activities (vegetation removal, clearing, grubbing, grading) at locations with suitable upland aestivation habitat.
- Impacts on breeding ponds can and should be avoided until the ponds have dried.
- Upon approval by the USFWS, preconstruction surveys to salvage and relocate individual California tiger salamanders can and should include installation of drift fences and pitfall traps within construction sites to identify and relocate animals. Following removal of individuals, construction areas should be fenced with temporary exclusionary silt fencing.
- Temporary impacts on upland aestivation habitat can and should be restored to grassland habitat.
- Mitigation for occupied habitat permanently impacted is likely to be compensatory off-site acquisition or protection of similar habitats at a ratio of 3:1 (compensation acres to that impacted) or other similar ratio with the approval of the USFWS and/or CDFG).

MM-BIO/OS26: Project sponsors with projects within the range and within suitable habitat for the Coachella Valley fringe-toed lizard can and should conduct surveys, with USFWS/CDFG approval, in accordance with the CDFG *Protocol for Determining Coachella Valley Fringe-Toed Lizard (CVFTL) Presence*, to establish whether or not the species is present. The measures listed below are taken largely from the CDFG protocol recommendations and would be adequate as standard mitigation for this species. If the species is determined present then the following applies:

- Mitigation for occupied habitat impacted is likely to be compensatory off-site acquisition or protection of similar habitats at a ratio of 3:1 (compensation acres to that impacted) or other similar ratio with the approval of the USFWS and/or CDFG).

MM-BIO/OS27: Project sponsors with projects within the range and within suitable habitat for the desert tortoise can and should conduct surveys, with USFWS approval, in accordance with the 1992 USFWS *Field Survey Protocol For Any Federal Action That May Occur Within The Range Of The Desert Tortoise*, to establish whether or not the species is present. If the species is determined present then the following applies:

- Upon approval by the USFWS, preconstruction surveys of project impact areas can and should be required to salvage and relocate individual desert tortoise out of harms. Following removal of individuals, construction areas should be fenced with temporary exclusionary silt fencing.

Mitigation for occupied habitat impacted is likely to be compensatory acquisition of mitigation credits or off-site acquisition or protection of similar habitats at a ratio of 3:1 (compensation acres to that impacted) or other similar ratio with the approval of the USFWS and/or CDFG).

MM-BIO/OS28: California species of special concern (CSC), such as the two-striped garter snake and several bat species are considered special-status species that meet the definition of rare, threatened or endangered species for the purposes of CEQA. Projects within the range and within suitable habitat for California species of special concern can and should conduct surveys in accordance with the best professional judgment of a qualified biologist. The following measures can and should be implemented to further minimize adverse effects to CSC species:

- Preconstruction surveys of project impact areas can and should be required to salvage and relocate individual two-striped garter snakes out of harm. Following removal of individuals, construction areas should be fenced with temporary exclusionary silt fencing.
- Similarly appropriate survey, salvage, and mitigation measures can and should be taken with regard to other CSC classified species. If avoidance of impacts to species is not feasible, on site and/or off site protection of appropriate mitigation lands in perpetuity should be secured for these species.
- Mitigation for occupied habitat is likely to be compensatory acquisition of mitigation credits or off-site acquisition or protection of similar habitats at a ratio of 3:1 (compensation acres to that impacted) or other similar ratio with the approval of the USFWS and/or CDFG. The two-striped garter snake is not formally listed but considered a special-status species worthy of measures to avoid and minimize impacts to the extent feasible.

MM-BIO/OS29: Project sponsors can and should ensure that to avoid disrupting nesting Swainson's hawks, construction activities at known nesting locations can and should occur between September and March outside the nesting season (nesting typically occurs from March 1 through September 1). Alternatively, if construction activities take place during the nesting season, a qualified biologist can and should conduct a pre-construction survey no more than two weeks before the start of construction for any given milepost and report whether or not there are nesting Swainson's hawks within 500 feet of any project (assuming available authorized access). If there are nesting Swainson's hawks present within the 500-foot buffer areas, construction will be delayed until the CDFG has been consulted to determine suitable avoidance measures. A potential avoidance measure may include delaying all construction activity within 500 feet of an active Swainson's hawk nest until the adult and/or young of the year are no longer reliant on the nest site for survival as determined by a qualified biologist.

MM-BIO/OS30: Project sponsors can and should ensure that no more than two weeks before construction in any given milepost, a survey for burrows and burrowing owls can and should be conducted by a qualified biologist within 500 feet of the project (assuming available authorized access). The survey will conform to the protocol described by the California Burrowing Owl Consortium's 1993 Burrowing Owl Protocol and Mitigation Guideline which includes up to four surveys on different dates if there are suitable burrows present as well as the CDFG's 1995 Staff Report on Burrowing Owl Mitigation. Both mitigation guidelines also recommend habitat land acquisition and protection in perpetuity for project-related loss of occupied wintering and breeding habitat for burrowing owls. If occupied burrowing owl dens are found within the survey area, a determination can and

should be made by a qualified biologist in consultation with CDFG whether or not project work will impact the occupied burrows or disrupt reproductive behavior:

- If it is determined that construction will not impact occupied burrows or disrupt breeding behavior, construction will proceed without any restriction or mitigation measures.
- If it is determined that construction will impact occupied burrows during August through February, the subject owls will be passively relocated from the occupied burrow(s) using one-way doors. There should be at least two unoccupied burrows suitable for burrowing owls within 300 feet of the occupied burrow before one-way doors are installed. Artificial burrows should be in place at least one-week before one-way doors are installed on occupied burrows. One-way doors will be in place for a minimum of 48 hours before burrows are excavated.
- If it is determined that construction will physically impact occupied burrows or disrupt reproductive behavior during the nesting season (March through July) then avoidance is the only mitigation available. Construction should be delayed within 300 feet of occupied burrows until it is determined that the subject owls are not nesting or until a qualified biologist determines that juvenile owls are self-sufficient or are no longer reliant on the natal burrow as their primary source of shelter and survival.
- Mitigation for occupied habitat is likely to be compensatory acquisition of mitigation credits or off-site acquisition or protection of similar habitats at a ratio of 3:1 (compensation acres to that impacted) or other similar ratio with the approval of the USFWS and/or CDFG.

MM-BIO/OS31: Project sponsors can and should ensure that when working within 100 feet of salt or brackish marshland presence for the California black rail, California clapper rail, and Yuma clapper rail should be assumed for either species during the period February 1-August 31 and construction should be scheduled to begin no earlier than September 1 and end no later than January 31 to avoid potential impact on reproduction. The Department of Fish and Game and United States Fish and Wildlife Service can and should be consulted when projects identify occupied habitat or habitat capable of supporting California clapper rail, light-footed clapper rail, and Yuma clapper rail.

MM-BIO/OS32: Project sponsors with projects within the range and within suitable habitat for the coastal California gnatcatcher can and should conduct surveys, with USFWS approval, in accordance with the 1997 USFWS *Coastal California Gnatcatcher Presence/Absence Survey Guidelines*, to establish whether or not the species is present. If the species is determined present then the following applies:

To avoid disrupting nesting coastal California gnatcatchers, construction activities at known nesting locations should occur between September and March outside the nesting season (nesting typically occurs from March 1 through September 1). Alternatively, if construction activities take place during the nesting season, a qualified biologist can and should conduct a pre-construction survey no more than two weeks before the start of construction for any given milepost and report whether or not there are nesting coastal California gnatcatchers within 500 feet of any project (assuming available authorized access). If there are nesting coastal California gnatcatchers present within the 500-foot buffer areas, construction will be delayed until the USFWS and/or CDFG has been consulted to determine suitable avoidance measures. A potential avoidance measure may include delaying all construction activity within 500 feet of an active coastal California gnatcatchers nest until the adults and/or young of the year are no longer reliant on the nest site for survival as determined by a qualified biologist.

Mitigation for occupied habitat impacted is likely to be compensatory off-site acquisition or protection of similar habitats at a ratio of 3:1 (compensation acres to that impacted) or other similar ratio with the approval of the USFWS and/or CDFG).

- MM-BIO/OS33:** Project sponsors with projects within the range and within suitable habitat for the least Bell's vireo can and should conduct surveys, with USFWS approval, in accordance with the 2001 USFWS *Least Bell's Vireo Survey Guidelines*, to establish whether or not the species is present. If the species is determined present then the following applies:

To avoid disrupting nesting least Bell's vireo, construction activities at known nesting locations can and should occur between September and March outside the nesting season (nesting typically occurs from March 1 through September 1). Alternatively, if construction activities take place during the nesting season, a qualified biologist can and should conduct a pre-construction survey no more than two weeks before the start of construction for any given milepost and report whether or not there are nesting least Bell's vireo within 500 feet of any project (assuming available authorized access). If there are nesting least Bell's vireo present within the 500-foot buffer areas, construction will be delayed until the CDFG has been consulted to determine suitable avoidance measures. A potential avoidance measure may include delaying all construction activity within 500 feet of an active least Bell's vireo nest until the adults and/or young of the year are no longer reliant on the nest site for survival as determined by a qualified biologist.

Mitigation for occupied habitat impacted is likely to be compensatory off-site acquisition or protection of similar habitats at a ratio of 3:1 (compensation acres to that impacted) or other similar ratio with the approval of the USFWS and/or CDFG).

- MM-BIO/OS34:** Project sponsors with projects within the range and within suitable habitat for the southwestern willow flycatcher can and should conduct surveys, with USFWS approval, in accordance with the 2000 USFWS *Southwestern Willow Flycatcher Protocol Survey Guidelines (Revision 2000)*, to establish whether or not the species is present. If the species is determined present then the following applies:

To avoid disrupting nesting southwestern willow flycatcher, construction activities at known nesting locations can and should occur between September and March outside the nesting season (nesting typically occurs from March 1 through September 15). Alternatively, if construction activities take place during the nesting season, a qualified biologist can and should conduct a pre-construction survey no more than two weeks before the start of construction for any given milepost and report whether or not there are nesting southwestern willow flycatcher within 500 feet of any project (assuming available authorized access). If there are nesting southwestern willow flycatchers present within the 500-foot buffer areas, construction will be delayed until the CDFG has been consulted to determine suitable avoidance measures. A potential avoidance measure may include delaying all construction activity within 500 feet of an active southwestern willow flycatcher nest until the adults and/or young of the year are no longer reliant on the nest site for survival as determined by a qualified biologist.

Mitigation for occupied habitat impacted is likely to be compensatory off-site acquisition or protection of similar habitats at a ratio of 3:1 (compensation acres to that impacted) or other similar ratio with the approval of the USFWS and/or CDFG).

- MM-BIO/OS35:** Project sponsors can and should ensure that suitable nesting sites for migratory nongame native bird species protected under the Federal Migratory Bird Treaty Act and/or trees

with unoccupied raptor nests (large stick nests or cavities) should only be removed prior to February 1, or following the nesting season.

A survey to identify active raptor and other migratory nongame bird nests can and should be conducted by a qualified biologist at least two weeks before the start of construction at project sites from February 1 through August 31. Active raptor nests can and should be re-located within 500 feet of the project to the extent feasible and assuming available authorized access. Suitable nesting habitat for protected native birds can and should be re-located within 300 feet of the project.

- Beginning thirty days prior to the disturbance of suitable nesting habitat, the project sponsor can and should arrange for weekly bird surveys conducted by a qualified biologist with experience in conducting breeding bird surveys to detect protected native birds occurring in the habitat that is to be removed and any other such habitat within 300 feet of the construction work area (within 500 feet for raptors) as access to adjacent areas allows. The last survey can and should be conducted no more than 3 days prior to the initiation of clearance/construction work.
- If an active raptor nest is found within 500 feet of the project or nesting habitat for a protected native bird is found within 300 feet of the project a determination can and should be made by a qualified biologist in consultation with CDFG whether or not project construction work will impact the active nest or disrupt reproductive behavior.
- If it is determined that construction will not impact an active nest or disrupt breeding behavior, construction will proceed without any restriction or mitigation measure. If it is determined that construction will impact an active raptor nest or disrupt reproductive behavior then avoidance is the only mitigation available. Construction can and should be delayed within 300 feet of such a nest (within 500 feet for raptor nests), until August 31 or as determined by CDFG, until the adults and/or young of the year are no longer reliant on the nest site for survival and when there is no evidence of a second attempt at nesting as determined by a qualified biologist. Limits of construction to avoid a nest can and should be established in the field with flagging and stakes or construction fencing marking the protected area 300 feet (or 500 feet) from the nest. Construction personnel can and should be instructed on the sensitivity of the area.
- Documentation to record compliance with applicable State and Federal laws pertaining to the protection of native birds can and should be recorded.

Natural Lands

MM-BIO/OS36: Project sponsors can and should conduct site-specific analyses of opportunities to preserve or improve habitat linkages with areas on- and off-site. Habitat linkages/wildlife movement corridors can and should be analyzed on a broader and cumulative impact analysis scale to avoid adverse impacts from linear projects that have potential for impacts on a broader scale or critical narrow choke points that could reduce function of recognized movement corridors on a larger scale. A qualified biologist will review construction drawings and habitat connectivity mapping provided by the CDFG or CNDDDB will be used to determine the risk of habitat fragmentation. Mitigation banking to preserve habitat linkages and corridors (opportunities to purchase, maintain, and/or restore offsite habitat) is one opportunity that project sponsor and local jurisdictions may pursue.

- MM-BIO/OS37:** Project sponsors can and should evaluate the potential for overpasses, underpasses, and culverts in cases where a roadway or other transportation project may interrupt the flow of species through their habitat. Wildlife crossings/access can and should be provided in accordance with proven standards, such as FHWA's Critter Crossings or Ventura County Mitigation Guidelines and in consultation with wildlife corridor authorities with sufficient knowledge of both regional and local wildlife corridors, and at locations useful and appropriate for the species of concern.
- MM-BIO/OS38:** Project sponsors can and should include analysis of wildlife corridors during project planning. Impacts to these corridors should be avoided and/or minimized.
- MM-BIO/OS39:** Project sponsors can and should use wildlife fencing where appropriate to minimize the probability of wildlife injury due to direct interaction between wildlife and roads. Wildlife fencing used can and should be based on proven designs for impacted species and developed in conjunction with wildlife corridor authorities with sufficient knowledge of both regional and local wildlife corridors. Project sponsors can and should take advantage of natural environmental buffers (i.e. streams or fields) to protect wildlife habitat from nearby transportation infrastructure. Inclusion of this mitigation measure can and should be considered on a case-by-case basis, as use of wildlife fencing could further increase the effects of habitat fragmentation and isolation for many species. Also see Mitigation Measures **MM-BIO/OS1** through **MM-BIO/OS21**.
- MM-BIO/OS40:** Project sponsors can and should avoid siting new 2012-2035 RTP/SCS transportation facilities within areas not presently exposed to impacts from transportation facilities. If avoidance is infeasible, the project should minimize vehicular accessibility to areas beyond the actual transportation surface. This can be accomplished through fencing and signage. Additionally, the area of native habitats to be lost to proximity to a transportation facility should be assessed and habitat at a quality of equal or superior value can and should be secured and protected in perpetuity.

Threats to Biological Resources in the SCAG Region

- MM-BIO/OS41:** Project sponsors can and should establish litter control programs in appropriate areas, such as receptacles at road turnouts, rest stops, and viewpoints. All refuse containers can and should be provided with mechanisms which prevent scavenging animals from gaining access to the contents of such containers.
- MM-BIO/OS42:** Project sponsors can and should use road noise minimization methods, such as brush and tree planting, at heavy noise-producing transportation areas that might affect wildlife. Native vegetation can and should be used.
- MM-BIO/OS43:** Project sponsors can and should avoid and/or minimize construction activities that have the potential to expose species to noise, smoke, or other disturbances. Pre-construction surveys can and should be conducted as appropriate to determine the presence of any species that would need to be protected from such an impact.

Protection of Biological Resources in the SCAG Region

- MM-BIO/OS44:** Future impacts to biological resources shall be minimized through cooperation, information sharing, and program development as part of SCAG's regional planning efforts. SCAG shall consult with the resource agencies, such as USFSW and CDFG, as well as local jurisdictions to incorporate any local HCPs or other similar planning documents. Planning efforts shall be in accordance with the approach outlined in the California Wildlife Action Plan.

- MM-BIO/OS45:** SCAG shall develop a conservation strategy in coordination with local jurisdictions and agencies, including CTCs to determine priority conservation areas and develop regional mitigation policies. SCAG shall produce and maintain a list/map of potential conservation opportunity areas based on most recent land use data. These conservation opportunity areas may be used by local jurisdictions and project sponsors as priority areas for mitigating impacts to open space resources. SCAG's forthcoming regional conservation planning policy will include additional information on conservation opportunity areas.
- MM-BIO/OS46:** SCAG shall use its IGR process to review projects with potentially significant impacts to open space and recommend impact avoidance and mitigation measures.
- MM-BIO/OS47:** Project sponsors can and should ensure that transportation systems proposed in the 2012-2035 RTP/SCS avoid or mitigate significant impacts to natural lands, community open space and important farmland, including cumulative impacts and open space impacts from the growth associated with transportation projects and improvements.
- MM-BIO/OS48:** Individual projects submitted for IGR review can and should either avoid significant impacts to regionally significant open space resources or mitigate the significant impacts through measures consistent with regional open space policies for conserving natural lands, community open space and farmlands. All projects submitted for IGR review can and should demonstrate consideration of alternatives that would avoid or reduce impacts to open space.
- MM-BIO/OS49:** Project sponsors can and should include into project design, to the maximum extent practicable, mitigation measures and recommended best practices aimed at minimizing or avoiding impacts to natural lands, including, but not limited to FHWA's Critter Crossings, Ventura County Mitigation Guidelines, CDFG's Wildlife Action Plan and any applicable conservation plans.
- MM-BIO/OS50:** For projects adjacent to natural watercourses, project sponsors can and should submit a vegetation management plan for review and approval by the Lead Agency that includes, as deemed appropriate, the following measures:
- Identify and do not disturb a 20-foot buffer from the top of the natural watercourse. If the top of bank cannot be identified, leave a 50-foot buffer from the centerline of the watercourse or as wide a buffer as possible between the watercourse centerline and the proposed site development.
 - Identify and leave "islands" of vegetation in order to prevent erosion and landslides and protect nesting habitat.
 - Leave at least 6 inches of vegetation on the site.
 - Trim tree branches from the ground up (climbing up) and leave tree canopy intact.
 - Leave stumps and roots from cut down trees to prevent erosion.
 - Plant fire-appropriate, drought-tolerant, preferably native vegetation.
 - Err on the side of caution; if a plant, tree or area is sensitive, obtain a second opinion before cutting.
 - Provide erosion and sediment control protection if cutting vegetation on a steep slope.
 - Leave tall shrubbery at least 3-feet high.
 - Fence off sensitive plant habitats and creek areas to protect from animal grazing as appropriate and necessary.
 - Do not clear-cut vegetation. This can lead to erosion and severe water quality problems and destroy important habitat.

- Do not remove vegetation within 20-feet of the top of bank. If the top of bank cannot be identified, do not cut within 50-feet of the centerline of the natural watercourse or as wide a buffer as possible between the natural watercourse centerline and the proposed site development.
- Do not trim/prune branches that are larger than 4 inches in diameter.
- Do not remove tree canopy.
- Do not dump cut vegetation in a creek.
- Do not cut tall shrubbery to less than 3-feet high.
- Do not cut of short vegetation (grasses, ground-cover) to less than 6-inches high.

MM-BIO/OS51: As appropriate conduct a biological assessment for any site/corridor where there is the potential for impacts to significant biological resources including threatened or endangered species, sensitive habitats/species and/or protected trees.

MM-BIO/OS52: Shade Tree Planting: Local jurisdictions or agencies can and should promote the planting of shade trees and establish shade tree guidelines and specifications, including:

- Recommendations for tree planting based on the land use (residential, commercial, parking lots, etc.);
- Recommendations for tree types based on species size, branching patterns, whether deciduous or evergreen, whether roots are invasive, etc.;
- Recommendations for placement, including distance from structures, density of planting, and orientation relative to structures and the sun.

MM-BIO/OS53: Urban Forestry Management: Local jurisdictions or agencies can and should develop an Urban Forestry Program to consolidate policies and ordinances regarding tree planting, maintenance, and removal, including:

- Establish a tree-planting target and schedule to support the goals of the California Climate Action Team to plant 5 million trees in urban areas by 2020;
- Establish guidelines for tree planting, including criteria for selecting deciduous or evergreen trees low-VOC-producing trees, and emphasizing the use of drought-tolerant native trees and vegetation.

MM-BIO/OS54: Local jurisdictions or agencies can and should establish policies and programs to restore, protect, manage and preserve conservation areas, including forested areas, agricultural lands, wildlife habitat and corridors, wetlands, watersheds, and groundwater recharge areas, that remove and sequester carbon from the atmosphere.

MM-BIO/OS55: Conservation Area Development: Local jurisdictions or agencies can and should establish programs and funding mechanisms to create protected conservation areas, including:

- Imposing mitigation fees for development on lands that would otherwise be conservation areas, and use the funds generated to protect other areas from development;
- Proposing for voter approval a small tax increment (e.g., a quarter cent sales tax, perhaps for a finite time period that could be renewed) to fund the purchase of development rights in conservation areas, or purchase of the land outright.

- MM-BIO/OS56: Conservation Area Preservation:** Local jurisdictions or agencies can and should establish policies to preserve existing conservation areas, and to discourage development in those areas.
- MM-BIO/OS57:** Local jurisdictions or agencies can and should manage its stock of vegetation to reduce GHG emissions.
- MM-BIO/OS58:** Local jurisdictions can and should conduct a comprehensive inventory and analysis of the urban forest, and coordinate tree maintenance responsibilities with all responsible departments, consistent with best management practices.
- MM-BIO/OS59:** Local jurisdictions or agencies can and should evaluate existing landscaping and options to convert reflective and impervious surfaces to landscaping, and install or replace vegetation with drought-tolerant, low-maintenance native species or edible landscaping that can also provide shade and reduce heat-island effects.

SIGNIFICANCE OF IMPACTS AFTER MITIGATION

Ecosystems in the SCAG Region

Implementation of Mitigation Measures **MM-BIO/OS1** through **MM-BIO/OS3** would reduce the potential impacts to ecosystems in the SCAG region; however, due to the regional scale of the Plan, the impact remains significant.

Special Status Species and Natural Communities

Implementation of Mitigation Measures **MM-BIO/OS4** through **MM-BIO/OS35** would reduce the potential impacts to Special Status Species and Natural Communities in the SCAG region; however, due to the regional scale of the Plan, the impact remains significant.

Natural Lands

Implementation of Mitigation Measures **MM-BIO/OS36** through **MM-BIO/OS40** would reduce the potential impacts to natural lands in the SCAG region; however, it is anticipated that impacts to natural lands would not be able to be mitigated in every instance. Therefore, this impact remains significant.

Threats to Biological Resources in the SCAG Region

Implementation of Mitigation Measures **MM-BIO/OS41** through **MM-BIO/OS43** would reduce the potential impacts to biological resource threats in the SCAG region; however, while the mitigation measures outlined above would avoid or minimize impacts, however, due to the scale of the Plan, the impact remains significant.

Protection of Biological Resources in the SCAG Region

Implementation of Mitigation Measures **MM-BIO/OS44** through **MM-BIO/OS59** would increase the protection of biological resources in the SCAG region; however, while the mitigation measures outlined above would avoid or minimize impacts, however, due to the scale of the Plan this impact remains significant.

Cumulative Effects

Mitigation Measures **MM-BIO/OS1** through **MM-BIO/OS59** would reduce cumulative impacts related to biological resources and open space outside the region. However, potential cumulative impacts to biological resources and open space outside the region would remain cumulatively considerable.

COMPARISON WITH THE NO PROJECT ALTERNATIVE

Under the No Project Alternative, the population of the SCAG region would grow by 3.9 million people, however, only the transportation projects that received federal environmental clearance by December 2010, projects in the 2011 FTIP, and projects currently under construction or right of way approval would be developed. The population distribution would follow past trends, uninfluenced by additional transportation investments.

Direct Impacts

Under the No Project Alternative, there would be no new transportation projects (beyond those projects that would occur regardless of adoption of the Plan) intersecting sensitive communities, known locations or habitats of special status species, riparian habitats, wetlands, rangelands, or open space in the region. However, the No Project would result in a more spread out pattern of development that would consume far more vacant land than the Plan (742 square miles compared to 334 square miles while land use policies in the Plan would seek to strictly limit development outside targeted areas. As this spread out growth pattern would consume a greater number of vacant lands, the Plan's impacts to biological resources and open space would be less than the No Project Alternative. **No Project impacts to biological resources would be greater than those of the Plan because of the increase in land consumption that would result from a more dispersed land use pattern.**

Cumulative Impacts

The No Project Alternative's cumulative impacts to biological resources and open space due to urban development would be greater than those of the 2012-2035 RTP/SCS because of the increased consumption of vacant, open space, and agricultural lands. The spread out growth pattern that would occur under the No Project Alternative would also be expected to result in habitat fragmentation and other biological impacts to areas outside the region. In fact, as more vacant lands would be consumed, and many of the areas that would be affected would likely be undeveloped areas on the fringe of the region, it would be anticipated that these effects on biological resources would be even greater. **Therefore, the No Project Alternative's cumulative impacts to biological resources and open space would be greater than those of the 2012-2035 RTP/SCS.**