

2.2 Biological Resources

This section discusses the existing biological resources in Imperial County. The regulatory environment and existing conditions have been assessed and analyzed to determine associated constraints and opportunities for updating the *Conservation and Open Space Element* for the County of Imperial.

2.2.1 Terminology

The following is a summary of biological resources terminology discussed in this section.

- **Biological Resources** – Genetic resources, organisms or parts thereof, populations, or any other biotic component of ecosystems with actual or potential use or value for humanity (UN 1992).
- **Sensitive Habitats** – Habitats labeled by federal and state agencies as sensitive based on their rarity, because they support sensitive plant and wildlife species, and/or for their ecologic, economic, and social value.
- **Sensitive Species** – Plant and animal species that are recognized by federal and/or state resource agencies, as well as private conservation organizations, as having a special status due to the concern for their continued existence as a result of decline or limitation of its size or population, geographic range, and/or distribution, resulting in most cases from habitat loss.
- **Habitat Conservation Areas** – Designated ecosystems to provide large-area protection of plants, animals, and their habitats while allowing for compatible and appropriate economic activity.
- **Migration Corridors** – Small or large habitat sections connecting wildlife populations and important for genetic diversity, population reestablishment, and population sustainability.

2.2.2 Regulatory Environment

The following is a list of laws, policies, and plans relevant to biological resources.

Federal

- Endangered Species Act (ESA)
- Invasive Species – Executive Order 13112
- Migratory Bird Treaty Act and Executive Order 1318
- Bald and Golden Eagle Protection Act
- Clean Water Act
- Protection of Wetlands – Executive Order 11990
- BLM California Desert Conservation Area Plan and subsequent amendments
- Fish and Wildlife Coordination Act
- BLM Manual 6840, Special Status Species Management

State

- California Environmental Quality Act
- California Endangered Species Act (CESA)

- California Native Plant Protection Act
- California Fish and Wildlife, Fish and Game Code Sections 3503 and 3503.5
- California Fish and Wildlife, Fish and Game Code Section 1602 – Streambed Alteration Agreement
- California State Wetlands Conservation Policy
- Porter-Cologne Water Quality Control Act
- California Desert Protection Act
- Natural Community Conservation Planning Act (CFG Code, Section 2800 et seq.)
- California Desert Native Plants Act

Regional

- Desert Renewable Energy Conservation Plan

Local

- County of Imperial General Plan (1993) and as amended and various urban, community and specific plans
- Imperial County Land Use Ordinance
- Imperial Irrigation District Habitat Conservation Plan and Natural Community Conservation Plan
- Lower Colorado River Multi-Species Conservation Program Habitat Conservation Plan

2.2.3 Existing Conditions

Imperial County extends over 4,597 square miles and is bordered by Riverside County to the north, Mexico to the south, San Diego County to the west, and Arizona to the east (see Figure 1 in Section 1). The terrain varies from 235 feet below sea level at the Salton Sea to 4,548 feet above mean sea level (amsl) at Blue Angel Peak (County of Imperial 2013). Mountain ranges in the County include the Orocopia Mountains to the north, the Chocolate Mountains to the east, and the Santa Rosa Range to the west. Waterways include the Salton Sea, with a surface area of approximately 376 square miles of the northwest corner of the County, the Colorado River running north to south along the eastern boundary, and the Alamo and New rivers flowing south to north and draining into the Salton Sea.

The climate is hot and dry, ranging from lows in the mid-30s (degrees Fahrenheit) in January to highs of 110+ (degrees Fahrenheit) in July and August (mean temperatures: low 55.0; high 89.6), with little moisture (average annual rainfall: 2.92 inches; 25 percent average relative humidity) (County of Imperial 2013).

2.2.3.1 Plants and Vegetation Communities

An extensive range of vegetation communities have been identified in the County, including native and nonnative communities on which sensitive and common plant and wildlife species are dependent. Native communities include wetland and riparian habitats within fresh- and saltwater systems and high and low elevation woodland and scrub habitats, some with saline and alkali soil conditions. Nonnative communities include agriculture, annual grasslands, and tamarisk or salt cedar stands.

The Desert Renewable Energy Conservation Plan (DRECP) Land Cover/Natural Communities map is a detailed map of land cover and vegetation types and includes all of Imperial County (BLM et al. 2014). Vegetation and landform data used for this analysis was primarily the DRECP Land Cover/Natural Communities dataset, which was supplemented by data obtained from the US Geological Survey (2013) for areas of the County not covered by the DRECP dataset. Table 2.2-1 identifies the acreages of land cover type and vegetation communities in Imperial County, and Figure 2.2-1 shows the distribution of vegetation and land covers (all figures are located at the end of this subsection).

Table 2.2-1. Acreages of Land Cover Types and Vegetation Communities in Imperial County

Land Cover Type/Vegetation Community	Total Acreage
DRECP NVCS Group Name	
<i>Acacia greggii</i> ¹	877.68
<i>Agave deserti</i> ²	127.89
Agriculture	548,094.60
<i>Allenrolfea occidentalis</i> ²	20.29
<i>Ambrosia dumosa</i> ¹	16,670.76
<i>Ambrosia salsola</i> ¹	333.97
Arizonian Upland Sonoran Desert Scrub	8,997.87
<i>Atriplex canescens</i>	44.15
<i>Atriplex polycarpa</i>	227.07
<i>Baccharis emoryi</i> ²	32.67
<i>Caesalpinia virgata</i> ²	52.19
California Annual and Perennial Grassland	17.97
Central and South Coastal Californian Coastal Sage Scrub	15.72
<i>Chilopsis linearis</i> ²	77.80
<i>Chorizanthe rigida</i> – <i>Garaea canescens</i>	8,662.01
Developed and Disturbed Areas	90,189.00
<i>Encelia farinosa</i> ¹	2,366.28
<i>Fouquieria splendens</i>	45.15
<i>Hyptis emoryi</i> ²	493.36
Inter-Mountain Dry Shrubland and Grassland	2.25
<i>Larrea tridentata</i> ¹	7,888.43
<i>Larrea tridentata</i> – <i>Ambrosia dumosa</i>	22,031.24
<i>Larrea tridentata</i> – <i>Encelia farinosa</i>	4,191.72
Lower Bajada and Fan Mojavean – Sonoran Desert Scrub	739,736.88
Madrean Warm Semi-Desert Wash Woodland/Scrub	429,352.07
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat ²	225.30
North American Warm Desert Bedrock Cliff and Outcrop	410,959.68
North American Warm Desert Dunes and Sand Flats ²	175,235.90
Open Water	199,433.62
<i>Parkinsonia florida</i> – <i>Olneya testota</i>	33,598.42
Playa	195.76
<i>Pleuraphis rigida</i> ²	5.90

Table 2.2-1. Acreages of Land Cover Types and Vegetation Communities in Imperial County

Land Cover Type/Vegetation Community	Total Acreage
DRECP NVCS Group Name	
<i>Prosopis glandulosa</i> ²	5,231.42
<i>Prosopis glandulosa</i> Coppice Dunes ²	233.70
<i>Psoralea argophylla</i> ²	1,288.59
Shadscale – Saltbush Cool Semi-Desert Scrub	21,758.14
Sonoran-Coloradan Semi-Desert Wash Woodland/Scrub	1,391.57
Southwestern North American Riparian Flooded and Swamp Forest ²	4,029.25
Southwestern North American Introduced Riparian Scrub	34,236.04
Southwestern North American Salt Basin and High Marsh ²	4.49
<i>Suaeda moquinii</i> ²	11.57
<i>Tamarix</i> spp.	32.75
Urban	306.62
<i>Viguiera parishii</i> ¹	9.51
Western Mojave and Western Sonoran Desert Borderland Chaparral	121.16
US Geological Survey National Land Cover	
Barren Land	40,544.06
Cultivated Crops	73.28
Developed, Low Intensity	458.74
Developed, Medium Intensity	86.43
Developed, Open Space	513.61
Herbaceous	1,012.98
Shrub/Scrub	49,302.84
Total Land Cover/Natural Community Acreage	2,860,850.35

1. Some associations considered sensitive (CDFG 2010).

2. Sensitive vegetation type: riparian habitats and communities identified as sensitive by the CDFW (CDFG 2010).

2.2.3.2 Sensitive Habitats

A number of sensitive vegetation communities, identified by the California Department of Fish and Wildlife (CDFW) and others as rare and worthy of consideration in California, occur in Imperial County (CDFG 2010). Of the total 2,942,080 acres in the County, approximately 215,220 are sensitive habitats (Table 2.2-1). Sensitive vegetation and habitats are a conservation priority for local, state, and federal regulatory agencies because they have limited distribution and support a variety of sensitive plants and wildlife.

Figures 2.2-1 and 2.2-2 identify the locations of sensitive habitats. These features are important because they are limited in distribution and support suites of rare and endemic (occurring nowhere else) species, as well as providing generally higher quality habitat for most wildlife species. The following datasets are mapped on Figure 2.2-2:

- **Streams, rivers, and waterbodies (US Geological Survey (USGS) National Hydrography Dataset and US Fish and Wildlife Service (USFWS) National Wetlands Inventory).** The National Hydrography Dataset and the National Wetland Inventory are comprehensive sets of digital spatial data that contain information about surface water features such as lakes, ponds, streams, rivers,

canals/ditches, springs, and wells (USGS 2014). These features often support a variety of rare and common species in a higher concentration than in surrounding uplands due to access to water, presence of riparian habitat, and other factors.

■ **Sensitive Natural Communities.** The following sensitive vegetation communities have been documented in the CDFW's Natural Diversity Database (CNDDDB) and are shown on Figure 2.2-2. Note that the vegetation classification systems and vegetation mapping scales used for the DRECP data, USGS landform data, and the CNDDDB data are different, and the CNDDDB data are not a comprehensive identification of sensitive vegetation throughout the County. Rather, the CNDDDB data only reflects areas where data records documenting sensitive vegetation locations have been submitted, and far more sensitive vegetation occurs in the County than is reflected in this database. Therefore, sensitive vegetation data from the CNDDDB are shown for informational purposes only and do not reflect actual Countywide distribution.

- | | |
|----------------------------------|--|
| ■ Active desert dunes | ■ Sonoran cottonwood willow riparian forest |
| ■ Crucifixion thorn woodland | ■ Stabilized and partially stabilized desert dunes |
| ■ Desert fan palm oasis woodland | ■ Transmontane alkali marsh |
| ■ Mesquite bosque | |

2.2.3.3 Wildlife

The conditions created by the arid desert climate, water-associated habitats, and continued expansion of agriculture have resulted in an abundance and diversity of wildlife habitats. The County supports over 400 species of wildlife that are dependent on these vegetation communities, including agriculture, which provides important foraging habitat for multiple birds and small mammals. According to the Imperial County General Plan Environmental Impact Report (EIR) (Brian F. Mooney Associates 1993), the nearly 400 species present in the County include 12 species of fish, 31 species of amphibians and reptiles, 378 species of birds, and 41 species of mammals.

2.2.3.4 Sensitive Species

A number of species listed or candidates for listing as endangered or threatened under the ESA or CESA, or listed as rare under the California Native Plant Protection Act, have been recorded or potentially occur in Imperial County. Listed species documented in the CNDDDB for the County include:

- | | | |
|----------------------------------|-------------------------|-----------------------------|
| ■ Desert tortoise | ■ Western snowy plover | ■ Bonytail |
| ■ Barefoot gecko | ■ California black rail | ■ Colorado pikeminnow |
| ■ Townsend's big-eared bat | ■ Yuma clapper rail | ■ Razorback sucker |
| ■ Peninsular bighorn sheep | ■ Gilded flicker | ■ Peirson's milk-vetch |
| ■ Western yellow-billed cuckoo | ■ Gila woodpecker | ■ Wiggins' croton |
| ■ Southwestern willow flycatcher | ■ Elf owl | ■ San Diego button-celery |
| ■ Least Bell's vireo | ■ Bald eagle | ■ Algodones Dunes sunflower |
| ■ Arizona Bell's vireo | ■ Desert pupfish | |

Numerous other special-status species occur in the County, including wildlife designated as California fully protected species or California Species of Special Concern as well as plants identified as California Rare Plant Rank (CRPR) 1, 2, 3, and 4. CRPR-ranked plants have been identified by the CDFW and the California Native Plant Society (CNPS) as rare and worthy of consideration under CEQA. CRPR 1 and 2 plants are of highest conservation concern, while plants ranked CRPR 3 and 4 are watch list species or those about which more information is needed to accurately assess level of vulnerability. A full list of all

sensitive species recorded in the CNDDDB and the CNPS's Electronic Inventory of Rare and Endangered Vascular Plants of California in Imperial County is included in Appendix A (CDFW 2014; CNPS 2014).

Several California Species of Special Concern are of particular conservation focus in Imperial County; these include the burrowing owl and flat-tailed horned lizard. Approximately two-thirds of the burrowing owl population in California occurs in agricultural areas in the Imperial Valley near the Salton Sea (BLM et al. 2014). There are three regional populations of flat-tailed horned lizard in California; two of these (representing the majority of the range in the state) occur in Imperial County. These are on the west side of the Salton Sea/Imperial Valley and on the east side of the Imperial Valley; both populations extend south into Mexico (Figure 2.2-3). Because both of these special-status species have such a substantial portion of their respective ranges in the County, it is particularly important to consider their distribution and ecological requirements as a component of the COSE planning process.

Figure 2.2-3 illustrates occurrence records for special-status species in Imperial County, with listed species highlighted (federally listed, state-listed, or both). These records are from the CNDDDB (CDFW 2014). Figure 2.2-3 also shows modeled desert tortoise habitat from the current USGS Desert Tortoise Habitat Model (Nussear et al. 2009). The model is a predictive tool for mapping the potential distribution of desert tortoise habitat and is useful for evaluating land use decisions potentially affecting desert tortoises at a landscape scale. It is not intended to be used, or viewed, as a substitute for ground-based, site-specific field surveys. Modeled habitat scores reflect a hypothesized habitat potential given the range of environmental conditions where tortoise occurrence was documented. The report (Nussear et al. 2009) emphasizes that:

... there are likely areas of potential habitat for which habitat potential was not predicted to be high, and likewise, areas of low potential for which the model predicted higher potential. Finally, the map of desert tortoise potential habitat that we present does not account either for anthropogenic effects, such as urban development, habitat destruction, or fragmentation, or for natural disturbances, such as fire, which might have rendered potential habitat into habitat with much lower potential in recent years.

As shown on Figure 2.2-3, desert tortoise habitat in the County is concentrated in the eastern area, which supports medium- to high-quality modeled desert tortoise habitat, with scores of 0.6 to 1.0 on a scale of 0 to 1 (1 being the highest quality). The location of the modeled high-quality habitat is consistent with the known distribution of desert tortoise in Imperial County.

It is important to note that special-status species in the County are not restricted to the locations of occurrence records and modeled habitat shown on Figure 2.2-3. Most areas of the County have not been systematically or recently surveyed, and where biological surveys have occurred, results are not always publicly available. Further, a given species' range or distribution is a scientific estimate based on known occurrence records and expected habitat associations. Reported species ranges often change as scientists gather more data on the distribution of a species. Range expansions and contractions for many species occur naturally and in response to anthropogenic causes. In some instances a species' range can rapidly expand into unoccupied lands adjacent to core populations. Therefore, Figure 2.2-3 is a guide to help refine identification of the most appropriate areas for conservation under the COSE. Special-status species occurrence data are best considered in conjunction with sensitive vegetation and habitats (see Figures 2.2-1 and 2.2-2). Together, these datasets help to identify the most biologically sensitive areas in the County.

2.2.3.5 Agency-Designated Habitats and Habitat Conservation Areas

Several areas in Imperial County support conservation easements or reserves, are designated as conservation areas, or have otherwise been designated as environmentally sensitive areas by various agencies or entities. These include USFWS-designated critical habitat, USFWS National Wildlife Refuges, BLM National Landscape Conservation System (NLCS) lands, BLM Desert Wildlife Management Areas (DWMAs) and Areas of Critical Environmental Concern (ACECs), wilderness and wildlife areas, state parks, and other protective designations by federal and state agencies in the County. Many of these areas have development restrictions or prohibitions to facilitate conservation of biological resources or other sensitive resources. These designated areas are shown on Figures 2.2-4, 2.2-5, and 2.2-6. Conservation easements are also shown on Figure 2.2-6; these include all projects approved by the Wildlife Conservation Board from its inception in 1949 to 2013.

Critical habitat is a federal designation to provide essential habitat for listed species. It is one or more areas essential for the conservation of a species listed as threatened or endangered under the ESA. Critical habitat often includes areas that are not occupied by the species for which it was designated, but includes land that provides specific functions (i.e., sand transport, connectivity, dispersal areas) necessary for the species' recovery. In addition, not all habitats occupied by a species at the time of listing are designated as critical habitat; this designation takes into consideration land management, connectivity, and many other factors. While development is not precluded from designated critical habitat, these areas have been afforded legal protection which requires developers to consult with the USFWS if a project would affect critical habitat or any listed species. Critical habitat units support important habitat and often support more than one listed species; therefore, conservation under the COSE would further benefit the resources in these designated areas.

Figure 2.2-5 identifies all designated critical habitat units in Imperial County. These data were obtained from the USFWS and include all available data as of September 2014. Critical habitat is designated in Imperial County for the following species:

- Desert pupfish
- Razorback sucker
- Desert tortoise
- Peirson's milk-vetch
- Peninsular bighorn sheep
- Yellow-billed cuckoo (proposed as of October 2014)

Three pending or adopted habitat conservation plans (HCPs) apply in Imperial County: the DRECP, the Imperial Irrigation District (IID) HCP/Natural Community Conservation Plan (NCCP), and the Lower Colorado River Multi-Species Conservation Program (Figure 2.2-6).

The DRECP is a multiagency planning effort currently underway to provide protection and conservation of desert ecosystems while allowing for the appropriate development of renewable energy projects in the California deserts. It is a proposed general conservation plan (a type of HCP) and NCCP and an amendment to the BLM's California Desert Conservation Area Plan. The DRECP planning area includes the majority of Imperial County, with the exception of small areas along the western boundary of the County (northwestern and southwestern corners of the County, Fish Creek Mountains, and Coyote Mountains). It is undergoing environmental review at present and has not yet been adopted by any of the participating agencies. As biological resources are a prime concern of the DRECP, plan-wide biological data modeling has been conducted to aid in the identification of appropriate areas for renewable energy development as well as conservation areas. Figure 2.2-7 identifies conservation target areas developed through the DRECP's multiagency process.

The IID's HCP/NCCP, under development, would cover 96 fish, wildlife, and plant species. Covered activities would include all water conservation projects and mitigation undertaken by the IID and others (farmers, tenants, and landowners) in connection with both the conservation and transfer of water from the Colorado River under existing agreements. IID Water Department operations activities, including water delivery, draining, and operations/maintenance (O&M), will also be covered activities (IID 2014).

The Lower Colorado River Multi-Species Conservation Program was established to provide protection to native species and their habitats along the Colorado River. Via the HCP, the program works to balance water use along the river while furthering the recovery of listed species and reducing the likelihood of future species listings. The program area encompasses over 400 miles of the lower Colorado River from Lake Mead to the border with Mexico. The HCP calls for the creation of over 8,100 acres of habitat for fish and wildlife species and the production of over 1.2 million native fish to augment existing populations. The HCP will benefit at least 26 species, most of which are state or federally listed endangered, threatened, or sensitive species (LCRMSCP 2014).

Table 2.2-2 provides the acreages of agency-designated lands in Imperial County.

Table 2.2-2. Acres of Agency-Designated Sensitive Habitats in Imperial County

Land Designation	Total Acreage
USFWS Critical Habitat	
Desert pupfish	770
Razorback sucker	2,347
Desert tortoise	340,312
Yellow-billed cuckoo (proposed)	15,143
Peninsular bighorn sheep	50,259
Peirson's milk-vetch	12,104
USFWS National Wildlife Refuge	
Cibola National Wildlife Refuge	6,729
Imperial National Wildlife Refuge	13,884
Sonny Bono Salton Sea National Wildlife Refuge	37,400
BLM ACEC and DWMA	
Chuckwalla DWMA	169,012
Coyote Mountains Fossil Site	5,876
Dos Palmas	2
East Mesa	42,140
Indian Pass	1,886
Lake Cahuilla – A	1,232
Lake Cahuilla – B	2,528
Lake Cahuilla – C	5,593
Lake Cahuilla – D	4,724
Pilot Knob	870
Plank Road	298
San Sebastian Marsh/San Felipe Creek	6,568.25
Singer Geoglyphs	1,885
West Mesa	20,304

Table 2.2-2. Acres of Agency-Designated Sensitive Habitats in Imperial County

Land Designation	Total Acreage
Yuha Basin	71,877
BLM Wilderness Areas	
Coyote Mountains Wilderness	18,197
Fish Creek Mountains Wilderness	22,457
Imperial Refuge Wilderness	7,904
Indian Pass Wilderness	33,909
Jacumba Wilderness	33,455
Little Chuckwalla Mountains Wilderness	2,624
Little Picacho Wilderness	39,585
North Algodones Dunes Wilderness	26,144
Palo Verde Mountains Wilderness	31,026
Picacho Peak Wilderness	8,982
CDFW Protected Areas	
Colorado River Access	489
Imperial Wildlife Area	7,801
San Felipe Creek ER	1,794
Smoketree Valley – Chocolate Mountains	990
Tabaseca	304
California Department of Parks and Recreation	
Anza-Borrego Desert State Park	30,330
Heber Dunes SVRA	325
Ocotillo Wells SVRA	40,160
Picacho SRA	558
Salton Sea SRA	463

2.2.3.6 Migration and Wildlife Movement

Migratory pathways are routes used by species during migration, particularly in the fall and spring. Bird and bat migratory pathways often span thousands of miles and follow specific topographic features such as canyons and mountain ranges. In topographically open areas, migratory pathways may be broad and less concentrated. Imperial County is in the Pacific Flyway corridor for migratory birds, and the Salton Sea and agricultural fields near the sea provide crucial resting, wintering, and foraging habitat for a large number of bird species. Riparian areas along the Colorado River are also essential habitats for migratory and resident birds. Other riparian and wetland areas, lakes and reservoirs, meadows, and agricultural fields in the County are also important as foraging and stopover sites for migrating and wintering birds.

Wildlife corridors facilitate movement between habitats that would otherwise be isolated. These corridors include habitat linkages between natural areas, greenbelts, and refuge systems. They can divert wildlife across permanent physical barriers to aid dispersal (e.g., underpasses and ramps that help wildlife cross highways and dams) (Haas 2000; Simberloff et al. 1992). Noss (1987) suggests several benefits of corridors, including the promotion of species richness and diversity, decreased probability of extinction, maintenance of genetic variation, increased mix of habitat and successional stages, and alternative refugia from large disturbances. In the undeveloped areas of the County, large pieces of

connecting habitat exist as wildlife corridors for amphibians, reptiles, and mammals. In addition, agricultural ditches and canals are important as small corridors for wildlife movement.

Figure 2.2-8 identifies some important areas for wildlife movement and migration in the County. Important Bird Areas are places identified by Audubon California as critical terrestrial and inland habitats for birds, particularly habitat that supports rare, threatened, or endangered birds or exceptionally large congregations of shorebirds or waterfowl. Important Bird Areas are conservation priorities (Audubon California 2008). Missing linkages are areas identified through the Missing Linkages collaboration process that are important to maintain or reinstate habitat connectivity throughout California. Linkages identified in this dataset include ones that are large, regional connections between habitat blocks meant to facilitate animal movement and other essential functions; narrow, impacted, or otherwise tenuous linkages connecting two or more habitat blocks; and highly impacted linkages that currently provide little to no connectivity function (due to intervening development, roadways, etc.) but based on location are considered critical to restoring connectivity function (Penrod, Hunter, and Marrifield 2001). Eight missing linkage areas were identified in the County (Figure 2.2-8).

Essential Connectivity Areas and Natural Landscape Blocks were identified in the California Essential Habitat Connectivity Project (Spencer et al. 2010). Natural Landscape Blocks are large, relatively natural habitat blocks that support native biodiversity, and Essential Connectivity Areas are essential for ecological connectivity between them. Interstate connections were identified to recognize the need for connectivity into neighboring states (Arizona, Nevada, and Oregon) and Mexico. They are depicted as placeholders for future modeling efforts, ideally in collaboration with those states. Two interstate connections were identified between Imperial County and Arizona and one connection between the County and Mexico (Figure 2.2-8).

The California Desert Linkage Network was developed to assist local jurisdictions, agencies, organizations, and property owners in land use decision making with respect to ecological protection and maintaining and enhancing habitat connectivity (Penrod et al. 2012). Linkages identified through this process include extensive areas along the eastern portion of the cCunty as well as an area along the Algodones Dunes connecting Natural Landscape Blocks to the north and south (Figure 2.2-8).

The majority of the County is in the general vicinity of one or more linkage areas or Natural Landscape Blocks identified via the Missing Linkages, the California Essential Habitat Connectivity, and the Linkage Network for the California Deserts projects. Important Bird Areas encompass the Salton Sea and the associated agricultural plain and the Colorado River corridor (Figure 2.2-8).

2.2.4 Constraints and Opportunities

This section discusses the potential constraints due to biological resources regulatory requirements and existing conditions and potential opportunities for the COSE.

2.2.4.1 Constraints Due to Regulatory Requirements

Areas outside of the County's jurisdiction, including federal and state lands, would not be available for protection under the COSE. Therefore, some areas that support species and other biological resources regulated by federal and state wildlife agencies would be outside the scope of the COSE and would rely on protection, as needed, by the appropriate land manager (e.g., BLM, California State Lands Commission).

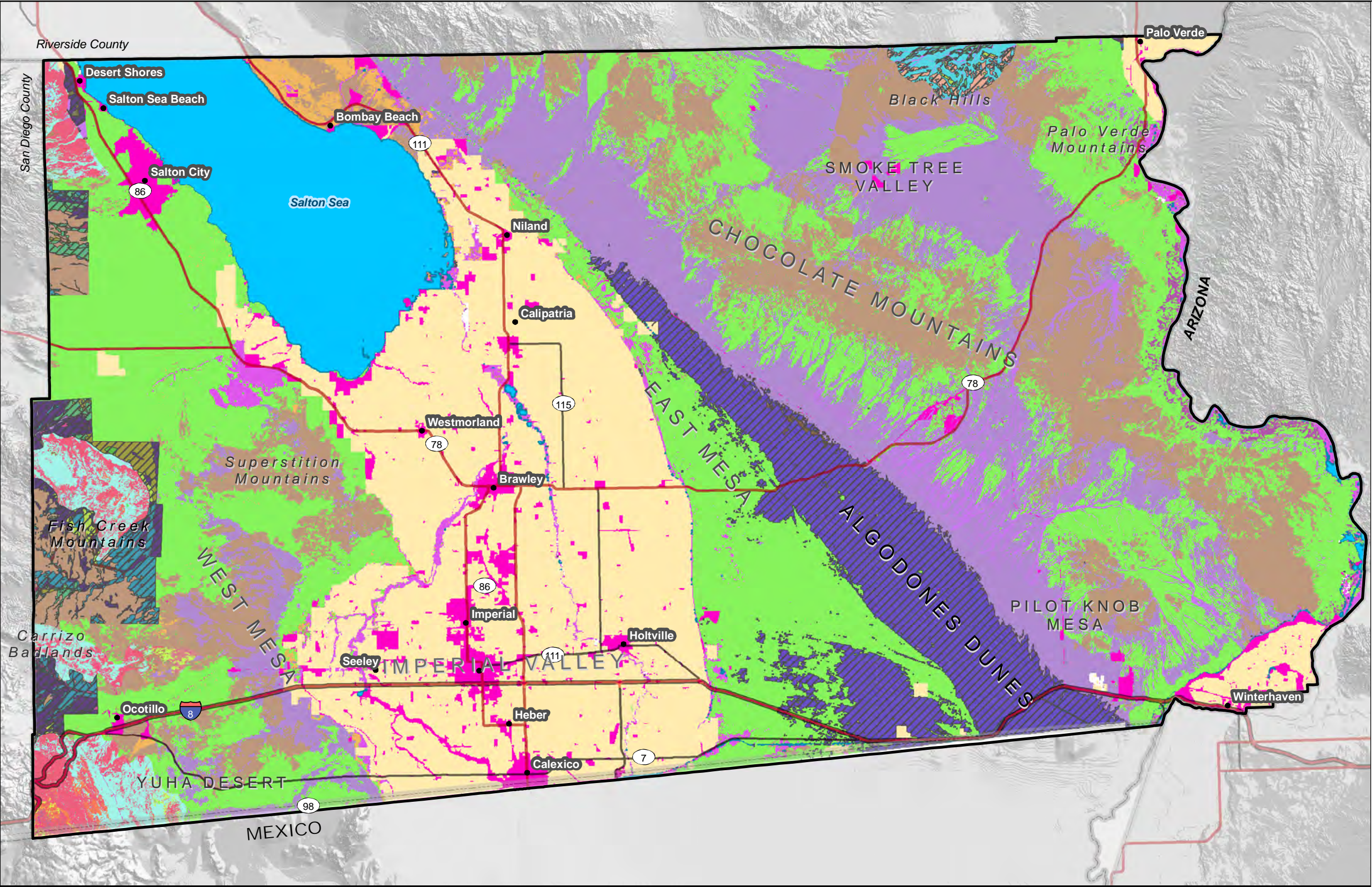
2.2.4.2 Constraints Due to Existing Conditions

Constraints due to existing conditions are defined in this document as areas of high biological resource importance that are precluded from protection under the COSE by existing conditions such as conflict with other existing land uses and resources. An example is preservation of mineral resources for the purpose of extraction. The COSE will provide specific goals and objectives for the preservation of mineral resources that could lead to impacts to biological resources. In addition, designated agricultural lands may benefit some sensitive species like burrowing owl, which is closely associated with agricultural areas in the County, but agricultural operations may conflict with other sensitive biological resources that depend on natural lands.

2.2.4.3 Opportunities

Opportunities are lands in the County's jurisdiction that would provide new protection to areas supporting sensitive biological resources or expand existing conservation areas to further benefit sensitive resources. Areas of opportunity for the COSE include sensitive and agency-designated habitats, particularly inholdings under County jurisdiction that fall within protected areas such as wilderness areas, DWMAs, etc. (Figure 2.2-4), as well as lands supporting sensitive biological resources that are currently not under regulatory protection. Lands that would be high priority for conservation under the COSE include the following:

- Private inholdings in existing designated protected areas (Figure 2.2-4)
- Designated critical habitat for federally listed species (Figure 2.2-5)
- Areas identified as priority conservation areas in the DRECP; these areas were developed through extensive interagency coordination (BLM et al. 2014; Figure 2.2-7)
- Important Bird Areas (Figure 2.2-8)



Vegetation / Cover Type

- * Sensitive Communities
- Acacia greggii*
- Agave deserti*
- Agriculture
- Allenrolfea occidentalis*
- Ambrosia dumosa*
- Ambrosia salsola*
- Arizonan upland Sonoran desert scrub
- Atriplex canescens
- Atriplex polycarpa
- Baccharis emoryi*
- Caesalpinia virgata*
- California Annual and Perennial Grassland
- California Central Valley Mixed Oak Savanna
- California Central Valley and Southern Coastal Grassland
- California Coastal Closed-Cone Conifer Forest and Woodland
- California Coastal Live Oak Woodland and Savanna
- California Lower Montane Blue Oak-Foothill Pine Woodland and Savanna
- California Mesic Serpentine Grassland
- California Montane Jeffrey Pine-(Ponderosa Pine) Woodland
- California Xeric Serpentine Chaparral
- Central and South Coastal Californian coastal sage scrub
- Chilopsis linearis*
- Chorizanthe rigida - Gerardia canescens
- Developed and Disturbed Areas
- Encelia farinosa*
- Fouquieria splendens
- Great Basin Pinyon-Juniper Woodland
- Hyptis emoryi*
- Inter-Mountain Basins Big Sagebrush Shrubland
- Inter-Mountain Basins Mixed Salt Desert Scrub
- Inter-Mountain Basins Shale Badland
- Introduced Riparian and Wetland Vegetation
- Larrea tridentata*
- Larrea tridentata - Ambrosia dumosa*
- Larrea tridentata - Encelia farinosa*
- Lower Bajada and Fan Mojavean - Sonoran desert scrub
- Madrean Warm Semi-Desert Wash Woodland/Scrub
- Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland
- Mediterranean California Mesic Serpentine Woodland and Chaparral
- Mogollon Chaparral
- Mojave Mid-Elevation Mixed Desert Scrub
- North American Warm Desert Active and Stabilized Dune
- North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat*
- North American Warm Desert Bedrock Cliff and Outcrop
- North American Warm Desert Pavement
- North American Warm Desert Playa
- North American Warm Desert Riparian Mesquite Bosque
- North American Warm Desert Riparian Woodland and Shrubland
- North American Warm Desert Volcanic Rockland
- North American Warm Desert Wash
- North American Warm Desert Bedrock Cliff and Outcrop
- North American Warm Desert Dunes and Sand Flats*
- Not Mapped
- Open Water
- Parkinsonia florida - Olneya tesota
- Pasture/Hay
- Playa
- Pleuraphis rigida*
- Prosopis glandulosa*
- Prosopis glandulosa coppice dunes*
- Psoralea argemone*
- Shadscale - saltbush cool semi-desert scrub
- Sonora-Mojave Creosotebush-White Bursage Desert Scrub
- Sonora-Mojave Mixed Salt Desert Scrub
- Sonora-Mojave Semi-Desert Chaparral
- Sonoran Paloverde-Mixed Cacti Desert Scrub
- Sonoran-Coloradan semi-desert wash woodland/scrub
- Southern California Coast Ranges Cliff and Canyon
- Southern California Coastal Scrub
- Southern California Dry-Mesic Chaparral
- Southern California Oak Woodland and Savanna
- Southwestern North American introduced riparian scrub
- Southwestern North American salt basin and high marsh*
- Suaeda moquinii*
- Tamarix spp.
- Urban
- Viguiera parishii*
- Western Mojave and Western Sonoran Desert borderland chaparral

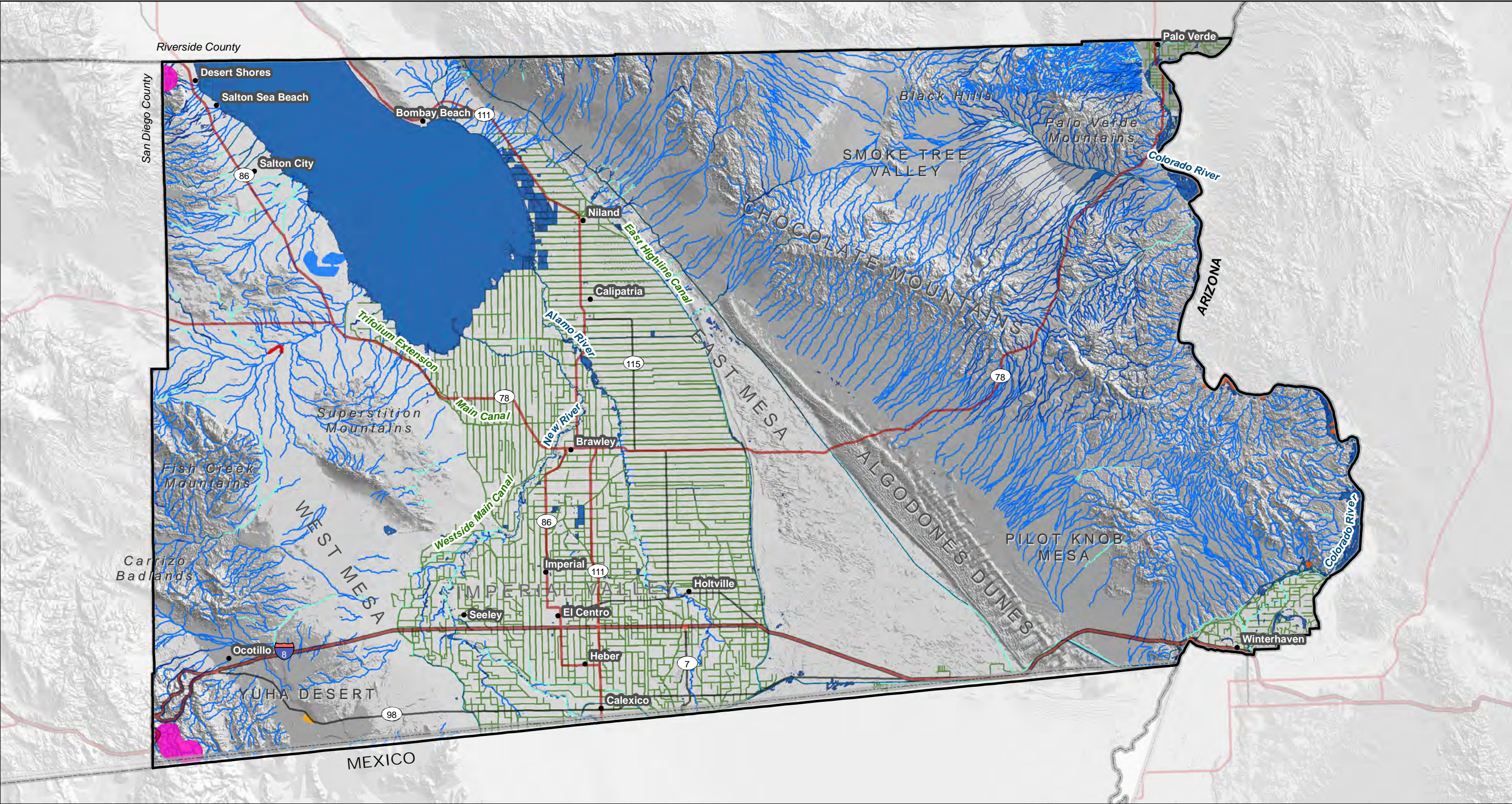


0 7.5 15 Miles

Source: USGS 2013

Figure 2.2-1

Imperial County
Vegetation and Land Cover






Imperial County Boundary

Major Highways

Highways

Major Roads

Sensitive Vegetation (CNDDDB Data)

- Crucifixion Thorn Woodland
- Desert Fan Palm Oasis Woodland
- Sonoran Cottonwood Willow Riparian Forest
- Active and Stabilized/Partially Stabilized Desert Dunes
- Transmontane Alkali Marsh

USGS National Hydrology Dataset

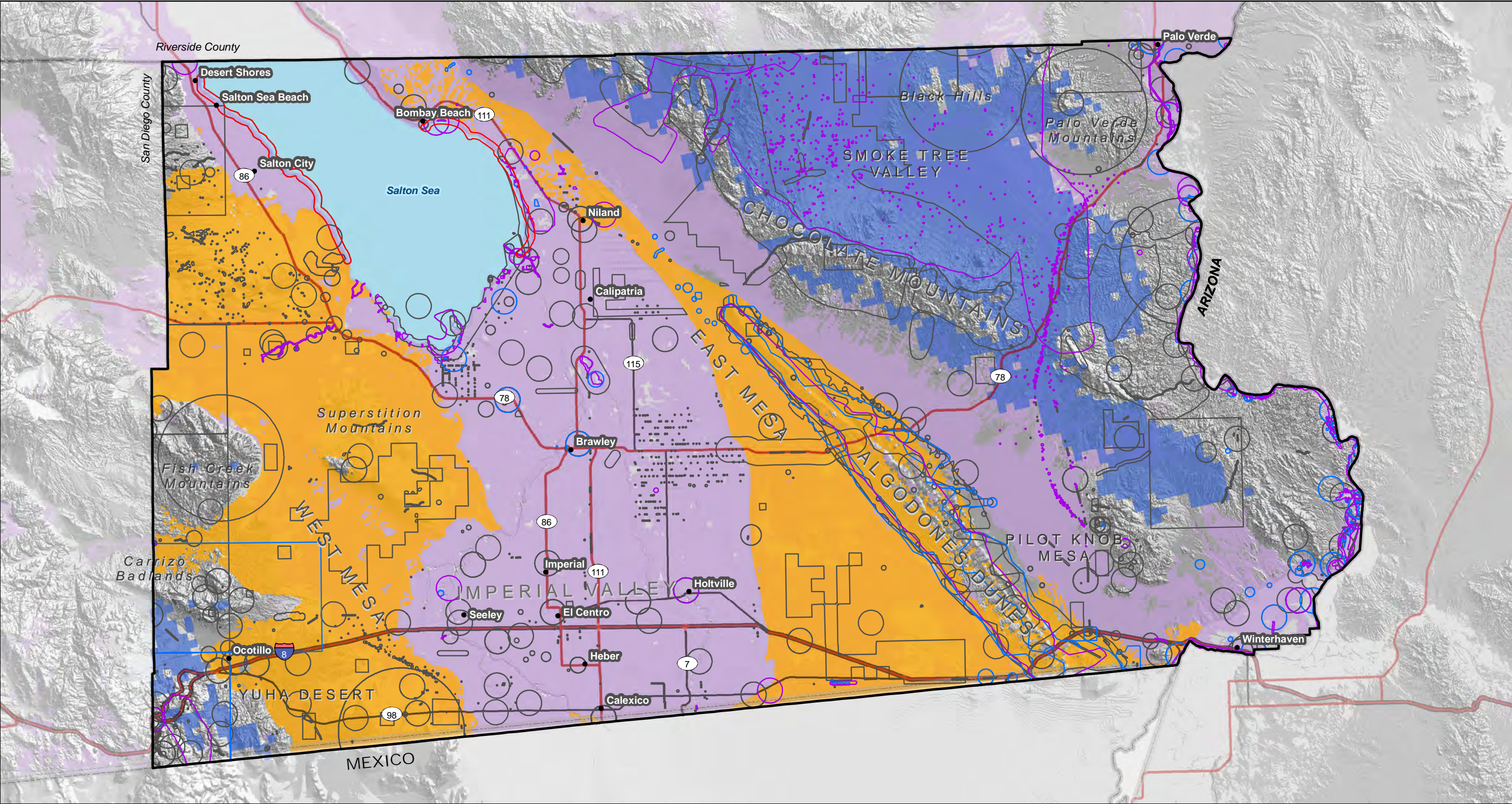
- Stream/River
- Artificial Path
- Canal/Ditch

USFWS National Wetlands Inventory

Source: CDFW, USGS, USFWS

Figure 2.2-2

Imperial County Sensitive Habitats



0 7.5 15
Miles

Source: DRECP, CDFW, USGS

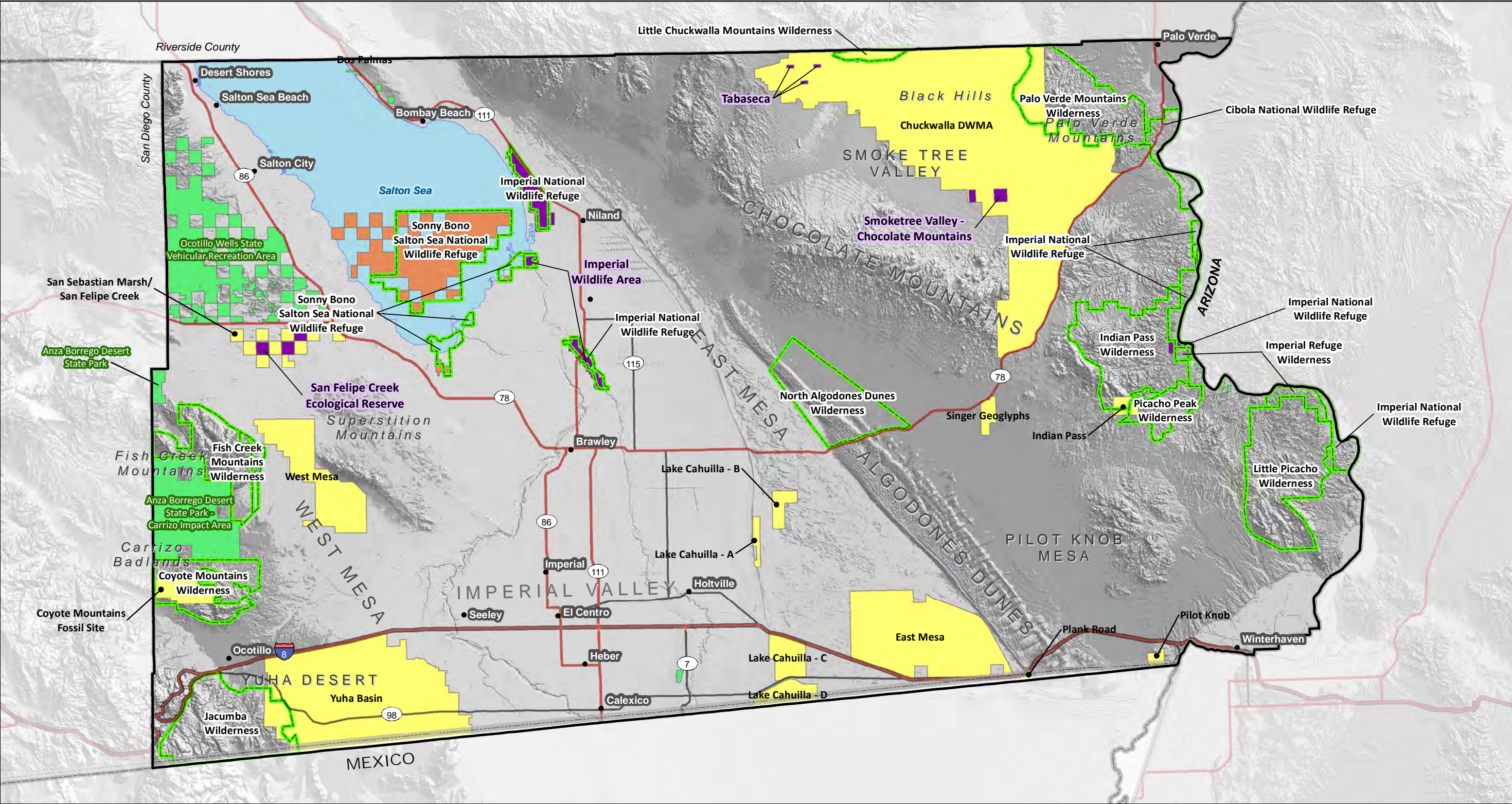
Major Highways
Highways
Major Roads

Imperial County Boundary
Desert Tortoise Habitat Model
Flat-Tailed Horned Lizard Species Distribution Model
Burrowing Owl Species Distribution Model

CNDDDB Documented Species Occurrence
Listing
Federal and State
Federal
State
Not Listed

Figure 2.2-3

Imperial County
Sensitive Species



0 7.5 15
Miles

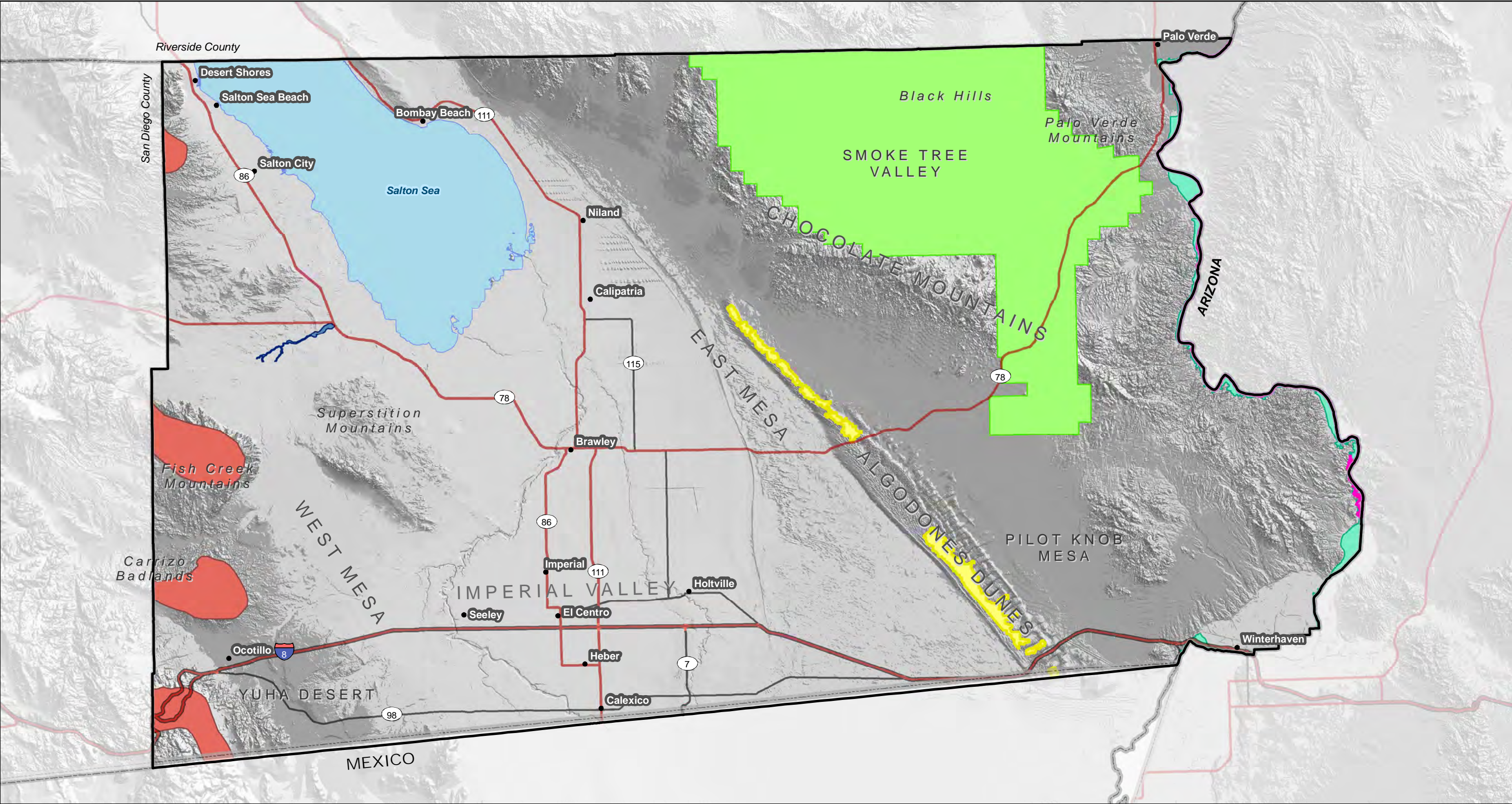
Source: CPAD, CDFW, BLM

- Major Highways
- Highways
- Major Roads
- Imperial County Boundary
- Wilderness or Wildlife Area
- BLM Area of Critical Environmental Concern

- Protected Areas**
- California Department of Fish and Wildlife
 - California Department of Parks and Recreation
 - US Fish and Wildlife Service

Figure 2.2-4

Imperial County
Agency-Designated Habitats



0 7.5 15
Miles

Source: USFWS

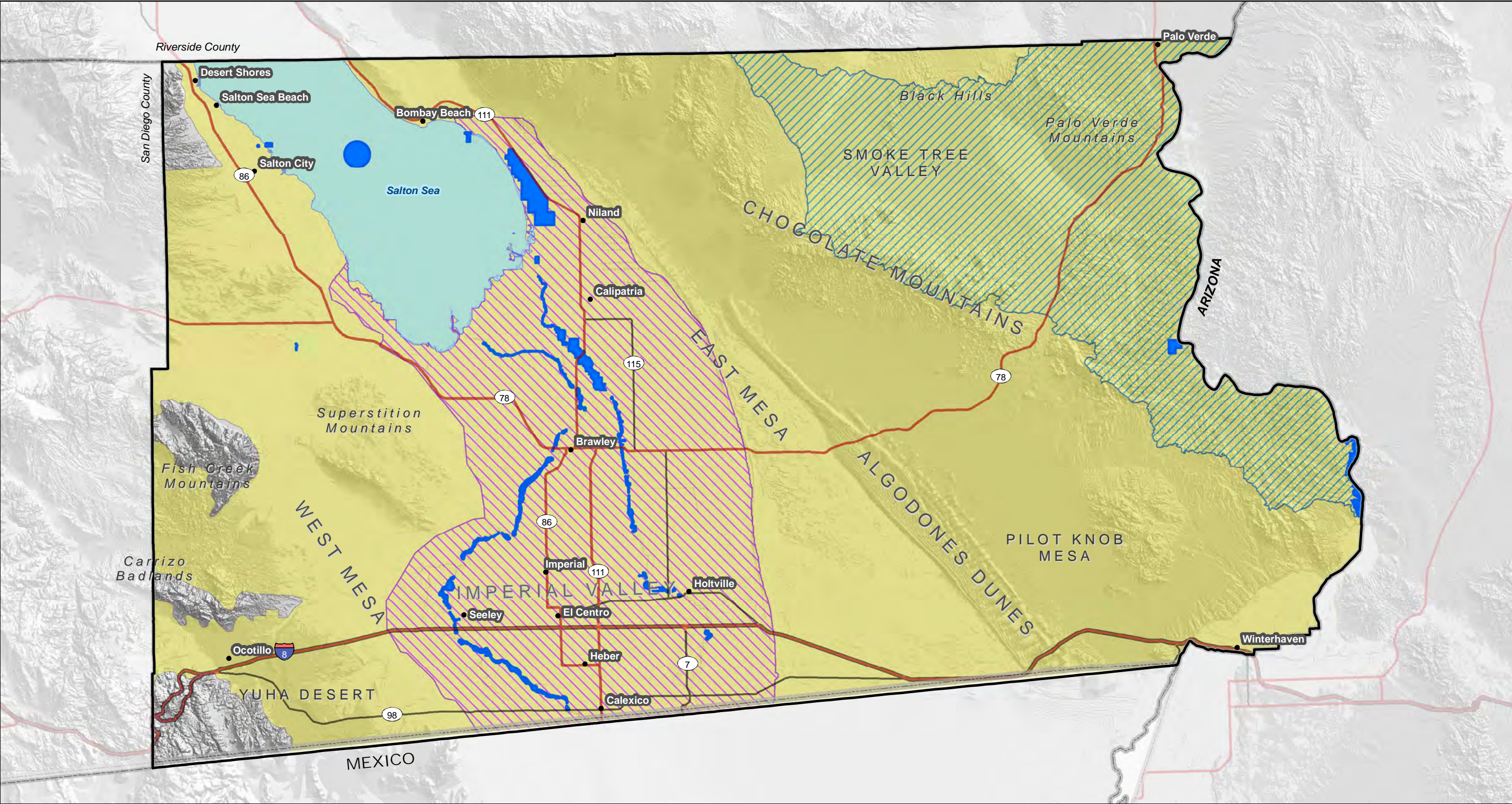
- Imperial County Boundary
- Major Highways
- Highways
- Major Roads

Critical Habitat

- Desert pupfish
- Desert tortoise
- Peirson's milk-vetch

- Peninsular bighorn sheep
- Razorback sucker
- Yellow-billed Cuckoo

Figure 2.2-5
Imperial County
Designated Critical Habitat



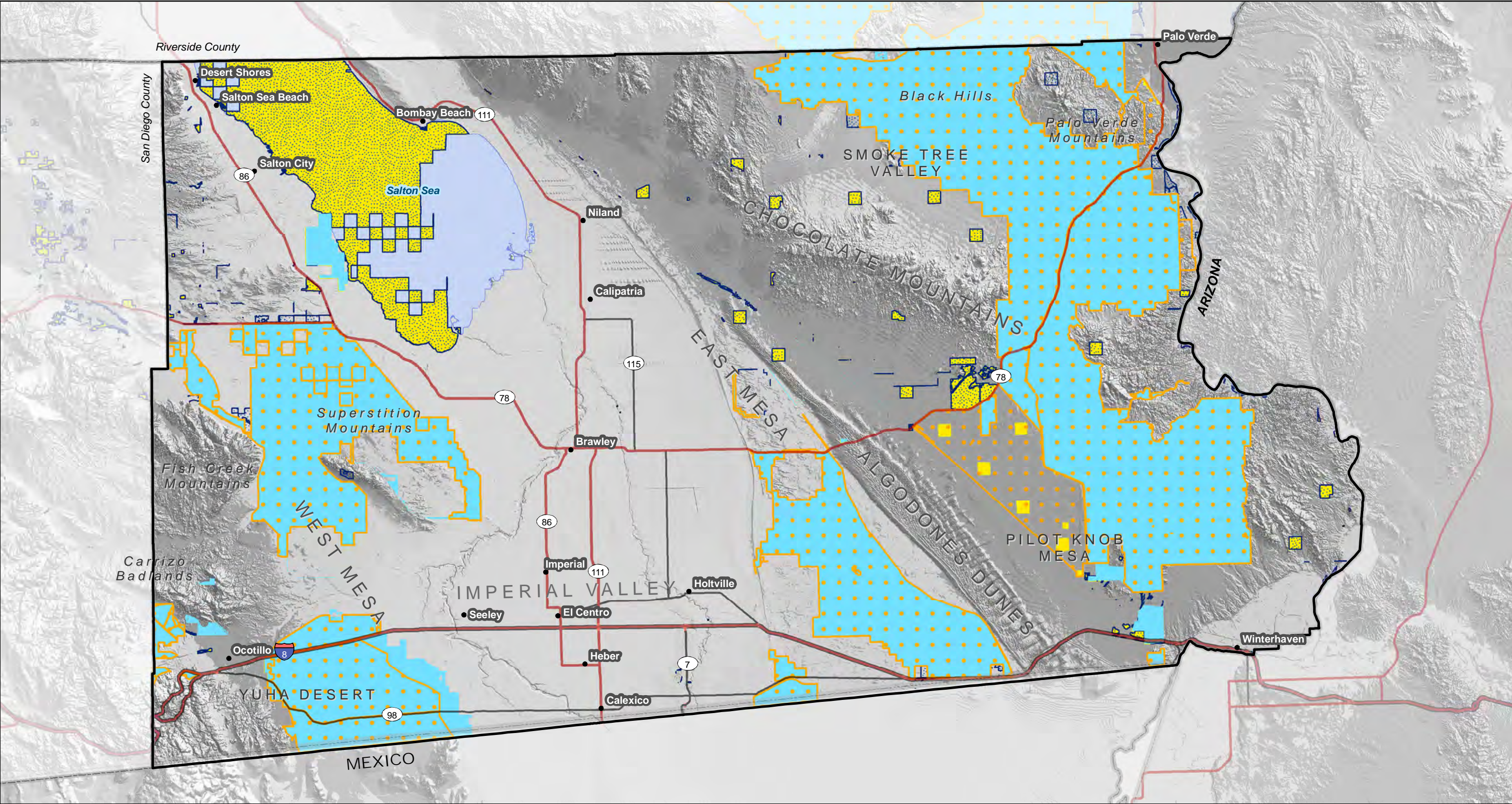
0 7.5 15
Miles

Source: DRECP, CDFW

- Imperial County Boundary
- Wildlife Conservation Board (WCB) Approved Projects
- Major Highways
- Highways
- Major Roads

- Conservation Plan Boundaries**
- Imperial Irrigation District
 - Lower Colorado River Multi-Species Conservation Plan
 - Desert Renewable Energy Conservation Plan (pending)

Figure 2.2-6
Imperial County
Habitat Conservation Plans
and Other Conservation Areas



0 7.5 15 Miles

Source: DRECP

Imperial County Boundary

Major Highways

Highways

Major Roads

DRECP Preferred Alternative

Conservation Planning Areas

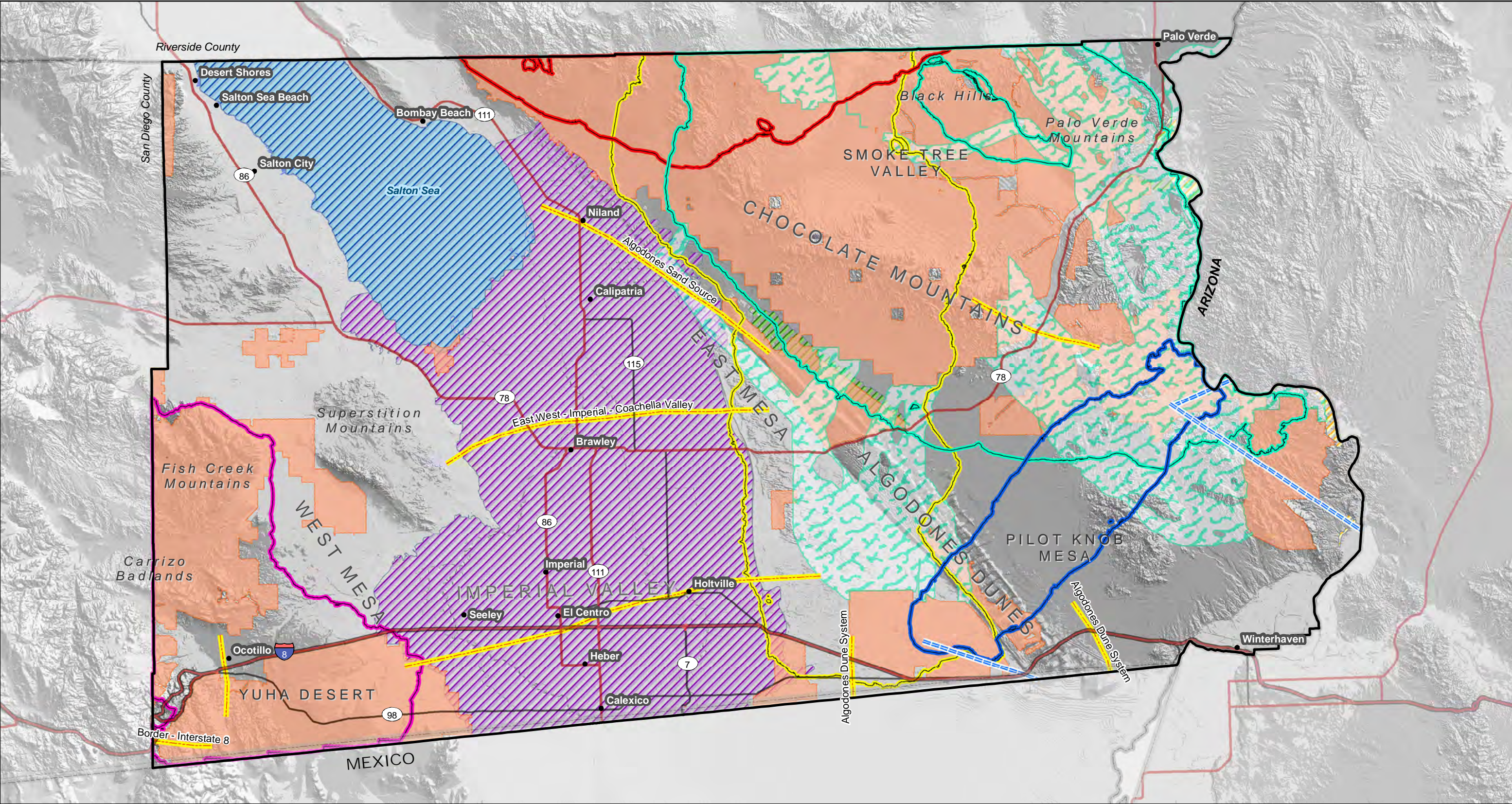
Biological Conservation Planning Areas

BLM National Landscape Conservation System

BLM Areas of Critical Environmental Concern

Figure 2.2-7

Imperial County
DRECP Conservation Target Areas





07.515

Miles

Major Highways

Highways

Major Roads

Imperial County Boundary

Interstate Connections

Missing Linkages in California's Landscape

California Desert Linkage Network

Natural Landscape Blocks

California Important Bird Areas

Colorado Desert Microphyll Woodlands

Imperial Valley

Lower Colorado River Valley

Salton Sea

Essential Connectivity Areas

Chocolate Mountains - Turtle Mountains/ Ward Valley

Chocolate Mountains South - Chocolate Mountains

East Mesa Sand Dunes - Chocolate Mountains

East Mesa Sand Dunes - Chocolate Mountains South

Yuha Basin - Anza-Borrego Desert

Source: CDFW, SC Wildlands, USFWS, California Audubon

Figure 2.2-8

Imperial County

Migration and Wildlife Movement

0 7.5 15 Miles

Source: CDFW, SC Wildlands, USFWS, California Audubon

California Important Bird Areas

- Colorado Desert Microphyll Woodlands
- Imperial Valley
- Lower Colorado River Valley
- Salton Sea

Essential Connectivity Areas

- Chocolate Mountains - Turtle Mountains/ Ward Valley
- Chocolate Mountains South - Chocolate Mountains
- East Mesa Sand Dunes - Chocolate Mountains
- East Mesa Sand Dunes - Chocolate Mountains South
- Yuha Basin - Anza-Borrego Desert