Appendix D: Biological Resources Existing Conditions Report

Appendices

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DRAFT

San Bernardino Countywide Plan
Biological Resources Existing Conditions

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DATA AND ANALYSIS AS NOVEMBER 2016

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REPORT USE, INTENT, AND LIMITATIONS

This Background Report was prepared to inform the preparation of the Countywide Plan. This report is not intended to be continuously updated and may contain out-of-date material and information. This report reflects data collected in 2016 and analyzed in 2016 and 2017 as part of due diligence and issue identification.

This report is not intended to be comprehensive and does not address all issues that were or could have been considered and discussed during the preparation of the Countywide Plan. Additionally, many other materials (reports, data, etc.) were used in the preparation of the Countywide Plan. This report is not intended to be a compendium of all reference materials.

This report may be used to understand some of the issues considered and discussed during the preparation of the Countywide Plan, but should not be used as the sole reference for data or as confirmation of intended or desired policy direction. Final policy direction was subject to change based on additional input from the general public, stakeholders, and decision makers during regional outreach meetings, public review of the environmental impact report, and public adoption hearings.

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ACRONYMS AND ABBREVIATIONS

Acronym	Definition
ACOE	U.S. Army Corps of Engineers
BLM	Bureau of Land Management
CDCA	California Desert Conservation Area
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CWA	Clean Water Act
DRECP	Desert Renewable Energy Conservation Plan
ESA	Endangered Species Act
HCP	habitat conservation plan
I-	Interstate
MSHCP	Multiple Species Habitat Conservation Plan
NCCP	natural communities conservation plan
NEPA	National Environmental Policy Act
NVCS	National Vegetation Classification Standard
RWQCB	Regional Water Quality Control Board
SANBAG	San Bernardino Associated Governments
SR-	State Route
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service

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1 INTRODUCTION

The County of San Bernardino (County) spans several distinct ecoregions supporting a diverse assemblage of plant and wildlife species and vegetation communities and land covers. High species diversity in the County is due, in part, to the biogeographic differences and gradients among the Valley, Mountain, and Desert Regions of the planning area. This document summarizes the biological resources occurring in the County in order to provide a baseline for assessing potential impacts from the San Bernardino Countywide Plan (Countywide Plan). In summary, this report describes regulatory and planning aspects pertinent to San Bernardino County, special-status species, vegetation communities, habitat linkages, ecoregions, and general ecological and climatic conditions, as well as protected open space throughout the County.

1.1 Document Organization

Organization of this document includes the following sections:

- Section 1 details a brief introduction of the Countywide Plan and regions within San Bernardino County.
- Section 2 summarizes laws, regulations, policies, and planning pertinent to the biological resources component of the Countywide Plan.
- Section 3 provides the methodologies of how the biological existing conditions was compiled, including literature sources, database queries, aerial review, definitions, and vegetation mapping.
- Section 4 discusses the physical and biological conditions of the Desert Region, including climate, geology, soils, topography, hydrology, vegetation communities, and special-status species. A discussion of habitat linkages and protected and wilderness areas is also provided.
- Section 5 discusses the physical and biological conditions within the Mountain Region, including climate, geology, soils, topography, hydrology, vegetation communities, and special-status species. A discussion of habitat linkages and protected and wilderness areas is also provided.
- Section 6 discusses the physical and biological conditions within the Valley Region, including climate, geology, soils, topography, hydrology, vegetation communities, and special-status species. A discussion of habitat linkages and protected and wilderness areas is also provided.
- Section 7 contains a list of references cited in this document.

1.2 Regions of San Bernardino County

The County of San Bernardino is composed of three distinct regions: Desert, Mountain, and Valley. Figure 1, Jurisdictions in San Bernardino County, and Figure 2, Ecological Regions and Conservations Plans Map, depict the extent of the County and of each region.

The Desert Region is the largest of the three geographic regions. This region is north of the San Bernardino and San Gabriel Mountains and extends east to the Arizona state line. Kern and Los Angeles Counties are located to the west, with Inyo County and the Nevada state line to the north. Within this region there is an assemblage of low mountain ranges and desert floors, with the most conspicuous water features being the Mojave and Colorado Rivers.

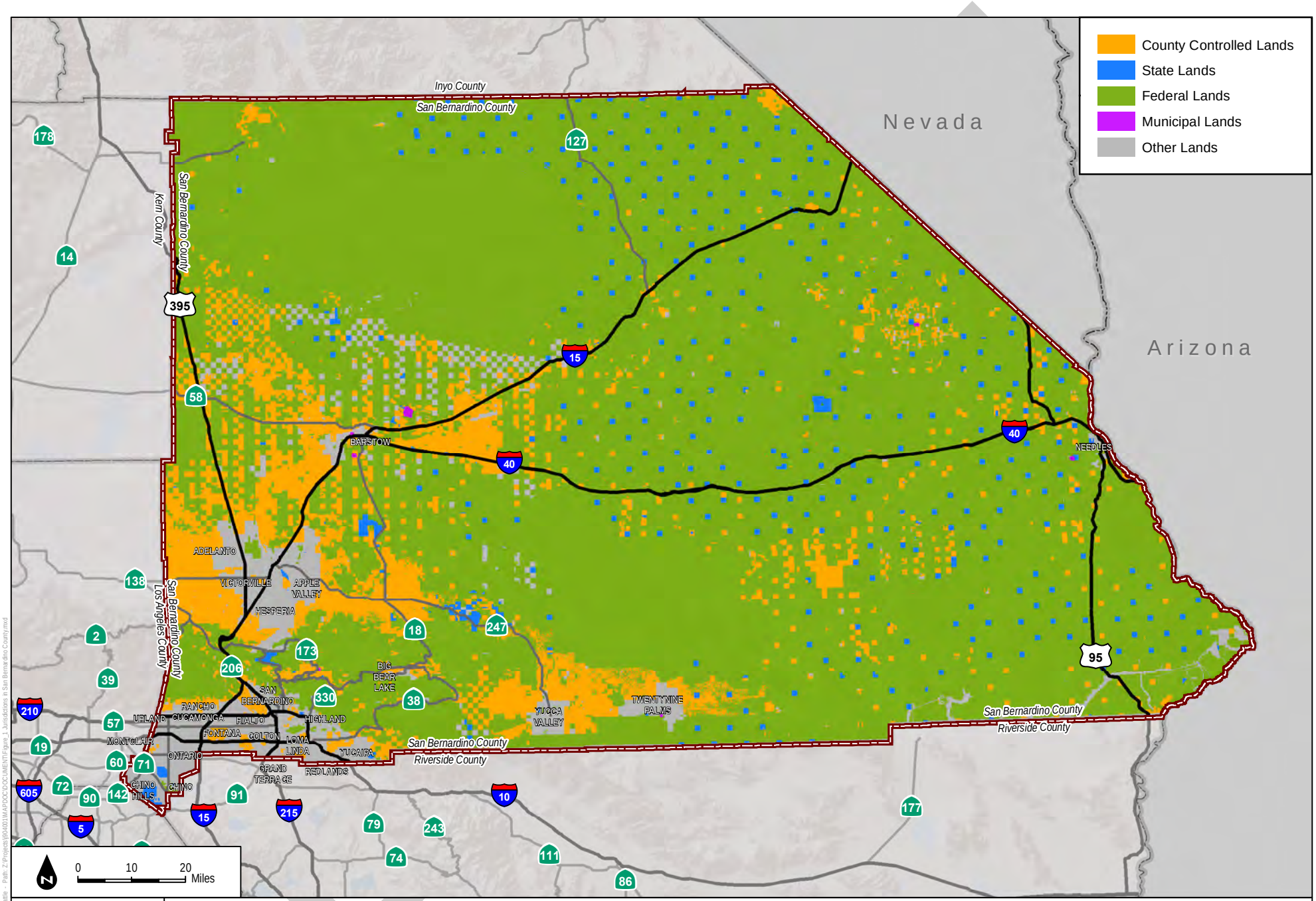
The Mountain Region is situated between the Valley and Desert Regions and is composed of the San Gabriel and San Bernardino Mountain Ranges, separated by the Cajon Pass, a defining feature of the San Andreas Fault Zone. The communities include Mount Baldy and Wrightwood to the west, the City of Big Bear Lake to the east, and Forest Falls to the southeast. Runoff from the mountains provides the main water source for both the Santa Ana River and the Mojave River. Fluvial landforms consist of a series of creeks, streams, and rivers that drain into mountain lakes and the Valley and Desert Regions.

The Valley Region is the most populated of all three geographic regions. This region occupies the southwest portion of the County and extends to Riverside County to the south, Orange County to the southwest, and Los Angeles County to the west. This area contains the San Bernardino and San Gabriel Mountain foothills and valley floors. The most conspicuous water feature is the Santa Ana River, spanning over 50 miles within San Bernardino County.

1.3 County Jurisdiction

San Bernardino County is made up of a number of municipalities, federal lands, state lands, unincorporated areas, and other lands (Figure 1). The County of San Bernardino has jurisdiction on only a portion of the lands within the County limits, which means that County land use planning only occurs over a limited land base. Therefore, planning for growth and biological resource conservation within the County's jurisdiction will require close coordination with adjacent municipal planning authorities and landowners.

This report provides a summary of biological resources within the County; however, it focuses on those resources that are under County jurisdiction. A GIS layer depicting the jurisdiction of the County of San Bernardino was provided by the County and is used in this report to summarize the biological resources that fall under some level of control by the County.



SOURCE: ESRI 2016

FIGURE 1

Jurisdictions in San Bernardino County

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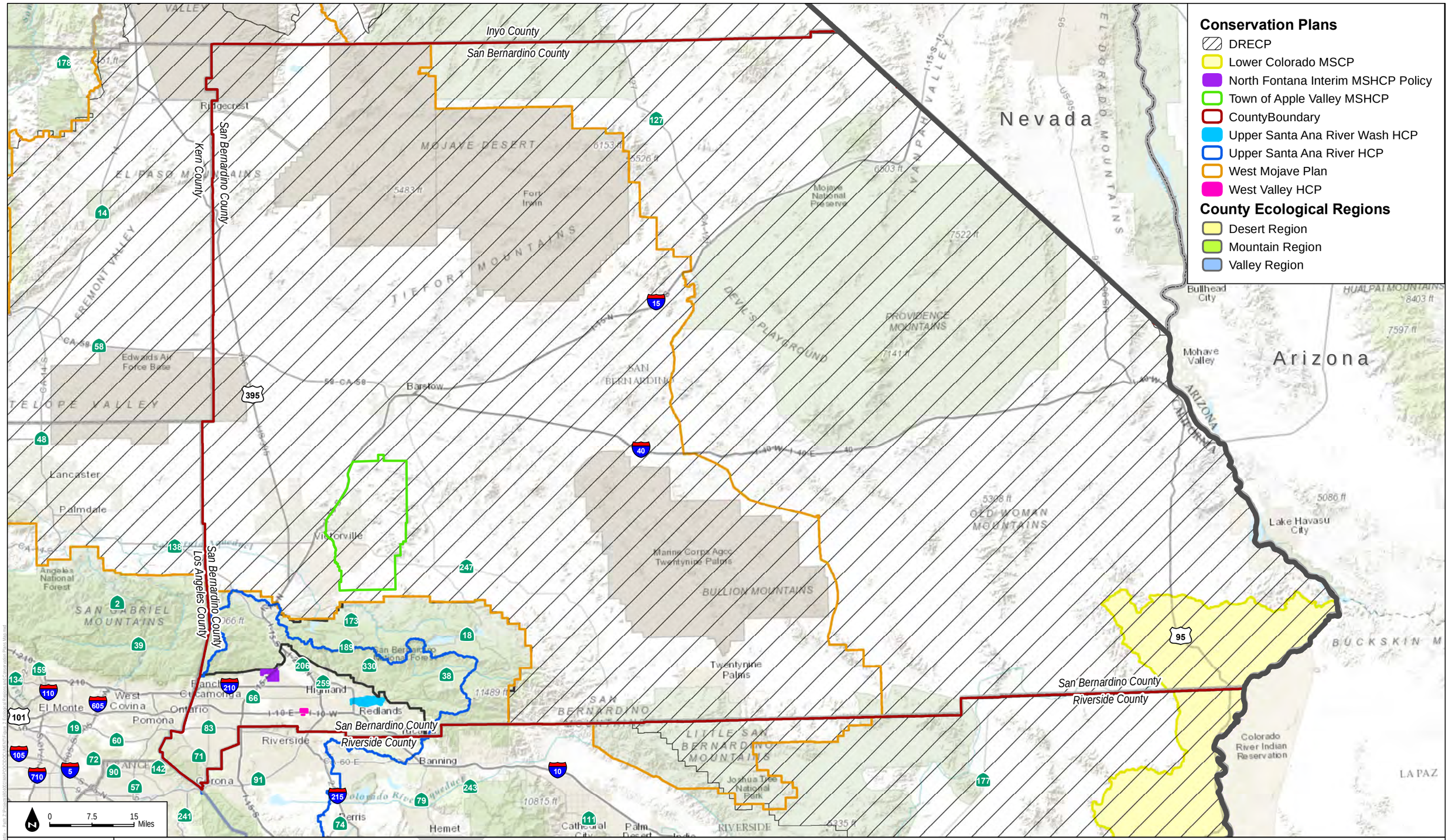

SOURCE: Bing Maps, 2016

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FIGURE 2

Ecological Regions and Conservation Plans Map

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2 REGULATORY AND PLANNING CONTEXT

The following is a description of the laws, regulations, policies, and planning pertinent to the biological resources component of the Countywide Plan. They can be applicable to portions of the County's jurisdiction, depending on the geographic location, presence of sensitive plant communities, presence of habitat to support regulated species, presence of regulated waters, and other specific conditions. Due to their complexity and site specificity, the applicability of these laws, regulations, and policies are typically determined through a site-specific analysis.

2.1 Federal Regulatory and Planning Context

Federal Endangered Species Act

The federal Endangered Species Act of 1973 (ESA), as amended, is administered by the U.S. Fish and Wildlife Service (USFWS) for terrestrial plant and animal species and by the National Oceanic and Atmospheric Administration's National Marine Fisheries Service for marine and anadromous species. The ESA is intended to be a means to conserve endangered and threatened species while also preserving the ecosystems that they rely on. The act defines an endangered species as "any species that is in danger of extinction throughout all or a significant portion of its range." Under the ESA, it is considered unlawful to take any listed species; "take" is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct" (16 U.S.C. 1531–1544).

The ESA allows for incidental take of listed species under Section 7 and Section 10 exemptions. Under Section 7, federal agencies are required to consult with USFWS before taking any action that may threaten an endangered species. Section 10 exemptions apply to actions that do not require federal agency action other than the issuance of the incidental take permit, and these incidental take permits can be issued for listed species subsequent to the approval of a habitat conservation plan (HCP). An HCP must specify the level of impact that will result from the taking, the steps that will be taken to minimize and mitigate the impacts, the funding necessary to implement the HCP, a discussion of alternatives, and any other necessary measures required by the Secretary of the Interior.

USFWS-Designated Critical Habitat

USFWS has designated critical habitat within San Bernardino County for 19 listed species under the ESA. Critical habitat is designated when a geographical area is considered crucial to the survival of a threatened or endangered species. Once critical habitat is designated, to ensure that their actions will not destroy or adversely modify the constituent elements of critical habitat for

that species, federal agencies must consult USFWS on activities they plan to undertake, fund, or authorize. Special limitations on projects in critical habitat are limited to federal actions; however, the general protections of the ESA protect listed species from take regardless of where they are located.

Federal Land Policy and Management Act

The Federal Land Policy and Management Act of 1976, as amended, establishes public lands policy and management guidelines on public lands managed by the Bureau of Land Management (BLM). The act includes land use planning, range management, rights-of-way, and designated management areas.

The California Desert Conservation Area (CDCA) Plan was approved in 1980 in accordance with the Federal Land Policy and Management Act. The CDCA Plan provides for multiple use management of approximately 25 million acres, of which 10 million acres are managed by the BLM, falling within San Bernardino County and six other counties. The CDCA Plan has been amended numerous times, and is based on the concepts of multiple use, sustained yield, and maintenance of environmental quality. The CDCA Plan aims to protect biological, geological, paleontological, scenic, and cultural resources while allowing for a variety of land uses and activities.

Several major amendments to the CDCA Plan have been made in San Bernardino County, including the BLM Northern and Eastern Colorado Desert Coordinated Management Plan, BLM Northern and Eastern Mojave Desert Management Plan, and the BLM West Mojave Plan. The proposed Desert Renewable Energy Conservation Plan (DRECP) Land Use Plan Amendment (BLM 2015) would also serve as a major amendment to the CDCA Plan.

U.S. Forest Service

The San Bernardino National Forest lies in southwest San Bernardino County, dividing the Desert and Valley Regions. The U.S. Forest Service (USFS) has jurisdiction over these lands and manages them conservatively to ensure their long-term sustainability. The land management strategy employed by USFS follows their "multiple use" doctrine, and includes suitable commodity and commercial uses (USFS 2005a). Uses and actions proposed on national forest lands ultimately occur at the discretion of USFS. The Land and Resource Management Plan for the San Bernardino National Forest emphasizes sustainable use through the delineation of "land use zones" that identify allowable activities by zone, demonstrating the intent of multiple use management (USDA 2005b). USFS manages Angeles National Forest, which edges into San Bernardino County, in a similar fashion.

National Environmental Policy Act

The National Environmental Policy Act (NEPA) declares a continuing federal policy "to use all practicable means and measures ... to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations." NEPA also directs "a systematic, interdisciplinary approach" to planning and decision making and requires environmental statements for "major federal actions significantly affecting the quality of the human environment." Implementation regulations by the Council on Environmental Quality (40 CFR 1500 et seq.) require federal agencies to identify and assess reasonable alternatives to proposed actions that would restore and enhance the quality of the human environment and avoid or minimize adverse environmental impacts. Federal agencies are further directed to emphasize significant environmental issues in project planning and integrate impact studies required by other environmental laws and executive orders into the NEPA process. The NEPA process should therefore be seen as an overall framework for the environmental evaluation of federal actions.

Bureau of Land Management

BLM manages a vast amount of public lands under its jurisdiction within San Bernardino County. The land management strategy for BLM contains the BLM Special-Status Species Policy (BLM 2008). Under this policy, BLM conserves and/or recovers special-status species and their associated ecosystems so that protections are no longer needed. Additionally, once a species is deemed sensitive, BLM must manage the species and its habitat with the goal of minimizing threats affecting the status of the species as well as improving the condition of the species' habitat.

The Department of the Interior and BLM established the National Landscape Conservation System in 2000 to provide coordinated protection for the BLM's conservation lands. The Omnibus Public Land Management Act of 2009 then congressionally established the National Landscape Conservation System, to "conserve, protect and restore nationally significant landscapes that have outstanding cultural, ecological, and scientific values for the benefit of future generations" (Public Law 111-11). Inclusion in the National Landscape Conservation System does not provide any new legal protections for the lands already designated as national monuments, conservation areas, wilderness study areas, scenic trails, or historic trails designated as a component of the National Trails System, components of the National Wild and Scenic Rivers System, or components of the National Wilderness Preservation System; however, it provides a single system to manage and organize conservation lands on a national scale.

USFWS—Migratory Bird Treaty Act

The Migratory Bird Treaty Act implements international treaties between the United States and other nations that protect migratory birds (including their parts, eggs, and nests) from being killed, hunted, pursued, captured, sold, and shipped unless expressly authorized or permitted.

USFWS—Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (BGEPA) (16 U.S.C. 668 et seq.), enacted in 1940 and amended several times since then, prohibits anyone without a permit issued by the Secretary of the Interior from "taking" bald eagles (*Haliaeetus leucocephalus*), including their parts, nests, or eggs. BGEPA provides criminal penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle ... [or any golden eagle], alive or dead, or any part, nest, or egg thereof." BGEPA defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." "Disturb" means "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior."

On September 11, 2009, the USFWS set in place rules (50 CFR Parts 13 and 22) establishing two new permit types: (1) take of bald eagles and golden eagles (*Aquila chrysaetos*) that is associated with, but is not the purpose of, the activity; and (2) purposeful take of eagle nests that pose a threat to human or eagle safety. Specifically, BGEPA authorizes intentional take of eagle nests where necessary to alleviate a safety hazard to people or eagles; necessary to ensure public health and safety; the nest prevents the use of a human-engineered structure; and/or the activity, or mitigation for the activity, will provide a net benefit to eagles. BGEPA allows inactive nests to be taken only in the case of safety emergencies.

As described in the USFWS Draft Eagle Conservation Plan Guidance dated January 2011 (USFWS 2011), the USFWS recommends that project proponents prepare an eagle conservation plan to avoid, minimize, and mitigate project-related impacts to eagles to ensure no net loss to the golden eagle population.

Clean Water Act

The Clean Water Act (CWA) (33 U.S.C. 1251 et seq.) establishes legal requirements for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters.

Section 401

Section 401 requires that an applicant for a federal license or permit that allows activities resulting in a discharge to waters of the United States must obtain a state certification that the discharge complies with other provisions of the CWA. The Regional Water Quality Control Boards administer the certification program in California.

Section 404

Section 404 establishes a permit program administered by the U.S. Army Corps of Engineers (ACOE) regulating the discharge of dredged or fill material into waters of the United States, including wetlands. CWA Section 502 further defines "navigable waters" as "waters of the United States, including territorial seas." "Waters of the United States" are broadly defined in the Code of Federal Regulations, Title 33, Section 328.3, Subdivision (a) to include navigable waters; perennial and intermittent streams, lakes, rivers, and ponds; and wetlands, marshes, and wet meadows.

Implementing regulations by the ACOE are found at Title 33 of the Code of Federal Regulations, Parts 320–330. Guidelines for implementation are referred to as the Section 404(b)(1) Guidelines and were developed by the U.S. Environmental Protection Agency in conjunction with the ACOE (40 CFR, Part 230). The guidelines allow the discharge of dredged or fill material into the aquatic system only if there is no practicable alternative that would have less adverse impacts.

Executive Order 13112—Invasive Species

Executive Order 13112, signed in February 1999, established the National Invasive Species Council. This order requires agencies to identify actions that may affect the status of invasive species. It also directs federal agencies not to authorize, fund, or carry out actions that they believe are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless, pursuant to guidelines that the agency has prescribed, it has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species, and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions.

Plant Protection Act of 2000

The Plant Protection Act of 2000 (7 U.S.C., Chapter 104) established a federal program to control the spread of noxious weeds. The secretary of agriculture is authorized to publish a list of plants designated as noxious weeds (7 U.S.C. 7712(f)). The movement of all such weeds in interstate or foreign commerce is prohibited except under permit.

Noxious Weed Act of 1974, as Amended

This act provides for the control and management of nonindigenous weeds that injure or have the potential to injure the interests of agriculture and commerce, wildlife resources, or the public health. Under this act, the Secretary of Agriculture was given the authority to designate plants as noxious weeds and to inspect, seize, and destroy products and to quarantine areas if necessary to prevent the spread of such weeds.

Lacey Act, as Amended

The Lacey Act (16 U.S.C. 3371–3378) protects plants and wildlife by creating civil and criminal penalties for a wide variety of violations, including illegal take, possession, transport, or sale of protected species.

Wild and Scenic Rivers Act

This act established a national system of rivers to be preserved in free-flowing condition, with their immediate environments protected. Congress selected certain rivers that possess outstandingly remarkable outdoor values. They established an initial system of eight rivers, and set up methods and procedures for adding new rivers to the system. There are three classifications of rivers in the system: wild, scenic, or recreational, depending on the level of development near the stretch of river.

2.2 State Regulatory and Planning Context

California Endangered Species Act

The California Endangered Species Act (CESA), administered by the California Department of Fish and Wildlife (CDFW), prohibits the take of plant and animal species designated by the California Fish and Game Commission as endangered, threatened, or candidates for listing as endangered or threatened in the State of California. State statutes enforced by the CDFW for the implementation of CESA are set forth in the California Fish and Game Code and Title 14 of the California Code of Regulations. The California Fish and Game Code defines "take" as to "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill" (California Fish and Game Code, Section 86). The California Fish and Game Code prohibits the take of any state listed species without an incidental take permit from the CDFW or the authorization from the director providing that the incidental take permit provided by the USFWS under the federal ESA is consistent with CESA. California Fish and Game Code Section 2053 provides that it is impermissible for state agencies to approve projects that will "jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse

modification of habitat essential to the continued existence of those species, if there are reasonable and prudent alternatives available consistent with conserving the species or its habitat which would prevent jeopardy."

CESA authorizes incidental take of endangered, threatened, or candidate species given that take is incidental to otherwise lawful activity and other specific criteria are met. Take of fully protected species can be authorized if the species is conserved as a covered species under an approved natural communities conservation plan (NCCP).

California Environmental Quality Act

The California Environmental Quality Act (CEQA) establishes state policy to prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures. CEQA applies to actions directly undertaken, financed, or permitted by state lead agencies. Guidelines for implementation of CEQA (CEQA Guidelines) are found in the California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000–15387.

Natural Community Conservation Planning Act

The Natural Community Conservation Planning Act (1991) provides the statutory framework for the creation of NCCPs, which provide long-term, landscape-scale protection for natural vegetation communities and wildlife diversity while allowing for continued permissible use and expansion of compatible land uses. The NCCP program supports collaborative planning and approval by involving local governments, state and federal agencies, environmental organizations, landowners, and members of the public. The NCCP framework is meant to support the provision of regional and subregional protection for species that inhabit designated natural communities. By planning regional conservation measures that focus on the long-term stability of wildlife and plant communities and including key stakeholders in the process, the program attempts to avoid the gridlock sometimes caused by the listing of species. Through an approved NCCP, incidental take authorization would be allowed for covered species whose conservation and management is provided for under the plan. The Town of Apple Valley Multiple Species Habitat Conservation Plan (MSHCP) is the only NCCP currently being planned in San Bernardino County.

California Native Plant Society

The California Native Plant Society (CNPS) maintains a list of special-status plant species based on collected scientific information. Designation of these species by the CNPS has no legal status

or protection under federal or state endangered species legislation (CNPS 2015). CNPS's California Rare Plant Ranks (CRPRs) are defined as follows: CRPR 1A (plants presumed extinct); CRPR 1B (plants rare, threatened, or endangered in California and elsewhere); CRPR 2 (plants rare, threatened, or endangered in California, but more numerous elsewhere); CRPR 3 (plants about which more information is needed – a review list); and CRPR 4 (plants of limited distribution – a watch list). In general, plants appearing on CRPR 1A, 1B, or 2 meet the criteria of Section 15380 of the CEQA Guidelines; thus, substantial adverse effects to these species would be considered significant.

California Fish and Game Code

Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code outline protection for fully protected species of mammals, birds, reptiles, amphibians, and fish. Species that are fully protected by these sections may not be taken or possessed at any time. In October 2011, Senate Bill (SB) 618 amended California Fish and Game Code provisions that relate to fully protected species. Prior to SB 618, CESA prohibited the take of species that have been listed as fully protected. The amendment allows for incidental take of fully protected species when a conservation plan has been approved and implemented to ensure protection of the species. Other exceptions in which CDFW may issue permits or licenses to authorize the take of fully protected species include scientific research and live capture and relocation of fully protected species pursuant to a permit for the protection of livestock. Furthermore, it is the responsibility of CDFW to maintain viable populations of all native species. To that end, CDFW has designated certain vertebrate species as species of special concern (SSC) because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction.

California Fish and Game Code, Sections 3503, 3503.5, and 3513

These California Fish and Game Code sections prohibit the taking and possessing of bird eggs and nests. The administering agency for the sections is CDFW.

Title 14 California Code of Regulations, Sections 670.2 and 670.5

These sections include listings of plant and animal species designated as threatened or endangered. The administering agency for the sections is CDFW.

Native Plant Protection Act

The Native Plant Protection Act of 1977 directed the CDFW to carry out the California Legislature's intent to "preserve, protect and enhance rare and endangered plants in this State." The Native Plant Protection Act gave the California Fish and Game Commission the power to designate native plants

as "endangered" or "rare" and protect endangered and rare plants from take. CESA expanded on the original Native Plant Protection Act and enhanced legal protection for plants, but the Native Plant Protection Act remains part of the California Fish and Game Code. To align with federal regulations, CESA created the categories of "threatened" and "endangered" species. CESA entered all "rare" animals into the act as "threatened" species, but did not do so for rare plants. Thus, there are three listing categories for plants in California: rare, threatened, and endangered. Because rare plants are not included in CESA, mitigation measures for impacts to rare plants are specified in a formal agreement between CDFW and the project proponent.

California Desert Native Plants Act

The California Desert Native Plants Act protects California desert native plants from unlawful harvesting on both public and privately owned lands within Imperial, Kern, Los Angeles, Mono, Riverside, San Bernardino, and San Diego Counties. The following native plants, or any part thereof, may not be harvested except under a permit issued by the commissioner or the sheriff of the county in which the native plants are growing: all species of the Agavaceae (century plants, nolinas, and yuccas); all species of the family Cactaceae; all species of the family Fouquieriaceae (ocotillo, candlewood); all species of the genus *Prosopis* (mesquites); all species of the genus *Parkinsonia* (paloverdes); catclaw acacia (*Acacia greggii*); desert holly (*Atriplex hymenelytra*); smoke tree (*Psorothamnus spinosus*); and desert ironwood (*Olneya tesota*), both dead and alive (provision 80073). This provision excludes any plant that is declared to be a rare, endangered, or threatened species by federal or state law or regulations, including, but not limited to, the California Fish and Game Code. The fee for the permit to remove any of these plants will not be less than $1 per plant, except for Joshua trees (*Yucca brevifolia*), which will not be less than $2 per plant.

Porter-Cologne Water Quality Control Act

The intent of the Porter-Cologne Water Quality Control Act (California Water Code, Section 13000 et seq.) is to protect water quality and the beneficial uses of water, and it applies to both surface and groundwater. Under this law, the California State Water Resources Control Board develops statewide water quality plans, and the Regional Water Quality Control Boards develop basin plans that identify beneficial uses, water quality objectives, and implementation plans. The Regional Water Quality Control Boards have the primary responsibility for implementing the provisions of both statewide and basin plans. Waters regulated under the Porter-Cologne Water Quality Control Act include isolated waters that are no longer regulated by ACOE. Developments that impact jurisdictional waters must demonstrate compliance with the goals of the act by developing stormwater pollution prevention plans, standard urban stormwater mitigation plans, and other measures in order to obtain a CWA Section 401 certification.

Lake and Streambed Alteration Program

Section 1602 of the California Fish and Game Code states that the applicant shall submit a complete Lake or Streambed Alteration Program notification package and fee to the CDFW if the proposed activity would:

- Substantially divert or obstruct the natural flow of any river, stream, or lake;
- Substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake; or
- Deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake (California Fish and Game Code, Section 1602).

Section 1602 of the Lake or Streambed Alteration Program is based on Title 14 of the California Code of Regulations, Section 720, which states that "for the purpose of implementing Sections 1601 and 1603 of the Fish and Game Code which requires submission to the department of general plans sufficient to indicate the nature of a project for construction by or on behalf of any person, governmental agency, state or local, and any public utility, of any project which will divert, obstruct or change the natural flow or bed of any river, stream or lake designated by the department, or will use material from the streambeds designated by the department, all rivers, streams, lakes, and streambeds in the State of California, including all rivers, streams and streambeds which may have intermittent flows of water, are hereby designated for such purpose."

Title 14 of the California Code of Regulations, Section 1.72, defines streams, including creeks and rivers, as follows: "a stream is a body of water that flows at least periodically or intermittently through a bed or channel having banks, this includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation." Title 14 of the California Code of Regulations, Section 1.56, defines lakes as including "natural lakes or man-made reservoirs."

The Lake and Streambed Alteration Program is a California law that requires that any person, state, or local government agency, or public utility notify the CDFW prior to beginning the activities listed above. The CDFW has 30 days to review the proposed actions and propose measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by CDFW and the project proponent becomes the Lake or Streambed Alteration Agreement. The conditions of agreement and a CWA Section 404 permit often overlap.

2.3 Regional and Local Regulatory and Planning Context

San Bernardino County Plant Protection and Management Code

Chapter 88.01 of the San Bernardino County Development Code provides regulatory and management guidance for plant resources within unincorporated areas of San Bernardino County, as well as within mixed public and private lands within the County. The goal is to promote both healthy plant community growth and the preservation of native species. In turn, the standardization of these practices helps with the conservation of natural waterways within the County and provide sustainable habitat for many local plant and wildlife species. This code primarily relates to tree and vegetation removal in public land and private land within unincorporated land within the County.

Desert Native Plant Protection

Chapter 88.01.060 of the San Bernardino County Development Code is a subset of the Plant Protection and Management Code that is focused on the conservation of specified desert plant species.

Mountain Forest and Valley Tree Conservation

Chapter 88.01.070 of the San Bernardino County Development Code is a subset of the Plant Protection and Management Code that is focused on the conservation of forest resources within the Mountain and Valley Regions of the County. It is meant to supplement Z'berg-Nejedly Forest Practice Act of 1973 (California Public Resources Code, Section 4526 et seq.). It regulates both the private and commercial harvesting of trees on public and private land within the County.

Riparian Plant Conservation

This code, Chapter 88.01.080 of the San Bernardino County Development Code, is a subset of the Plant Protection and Management Code that is focused on promoting the health of riparian corridors in relation to their impact on waterways within the region, their use as habitat by various plant and wildlife species, and their stabilization of stream banks.

San Bernardino County Soil and Water Conservation Code

This code, Chapter 88.02 of the San Bernardino County Development Code, provides regulatory framework to promote the health of soil communities within the County, limit soil erosion potential, and preserve air quality. This code primarily regulates ground-disturbing activities within the County.

SANBAG Countywide Habitat Preservation/Conservation Framework

As part of the Environment Element of Countywide Vision, Dudek completed a Countywide Habitat Preservation/Conservation Framework Study (Phase 1) for the San Bernardino Associated Governments (SANBAG; 2015). The Phase 1 Framework Study is a guidance document that outlines conservation issues and concerns, inventories existing conservation, identifies conservation opportunities, and itemizes data gaps associated with habitat conservation in San Bernardino County. The report identified conservation planning subareas, overarching principles, and recommendations to further develop a comprehensive approach to habitat preservation/conservation across the incorporated cities, unincorporated County lands, and public lands.

Draft Renewable Energy and Conservation Element

The County of San Bernardino's General Plan Draft Renewable Energy and Conservation Element has several policies that would result in consideration for biological resources during the planning of renewable energy development, including during the decommissioning process; these include the following:

- Policy 4.1: Apply standards to the design, siting, and operation of renewable energy facilities that protect the environment, including sensitive biological resources.
- Policy 4.4: Require renewable energy generation facility developers to provide and implement a decommissioning plan that provides for reclamation of the site to a condition at least as good as that which existed before the lands were disturbed or another appropriate end use that is stable (i.e., with interim vegetative cover), prevents nuisance, and is readily adaptable for alternative land uses.
- Policy 4.6: Renewable energy project site selection and site design shall be guided by the following priorities relative to habitat conservation and mitigation:
    - Avoid sensitive habitat, when feasible, through site selection and project design.
    - Where necessary and feasible, conduct mitigation on-site.
    - When on-site mitigation is not possible or adequate, conduct mitigation off-site in an area designated for conservation.
- Policy 4.8: Encourage renewable energy facility developers to design projects in ways that provide sanctuary (i.e., a safe place to nest, breed and/or feed) for native bees, butterflies and birds.
- Policy 5.1: Encourage the siting of renewable energy generation facilities on disturbed or degraded sites in proximity to necessary transmission infrastructure.

Siting policies addressed in the Development Code include the following:

- Impact on the natural environment: Siting that may negatively impact critical habitats and species that are threatened or endangered will be given very careful scrutiny. Generally, renewable energy and all other types of development will be expected to minimize and mitigate negative environmental impacts.
- Relationship to surrounding land uses: renewable energy development should not substantially conflict with surrounding land uses.

Designated Open Space

The County Board of Supervisors governs an area called County Service Area 120 (CSA 120). It was designated as open space in July 2009 but currently is not entirely preserved. This area provides for the management, operation, and protection of open space and mitigation property in the foothills north of the City of Rancho Cucamonga and the City of Fontana.

Local Habitat Conservation Plans

Several HCPs have been completed or are being planned in San Bernardino County (see Figure 2 for geographic extent). Some of these are limited to municipal limits or federal lands and do not overlap County jurisdiction. These HCPs may limit development or pose additional requirements or analysis when completing a project that overlaps an HCP area. A site-specific analysis would determine the full requirements.

West Mojave Plan. The West Mojave Plan, which covers the western portion of San Bernardino County in the Desert Region, was originally envisioned as an MSHCP and a land use plan amendment for BLM-administered lands. The HCP component of the plan was not approved as part of this planning effort, but the West Mojave Plan does serve as a land use plan amendment under the CDCA Plan for BLM lands (see Federal Land Policy and Management Act in Section 2.1, Federal Regulatory and Planning Context).

North Fontana Interim MSHCP Policy. This planning effort was initiated in 2004 and concentrates on the northern portion of the City of Fontana, adjacent to the foothills of the San Gabriel Mountains. The plan anticipates build-out of development into the remaining natural areas in north Fontana, and addresses the listed and sensitive species found in these areas. This HCP is not formally recognized by the USFWS.

City of Colton's West Valley HCP. In 2015 the USFWS issued a 30-year incidental take permit to the City of Colton for the West Valley HCP, which covers impacts to Delhi sands flower-loving fly (*Rhaphiomidas terminatus abdominalis*) for proposed projects north of Interstate 10 (I-10) over approximately 416 acres. As part of the incidental take permit, the City is responsible for enforcing a fee-based ordinance to finance the protection, restoration, and management of 50.3 acres.

Town of Apple Valley MSHCP. An ongoing planning effort is underway to develop an MSHCP for the Town of Apple Valley (Town) and the Town's sphere of influence. The website for this effort (http://www.applevalley.org/services/planning-division/multi-species-habitat-conservation-plan) provides a map (dated 2010) of the plan area that includes the Town's limits, the sphere of influence limits, and a sphere of influence "planning extension" that would include County jurisdiction. Currently, no information is provided on covered activities or projects, or on what species may be covered for take (harm). If County jurisdiction is ultimately included in the plan area, a specific analysis would be required to determine whether there are limitations or restrictions on land use, or any other constraints or requirements that may be necessary.

Upper Santa Ana River HCP. The Upper Santa Ana River HCP is a collaborative effort among the water resource agencies of the Santa Ana River Watershed, in partnership with USFWS, CDFW, and several other government agencies and stakeholder organizations. The purpose of the Upper Santa Ana River HCP is to enable the water resource agencies to continue to provide and maintain a secure source of water for the residents and businesses in the watershed, and to conserve and maintain natural rivers and streams that provide habitat for a diversity of unique and rare species in the watershed. The covered projects span the majority of the Valley Region of San Bernardino County as well as the eastern portion of San Bernardino National Forest. The goal is to ensure the conservation of the covered species, particularly the Santa Ana sucker (*Catostomus santaanae*), while still allowing for increased water conservation through new infrastructure for infiltration and increased effluent recycling. This effort was initialized in late 2013 and is expected to be completed in 2017.

Upper Santa Ana River Wash HCP. This plan will cover primarily expanded gravel mining in an area downstream of the Seven Oaks Dam, in the southern extent of the City of Highland and the northern extent of the City of Redlands. The covered species include California gnatcatcher (*Polioptila californica*), San Bernardino kangaroo rat (*Dipodomys merriami parvus*), Santa Ana River woollystar (*Eriastrum densifolium* ssp. *sanctorum*), and slender-horned spineflower (*Dodecahema leptoceras*). It is expected to be fully approved in 2016.

DRECP. The Draft DRECP was originally developed as an HCP/NCCP and a BLM Land Use Plan Amendment covering both public and private lands across seven counties, including the entire Desert Region of San Bernardino County. In October 2015, the DRECP BLM Land Use Plan Amendment and Final Environmental Impact Statement, which addresses renewable energy, land use, and conservation on BLM lands only, was released (BLM 2015). The DRECP does not provide HCP/NCCP coverage for private lands in San Bernardino County.

Lower Colorado River Multi-Species Conservation Program. This program was created to balance the use of Colorado River water resources with the conservation of native species and their habitats. The program works toward the recovery of species currently listed under the ESA. It also reduces the likelihood of additional species listings. Implemented over a 50-year period, the program accommodates current water diversions and power production and will optimize opportunities for future water and power development by providing ESA compliance through the implementation of an HCP. The program area extends over the main stem and historic 100-year floodplain of the Lower Colorado River within San Bernardino County, and includes Lake Havasu.

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3 METHODOLOGY

This biological resources existing conditions document was developed to characterize, at a landscape scale, the existing conditions of biological resources in San Bernardino County to support development of the Countywide Plan. This assessment used the best available information and data to develop a vegetation communities and land cover map, identify special-status species occurring in the County, compile an inventory of conserved and protected lands, and provide general information regarding climate, geology and soils, topography, and hydrology within each region of the County.

3.1 Vegetation Communities and Land Covers

San Bernardino County supports a variety of natural vegetation communities that support specific biological resources that may not be found in other vegetation communities. A vegetation community and land cover geodatabase has been created using the best available existing data.

Dudek's mapping effort (mapping) was conducted in four phases: (1) data and literature review, (2) GIS database development, (3) aerial photograph review, and (4) data interpretation and analysis.

3.1.1 Data and Literature Review

Dudek conducted an extensive data and literature review of available vegetation community mapping resources throughout San Bernardino County. Dudek reviewed available relevant data on vegetation communities and land covers to determine those resources that were applicable and of appropriate quality for use during the current mapping effort. A summary of the previous mapping efforts and the vegetation community/land cover classification system is provided in this subsection.

Dudek identified the following key sources of existing vegetation community and land cover data for each region of the County:

- Desert Region
  - *National Vegetation Classification Standard (NVCS)-Based Mapping from the Mojave Desert Ecosystem Project* (CDFG 2012a)[1]

[1] The California Department of Fish and Game (CDFG) has been officially renamed the California Department of Fish and Wildlife (CDFW) as of January 1, 2013. Where references in this document are made to the department for background information, documents, permits, consultations, etc. (guidance) prior to January 1, 2013, the title CDFG is used and for references to guidance after January 1, 2013, CDFW is used.

- Mountain and Valley Region
  - *Classification and Assessment with Landsat of Visible Ecological Groupings* (CALVEG) (USFS 2014)
  - SANBAG existing land-use layer (SANBAG 2011)

These previous mapping efforts were conducted at different scales, covered different areas of San Bernardino County, and used different classification standards. Table 1 summarizes the previous mapping efforts that were used as a baseline for this analysis. Brief descriptions of each mapping effort are provided below.

Table 1
Previous Vegetation Community and Land Cover Mapping Efforts

Mapping Effort	Classification System Used	Region
CALVEG (USFS 2014)	CALVEG: A Classification of California Vegetation (USFS 1981); crosswalks to NVCS (Grossman et al. 1998)	Mountain and Valley Regions (CALVEG Zone 7 in USFS Region 5)
SANBAG Existing Land-Use Layer (SANBAG 2011)	N/A	Mountain and Valley Regions
NVCS-based mapping from the Mojave Desert Ecosystem Project (CDFG 2012a)	NVCS (Grossman et al. 1998)	Desert Region

CALVEG

The USFS Region 5 Ecology Group initiated CALVEG in 1978 as a means to group existing vegetation stands (versus potential natural vegetation) using a statewide standard classification and naming convention. The standards and procedures were established at the national and regional levels. Originally, color-infrared satellite imagery and field verification were used to identify "formation" categories (forest, woodland, chaparral, shrubs and herbaceous, and non-vegetated units) based on distinctions calculated among canopy reflectance values used in the LANDSAT satellite. The CALVEG classification system conforms to the upper levels of the NVCS hierarchy.

NVCS-Based Mapping from the Mojave Desert Ecosystem Project

The Desert Region was mapped using the 2013 DRECP land cover map. This mapping effort, conducted in 2011 and 2012 for large portions of the Mojave and Colorado/Sonoran Deserts within San Bernardino County, used multiple sources by combining both fine-scale alliance-level and medium-scale group-level mapping using the NVCS hierarchical classification system from the

Mojave Desert Ecosystem Project (CDFG 2012a). This classification system describes vegetation at three levels: vegetation groups, vegetation types (NVCS Group level), and alliances (NVCS Alliance level). Vegetation was mapped at the fine-grained alliance level or it was mapped at the broader and more general group level.

3.1.2 Vegetation Community and Land Cover Classification System

In September 2010, the California Department of Fish and Game (CDFG) published *the List of Vegetation Alliances and Associations: Natural Communities List Arranged Alphabetically by Life Form* (Natural Communities List; CDFG 2010) based on the *Manual of California Vegetation*, Second Edition (Sawyer et al. 2009), which is the California expression of the National Vegetation Classification System developed by The Nature Conservancy (Grossman et al. 1998). These classification systems focus on a quantified, hierarchical approach that includes both floristic (plant species) and physiognomic (community structure and form) factors as currently observed (as opposed to predicting climax or successional stages). The system was designed to apply an updated uniform hierarchical structure to the state's vegetation types that again followed quantifiable classification rules in alliance and association groups.

In the Natural Communities List (CDFG 2010), physiognomy is described in the upper levels of the classification hierarchy, whereas floristics are described by the lowest two levels.[2] The floristic levels are alliances and associations, and the upper levels are described as formations and divisions. Table 2 provides an example of the hierarchy used in the Natural Communities List, including the community hierarchy in parentheses.

Table 2
Example Hierarchy of the Natural Communities List

1. Forests and Woodlands (*Formation Class)*
1.C. Temperate Forest (*Formation Subclass*)
1.C.1. Warm Temperate Forest (*Formation*)
C.1.c. Madrean Forest and Woodland (*Division*)
MG009. California Forest and Woodlands (*Macrogroup*)
California Walnut Groves *(Alliance)*
California Walnut/annual herbaceous (*Association*)

Source: CDFG 2010.

[2] Physiognomic classifications are based on the physiognomy (i.e., the set of functional and morphological attributes) of the dominant plants in the community. Floristic classifications take, as the basis for defining community types, the taxonomic identity of the plants in the community (Sawyer et al. 2009).

An alliance represents a level of uniformity in plant structure and dominant species in the uppermost layer. The alliance is a representation of broad-scale environmental differences that result in distinguishable vegetation communities in terms of overall structure and dominant species. Associations take into account more detailed floristic patterns, including species that co-occur with the dominant of the uppermost layer. As such, associations "reflect more localized differences related to microclimate and soil" (Sawyer and Keeler-Wolf 1995).

The natural communities within the Desert Region were mapped to NVCS and, when feasible, vegetation was mapped at the fine-grained alliance level; if this was not possible, it was mapped at the broader and more general group level. The Mountain and Valley Regions were mapped to the upper levels of the NVCS system. The natural communities and land covers were then cross-walked to general community categories, which follow the CDFG 2003 hierarchy; however, some modifications to this were made based on the County of San Bernardino sensitive communities.

3.1.3 GIS Database Development

Project-specific GIS project files (mxd format) were created using ArcGIS software. Dudek GIS specialists incorporated the existing, available vegetation community and land cover data including the digital, vector-based boundaries of vegetation communities and land covers from the previous mapping efforts (CDFG 2012a; SANBAG 2011; USFS 2014). These were then compiled into a program-specific GIS layer for each region.

The Desert Region vegetation and community land cover mapping GIS project file only included the mapping of a small portion (approximately 353 acres), because these were not originally mapped (CDFG 2012a); therefore, these areas were mapped in the office using aerial photograph review. The remainder of the Desert Region vegetation and community land cover map was left as is from the DRECP data and no additional review or edits were made to this.

3.1.4 Aerial Photograph Review

Aerial photograph review included a review of current aerial photographs to make preliminary determinations on vegetation communities and land covers in non-urban areas. Areas were reviewed in the office using GIS software in ArcGIS. The Mountain and Valley Regions were divided into 75 grid cells (each covering an area of approximately 3.5 by 7 miles), each of which was assigned to a Dudek biologist to map. Vegetation communities and land cover types were reviewed and changes or edits were digitized and annotated by Dudek biologists using ArcGIS tools. Biologists were able to map vegetation communities and land covers to the appropriate habitat classification. Minimum mapping units were used to standardize the mapping protocol among biologists and establish an appropriate scale for the mapping effort. A minimum mapping

unit of 1 acre was established for wetlands and washes, modified or unvegetated lands (such as agriculture or urban development) were mapped at 2.5-acre mapping units, and a 10-acre mapping unit was established for all other vegetation communities.

Biologists focused on updating/correcting the previous mapping efforts within the data sets. Priority areas included valley and foothill areas within the vicinity of major drainages, including Santa Ana River, Mill Creek, Plunge Creek, City Creek, Cajon Creek, Lytle Creek, Etiwanda fan, etc.; riparian corridors; urban/natural interface; and land use categories. During the aerial interpretation review, if errors and discrepancies with current conditions warranted edits to these older data sets, obvious errors and/or omissions (e.g., urban land uses mapped as natural vegetation communities) were corrected and were mapped to the CALVEG system.

3.1.5 Data Interpretation and Analysis

Once the aerial interpretation was complete, the boundaries of the vegetation communities and land uses were converted into geo-referenced polyline features within ArcGIS. Dudek GIS specialists confirmed the accuracy of the vegetation communities and converted the polylines into polygons and performed a spatial join to link the vegetation polygons with the vegetation code attribution. All map grids were then combined into one GIS layer.

An in-depth GIS analysis was performed on the dataset for quality assurance/quality control. Duplicate and overlapping polygons were corrected. Vegetation community and land cover attributions were rechecked and corrected, as appropriate. The analysis also included the removal of vegetation communities outside the project boundary, verifying name and code attributions, and merging adjacent polygons with the same attribution between grid sheets, and confirming the crosswalk between regions to ensure consistency.

3.1.6 Sensitive Communities

In September 2010, CDFG published the Natural Communities List (CDFG 2010), which uses the scientific name of the dominant species in that alliance as the alliance name and includes a global and state rarity rank based on the NatureServe Standard Heritage Program methodology (NatureServe 2015). The conservation status of a vegetation community is designated by a number from 1 to 5, preceded by a letter reflecting the appropriate geographic scale of the assessment (G = global, N = national, and S = subnational). The numbers have the following meaning:

1 = critically imperiled
2 = imperiled
3 = vulnerable to extirpation or extinction

4 = apparently secure
5 = demonstrably widespread, abundant, and secure (NatureServe 2015)

For example, G1 would indicate that a vegetation community is critically imperiled across its entire range (i.e., globally). A rank of S3 would indicate the vegetation community is vulnerable and at moderate risk within a particular state or province, although it may be more secure elsewhere (NatureServe 2015). Because NatureServe ranks vegetation communities at the global level, it has few rankings at the state or province level available. However, the Natural Communities List (CDFG 2010) includes state-level rarity rankings (i.e., the subnational (S) rank) for vegetation communities. This list (CDFG 2010) is considered the authority for ranking the conservation status of vegetation communities in California.

CDFG's guidelines for determining high priority vegetation types includes considering any communities listed with a ranking of S1–S3 and ascertaining whether the specific stands of the community type within the project area are "considered as high-quality occurrences of a given community." The consideration of stand quality includes cover of non-native invasive species, human-caused disturbance, reproductive viability, and insect or disease damage (CDFG 2012b).

Vegetation communities considered special-status are those with an "S" ranking of 1, 2, or 3 (CDFG 2010). In addition, special-status vegetation communities also include those with protection under the existing Development Code.

3.2 Habitat Linkages and Wildlife Corridors

Habitat linkages are landscape-scale open space areas that provide a natural habitat connection between at least two larger adjacent open spaces or habitat areas. Habitat linkages provide a large enough area to support, at a minimum, a natural habitat mosaic and viable populations of smaller terrestrial species and allow for gene flow through diffusion of populations over a period of generations. Habitat linkages also allow for jump dispersal for some species between neighboring habitats. Habitat linkages may be large tracts of natural open space that serve as resident species habitat or habitat linkages may serve primarily as landscape connections (i.e., for dispersal movements or travel). This report relies largely on existing sources for presenting potential habitat linkages and wildlife corridors in San Bernardino County, including the sources in the following paragraphs.

California Department of Transportation and CDFG

California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California (Spencer et al. 2010). For San Bernardino County (portions of the South Coast and Mojave ecoregions), this effort identifies at a broad scale, large, relatively natural habitat blocks

that support native biodiversity (Natural Landscape Blocks) and areas essential for ecological connectivity between them (Essential Connectivity Areas). The California Desert Connectivity Project discussed below is a newer, more regionally focused effort and replaces the areas where it overlaps with the California Essential Habitat Connectivity Project.

South Coast Wildlands

South Coast Wildlands is a non-profit organization working to maintain and restore essential wildlife corridors connecting wildlands throughout California. South Coast Wildlands has studied and modeled wildlife movement in several areas within San Bernardino County with four major efforts: South Coast Missing Linkages Project, Joshua Tree–Twentynine Palms Connection, California Desert Connectivity Project, and California Essential Habitat Connectivity.

South Coast Missing Linkages: A Wildland Network for the South Coast Ecoregion (South Coast Wildlands 2008). The South Coast Missing Linkages Project provides a network of essential linkages and corridors within the region that are the core to conservation strategies for Southern California (South Coast Wildlands 2008). This is a collaborative interagency project with the focus being to conserve the highest priority linkages within San Bernardino County and the rest of Southern California.

A Linkage Design for the Joshua Tree–Twentynine Palms Connection. South Coast Wildlands, Fair Oaks, California (Penrod et al. 2008). The linkage design for the Joshua Tree–Twentynine Palms Connection was part of the South Coast Missing Linkages discussed above but with a focus for a specific geographic area. Penrod et al. (2008) conducted various landscape analyses to identify those areas necessary to accommodate continued movement of selected focal species through this landscape. Their collaborative and interdisciplinary approach included selecting focal species, a landscape permeability analysis, a patch size and configuration analysis, field investigations to ground-truth results and identify barriers, and an overall linkage design.

A Linkage Network for the California Deserts (Penrod et al. 2012). The primary objective is to identify lands essential to maintain or restore functional connectivity among wildlands for all species or ecological processes of interest in the California deserts. Their collaborative and interdisciplinary approach included selecting focal species, defining 22 analysis areas (one for each pair of landscape blocks to be connected), least-cost modeling to identify habitat that support multiple species potentially using each linkage, analyzing connectivity in a changing climate, a patch size and configuration analysis, field investigations to ground-truth results and identify barriers, and an overall linkage design.

Herpetological Conservation and Biology

Conserving Population Linkages for the Desert Tortoise (*Gopherus agassizii*) (Averill-Murray et al. 2013). Averill-Murray et al. (2013) modeled linkages between tortoise conservation areas using least-cost corridors based on an underlying model of suitable tortoise habitat to determine a minimum linkage network for desert tortoise.

Google Earth

Riparian and Wash Corridors. A review of aerial photography (Google Earth 2014) revealed that some of the major creeks and washes had not been captured during the linkage efforts discussed. Therefore, these major creeks and washes were added to the GIS file as polylines to represent the center of the drainage.

San Bernardino County

San Bernardino County Open Space Overlay Map. San Bernardino County Land Use Services Department Advance Planning Division maintains an open space overlay map that illustrates three types of open space areas: wildlife corridors, buffer zones, and major open space policy areas. The open space overlay map descriptions were used in this biological report, with information added based on the literature review and local knowledge.

3.3 Protected and Wilderness Areas

Areas with existing protection include lands that have been legislatively designated as protected lands and are administered by federal or state mandates, including national forests, national parks, national preserves, BLM wilderness, and CDFW ecological reserves. Additionally, areas with existing protection include lands held by local entities, land trusts, and lands with conservation easements or other legal mechanism providing resource protection. The SANBAG Countywide Habitat Preservation/Conservation Framework included an effort to solicit, gather, and map protected areas within San Bernardino County, and it is that working layer that is used for this report.

3.4 Special-Status Species

Special-status species are defined as follows:

- Species classified as endangered or threatened by USFWS under the ESA ("federally listed")
- Species classified as endangered, threatened, or rare by CDFW under CESA ("state listed")
- Candidates for future listing under the ESA

- Plant species designated by CNPS as "rare, threatened, or endangered in California" (CRPR 1B and 2B)
- Wildlife species designated as a species of special concern by CDFW
- Wildlife species fully protected under California Fish and Game Code Sections 3511, 4700, 5050, and 5515
- Species that are considered a locally significant species; that is, a species that is not rare from a statewide perspective but is rare or uncommon in a local context, such as within a county or region, or is so designated in local or regional plans, policies, or ordinances

Special-status species data were compiled from the following sources: the California Natural Diversity Database (CDFW 2015), the CNPS Inventory of Rare and Endangered Plants (CNPS 2015), the USFS database (USFS 2015), the USFWS Carlsbad office species occurrence database (USFWS 2015a), and the species inventory from the County of San Bernardino Department of Public Works, which includes results from their biological surveys through July 2015. The California Natural Diversity Database and CNPS queries were run using data accumulated through August 2015, whereas the USFS and USFWS queries were run using data accumulated through December 2015. In addition to species occurrence data, range overlaps with San Bernardino County were reviewed. For plant species, the CNPS Inventory of Rare and Endangered Plants includes a database of U.S. Geological Survey 7.5-minute quadrangles from which the species have been reported, which can be used as a surrogate for the species range (CNPS 2015). For wildlife species ranges, a number of species-specific resources were used, including the California Wildlife Habitat Relationships data (Zeiner et al 1990; CDFW 2016), California herpetology data (Nafis 2015–2016), and California Bird Species of Special Concern (Shuford and Gardali 2008). Wildlife species accounts from the HCPs that occur in San Bernardino County (see Section 2.3, Regional and Local Regulatory and Planning Context) were also used to determine current range and other species-specific parameters.

San Bernardino County Biotic Resources Overlay Map

San Bernardino County Land Use Services Department Planning Division maintains a biotic resources overlay map that illustrates the best available information on biological resources from federal, state, and local agencies. The biotic resources overlay map is based on existing sources including California Natural Diversity Database records, USFS species and habitats of concern, USFWS critical habitat, San Bernardino County Museum biological species database, BLM data on Mohave ground squirrel (*Spermophilus (Xerospermophilus) mohavensis*) range, and desert tortoise population density. This biological resources report conducted a review of these and other sources for more up-to-date information; therefore, the County biotic resources overlay was not used further.

Data Limitations

The species occurrence data and USFWS-designated critical habitat have inherent limitations. For example, occurrence data are from sources collected at different times, spatial scales, and for different purposes, which can result in an unsystematic and spatially biased occurrence data set. Sampling effort is, for example, far greater in the western portion of the County and near population centers or along roadways as opposed to the eastern and more remote locations of the County. Additionally, species occurrence records only report positive detections and a lack of records does not mean the species is absent.

With regard to USFWS-designated critical habitat, this data is only available for federally listed species for which critical habitat has been designated; therefore, this dataset would not address state-listed species or other special-status species. Designated critical habitat represents areas critical to the conservation of the species, and should not be used to represent the distribution or range known to support the species.

4 EXISTING CONDITIONS—DESERT REGION

4.1 Desert Region – Executive Summary

Approximately 12% of the Desert Region is under County jurisdiction, with the remainder under either tribal jurisdiction, local (City) jurisdiction, or federal jurisdiction, including BLM, National Park Service (NPS), and Department of Defense.

The Desert Region is bounded to the south primarily by the San Bernardino and San Gabriel Mountain Ranges. The foothills on the northern side level off quickly, with the southern part of the desert lying primarily flat with elevations hovering around 1,000 feet above mean sea level (amsl) and scattered low-elevation mountains ranging between 2,000 and 4,000 feet amsl. The Desert Region is composed of mountains, alluvial fans, playas, basin, plateaus, and dunes. Many of these features (alluvial fans, basins, playas, and slope debris in the form of rockslides and rockfalls) result from the erosive power of running water; however, significant surface flow is both unpredictable and scarce in the arid desert environment. These geomorphic features often provide unique habitat value. Sand dunes can be found in various portions of the Desert Region. This soil type is composed of fine-grained particles loosely stacked and oftentimes blown by wind. Wind-blown sands are critical for the Mohave fringe-toed lizard (*Uma scoparia*), which typically burrows beneath the fine sand, and support several endemic invertebrate species. The desert also supports carbonate soils characterized by a crust layer of calcium carbonate that can be difficult to penetrate and that due to their chemical makeup can create a stressful environment for plants. These soils provide suitable habitat for many rare and endemic plant species. Sand dunes and carbonate soils should be managed to maintain their resource value.

Other areas of high priority for management and conservation would be riparian and wetland communities. In the desert, riparian communities would include desert dry wash woodland and playas. Additionally, the desert supports alluvial fan sage scrub; approximately 41% of this community in the desert is under County jurisdiction, providing opportunity for management to maintain its high resource value. Finally, wind-blown sands and associated sand dune vegetation are some of the most biologically unique habitats in the Desert Region, which should be protected where they occur (including sand sources).

Within the Desert Region, USFWS has designated critical habitat for the following federally listed threatened or endangered plant and animal species: Cushenbury buckwheat (*Eriogonum ovalifolium* var. *vineum*), Cushenbury milk-vetch (*Astragalus albens*), Cushenbury oxytheca (*Acanthoscyphus parishii* var. *goodmaniana*), Lane mountain milkvetch (*Astragalus jaegerianus*), Parish's daisy (*Erigeron parishii*), arroyo toad (*Anaxyrus californicus*), desert tortoise, southwestern willow flycatcher (*Empidonax traillii extimus*), western yellow-billed

cuckoo (*Coccyzus americanus occidentalis*), bonytail chub (*Gila elegans*), and razorback sucker (*Xyrauchen texanus*). Critical habitat should be conserved where primary constituent elements are present that are critical to the survival of the species. If a project has a federal nexus, consultation with the USFWS is required prior to impacting critical habitat.

The Desert Region supports a number of special-status species. Development areas should be reviewed for the potential to support a special-status species, and impacts to special-status species should be avoided and minimized to the maximum extent practicable. A total of 176 special-status plant species have been documented in the Desert Region, including 8 species that are federally and/or state listed as endangered or threatened. A total of 58 special-status animal species have been documented, including 16 species that are federally or state listed as endangered or threatened, and 8 that are state fully protected. State and federally listed species and fully protected species are listed in Table 3.

The Mojave River is perhaps the most prominent feature in the Desert Region and supports extensive riparian, wetland, and wind-blown sands habitat. It is also known to currently support many special-status species, including southwestern willow flycatcher, least Bell's vireo, arroyo toad, Mojave river vole, Mohave fringe-toed lizard, summer tanager, yellow warbler, yellow-breasted chat, and western pond turtle, It is also an important wildlife linkage. The Mojave River is threatened due to development encroachment and a lowering water table and should be a high priority for conservation.

Table 3
Listed Species in the Desert Region

Common Name	Scientific Name	Federal Status	State Status
Wildlife			
California red-legged frog	*Rana draytonii*	FT	SSC
arroyo toad	*Anaxyrus californicus*	FE	SSC
desert tortoise	*Gopherus agassizii*	FT	ST
least Bell's vireo (nesting)	*Vireo bellii pusillus* (nesting)	FE	SE
southwestern willow flycatcher (nesting)	*Empidonax traillii extimus* (nesting)	FE	SE
western yellow-billed cuckoo (nesting)	*Coccyzus americanus occidentalis* (nesting)	FT	SE
western snowy plover (nesting)	*Charadrius alexandrinus nivosus*	FT	SSC
bonytail	*Gila elegans*	FE	SE
Colorado pikeminnow	*Ptychocheilus lucius*	FE	SE, FP
Mohave tui chub	*Siphateles bicolor mohavensis*	FE	SE, FP
razorback sucker	*Xyrauchen texanus*	FE	SE, FP
California black rail	*Laterallus jamaicensis coturniculus*	None	ST, FP
Swainson's hawk (nesting)	*Buteo swainsoni*	None	ST

Table 3
Listed Species in the Desert Region

Common Name	Scientific Name	Federal Status	State Status
bald eagle	*Haliaeetus leucocephalus* (nesting & wintering)	FDL	SE, FP
Arizona Bell's vireo	*Vireo bellii arizonae* (nesting)	None	SE
elf owl	*Micrathene whitneyi* (nesting)	None	SE
Gila woodpecker	*Melanerpes uropygialis*	None	SE
gilded flicker	*Colaptes chrysoides*	None	SE
tricolored blackbird	*Agelaius tricolor* (nesting colony)	None	ST
golden eagle	*Aquila chrysaetos* (nesting and wintering)	None	FP
White-tailed kite	*Elanus leucurus* (nesting)	None	FP
Mohave ground squirrel	*Spermophilus (Xerospermophilus) mohavensis*	None	ST
Townsend's big-eared bat	*Corynorhinus townsendii*	None	SC, SSC
Nelson's bighorn sheep	*Ovis canadensis nelson*	None	FP
Plants			
Cushenbury buckwheat	*Eriogonum ovalifolium* var. *vineum*	FE	None
Cushenbury milk-vetch	*Astragalus albens*	FE	None
Cushenbury oxytheca	*Acanthoscyphus parishii* var. *goodmaniana*	FE	None
Lane Mountain milk-vetch	*Astragalus jaegerianus*	FE	None
Parish's daisy	*Erigeron parishii*	FT	None
triple-ribbed milk-vetch	*Astragalus tricarinatus*	FE	None
Mojave tarplant	*Deinandra mohavensis*	None	SE
Thorne's buckwheat	*Eriogonum thornei*	None	SE

Notes:
FDL: federally delisted
FE: federally listed as endangered
FT: federally listed as threatened
FP: fully protected
SE: state listed as endangered
ST: state listed as threatened
SC: state candidate for listing
SSC: state species of special concern

4.2 Physical Conditions

Physical conditions across the landscape play important roles in the distribution of biological resources. The following provides an overview of some key physical characteristics within the Desert Region of San Bernardino County, depicted on Figure 3, Geomorphic Features – Desert Region.

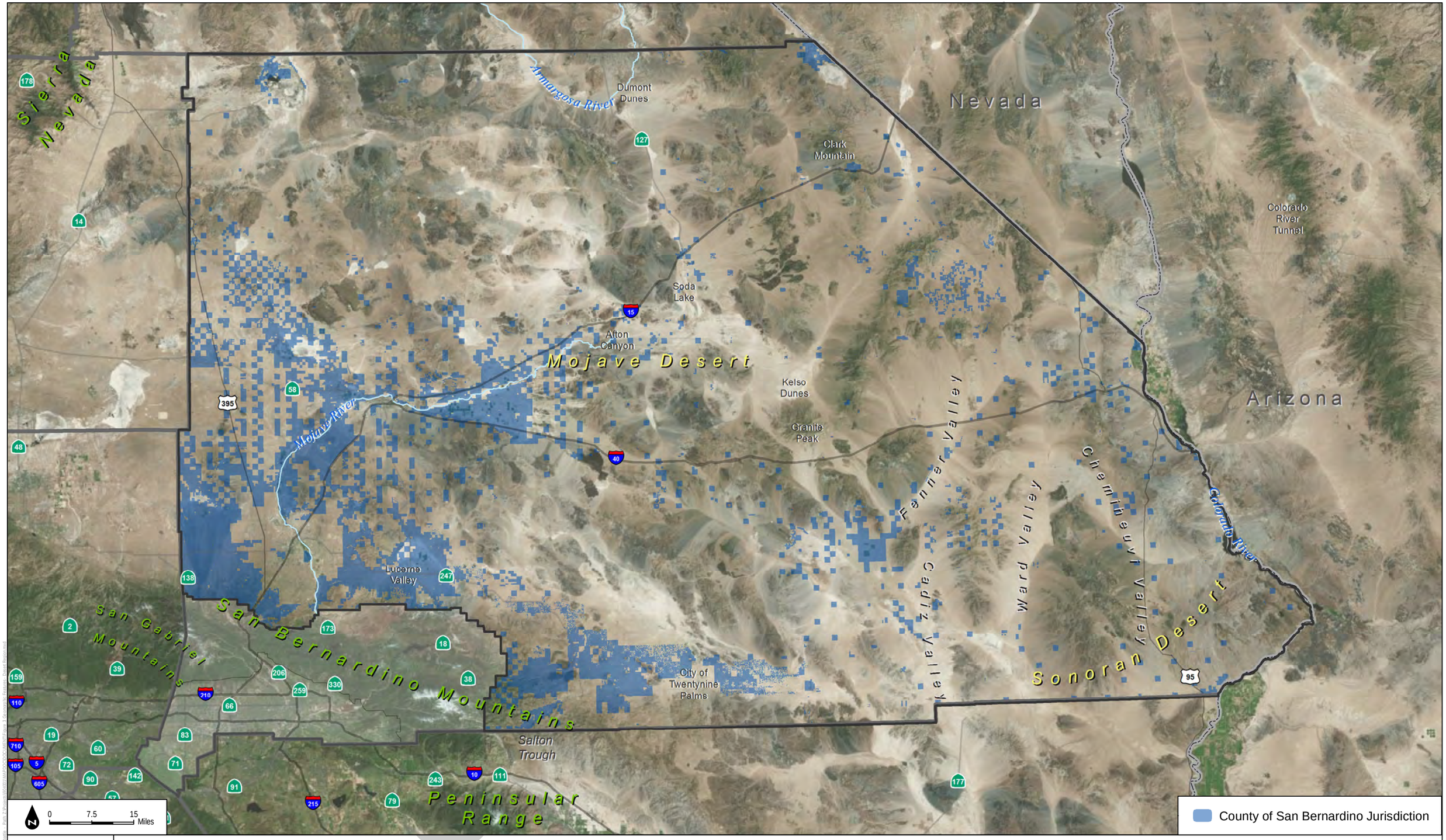
4.2.1 Climate

The Desert Region of San Bernardino County is polarizing in its climate; it has hot, dry summers accompanied by mild to cold winters. Rain events, while typically spread out in frequency, are

derived from winter frontal storms coming off the Pacific Ocean and intermittent summer convective monsoons. The Mojave Desert is situated northwest of the Sonoran Desert and is bounded on the west by the Sierra Nevada, as well as by the San Bernardino, Tehachapi, and San Gabriel Mountain Ranges. The Sonoran Desert is bounded on the west by the Peninsular Ranges and on the east by the Colorado River. A result of these large mountain ranges is the creation of a "rain-shadow" effect that creates the arid desert climate. Discussed below are three distinct ecoregions within the Desert Region with different climate types.

Mojave Desert

The Mojave Desert covers a large portion of San Bernardino County in the central, northern and eastern portions of the County. Unlike the Sonoran Desert, which experiences two distinct wet seasons, the Mojave Desert traditionally experiences most of its rain during the winter months (Redmond 2009). The valleys within the Mojave Desert typically sees from 2 to 5 inches of annual rain and the mountains typically get between 10 to 30 inches of annual rain (Webb et al. 2009). The Mojave Desert sees some monsoonal rainfall as well, with an average of 1.5 inches annually (TNC 2010). Wet years and periods of drought typically follow the El Niño Southern Oscillation cycle. This cycle includes a variation from predicted sea surface temperatures that results in increased winter precipitation in southern and central California (NOAA 2016).



SOURCE: Bing Maps, 2016

FIGURE 3

Geomorphic Features - Desert Region

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Sonoran Desert

The portion of the Sonoran Desert within California is also sometimes referred to as the Colorado Desert andhas a lower average elevation than the Mojave Desert, as a result it is hotter and drier than the Mojave Desert. The majority of the Sonoran Desert is lower than 1,000 feet above mean sea level (amsl), the lowest elevation being 275 feet below mean sea level at the Salton Trough (CDFG 2007, Chapter 8). The mountains of the Sonoran Desert are shorter than that of the Mojave Desert, seldom exceeding 3,000 feet amsl (CDFG 2007). As a result of these lower elevations, the Sonoran Desert experiences some snow at the higher elevations during cold winter storms, but rarely has sub-freezing temperatures and frost. There are two distinct wet seasons in this portion of the Desert Region: annual winter rains and North American monsoons during the end of summer and beginning of fall (from July to late September (NOAA 2004)). The temperature and precipitation patterns are typically more consistent in the Sonoran Desert in comparison with the Mojave Desert. July is usually the hottest month, with an average high of 107°F and an average low of 75°F. December and January are typically the coldest months, with an average high of 68°F and an average low of 38°F.

Foothills

The foothills encompass the northern edges of the San Gabriel, San Bernardino, and Western Transverse Mountain Ranges and are generally composed of chaparral vegetation. The foothills have relatively cool winters and warm summers with winter temperatures ranging from 58°F to 34°F and summer temperatures ranging from 96°F to 67°F. A typical annual precipitation for these areas is about 10 inches of rain and 0.8 inch of snow (WRCC 2011).

4.2.2 Soils

The Desert Region is predominantly composed of sandy gravel (USDA 2015). This soil type is characterized by high runoff coefficients and fast percolation. Additionally, various mountain ranges have exposed bedrock and mineral deposits in granite rock. Distinctive landforms found in the Mojave Desert include sand dunes, desert pavement, and dry alkaline lake beds (or playas). Unique landforms and soil attributes that support special-status biological resources have been outlined below.

Sand Dunes

Sand dunes can be found in various portions of the Desert Region of San Bernardino County. Three of the largest dunes include the Kelso Dunes (located approximately 12 miles southeast of Baker), Dumont Dunes (located approximately 31 open miles north of Baker), and Cadiz Dunes

(located approximately 40 miles east of Twentynine Palms). This soil type is composed of fine-grained particles loosely stacked and oftentimes blown by wind. Wind-blown sands are critical for the Mohave fringe-toed lizard, which typically burrows beneath the fine sand. Dune systems also support several endemic invertebrate species (Dudek and ICF 2011). For example, the Kelso Dunes support several endemic arthropod species, including Kelso Dune glaresis scarab beetle (*Glaresis arenata*), Kelso Jerusalem cricket (*Ammopelmatus kelsoensis*), and Kelso giant sand treader cricket (*Macrobaenetes kelsoensis*).

Carbonate Soils

Some desert soils contain a crust layer of calcium carbonate that can be difficult to penetrate and due to their chemical makeup can create a stressful environment for plants. Carbonate outcrops can be found throughout the mountains of the Mojave Desert, most notably the Twentynine Palms area and Mojave National Preserve. These soils provide suitable habitat for many rare and endemic plant species, such as the federally listed Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, and Parish's daisy (*Erigeron parishii*).

4.2.3 Topography and Geomorphology

The Desert Region is primarily characterized by shorter remote mountain ranges surrounded by desert plains. These mountains ranges often have alluvial fans associated with them; these are a fan-shaped buildup that is wrapped at the base of the front of mountains. These landforms originate from flashflood debris and stream sediment accretion (Harden 2004). When an alluvial fan becomes larger and the paths become more integrated, it is referred to as a bajada. Other significant landforms within the desert include mountains, plateaus, basins, playas, and dunes. The space between the mountainous areas is often characterized by playas and basins, which take the form of dry lakes.

The majority of the Desert Region ranges from 1,000 to 5,000 feet amsl, with some areas falling below 1,000 feet amsl within valleys and washes.

The Desert Region is bounded to the south primarily by the San Bernardino and San Gabriel Mountain Ranges. The foothills on the northern side level off quickly, with the southern part of the desert lying primarily flat with elevations hovering around 1,000 feet and scattered low-elevation mountains ranging between 2,000 and 4,000 feet.

Some of the flattest parts of the Desert Region include the Chemehuevi, Ward, and Fenner Valleys at the eastern part of the County next to the Colorado River, as well as the Chadiz Valley northeast of Twentynine Palms.

Some of the highest areas of the Desert Region include Granite Peak, which is west of Lucerne Valley and measures 6,130 feet amsl, while Clark Mountain in the Mojave National Preserve measures 7,929 feet amsl.

4.2.4 Hydrology

The Desert Region is composed of mountains, alluvial fans, playas, basin, plateaus, and dunes. Many of these features (alluvial fans, basins, playas, and slope debris in the form of rockslides and rockfalls) result from the erosive power of running water; however, significant surface flow is both unpredictable and scarce in the arid desert environment. Substantial surface water is typically ephemeral and usually the result of flash-flood events, particularly during the monsoon season in the Sonoran Desert. These events may result in stream channels taking the form of alluvial fans, discontinuous ephemeral channels, single-thread channels with floodplains, and compound (braided) channels (Lichvar and McColley 2008).

Anthropogenic modifications to hydrology from urbanization and water conveyance and storage also exist. The Mojave and Southern Mojave Watersheds are the primary geographic and hydraulic features within the Desert Region encompassing over 7 million acres. Major hydrologic features in the Desert Region include the Lower Colorado River, Mojave River, and Armargosa River.

Mojave River

The Mojave River is an intermittent river, with most of the water flow occurring underground. The river's source starts within the San Bernardino Mountains and terminates at Soda Lake approximately 110 miles to the northeast. Water in the Mojave River is mostly underground, but comes to the surface in areas with impermeable rock, such as the upper and lower narrows near Victorville and in the Afton Canyon area northeast of Barstow.

Lower Colorado River

The southern extent of the Colorado River, also known as the Lower Colorado River, runs through the Mojave Desert and forms the easternmost boundary of San Bernardino County as well as the boundary between California and Arizona. After passing through Hoover Dam in Nevada, the Colorado River runs southeast along the California border through the City of Needles, providing irrigation support to the surrounding agricultural communities. From Needles, it continues to Lake Havasu before passing into Riverside County to the south.

Armargosa River

The Armargosa River is an intermittent river that remains dry for the majority of the year. It originates from the Armargosa Valley in Nevada before entering the Mojave Desert. It passes through San Bernardino County from the northern Inyo County, running parallel to Highway 127 before looping around running northwest back into Inyo County and terminating in an underground aquifer in Death Valley.

4.3 Biological Conditions

The following subsections provide a detailed description of the special-status plant and wildlife species and vegetation communities that occur within the Desert Region of San Bernardino County.

4.3.1 Vegetation Communities and Land Covers

The following describes the vegetation communities and land covers that have been mapped in the Desert Region of San Bernardino County. Table 4 provides an overview of the vegetation communities and land covers located within the Desert Region and Figure 4, Vegetation Communities and Land Covers – Desert Region, depicts the geographic extent of the communities. As discussed in Section 3.1, Vegetation Communities and Land Covers, the DRECP land cover map uses the NVCS hierarchical classification system and describes vegetation at three levels: Vegetation Groups, Vegetation Types (NVCS Group level), and Alliances (NVCS Alliance level). Table 4 includes the vegetation group level and is organized by general community categories. For detailed descriptions of each vegetation community within the Desert Region, refer to Appendix A. The NVCS Alliance level descriptions were cross-walked with alliances from the Manual of California Vegetation (Sawyer et al. 2009). This listing and the associated sensitivity status of each alliance can be found in Appendix B.

Table 4.
Vegetation Communities and Other Land Covers within the Desert Region of San Bernardino County

	Acres within County Boundary	% within County Boundary	Acres Within County Jurisdiction	% within County Jurisdiction
Agriculture				
Agriculture	21,851.03	0.18%	21,438.04	0.18%
Subtotal	*21,851.03*	*0.18%*	*21,438.04*	*0.18%*
Barren				
Barren	57.16	0.00%	57.16	0.00%
Subtotal	*57.16*	*0.00%*	*57.16*	*0.00%*
Chenopod Scrub				
North American warm desert bedrock cliff and outcrop	3,766.56	0.03%	3,766.56	0.03%
Shadscale - saltbush cool semi-desert scrub	112,866.86	0.94%	112,220.32	0.96%
Southwestern North American salt basin and high marsh	136,621.96	1.14%	136,101.41	1.16%
Subtotal	*253,255.37*	*2.12%*	*252,088.28*	*2.16%*
Coastal Scrub				
Central and south coastal California seral scrub	818.58	0.01%	760.91	0.01%
Central and South Coastal Californian coastal sage scrub	26,412.85	0.22%	22,959.37	0.20%
Subtotal	*27,231.43*	*0.23%*	*23,720.28*	*0.20%*
Desert Bedrock Cliff and Outcrop				
North American warm desert bedrock cliff and outcrop	804,349.35	6.73%	801,240.26	6.86%
Subtotal	*804,349.35*	*6.73%*	*801,240.26*	*6.86%*
Desert Dry Wash Woodland				
Madrean Warm Semi-Desert Wash Woodland/Scrub	385,922.16	3.23%	381,837.43	3.27%
Mojavean semi-desert wash scrub	2,335.17	0.02%	2,335.17	0.02%
Sonoran-Coloradan semi-desert wash woodland/scrub	5,119.21	0.04%	4,891.18	0.04%
Southwestern North American riparian/wash scrub	1.16	0.00%	1.16	0.00%

Table 4.
Vegetation Communities and Other Land Covers within the Desert Region of San Bernardino County

	Acres within County Boundary	% within County Boundary	Acres Within County Jurisdiction	% within County Jurisdiction
Subtotal	*393,377.69*	*3.29%*	*389,064.93*	*3.33%*
Desert Dunes				
North American warm desert dunes and sand flats	114,524.97	0.96%	113,239.53	0.97%
Subtotal	*114,524.97*	*0.96%*	*113,239.53*	*0.97%*
Desert Sink Scrub				
Southwestern North American salt basin and high marsh	19,889.18	0.17%	19,873.02	0.17%
Subtotal	*19,889.18*	*0.17%*	*19,873.02*	*0.17%*
Developed and Disturbed Areas				
Developed and Disturbed Areas	21,9837.17	1.84%	138,570.21	1.19%
Rural	12,261.86	0.10%	8,524.72	0.07%
Urban/Developed (General)	195.49	0.00%	191.84	0.00%
Urban-related Bare Soil	987.46	0.01%	987.35	0.01%
Subtotal	*23,3281.98*	*1.95%*	*148,274.12*	*1.27%*
Great Basin Scrub				
Basin Sagebrush	203.30	0.00%	203.30	0.00%
Blackbush	756.92	0.01%	756.92	0.01%
Great Basin - Desert Mixed Scrub	136.35	0.00%	136.35	0.00%
Great Basin Mixed Scrub	3,930.81	0.03%	3,930.81	0.03%
Intermontane deep or well-drained soil scrub	11,050.17	0.09%	10,849.00	0.09%
Intermontane seral shrubland	11,220.91	0.09%	6,738.06	0.06%
Inter-Mountain Dry Shrubland and Grassland	63,177.18	0.53%	60,143.49	0.51%
Intermountain Mountain Big Sagebrush Shrubland and steppe	8,180.10	0.07%	8,010.80	0.07%
Mojave and Great Basin upper bajada and toeslope	198.61	0.00%	198.61	0.00%

Table 4.
Vegetation Communities and Other Land Covers within the Desert Region of San Bernardino County

	Acres within County Boundary	% within County Boundary	Acres Within County Jurisdiction	% within County Jurisdiction
Rabbitbrush	2,727.48	0.02%	2,727.48	0.02%
Subtotal	*101,581.82*	*0.85%*	*93,694.82*	*0.80%*
Joshua Tree Woodland				
Joshua Tree	122.88	0.00%	122.88	0.00%
Mojave and Great Basin upper bajada and toeslope	615,344.21	5.15%	601,725.66	5.15%
Subtotal	*615,467.08*	*5.15%*	*601,848.54*	*5.15%*
Juniper Woodlands				
California Juniper (shrub)	1,269.74	0.01%	1,269.74	0.01%
Great Basin Pinyon - Juniper Woodland	163,731.12	1.37%	158,675.45	1.36%
Subtotal	*165,000.87*	*1.38%*	*159,945.19*	*1.37%*
Marsh				
Arid West freshwater emergent marsh	213.52	0.00%	198.85	0.00%
Californian warm temperate marsh/seep	409.39	0.00%	13.77	0.00%
Southwestern North American salt basin and high marsh	970.95	0.01%	928.66	0.01%
Subtotal	*1,593.86*	*0.01%*	*1,141.27*	*0.01%*
Native Grasslands				
North American warm desert dunes and sand flats	24,085.17	0.20%	24,085.17	0.21%
Southern Great Basin semi-desert grassland	252.55	0.00%	252.55	0.00%
Subtotal	*24,337.71*	*0.20%*	*24,337.71*	*0.21%*
Non-Native Grassland				
Annual Grasses and Forbs	33.46	0.00%	33.46	0.00%
California Annual and Perennial Grassland	72,491.02	0.61%	63,183.50	0.54%
California annual forb/grass vegetation	2,500.01	0.02%	2,431.84	0.02%

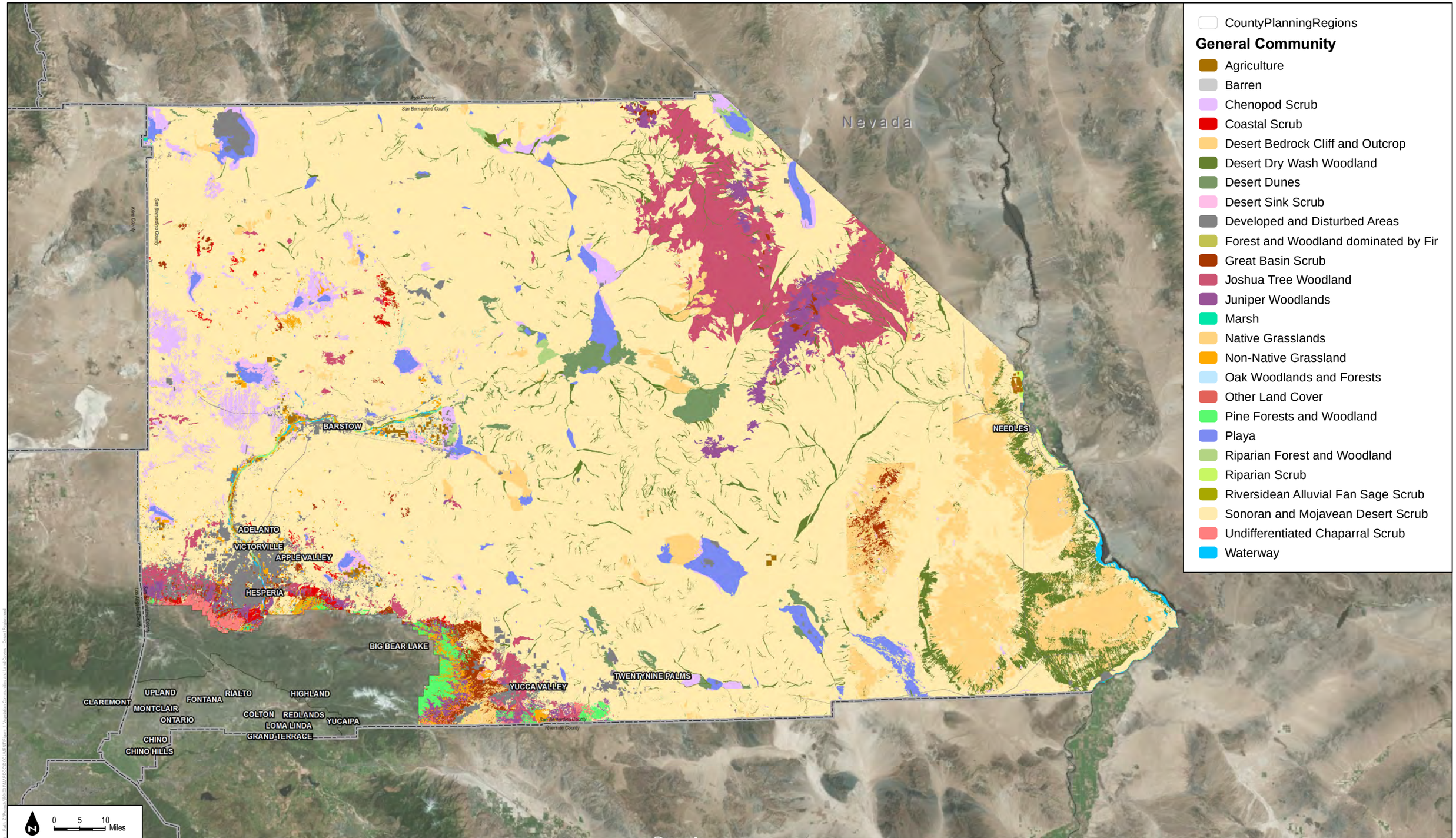
Table 4.
Vegetation Communities and Other Land Covers within the Desert Region of San Bernardino County

	Acres within County Boundary	% within County Boundary	Acres Within County Jurisdiction	% within County Jurisdiction
Subtotal	*75,024.48*	*0.63%*	*65,648.80*	*0.56%*
Oak Woodlands and Forests				
Californian broadleaf forest and woodland	43.78	0.00%	28.92	0.00%
Canyon Live Oak	183.74	0.00%	177.03	0.00%
Subtotal	*227.52*	*0.00%*	*205.95*	*0.00%*
Pine Forests and Woodland				
Californian montane conifer forest	37,779.31	0.32%	37,779.31	0.32%
Eastside Pine	126.57	0.00%	126.57	0.00%
Great Basin Pinyon - Juniper Woodland	14,766.29	0.12%	14,766.27	0.13%
Singleleaf Pinyon Pine	4,283.78	0.04%	4,283.78	0.04%
Subtotal	*56,955.94*	*0.48%*	*56,955.92*	*0.49%*
Playa				
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	193,552.89	1.62%	193,516.78	1.66%
Southwestern North American salt basin and high marsh	131.15	0.00%	104.87	0.00%
North American warm desert dunes and sand flats	57.19	0.00%	57.19	0.00%
Playa	26,677.61	0.22%	26,677.61	0.23%
Southwestern North American salt basin and high marsh	14,141.76	0.12%	14,141.76	0.12%
Subtotal	*234,560.60*	*1.96%*	*234,498.21*	*2.01%*

Riparian Forest and Woodland				
North American warm desert dunes and sand flats	24,041.07	0.20%	23,471.40	0.20%
Sonoran-Coloradan semi-desert wash woodland/scrub	19.69	0.00%	19.69	0.00%
Southwestern North American riparian evergreen and deciduous woodland	3,191.02	0.03%	1,877.96	0.02%
Subtotal	*27,251.78*	*0.23%*	*25,369.05*	*0.22%*
Riparian Scrub				
Madrean Warm Semi-Desert Wash Woodland/Scrub	6.73	0.00%	6.73	0.00%
Southwestern North American riparian/wash scrub	10,104.47	0.08%	8,720.05	0.07%
Willow	31.94	0.00%	31.94	0.00%
Willow (Shrub)	4.85	0.00%	4.85	0.00%
Subtotal	*10,147.99*	*0.08%*	*8,763.57*	*0.08%*
Riversidean Alluvial Fan Sage Scrub				
Mojavean semi-desert wash scrub	875.82	0.01%	837.08	0.01%
Subtotal	*875.82*	*0.01%*	*837.08*	*0.01%*
Sonoran and Mojavean Desert Scrub				
Arizonan upland Sonoran desert scrub	23,647.46	0.20%	23,559.84	0.20%
Creosote Bush	115.02	0.00%	115.02	0.00%
Desert Mixed Shrub	914.60	0.01%	914.60	0.01%
Intermontane deep or well-drained soil scrub	58,805.00	0.49%	57,722.41	0.49%
Intermontane seral shrubland	6,350.96	0.05%	6,304.54	0.05%
Inter-Mountain Dry Shrubland and Grassland	6.73	0.00%	6.73	0.00%
Lower Bajada and Fan Mojavean - Sonoran desert scrub	8,025,406.60	67.17%	7,910,947.70	67.71%
Mojave and Great Basin upper bajada and toeslope	574,705.79	4.81%	572,630.37	4.90%
Mojavean semi-desert wash scrub	13,784.35	0.12%	12,801.12	0.11%
North American warm desert dunes and sand flats	1,367.79	0.01%	1,367.79	0.01%
Sonoran-Coloradan semi-desert wash woodland/scrub	10,184.11	0.09%	9,727.81	0.08%
Subtotal	*8715288.42*	*72.95%*	*8,596,097.93*	*73.58%*

Undifferentiated Chaparral Scrub				
Californian mesic chaparral	1,586.38	0.01%	1,222.31	0.01%
Californian xeric chaparral	13,771.34	0.12%	10,437.82	0.09%
Chamise	195.34	0.00%	195.34	0.00%
Curlleaf Mountain Mahogany	50.72	0.00%	50.72	0.00%
Great Basin - Mixed Chaparral Transition	4,060.45	0.03%	4,060.45	0.03%
Lower Montane Mixed Chaparral	65.59	0.00%	65.59	0.00%
Scrub Oak	499.91	0.00%	499.91	0.00%
Semi-Desert Chaparral	42.56	0.00%	42.56	0.00%
Soft Scrub Mixed Chaparral	6.56	0.00%	6.56	0.00%
Tucker / Muller Scrub Oak	317.04	0.00%	317.04	0.00%
Upper Montane Mixed Chaparral	13.86	0.00%	13.86	0.00%
Western Mojave and Western Sonoran Desert borderland chaparral	15,761.11	0.13%	14,730.77	0.13%
Subtotal	*36,370.84*	*0.30%*	*31,642.92*	*0.27%*
Waterway				
Intermittent Stream Channel	10.54	0.00%	10.54	0.00%
Madrean Warm Semi-Desert Wash Woodland/Scrub	5,877.64	0.05%	4,767.62	0.04%
Open Water	6,864.18	0.06%	6,699.95	0.06%
Riparian	218.13	0.00%	69.88	0.00%
Wetland	2,118.21	0.02%	1,647.72	0.01%
Subtotal	*15,088.70*	*0.13%*	*13,195.72*	*0.11%*
Grand Total	11,947,591.60		11,683,178.32	

Note: Table updated March 2019



SOURCE: Bing Maps, 2015; CDFG, 2015

FIGURE 4

Vegetation Communities and Land Covers - Desert Region

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Agriculture

The agriculture general community composes approximately 0.2% (21,758.3 acres) of the Desert Region (Table 4) and includes row and field crops, orchards, and vineyards. Agricultural lands are not considered a sensitive biological community (CDFG 2010).

Barren

Barren lands compose a very small portion of the Desert Region and cover less than 0.1% (55.8 acres) (Table 4). Barren lands are not considered a sensitive biological resource (CDFG 2010).

Chenopod Scrub

The chenopod scrub general community composes approximately 2.1% (254,159.9 acres) of the Desert Region and includes four groups: lower bajada and fan Mojavean–Sonoran desert scrub, North American warm desert bedrock cliff and outcrop, shadscale–saltbush cool semi-desert scrub, and southwestern North American salt basin and high marsh (Table 4). This general community category includes dominant shrubs, specifically saltbushes or mixed stands of saltbush which belong to the chenopod family. The North American salt basin and high marsh group contains alliances that are considered sensitive (CDFG 2010).

Coastal Scrub

The coastal scrub general community composes approximately 0.2% (27,468.1 acres) of the Desert Region and includes two groups: central and south coastal California seral scrub and central and south coastal Californian coastal sage scrub (Table 4). Coastal scrub is composed of a variety of soft, low shrubs, characteristically dominated by drought-deciduous species with scattered evergreen shrubs and typically develops on xeric slopes (Holland 1986). Central and south coastal California seral scrub and central and south coastal Californian coastal sage scrub groups contain alliance and associations that are considered sensitive biological resources (CDFG 2010).

Desert Bedrock Cliff and Outcrop

The desert bedrock cliff and outcrop community composes approximately 6.7% (804,759.7 acres) of the Desert Region and includes one group: North American warm desert bedrock cliff and outcrop group (Table 4), which is characterized by areas in which vegetation is largely absent. Desert bedrock cliff and outcrop is not considered a sensitive biological resource (CDFG 2010).

Desert Dry Wash Woodland

The desert dry wash woodland community composes approximately 3.3% (393,889.2 acres) of the Desert Region and includes four groups: Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, Sonoran–Coloradan semi-desert wash woodland/scrub, and southwestern North American riparian/wash scrub (Table 4). This community occurs in defined desert washes that are distinctly different in plant composition and/or cover compared to adjacent upland vegetation types. Typical species occurring in this category include catclaw acacia, desert lavender (*Hyptis emoryi*), honey mesquite (*Prosopis glandulosa*), screwbean mesquite (*P. pubescens*), desert willow (*Chilopsis linearis*), smoke tree, blue paloverde (*Parkinsonia florida*), and desert ironwood. This community provides important habitat functions to desert wildlife including food, cover, and breeding habitat, and includes alliances and associations that are considered sensitive community types (CDFG 2010).

Desert Dunes

The desert dunes community composes approximately 1.0% (114,558.4 acres) of the Desert Region and includes one group: North American warm desert dunes and sand flats (Table 4). This community is characterized by open dunes, dune aprons, or sand flats in which vegetation is sparse to very open. All of the alliances within this group are considered rare based on their state ranking, and this is a sensitive community type (CDFG 2010).

Desert Sink Scrub

The desert sink scrub community composes approximately 0.2% (19,978.3 acres) of the Desert Region and includes one group: southwestern North American salt basin and high marsh (Table 4). It is typically restricted to alkali or salt basins, spring margins, or river terraces with salt or alkali deposits. All of the alliances within this group are considered rare based on their state ranking (CDFG 2010), and this is a sensitive community type .

Developed and Disturbed Areas

Developed and disturbed areas compose approximately 2.1% (255,961.4 acres) of the Desert Region and include two land cover types: developed and disturbed areas and rural (Table 4). Developed areas include buildings, structures, homes, parking lots, paved roads, and maintained areas and do not support natural vegetation. This category also includes areas adjacent to developed areas with ornamental vegetation. The CDFG does not consider developed and disturbed areas a sensitive biological resource (CDFG 2010).

Great Basin Scrub

Great basin scrub general communities compose approximately 0.8% (94,546.5 acres) of the Desert Region and include four groups: intermontane deep or well-drained soil scrub, intermontane seral shrubland, inter-mountain dry shrubland and grassland, intermountain mountain big sagebrush shrubland and steppe (Table 4). These communities occur at montane elevations generally in well drained soils and include stands of mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*) and stands dominated by Nevada joint fir (*Ephedra nevadensis*), Mormon tea (*E. viridis*), needleleaf rabbitbrush (*Ericameria teretifolia*), spiny hop sage (*Grayia spinosa*), winterfatland (*Krascheninnikovia lanata*), Anderson's boxthorn (*Lycium andersonii*), peach thorn (*L. cooperi*), bitter brush (*Purshia tridentata*), *Encelia* (*actoni*, *virginensis*), Cooper's goldenbush (*Ericameria cooperi*), rubber rabbitbrush (*E. nauseosa*), and broom snake weed (*Gutierrezia sarothrae*). The intermontane deep or well-drained soil scrub and intermontane seral shrubland includes alliances that are considered sensitive biological resources (CDFG 2010).

Joshua Tree Woodland

Joshua tree woodland general community composes approximately 5.2% (618,905.6 acres) of the Desert Region and includes one group: Mojave and Great Basin upper bajada and toeslope (Table 4). This community consists of Joshua trees in an open to intermittent tree canopy over an open to intermittent ground layer that may include perennial grasses and seasonal annuals (Sawyer et al. 2009). Joshua trees are a protected resource under the Native Desert Plant Protection section of the existing Development Code, and are considered a sensitive biological resource.

Juniper Woodlands

The juniper woodlands general community composes approximately 1.4% (166,403.1 acres) of the Desert Region and includes one group: Great Basin pinyon–juniper woodland (Table 4). This community includes California juniper (*Juniperus californica*) as the dominant or co-dominant small tree in the canopy with a sparse or grassy ground layer. This community occurs on alluvial fans, valley bottoms, slopes, ridges, and valleys that contain porous, rocky, coarse, sandy or silty soils that are often shallow. Juniper woodland alliances within the Desert Region are not considered a sensitive biological resource (CDFG 2010).

Marsh

Marsh general communities compose a very small portion of the Desert Region totaling approximately <0.1% (1,600.8 acres). This general community includes three groups: arid west freshwater emergent marsh, California warm temperate marsh/seep, and southwestern North American salt basin and high marsh (Table 4). Dominant species include sedges (*Carex* spp.), tules (*Scirpus* spp.), cattails (*Typha* spp.), spikerushes (*Eleocharis* spp.), rushes (*Juncus* spp.), or bulrushes (*Schoenoplectus* or *Bolboschoenus* spp.). Marshes are a wetland habitat type generally rare in the Desert Region and are therefore considered a sensitive biological resource.

Native Grassland

Native grassland general communities compose approximately 0.2% (24,573.6 acres) of the Desert Region and include two groups: North American warm desert dunes and sand flats, in which vegetation is sparse to very open (less than 10% cover) except for annual blooms in favorable years, and southern Great Basin semi-desert grassland (Table 4), which is dominated by perennial grasses. The alliances within this group are considered rare based on their state ranking (CDFG 2010) and this is a sensitive community type.

Non-Native Grasslands

The non-native grasslands community composes approximately 0.6% (75,752.7 acres) of the Desert Region and includes two groups: California annual and perennial grassland, which is dominated by non-native grasses and herbs, and California annual forb/grass vegetation, in which non-native forbs and grasses dominate but herbs are characteristic and evenly disturbed across the herbaceous layer (Table 4). The non-native grasslands are not considered a sensitive biological resource (CDFG 2010).

Oak Woodlands and Forests

The oak woodlands and forests general community composes <0.1% (118.1 acres) of the Desert Region and includes one group: Californian broadleaf forest and woodland (Table 4). Oak woodlands and forest have oak trees (*Quercus* spp.) as the dominant or co-dominant tree, with a continuous to open canopy and a sparse to intermittent shrub canopy and sparse or grassy ground layer. The oak woodlands and forests are considered sensitive in the County due to their limited extent and unique habitat value.

Pine Forests and Woodland

Pine forests and woodland general communities compose approximately 0.4% (52,329.6 acres) of the Desert Region and include two groups: Californian montane conifer forest and Great Basin pinyon–juniper woodland (Table 4). Californian montane conifer forests are characterized by an evenly distributed presence of bigcone Douglas-fir (*Pseudotsuga macrocarpa*) in the canopy, usually with canyon live oak (*Quercus chrysolepis*) as a co-dominant with up to three times the cover of bigcone Douglas-fir. Great Basin pinyon–juniper woodland includes more than 1% absolute cover of singleleaf pinyon (*Pinus monophylla*) that is evenly distributed throughout the stand and the stand may have equal or higher cover of California juniper, Joshua tree, and/or Tucker oak (*Quercus john-tuckeri*) (VegCAMP and AIS 2013). Pine forests and woodland is not considered a sensitive biological resource (CDFG 2010).

Playa

Playas compose approximately 2.0% (234,872.6 acres) of the Desert Region and include five groups: North American warm desert alkaline scrub and herb playa and wet flat, North American warm desert bedrock cliff and outcrop, North American warm desert dunes and sand flats, playa, and southwestern North American salt basin and high marsh (Table 4). This includes dense herbaceous stands that are wet, flooded, or moist throughout the growing season; areas in which vegetation is largely absent; dunes, dune aprons, or sand flats in which vegetation is sparse to very open (less than 10% cover) except for annual blooms in favorable years; and alkali or salt basins, spring margins, or river terraces with salt or alkali deposits. Four groups, North American warm desert alkaline scrub and herb playa and wet flat, North American warm desert dunes and sand flats, playa, and southwestern North American salt basin and high marsh, include alliances or associations that are considered sensitive biological resources (CDFG 2010).

Riparian Forest and Woodland

Riparian forest and woodland general communities compose approximately 0.2% (27,495.0 acres) of the Desert Region and include three groups: North American warm desert dunes and sand flats, Sonoran–Coloradan semi-desert wash woodland/scrub, and southwestern North American riparian evergreen and deciduous woodland (Table 4). This community occurs along stream corridors and desert washes and is characterized by riparian trees or tall shrubs, including Fremont cottonwood (*Populus fremontii*), California sycamore (*Platanus racemosa*), and/or willows (*Salix* spp.) It also includes dunes, dune aprons, or sand flats in which vegetation is sparse to very open. All of the riparian forest and woodlands groups contain alliances that are considered sensitive biological resources (CDFG 2010).

Riparian Scrub

Riparian scrub general communities compose approximately <0.1% (10,450.0 acres) of the Desert Region and includes two groups: Madrean warm semi-desert wash woodland/scrub and southwestern North American riparian/wash scrub (Table 4). The majority of this community is characterized by native or non-native riparian shrubs such as baccharis (*Baccharis* spp.), elderberry (*Sambucus* spp.), swampprivet (*Forestiera* spp.), narrowleaf willow (*Salix exigua*), or arroyo willow (*S. lasiolepis*). There may be scattered, unevenly distributed Fremont cottonwood and other willow species or other riparian trees at less than 10% cover (VegCAMP and AIS 2013). Both Madrean warm semi-desert wash woodland/scrub and southwestern North American riparian/wash scrub groups contain alliances that are considered sensitive biological resources (CDFG 2010).

Riversidean Alluvial Fan Sage Scrub

The Riversidean alluvial fan sage scrub general community composes <0.1% (895.3 acres) of the Desert Region and includes one group: Mojavean semi-desert wash scrub (Table 4), which occurs within alluvial fans and dry washes on low-gradient slopes at elevations up to 5,000 feet amsl (1,524 meters amsl). This alliance is identified by a combination of species including scale broom (*Lepidospartum squamatum*), Eastern Mojave buckwheat (*Eriogonum fasciculatum*), California sagebrush (*Artemisia californica*), white sage (*Salvia apiana*), *Encelia* spp., *Opuntia* spp., chaparral yucca (*Yucca whipplei*), *Rhus* spp., and California juniper. Riversidean alluvial fan sage scrub contains alliances that are considered sensitive communities (CDFG 2010) and is considered a sensitive community in the County.

Sonoran and Mojavean Desert Scrub

Sonoran and Mojavean desert scrub general communities compose a majority of the Desert Region, covering approximately 72.9% (8,739,583.5 acres), and include nine groups: Arizonan upland Sonoran desert scrub, intermontane deep or well-drained soil scrub, intermontane seral shrubland, inter-mountain dry shrubland and grassland, lower bajada and fan Mojavean–Sonoran desert scrub, Mojave and Great Basin upper bajada and toeslope, Mojavean semi-desert wash scrub, North American warm desert dunes and sand flats, and Sonoran–Coloradan semi-desert wash woodland/scrub (Table 4). Sonoran and Mojavean desert scrub contains six groups that have alliances that are considered sensitive biological resources (CDFG 2010).

Undifferentiated Chaparral Scrub

Undifferentiated chaparral scrub general communities compose approximately 0.3% (31,720.2 acres) of the Desert Region and include three groups: Californian mesic chaparral, Californian xeric chaparral, and western Mojave and western Sonoran desert borderland chaparral (Table 4).

This community includes a variety of mixed or single-species, evergreen, sclerophyllous shrubs including alderleaf mountain mahogany (*Cercocarpus montanus*), holly leaf cherry (*Prunus ilicifolia*), scrub oak (*Quercus berberidifolia*), chamise (*Adenostoma fasciculatum*), bigberry manzanita (*Arctostaphylos glauca*), hoaryleaf ceanothus (*Ceanothus crassifolius*), flannelbush (*Fremontodendron* spp.), or black sage (*Salvia mellifera*). It also includes two-tiered shrublands with one layer of moderately open to intermittent cover of sclerophyll shrubs and another shorter layer of drought deciduous subshrubs with at least some presence of xerophylls, such as pricklypear (*Opuntia* spp.), cholla (*Cylindropuntia* spp.), and yucca (*Yucca* or *Hesperoyucca* spp.). Many drought-deciduous species with desert affinities, such as goldenbush (*Ericameria* spp.) and Acton's brittlebush (*Encelia actoni*), may also be present; however, true chaparral species such as chamise, manzanita, and ceanothus species may be absent. One undifferentiated chaparral scrub group, Californian xeric chaparral, contains alliances that are considered sensitive biological resources (CDFG 2010).

Waterway

Waterways compose approximately 0.2% (18,780.6 acres) of the Desert Region and include four types: Madrean warm semi-desert wash woodland/scrub, open water, riparian, and wetland (Table 4). Waterways are a land cover and are not considered a sensitive vegetation community; however, waterways often provide valuable water resources that would be considered sensitive on a case-by-case basis.

4.3.2 Special-Status Species

Within the Desert Region, the USFWS has designated critical habitat for several plant and wildlife species as summarized in Table 5 and depicted on Figure 5, Critical Habitat – Desert Region.

Table 5
Acres of Critical Habitat in the Desert Region

Critical Habitat Species		Total acres in Desert Region	Acres within County Jurisdiction in Desert Region
Common Name	*Scientific Name*		
Plants			
Cushenbury buckwheat	*Eriogonum ovalifolium* var. *vineum*	2,462	2,455

Table 5
Acres of Critical Habitat in the Desert Region

Critical Habitat Species		Total acres in Desert Region	Acres within County Jurisdiction in Desert Region
Common Name	*Scientific Name*		
Cushenbury milk-vetch	*Astragalus albens*	2,137	2,133
Cushenbury oxytheca	*Acanthoscyphus parishii* var. *goodmaniana*	1,266	1,260
Lane mountain milkvetch	*Astragalus jaegerianus*	14,177	14,177
Parish's daisy	*Erigeron parishii*	2,821	2,806
Wildlife			
arroyo toad	*Anaxyrus californicus*	4,276	1,337
desert tortoise	*Gopherus agassizii*	3,561,131	3,555,069
southwestern willow flycatcher	*Empidonax traillii extimus*	7,207	3,829
western yellow-billed cuckoo[a]	*Coccyzus americanus occidentalis*	4,709	2,756
bonytail chub	*Gila elegans*	9,271	6,539
razorback sucker	*Xyrauchen texanus*	1,160	142

Source: USFWS 2015a.
Note: [a] Proposed critical habitat.

Special-Status Species Occurrence Summary

Appendix C provides a summary of the special-status species that have been documented within the Desert Region of San Bernardino County, and includes information on status, distribution, and habitat associations.

A total of 176 special-status plant species have been documented in the region, including 6 species that are federally listed as endangered or threatened, 2 that are listed as state endangered, and 168 non-listed species. The 8 listed plant species include Cushenbury oxytheca (federally endangered (FE)), Cushenbury milk-vetch (FE), Cushenbury buckwheat (FE), Lane Mountain milk-vetch (*Astragalus jaegerianus*) (FE), Parish's daisy (federally threatened (FT)), Mojave tarplant (*Deinandra mohavensis*) (state endangered (SE)), Thorne's buckwheat (*Eriogonum thornei*) (SE), and triple-ribbed milk-vetch (*Astragalus tricarinatus*) (FE).

A total of 58 special-status animal species have been documented, including 11 species that are federally endangered or threatened, 17 that are state endangered or threatened, one state threatened candidate, 8 that are state fully protected, and 35 that are non-listed species. The 19 listed species known to occur in the Desert Region are arroyo toad (FE), California red-legged frog (FT), desert tortoise (FT), least Bell's vireo (*Vireo bellii pusillus*) (nesting) (FE, SE), southwestern willow flycatcher (nesting) (FE, SE), western yellow-billed cuckoo (nesting) (FT),

western snowy plover (nesting) (FT), bonytail (FE, SE), Colorado pikeminnow (FE, SE, FP), Mohave tui chub (*Siphateles bicolor mohavensis*) (FE, SE), razorback sucker (*Xyrauchen texanus*), California black rail (*Laterallus jamaicensis coturniculus*) (ST), Swainson's hawk (nesting) (ST), bald eagle (nesting and wintering) (SE, FP), Arizona Bell's vireo (*Vireo bellii arizonae*) (nesting) (SE), elf owl (*Micrathene whitneyi*) (nesting) (SE), Gila woodpecker (*Melanerpes uropygialis*) (SE), gilded flicker (*Colaptes chrysoides*) (SE), and Mohave ground squirrel (ST). The one state-threatened candidate species is Townsend's big-eared bat (*Corynorhinus townsendii*). Finally, the tricolored blackbird (*Agelaius tricolor*) is being evaluated in 2016 for candidacy under CESA, triggering a 12-month period during which CDFW will conduct a status review. As a candidate species, the tricolored blackbird receives the same legal protection afforded to an endangered or threatened species (California Fish and Game Code, Section 2085).

4.4 Habitat Linkages and Wildlife Corridors

A number of efforts have been completed to identify and map potential corridors within the Desert Region of San Bernardino County. The paragraphs below summarize the results of these efforts, which provide a basis for listing and prioritizing wildlife linkages for conservation planning efforts. Locations of linkages are shown on Figure 6, Habitat Connectivity – Desert Region.

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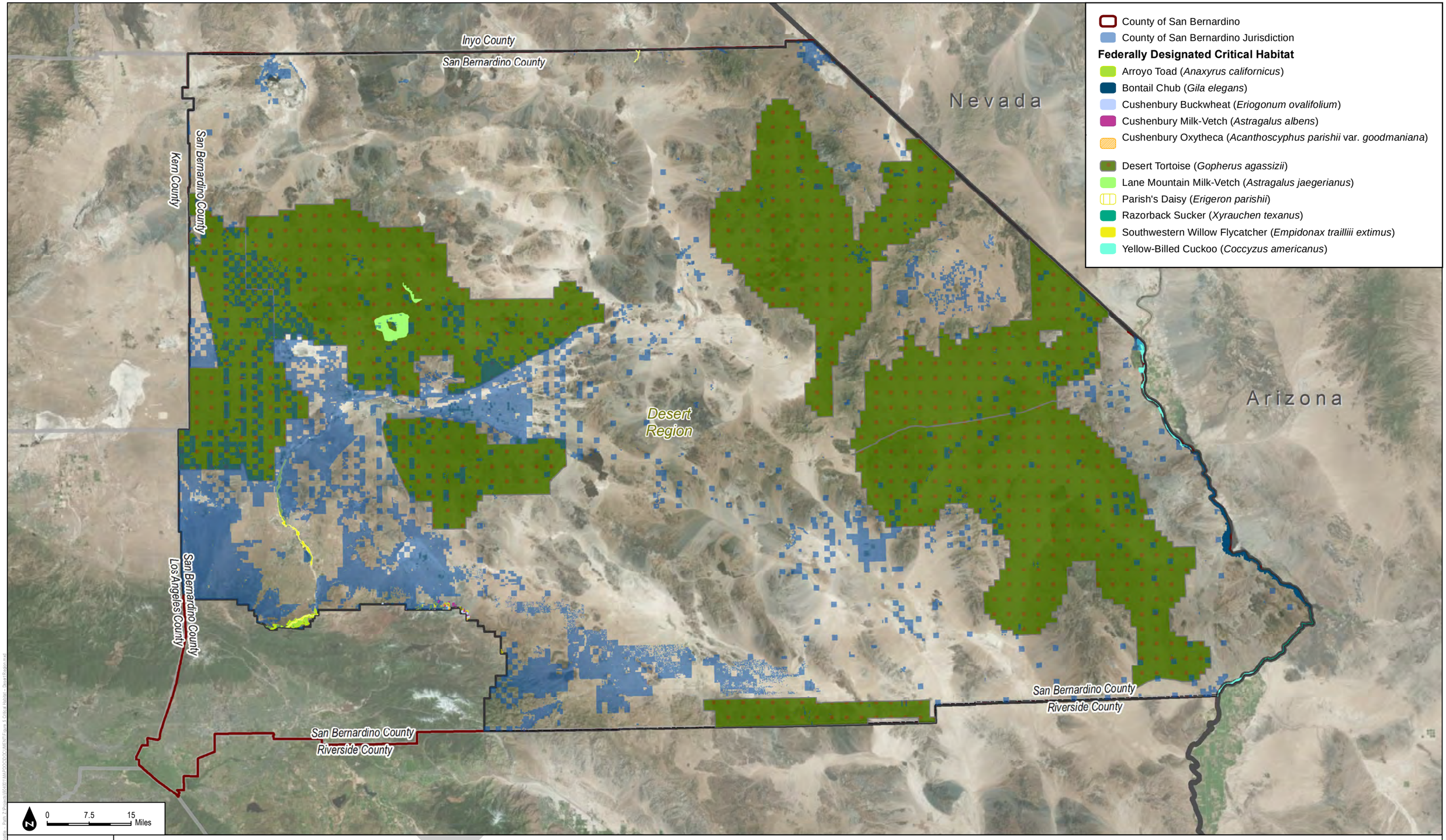

SOURCE: Bing Maps, 2016

FIGURE 5

Critical Habitat - Desert Region

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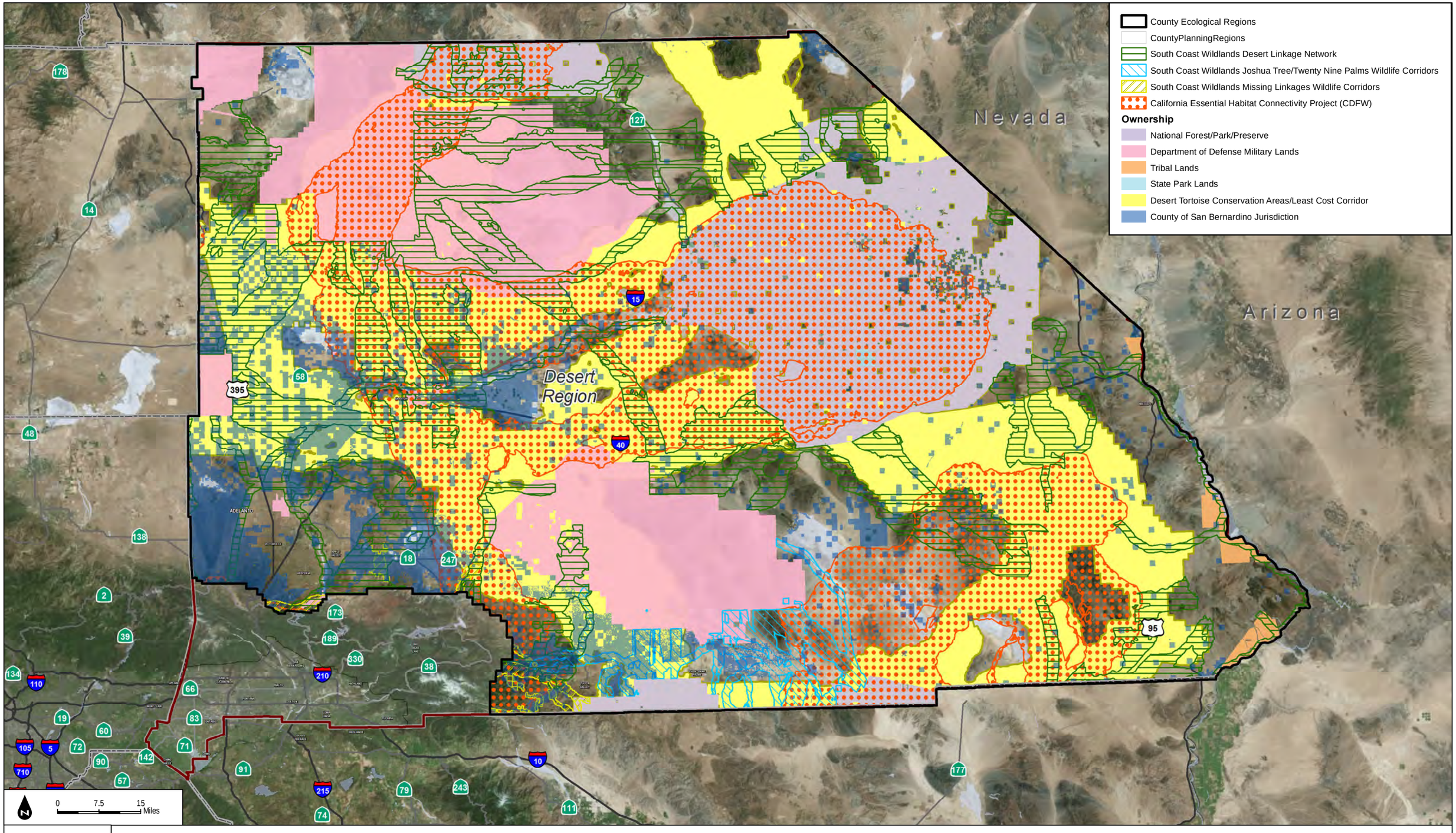

SOURCE: BING Maps 2016; USFWS 2016; BLM 2014; South Coast Wildlands 2012; CDFW 2010

FIGURE 6

Habitat Connectivity - Desert Region

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San Bernardino Countywide Plan - Biological Resources

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South Coast Missing Linkages Project

A summary of the corridors identified as a result of this effort is provided below and detailed descriptions can be found in South Coast Wildlands (2008).

San Gabriel–San Bernardino Connection. This linkage provides connectivity between two expansive areas of the Angeles and San Bernardino National Forests and includes three roughly parallel swaths through the Cajon Wash and Pass to accommodate diverse species and ecosystem functions. It partially overlaps the Desert Region of San Bernardino County. This linkage provides habitat for special-status species wildlife such as American badger (*Taxidea taxus*). I-15 and State Route 138 (SR-138) are the major transportation routes that cross the linkage and pose the most substantial barriers to wildlife movement. There are currently three bridges along I-15 that accommodate animal movement.

San Bernardino–Little San Bernardino Connection. This linkage connects San Bernardino National Forest with Joshua Tree National Park and includes five major swaths. It occurs primarily in the Desert Region of San Bernardino County. Species expected to use this linkage include Nelson's bighorn sheep (*Ovis canadensis nelsoni*), cougar (*Puma concolor*), bobcat (*Lynx rufus*), and gray fox (*Urocyon cinereoargenteus*). SR-62 is the major transportation route that crosses the linkage.

San Bernardino–San Jacinto Connection. This linkage comprises five swaths and provides a connection between the San Bernardino and San Jacinto Mountains. It occurs partially within San Bernardino County and does not intersect any major transportation corridors. Species expected to use this linkage include bobcat.

Joshua Tree–Twentynine Palms Connection

Penrod et al. (2008) separately studied and modeled habitat linkages between Joshua Tree National Park and Marine Corps Air Ground Combat Center Twentynine Palms through the Morongo Basin. The two areas to be served by this linkage support a great diversity of species (Penrod et al. 2008). The Joshua Tree–Twentynine Palms Connection occurs in an ecological transition zone between the Mojave and Sonoran (Colorado) desert ecoregions and encompasses a unique and diverse assemblage of plant communities. The Little San Bernardino and Eagle Mountains, which are extensions of the Transverse Ranges, separate the Mojave Desert from the Colorado Desert. Focal species include American badger, bobcat, Nelson's bighorn sheep, and desert tortoise. SR-62 and SR-247 are the only major transportation routes in the linkage.

California Desert Connectivity Project

Penrod et al. 2012 discusses a multitude of corridors in San Bernardino County that link existing blocks of habitat, including China Lake North and South Ranges, Edwards Air Force Base, Kingston Mesquite Mountains, Mojave National Preserve, Stepladder and Turtle Mountains, Whipple Mountains, Twentynine Palms and Newberry–Rodman, and Joshua Tree National Park, all located with the Desert Region of San Bernardino County.

Desert Tortoise Linkages between Conservation Areas

Averill-Murray et al. (2013) identified potential linkages in the Desert Region of San Bernardino County between the following tortoise conservation areas: Chemehuevi, Joshua Tree National Park, Pinto Mountains, Ord-Rodman, Freemont Kramer, Mojave National Preserve, Superior Cronese, Death Valley, Ivanpah, and Greenwater Valley (outside San Bernardino County).

San Bernardino County Open Space Overlay Map

Figure 7, Existing San Bernardino County Open Space Overlay – Desert Region, and Table 6 show the features within the San Bernardino County open space overlay map that overlap the Desert Region within County jurisdiction.

Table 6
San Bernardino County Open Space Overlay Features
in the Desert Region that Occur within County Jurisdiction

Feature	Type	Acres	Description
Mojave River	Wildlife Corridor	17,187.5	This wildlife corridor follows the alignment of the Mojave River from Lake Silverwood, through Hesperia and Victorville northward to past Barstow. The Mojave River is the major perennial river in the Desert Region, and is an area of extreme biological importance, containing rare desert riparian habitat (including habitat that supports arroyo toad, least Bell's vireo, southwestern willow flycatcher, Mojave river vole, yellow-breasted chat, and summer tanager). The Mojave River historically supported Mohave tui chub, but it was extirpated in the 1960s and has been replaced by a number of non-native species. Closer to Barstow, the Mojave River is also a source for wind-blown sands that support species such as the Mohave fringe-toed lizard.
Deep Creek	Wildlife Corridor	63.2	This wildlife corridor follows the alignment of Grass Valley Creek near the Mojave River. The creek serves as a dispersion corridor to and from the national forest. This area contains riparian habitat and is suitable for least Bell's vireo and arroyo toad.
Rattlesnake Canyon	Wildlife Corridor	98.3	This corridor follows the alignment of Rattlesnake Canyon northward from the boundary of the national forest. This corridor contains important desert riparian habitat.

Table 6
San Bernardino County Open Space Overlay Features
in the Desert Region that Occur within County Jurisdiction

Feature	Type	Acres	Description
Grass Valley Creek	Wildlife Corridor	1.1	This wildlife corridor follows the alignment of Grass Valley Creek near the Mojave River. This area contains riparian habitat and is suitable for least Bell's vireo.
Little Horsethief Canyon	Wildlife Corridor	426.0	This wildlife corridor follows the alignment of Little Horsethief Canyon from Section R6WT3N to the junction with the Mojave River. This is one of the few locations in San Bernardino County occupied by arroyo toad. It also supports important riparian habitat and provides an important linkage to the Mojave River.
Sleepy Creek	Wildlife Corridor	5.8	This corridor follows the alignment of Sleepy Creek within the national forest. Sleepy Creek contains important riparian habitat on the desert side of the mountains.
Pipes Canyon	Wildlife Corridor	362.4	This corridor is located along the alignment of Pipes Canyon and Pipes Wash north of Little Morongo Canyon. This corridor contains important wildlife and riparian habitat particularly on the desert side of the mountains.
Moabi Wildlife Preserve Buffer	Buffer	640.1	This is a buffer adjacent to the Moabi Wildlife Preserve, extending several miles outward from the preserve boundaries. This area is identified primarily for its scenic values, although significant habitat also exists.
Joshua Tree Monument Buffer	Buffer	5981.6	This is the buffer area adjacent to the portion of the Joshua Tree National Monument within San Bernardino County, identified primarily for its scenic values, although significant biological values also exist.
Pacific Crest Trail	Buffer	404.8	This area follows the alignment of the Pacific Crest Trail from the boundary of the national forest to the Riverside County line. In addition to the trail, this area contains riparian and Nelson's bighorn sheep habitat.
Limestone Deposits	Policy Area	3,720.4	This encompasses an area of limestone deposits on the northern exposure of the San Bernardino Mountains, roughly from White Mountain to Blackhawk Mountain. This area provides habitat for Nelson's bighorn sheep. The limestone deposits support unique plants.
Lake Silverwood	Policy Area	15.3	This area encompasses the environs of Lake Silverwood, which is used as a seasonal perching area by the bald eagle.

4.5 Protected and Wilderness Areas

There are a number of large blocks of public/government lands in the Desert Region of San Bernardino County that afford varying degrees of protection for biological resources and have conservation value. A selection of these areas are described briefly in this section (see Figure 8, Conservation and Open Space Areas – Desert Region).

National Monuments

The Antiquities Act of 1906 authorizes the president to create national monuments on *federal lands* that contain objects of historic or scientific interest. Management goal for all monuments is

protection of the objects described in the specific proclamations. Monument designation can limit or prohibit future land uses, such as development or recreational uses. Limitations or prohibitions may be included in the proclamations themselves, accompanying administration statements, management plans developed by the agencies to govern monument lands, agency policies, or other sources. In general, existing uses of the land that are not precluded by the proclamations, and do not conflict with the purposes of the monument, may continue. Additionally, monument proclamations since 1996 typically have had protections for valid existing rights for land uses. Three national monuments in the Mojave Desert were established in February 2016.

Sand to Snow National Monument

The 154,000-acre Sand to Snow National Monument extends from BLM lands on the desert floor up to the San Gorgonio Wilderness on the San Bernardino National Forest. A total of 71,000 acres occur in the San Bernardino National Forest and 83,000 acres on BLM lands. Within the monument boundary, approximately 101,000 acres are managed as wilderness. This monument has a wide range of ecosystems that occur in the Desert Region of San Bernardino County.

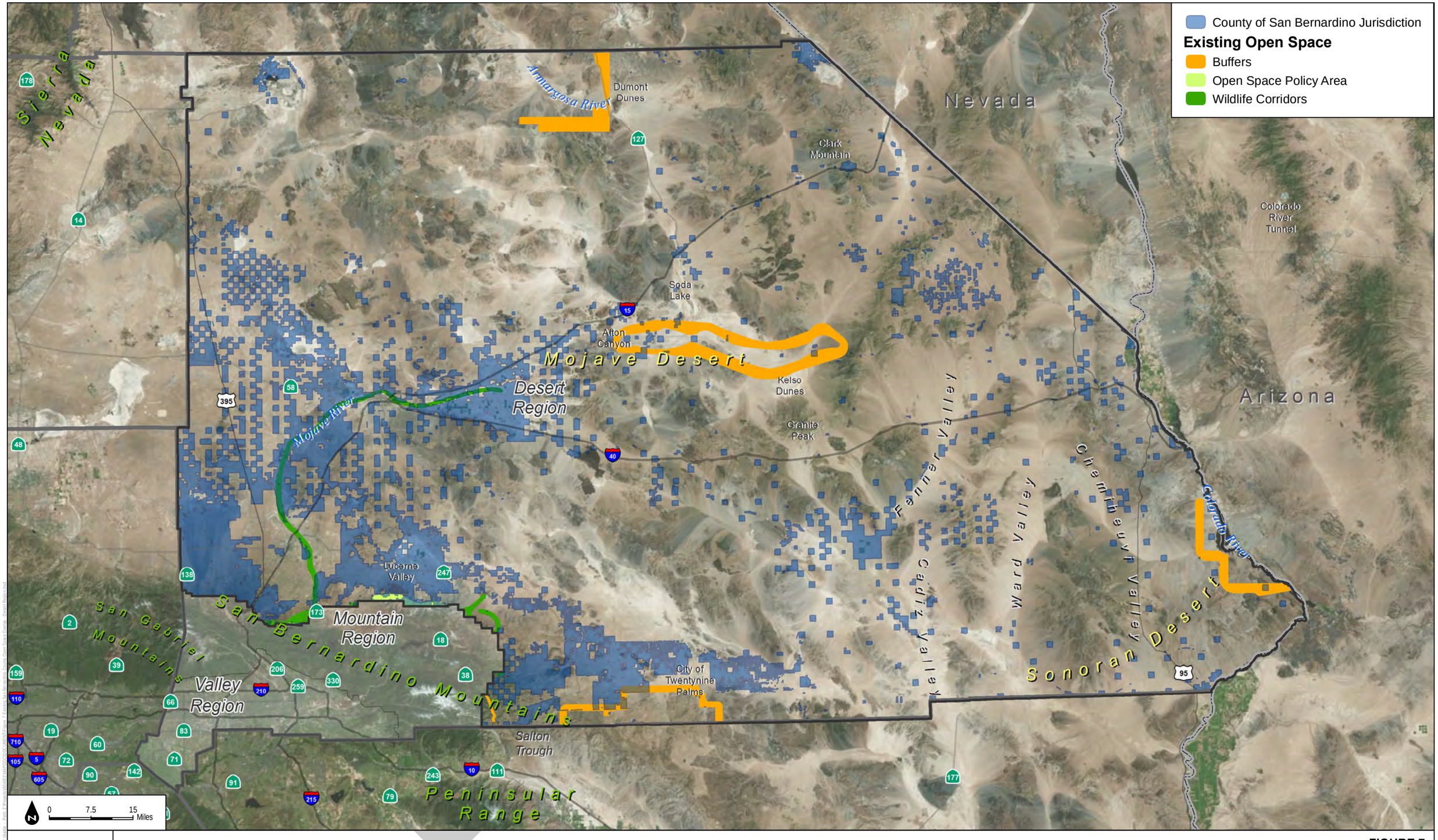
This monument plays an integral role in the San Bernardino–Little San Bernardino Connection, as well as the San Bernardino–San Jacinto Connection.

Mojave Trails National Monument

The 1.6-million-acre Mojave Trails National Monument occurs on BLM lands and extends from east of Newberry Springs to west of Bullhead City on the state boundary between California and Nevada. It includes more than 350,000 acres of previously congressionally designated wilderness and is composed of rugged desert mountains, lava flows, and sand dunes. It overlaps several of the linkages discussed in the previous section.

Castle Mountains National Monument

The Castle Mountains area, bounded on three sides by Mojave National Preserve and the Nevada state line on the other, occurs in the eastern Mojave Desert. It completes the boundary of the Mojave National Preserve along the California–Nevada border and provides a linkage between the New York Mountains to the northwest and the Piute Mountains to the southeast. Species expected in this area includes Nelson's bighorn sheep, Townsend's big-eared bat, California leaf-nosed bat (*Macrotus californicus*), golden eagle, desert tortoise, Bendire's thrasher (*Toxostoma bendirei*), and gray vireo (*Vireo vicinior*).



SOURCE: Bing Maps, 2016

FIGURE 7

Existing San Bernardino County Open Space Overlay - Desert Region

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County of San Bernardino Jurisdiction

California Protected Areas

Desert

- Death Valley National Park
- East Mojave National Scenic Area
- Kelso Peak and Old Dad Mountains Wildlife Area
- West Mojave Desert Ecological Reserve
- County Ecological Regions

Open Space Areas

- Adelanto North Open Space
- Apple Valley HCP Proposed Connectivity
- Barstow Open Space

BLM Resource Management Designations

- Areas of Critical Environmental Concern
- Multi-species Wildlife Habitat Management Areas
- Wilderness Areas

Existing Conservation Areas

- Angeles National Forest
- San Bernardino National Forest
- Death Valley National Park
- Joshua Tree National Park
- Mojave National Preserve
- Havasu National Wildlife Refuge
- National Monuments
- CountyPlanningRegions
- National Conservation Easement Database
- California Protected Area Database

Other Lands

- Department of Defense Military Lands
- State Park Lands
- Open OHV Lands
- Flood Control District Easements*
- Critical Biological Areas

*All flood control easements are reserved for District purposes and are not available as a resource for the County or others as potential mitigation lands.

0 7.5 15 Miles

SOURCE: BING Maps 2016; BLM 2014; NCED 2014; CPAD 2014

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FIGURE 8

Conservation and Open Space Areas - Desert Region

San Bernardino Countywide Plan - Biological Resources

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Parks and Other Protected Areas

Joshua Tree National Park

Approximately 825,000 acres encompass Joshua Tree National Park. Two deserts join within the park boundary and are distinguishable by elevation. Below 3,000 feet amsl, the Colorado Desert is located within the eastern portion of the park and is characterized by creosote bush (*Larrea tridentata*), ocotillo (*Fouquieria splendens*), and cholla. Above 3,000 feet amsl lies the Mojave Desert, which is cooler and moister than the Colorado Desert. The Joshua tree is the defining feature within the Mojave. Five species of fan palm are found within the western portion of the park, which indicates naturally occurring water.

Death Valley National Park

Death Valley National Park as a whole encompasses approximately 3.4-million acres; however, only approximately 223,000 acres extend south into the Desert Region of San Bernardino County. The park is known for its extreme temperature ranges, as one of the hottest and driest places in North America during the summer months with little annual rainfall. It has a low elevation of approximately 282 feet below sea level. It is managed by NPS.

Mojave National Preserve

The Mojave National Preserve is a 1.6-million-acre preserve located in the Mojave Desert and is the third largest national park system in the contiguous United States. The Mojave Wilderness is located within the preserve and encompasses almost 700,000 acres. NPS manages the wilderness in accordance with the Wilderness Act, California Desert Protection Act, and other laws protecting cultural and historic sites (NPS 2009). A majority of the preserve is composed of Joshua tree forests as well as numerous dunes.

Big Morongo Canyon Preserve

Managed by BLM, Big Morongo Canyon Preserve is composed of 31,000 acres within the Little San Bernardino Mountains. This preserve contains one of the largest cottonwood and willow riparian habitats within the state of California. Currently, this refuge is designated as an Area of Critical Environment Concern.

Havasu National Wildlife Refuge

Located along the Colorado River, Havasu National Wildlife Refuge protects over 30 miles of river and shoreline protection, which provides essential habitat for many wildlife species,

including Nelson's bighorn sheep and southwestern willow flycatcher. This is a U.S. national wildlife refuge and contains one of the few remaining natural stretches of the Lower Colorado River within Topock Gorge.

California Desert National Conservation Area

The California Desert National Conservation Area is one of the more expansive regions of the Desert Region, encompassing approximately 4.8 million acres within the region. As a whole, the area encompasses approximately 25 million acres in the Southern California desert, 10 million of which is administered by BLM. The conservation area was designated by Congress in 1976 with the goal of creating a comprehensive plan that would satisfy the interests of the surrounding areas, protect the environmental integrity of the region, and maintain long-term utilization as the area grew.

Imperial National Wildlife Refuge

The Imperial National Wildlife Refuge has approximately 26,000 acres and is located primarily along the Colorado River within the Sonoran Desert. Of this, approximately 7,200 acres are within San Bernardino County at the state border with Arizona. It is managed by USFWS. This wildlife refuge is important because it preserves wetland habitat within the desert.

East Mojave National Scenic Area

The East Mojave National Scenic Area was transferred from BLM to NPS in 1994 to become the Mojave National Preserve. What remains is approximately 22,000 acres jointly administered by BLM and the NPS.

Kelso Peak and Old Dad Mountains Wildlife Area

Kelso Peak and Old Dad Mountains Wildlife Area is composed of approximately 102,000 acres and is administered by CDFW. It is composed primarily of dry lake beds and low mountains, providing habitat for golden eagles and mountain sheep.

Pioneertown Mountains Preserve–Wildlands

Pioneertown Mountains Preserve is owned by the Wildlands Conservancy and is composed of 25,500 acres. The preserve is surrounded by the community of Pioneertown, the Sawtooth Mountains, and preserve lands adjacent to the San Bernardino National Forest. This preserve is an important linkage between Joshua Tree National Park, the Big Horn Mountains BLM Wilderness, and the San Bernardino National Forest.

Ecological Reserves

Fremont Valley Ecological Reserve

The Fremont Valley Ecological Reserve is composed of approximately 4,100 acres within the Mojave Desert. It is dominated by creosote bush scrub community and provides habitat for many mammals and reptiles.

West Mojave Desert Ecological Reserve

The West Mojave Desert Ecological Reserve is approximately 18,000 acres located within the Mojave Desert, just east of the Fremont Valley Ecological Reserve. It is dominated by creosote bush and burro weed.

Areas of Critical Environmental Concern

BLM has designated 52 Areas of Critical Environmental Concern within the Desert Region of San Bernardino County. By doing so, BLM can design, develop, and implement special management programs specific to each area, as well as specific actions that BLM does not directly implement. The 52 biological Areas of Critical Environmental Concern within the Desert Region include the following:

- Afton Canyon
- Amargosa River
- Amboy Crater
- Barstow woolly sunflower
- Bedrock Spring
- Bendire's thrasher
- Big Morongo Canyon
- Bigelow cholla
- Black Mountain
- Calico Early Man Site
- Carbonate Endemic Plants RNA
- Chemehuevi DWMA
- Christmas Canyon
- Clark Mountain
- Coolgardie Mesa
- Cronese Basin
- Dead Mountains
- Denning Springs
- Fremont-Kramer DWMA
- Halloran Wash
- Harper Dry Lake
- Ivanpah DWMA
- Juniper Flats
- Kingston Range
- Manix
- Marble Mountain Fossil Bed
- Mesquite Hills/Crucero
- Mesquite Lake
- Mojave fishhook cactus
- Mohave fringe-toed lizard

- Mojave monkeyflower
- Mountain Pass Dinosaur Trackway
- Ord-Rodman DWMA
- Parish's phacelia
- Patton's Iron Mountain Divisional Camp
- Pinto Mountains DWMA
- Pisgah
- Piute-Fenner DWMA
- Rainbow Basin/Owl Canyon
- Red Mountain Spring
- Rodman Mountains Cultural Area
- Salt Creek Hills
- Shadow Valley DWMA
- Soggy Dry Lake Creosote Rings
- Steam Well
- Superior-Cronese DWMA
- Trona Pinnacles
- Turtle Mountains
- Upper Johnson Valley Yucca Rings
- West Paradise
- Whipple Mountains
- Whitewater Canyon

5 EXISTING CONDITIONS—MOUNTAIN REGION

5.1 Mountain Region – Executive Summary

A substantial portion of the Mountain Region is occupied by the San Bernardino National Forest with just under 14% of the Mountain Region within County jurisdiction. Although a large portion of the Mountain Region is already under public management through the National Forest, there are opportunities for management of biological resources within County jurisdiction. Meadows, while accounting for a small area of the Mountain Region, provide high biological value and most meadow associations are designated sensitive communities. Additionally, approximately 63% of the mapped meadow communities within the Mountain Region are under County jurisdiction, providing the County with a unique opportunity to manage this habitat. Oak woodlands also provide high habitat value and the majority of the oak woodlands within the Mountain Region is under County jurisdiction, making this community a high priority for management. Finally, riparian and wetland communities would be a priority for management and conservation.

The Mountain Region is split into two major watersheds, with the southern and western portions of this region flowing southerly into the Santa Ana River watershed and the northern portion flowing northerly into the Mojave River watershed. The Mountain Region has several large lakes which provide unique resource value: Big Bear Lake, Lake Arrowhead, and Silverwood Lake. The Mountain Region also has soil associations that provide unique habitat value for endemic plant species including pebble plain, with 10 mapped pebble plain complexes in the Mountain Region, and carbonate soils. Management and conservation of these soil complexes would be a high priority.

Within the Mountain Region, the USFWS has designated critical habitat for 10 plant species and 5 wildlife species. If a project has a federal nexus, consultation with the USFWS is required prior to impacting critical habitat.

A total of 136 special-status species have been documented in the Mountain Region, including 18 plant species and 11 wildlife species that are federally or state listed as endangered or threatened, 4 wildlife species that are state fully protected, and one wildlife species that is a state candidate for listing. Development areas should be reviewed for the potential to support a special-status species and impacts to special-status species should be avoided and minimized to the maximum extent practicable. State and federally listed species and fully protected species are provided in Table 7.

Table 7
Listed and Fully Protected Species in the Mountain Region

Common Name	Scientific Name	Federal Status	State Status
Wildlife			
California red-legged frog	*Rana draytonii*	FT	SSC
arroyo toad	*Anaxyrus californicus*	FE	SSC
bald eagle (nesting and wintering)	*Haliaeetus leucocephalus* (nesting & wintering)	FDL	SE, FP
bank swallow (nesting)	*Riparia riparia*	None	ST
golden eagle (nesting and wintering)	*Aquila chrysaetos*	None	FP
least Bell's vireo (nesting)	*Vireo bellii pusillus* (nesting)	FE	SE
Swainson's hawk (nesting)	*Buteo swainsoni*	None	ST
mountain yellow-legged frog	*Rana muscosa*	FE	SE, SSC
Nelson's bighorn sheep	*Ovis canadensis nelsoni*	None	FP
ringtail	*Bassariscus astutus*	None	FP
Santa Ana sucker	*Catostomus santaanae*	FT	SSC
southwestern willow flycatcher (nesting)	*Empidonax traillii extimus* (nesting)	FE	SE
unarmored threespine stickleback	*Gasterosteus aculeatus williamsoni*	FE	SE, FP
white-tailed kite (nesting)	*Elanus leucurus*	None	FP
southern rubber boa	*Charina umbratica*	None	ST
Townsend's big-eared bat	*Corynorhinus townsendii*	None	SC, SSC
Plants			
ash-gray paintbrush	*Castilleja cinerea*	FT	None
Big Bear Valley sandwort	*Eremogone ursina*	FT	None
bird-foot checkerbloom	*Sidalcea pedata*	FE	CE
California dandelion	*Taraxacum californicum*	FE	None
Cushenbury buckwheat	*Eriogonum ovalifolium* var. *vineum*	FE	None
Cushenbury milk-vetch	*Astragalus albens*	FE	None
Cushenbury oxytheca	*Acanthoscyphus parishii* var. *goodmaniana*	FE	None
Mojave tarplant	*Deinandra mohavensis*	None	CE
Parish's checkerbloom	*Sidalcea hickmanii* ssp. *parishii*	None	CR
Parish's daisy	*Erigeron parishii*	FT	None
San Bernardino blue grass	*Astragalus bernardinus*	None	None
San Bernardino Mountains bladderpod	*Physaria kingii* ssp. *bernardina*	FE	None
Santa Ana River woollystar	*Eriastrum densifolium* ssp. *sanctorum*	FE	CE
slender-horned spineflower	*Dodecahema leptoceras*	FE	CE
slender-petaled thelypodium	*Thelypodium stenopetalum*	FE	CE
southern mountain buckwheat	*Eriogonum kennedyi* var. *austromontanum*	FT	None

Table 7
Listed and Fully Protected Species in the Mountain Region

Common Name	Scientific Name	Federal Status	State Status
thread-leaved brodiaea	*Brodiaea filifolia*	FT	CE
triple-ribbed milk-vetch	*Astragalus tricarinatus*	FE	None

Notes:
FDL: federally delisted
FE: federally listed as endangered
FT: federally listed as threatened
FP: fully protected
SE: state listed as endangered
ST: state listed as threatened
SC: state candidate for listing
SSC: state species of special concern
CE: state listed as endangered (plant)
CR: state rare (plant)

5.2 Physical Conditions

Physical conditions play important roles in the distribution of biological resources. The following provides an overview of some key physical characteristics within the Mountain Region of San Bernardino County with primary features depicted on Figure 9, Geomorphic Features – Mountain Region.

5.2.1 Climate

Annual rainfall amounts for the San Bernardino Mountains can reach up to 40 inches in some areas, with the wettest months being November through March. Summers are relatively dry with few thunderstorms. In winter months, snow typically occurs above 3,000 feet amsl and is very common above 5,000 feet amsl. Average annual snowfall amounts in Big Bear Lake is 72.3 inches. Rainfall in this region is a crucial rain source for the regional streams and rivers that feeds the Santa Ana River. In the summer months, average high temperatures in Big Bear Lake are 81°F, with a low of 48°F. During the winter, average temperatures range between 47°F and 21°F (NOAA 2015). Annual rainfall in Big Bear Lake is 20.05 inches, with most of the precipitation occurring November through March.

5.2.2 Soils

The Mountain Region has a variety of soil types and is constantly undergoing change due to geologically active uplift and fault activity. The majority of the area contains shallow soils consisting primarily of decomposed granite and sandy loam (USDA 2015). An endemic feature of this area is the presence of the pebble plains, which is discussed in more detail below.

Pebble Plain

Pebble plain is a unique soil composition known to occur in the San Bernardino Mountains. Currently, there are at least 10 mapped pebble plain complexes in the vicinity of Big Bear and

Baldwin lakes (USFWS 2015b): Arrastre/Union Flat, Big Bear Lake, Broom Flat, Fawnskin, Gold Mountain, Holcomb Valley, North Baldwin Lake, Sawmill, South Baldwin Ridge/Erwin Lake, and Sugarloaf Ridge. These areas are the fragmented remains of a Pleistocene lake bed and are composed of discrete "islands" of clay soils covered with quartzite pebbles (71 FR 67712 et seq.). The combination of this rare soil series and the oscillating temperatures within the mountains results in unique habitat for plant species in the region (Krantz 1987). There are many rare plants endemic to this area, such as Big Bear Valley sandwort (*Eremogone ursina*), ash-grey paintbrush (*Castilleja cinerea*), southern mountain wild buckwheat (*Eriogonum kennedyi* var. *austromontanum*), Big Bear Valley woollypod (*Astragalus leucolobus*) and Parish's rockcress (*Boechera parishii*).

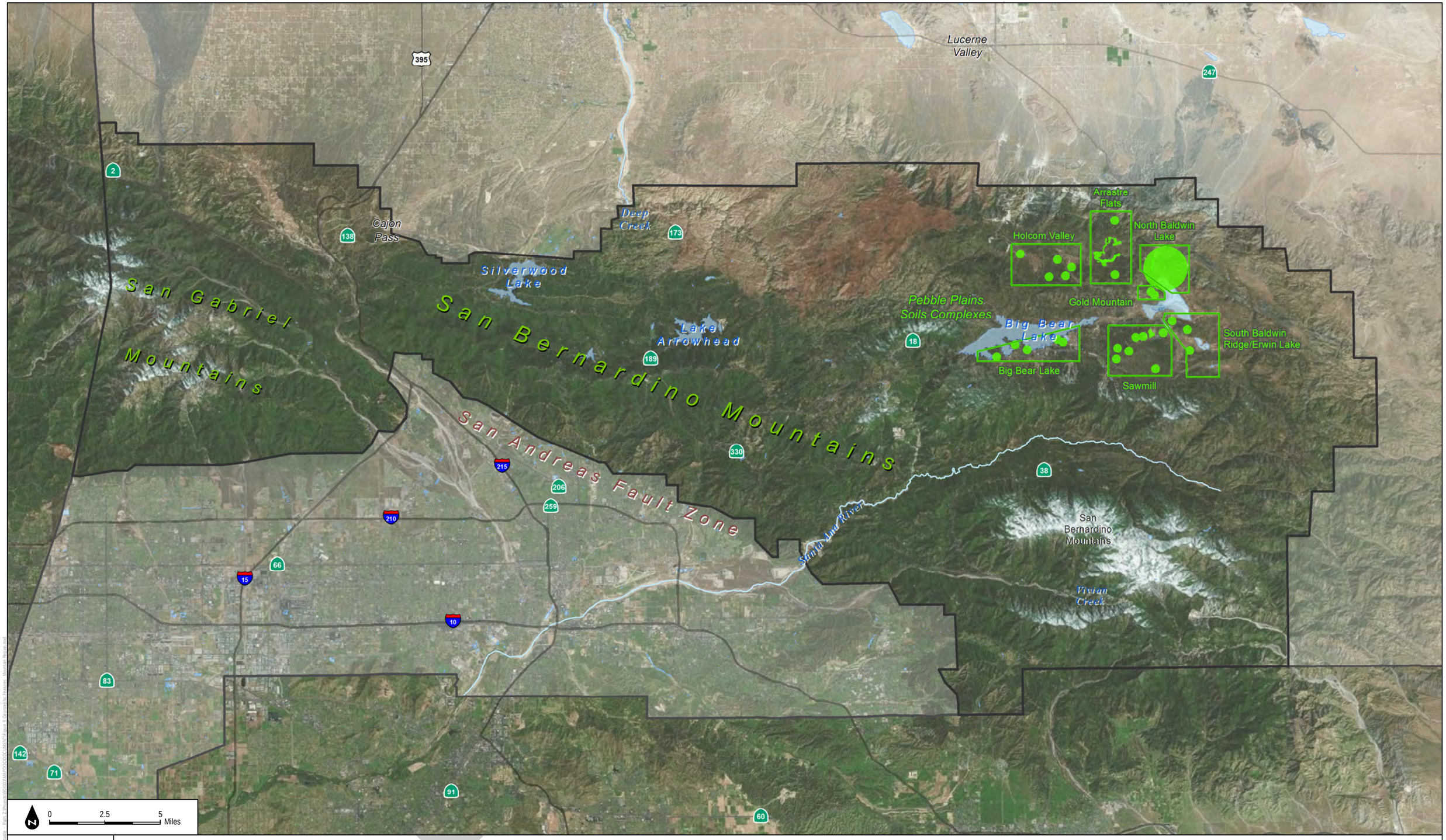
Carbonate Soils

Carbonate soils, or soils with higher alkalinity, can be found in various portions of the Mountain Region of San Bernardino County; most notably from White Mountain to Blackhawk Mountain, including the limestone cliffs of Cushenbury Canyon. These soils provide suitable habitat for numerous rare plant species including carbonate endemics such as Cushenbury buckwheat (*Eriogonum ovalifolium* var. *vineum*), Cushenbury milkvetch (*Astragalus albens*), Cushenbury oxytheca, San Bernardino Mountains bladderpod (*Lesquerella kingii* ssp. *bernardina*), and Parish's daisy (*Erigeron parishii*).

5.2.3 Topography and Geomorphology

The Mountain Region is composed of the San Bernardino Mountains, which are part of the Transverse Ranges of the Southern California mountain chain. The Mountain Region consists of steep mountainous terrain with multiple peaks exceeding 10,000 feet amsl. The range tops out at San Gorgonio Mountain with an elevation of 11,489 feet amsl. The mountains are extremely steep, with one of the deepest mountain passes in the United States, which exceeds the depth of the Grand Canyon by 2,000 feet.

The San Bernardino Mountains are bounded by a series of faults named the North-Frontal System (Miller 1987), with the mountain range interior traversing the Santa Ana faults. The southeastern and southwestern portions of the San Bernardino and San Gabriel Mountains are traversed by the San Andreas Fault Zone and bound the Santa Ana Basin to the north (USGS 2006). Both mountain ranges rise above 10,000 feet amsl and descend gradually to the Mojave Desert to the north. The Mountain Region is composed of steep canyons composed of unstable hillslope rock debris. This debris is constantly stripped away by slope failures and erosion. Debris sediment is then deposited on alluvial fan channels and surfaces (USGS 2006).



SOURCE: Bing Maps, 2016

FIGURE 9

Geomorphic Features - Mountain Region

DUDEK

San Bernardino Countywide Plan - Biological Resources

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5.2.4 Hydrology

Although there are smaller watersheds within the Mountain Region, most of the water flow including snow melt and natural seeps and springs subsidizes the Santa Ana and Mojave Watersheds. The southern and western portions of this region flow southerly and are part of the Santa Ana River watershed. The northern portion flows northerly into the Mojave River watershed. The Mountain Region also has several large lakes: Big Bear Lake, Lake Arrowhead, and Silverwood Lake.

In the Mountain Region, the south fork of the Santa Ana River is an intact riverine resource and a permanently flooded riverine wetland. Vivian Creek is a permanently flooded mountain wetland (Ferren et al. 1996). Deep Creek and Bear Creek are CDFW designated wild trout streams, and contain high quality riparian resources.

A substantial portion of the Mountain Region drains northerly to the Mojave River including Grass Valley Creek, Kinley Creek, Willow Creek, and Deep Creek.

The San Bernardino Mountains and foothill areas also support a number of natural springs or artesian wells that are important for a number of wildlife species, including spring snails and mule deer (*Odocoileus hemionus*). For mule deer, these densely vegetated springs are documented as supporting mule deer fawning areas.

Big Bear Lake

Big Bear Lake is a man-made lake that lies at an elevation of about 6,800 feet amsl and is fed by runoff from numerous creeks that drain the mountains and valley floor. Big Bear Lake is contained by Bear Valley Dam at the west end of the lake. Baldwin Lake, typically dry, lies east of Big Bear Lake at an elevation of about 6,700 feet amsl and receives occasional runoff from canyons to the northwest and creeks to the south. There are several other small natural lakes in the Baldwin Lake surface-water drainage basin (USGS 2012).

Lake Arrowhead

Lake Arrowhead is an artificial lake that lies at an elevation of approximately 5,123 feet. It provides tributary to Deep Creek and eventually the Mojave River. It collects runoff from peaks south of the lake, as well as from the California Aqueduct via its terminus in Hesperia.

Silverwood Lake

Silverwood Lake is a reservoir at the northern portion of the Mountain Region that feeds into the Mojave River which runs through the Desert Region of the County.

Deep Creek

Deep Creek is one of the most prominent tributaries to the Mojave River within the San Bernardino Mountains. It begins by collecting runoff from the peaks surrounding Arrowbear Lake before winding north past Lake Arrowhead. It then veers west and connects with the west fork of the Mojave River.

Grass Valley Creek

Grass Valley Creek originates from Grass Valley Lake which lies west of Lake Arrowhead. It flows northwest before connecting with the West Fork of the Mojave River.

Kinley Creek

Kinley Creek drains from Lake Arrowhead before traveling north to connect with Deep Creek, which in turn travels towards the Mojave River.

Willow Creek

Willow Creek is a tributary the West Fork of the Mojave River, first originating from Lake Arrowhead and traveling north before connecting with Deep Creek.

Vivian Creek

Vivian Creek collects runoff from the San Gorgonio Mountains and travels west through Mill Creek Canyon before connecting with the Santa Ana River.

Bear Creek

Bear Creek drains water from Big Bear Lake and is a major tributary to the Santa Ana River which runs through the Valley Region of San Bernardino County.

5.3 Biological Conditions

The following subsections provide a detailed description of the vegetation communities and land covers and special-status plant and wildlife species that occur within the Mountain Region of San Bernardino County.

5.3.1 Vegetation Communities and Land Covers

The following identifies the vegetation communities and land covers that have been mapped in the Mountain Region of San Bernardino County. Table 8 summarizes the vegetation communities located within the Mountain Region; detailed descriptions are provided in Appendix A. The geographic extent of the vegetation communities is depicted on Figure 10, Vegetation Communities and Land Covers – Mountain Region. The CALVEG categories were cross-walked with alliances from the Manual of California Vegetation (Sawyer et al. 2009). This listing and the associated sensitivity status of each alliance can be found in Appendix B.

Table 8.
Vegetation Communities and Other Land Covers
within the Mountain Region of San Bernardino County

	Acres within County Boundary	% within County Boundary	Acres Within County Jurisdiction	% within County Jurisdiction
Agriculture				
Agriculture	721.19	0.13%	699.99	0.13%
Orchard Agriculture	19.57	0.00%	18.63	0.00%
Pastures and Crop Agriculture	13.42	0.00%	13.42	0.00%
Subtotal	*754.18*	*0.14%*	*732.03*	*0.14%*
Alpine Scrub				
Alpine Mixed Scrub	17.82	0.00%	17.82	0.00%
Subtotal	*17.82*	*0.00%*	*17.82*	*0.00%*
Barren				
Barren	5,410.46	1.01%	5,406.72	1.03%
Subtotal	*5,410.46*	*1.01%*	*5,406.72*	*1.03%*
California Bay Forest and Woodland				
California Bay	9.53	0.00%	9.53	0.00%
Subtotal	*9.53*	*0.00%*	*9.53*	*0.00%*
Chenopod Scrub				
Saltbush	60.52	0.01%	60.52	0.01%
Subtotal	*60.52*	*0.01%*	*60.52*	*0.01%*
Coastal Montane Douglas-fir Forests and Woodlands				
Bigcone Douglas-Fir	13,006.59	2.43%	12,998.72	2.47%
Douglas-Fir - Ponderosa Pine	66.70	0.01%	66.70	0.01%
Subtotal	*13,073.29*	*2.44%*	*13,065.42*	*2.48%*
Coastal Scrub				
Buckwheat	803.93	0.15%	755.86	0.14%
California Sagebrush	1,931.30	0.36%	1,358.19	0.26%
Central and south coastal California seral scrub	1.07	0.00%	1.07	0.00%

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Agriculture				
Agriculture	721.19	0.13%	699.99	0.13%
Orchard Agriculture	19.57	0.00%	18.63	0.00%
Pastures and Crop Agriculture	13.42	0.00%	13.42	0.00%
Subtotal	*754.18*	*0.14%*	*732.03*	*0.14%*
Alpine Scrub				
Alpine Mixed Scrub	17.82	0.00%	17.82	0.00%
Subtotal	*17.82*	*0.00%*	*17.82*	*0.00%*
Barren				
Barren	5,410.46	1.01%	5,406.72	1.03%
Subtotal	*5,410.46*	*1.01%*	*5,406.72*	*1.03%*
California Bay Forest and Woodland				
California Bay	9.53	0.00%	9.53	0.00%
Subtotal	*9.53*	*0.00%*	*9.53*	*0.00%*
Chenopod Scrub				
Saltbush	60.52	0.01%	60.52	0.01%
Subtotal	*60.52*	*0.01%*	*60.52*	*0.01%*
Coastal Montane Douglas-fir Forests and Woodlands				
Bigcone Douglas-Fir	13,006.59	2.43%	12,998.72	2.47%
Douglas-Fir - Ponderosa Pine	66.70	0.01%	66.70	0.01%
Subtotal	*13,073.29*	*2.44%*	*13,065.42*	*2.48%*
Central and South Coastal Californian coastal sage scrub	15.47	0.00%	15.47	0.00%
Encelia Scrub	616.95	0.12%	545.20	0.10%
Subtotal	*3,368.72*	*0.63%*	*2,675.78*	*0.51%*
Desert Bedrock Cliff and Outcrop				
North American warm desert bedrock cliff and outcrop	0.40	0.00%	0.40	0.00%
Subtotal	*0.40*	*0.00%*	*0.40*	*0.00%*
Desert Dry Wash Woodland				
Sonoran-Coloradan semi-desert wash woodland/scrub	0.09	0.00%	0.09	0.00%
Subtotal	*0.09*	*0.00%*	*0.09*	*0.00%*
Developed and Disturbed Areas				
Developed and Disturbed Areas	205.64	0.04%	129.49	0.02%
Non-Native/Ornamental Grass	28.87	0.01%	18.35	0.00%
Non-Native/Ornamental Grass	117.88	0.02%	117.88	0.02%
Non-Native/Ornamental Hardwood	11.94	0.00%	11.94	0.00%

Table 8.
Vegetation Communities and Other Land Covers
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Pastures and Crop Agriculture	13.42	0.00%	13.42	0.00%
Subtotal	*754.18*	*0.14%*	*732.03*	*0.14%*
Alpine Scrub				
Alpine Mixed Scrub	17.82	0.00%	17.82	0.00%
Subtotal	*17.82*	*0.00%*	*17.82*	*0.00%*
Barren				
Barren	5,410.46	1.01%	5,406.72	1.03%
Subtotal	*5,410.46*	*1.01%*	*5,406.72*	*1.03%*
California Bay Forest and Woodland				
California Bay	9.53	0.00%	9.53	0.00%
Subtotal	*9.53*	*0.00%*	*9.53*	*0.00%*
Chenopod Scrub				
Saltbush	60.52	0.01%	60.52	0.01%
Subtotal	*60.52*	*0.01%*	*60.52*	*0.01%*
Coastal Montane Douglas-fir Forests and Woodlands				
Bigcone Douglas-Fir	13,006.59	2.43%	12,998.72	2.47%
Douglas-Fir - Ponderosa Pine	66.70	0.01%	66.70	0.01%
Subtotal	*13,073.29*	*2.44%*	*13,065.42*	*2.48%*
Rural	0.18	0.00%	0.18	0.00%
Urban/Developed (General)	21,890.36	4.09%	18,964.64	3.60%
Urban-related Bare Soil	1391.55	0.26%	1,310.59	0.25%
Subtotal	*23,646.42*	*4.42%*	*20,553.07*	*3.90%*
Eucalyptus Naturalized Forest				
Eucalyptus	10.73	0.00%	0.00	0.00%
Subtotal	*10.73*	*0.00%*	*0.00*	*0.00%*
Forest and Woodland dominated by Fir				
Mixed Conifer - Fir	52,494.68	9.81%	52,395.60	9.94%
White Fir	253.71	0.05%	253.71	0.05%
Subtotal	*52,748.40*	*9.85%*	*52,649.31*	*9.99%*
Great Basin Scrub				
Basin Sagebrush	3307.01	0.62%	3,296.86	0.63%
Bitterbrush - Sagebrush	9.60	0.00%	9.60	0.00%

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Subtotal	*754.18*	*0.14%*	*732.03*	*0.14%*
Alpine Scrub				
Alpine Mixed Scrub	17.82	0.00%	17.82	0.00%
Subtotal	*17.82*	*0.00%*	*17.82*	*0.00%*
Barren				
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Subtotal	*9.53*	*0.00%*	*9.53*	*0.00%*
Chenopod Scrub				
Saltbush	60.52	0.01%	60.52	0.01%
Subtotal	*60.52*	*0.01%*	*60.52*	*0.01%*
Coastal Montane Douglas-fir Forests and Woodlands				
Bigcone Douglas-Fir	13,006.59	2.43%	12,998.72	2.47%
Douglas-Fir - Ponderosa Pine	66.70	0.01%	66.70	0.01%
Subtotal	*13,073.29*	*2.44%*	*13,065.42*	*2.48%*
Blackbush	1750.08	0.33%	1,750.08	0.33%
Great Basin - Desert Mixed Scrub	29.86	0.01%	29.86	0.01%
Great Basin Mixed Scrub	11617.60	2.17%	11,617.60	2.20%
Intermontane deep or well-drained soil scrub	0.12	0.00%	0.12	0.00%
Intermontane seral shrubland	18.75	0.00%	18.75	0.00%
Inter-Mountain Dry Shrubland and Grassland	44.26	0.01%	44.26	0.01%
Intermountain Mountain Big Sagebrush Shrubland and steppe	38.04	0.01%	38.04	0.01%
Mojave and Great Basin upper bajada and toeslope	4.80	0.00%	4.80	0.00%
Rabbitbrush	9803.47	1.83%	9,803.44	1.86%
Subtotal	*26623.60*	*4.97%*	*26,613.41*	*5.05%*
Joshua Tree Woodland				
Joshua Tree	958.05	0.18%	958.05	0.18%
Mojave and Great Basin upper bajada and toeslope	2.59	0.00%	2.59	0.00%

Table 8.
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Subtotal	*754.18*	*0.14%*	*732.03*	*0.14%*
Alpine Scrub				
Alpine Mixed Scrub	17.82	0.00%	17.82	0.00%
Subtotal	*17.82*	*0.00%*	*17.82*	*0.00%*
Barren				
Barren	5,410.46	1.01%	5,406.72	1.03%
Subtotal	*5,410.46*	*1.01%*	*5,406.72*	*1.03%*
California Bay Forest and Woodland				
California Bay	9.53	0.00%	9.53	0.00%
Subtotal	*9.53*	*0.00%*	*9.53*	*0.00%*
Chenopod Scrub				
Saltbush	60.52	0.01%	60.52	0.01%
Subtotal	*60.52*	*0.01%*	*60.52*	*0.01%*
Coastal Montane Douglas-fir Forests and Woodlands				
Bigcone Douglas-Fir	13,006.59	2.43%	12,998.72	2.47%
Douglas-Fir - Ponderosa Pine	66.70	0.01%	66.70	0.01%
Subtotal	*13,073.29*	*2.44%*	*13,065.42*	*2.48%*
Subtotal	*960.63*	*0.18%*	*960.63*	*0.18%*
Juniper Woodlands				
California Juniper (shrub)	66.45	0.01%	66.45	0.01%
Great Basin Pinyon - Juniper Woodland	224.03	0.04%	223.28	0.04%
Western Juniper	616.97	0.12%	616.97	0.12%
Subtotal	*907.45*	*0.17%*	*906.70*	*0.17%*
Meadows				
Wet Meadows	414.45	0.08%	359.19	0.07%
Subtotal	*414.45*	*0.08%*	*359.19*	*0.07%*
Native Grasslands				
Alkaline Mixed Grasses	404.17	0.08%	404.17	0.08%
Subtotal	*404.17*	*0.08%*	*404.17*	*0.08%*
Non-Native Grassland				
Annual Grasses and Forbs	1,564.34	0.29%	1,416.58	0.27%

Table 8.
Vegetation Communities and Other Land Covers
within the Mountain Region of San Bernardino County

	Acres within County Boundary	% within County Boundary	Acres Within County Jurisdiction	% within County Jurisdiction
Agriculture				
Agriculture	721.19	0.13%	699.99	0.13%
Orchard Agriculture	19.57	0.00%	18.63	0.00%
Pastures and Crop Agriculture	13.42	0.00%	13.42	0.00%
Subtotal	*754.18*	*0.14%*	*732.03*	*0.14%*
Alpine Scrub				
Alpine Mixed Scrub	17.82	0.00%	17.82	0.00%
Subtotal	*17.82*	*0.00%*	*17.82*	*0.00%*
Barren				
Barren	5,410.46	1.01%	5,406.72	1.03%
Subtotal	*5,410.46*	*1.01%*	*5,406.72*	*1.03%*
California Bay Forest and Woodland				
California Bay	9.53	0.00%	9.53	0.00%
Subtotal	*9.53*	*0.00%*	*9.53*	*0.00%*
Chenopod Scrub				
Saltbush	60.52	0.01%	60.52	0.01%
Subtotal	*60.52*	*0.01%*	*60.52*	*0.01%*
Coastal Montane Douglas-fir Forests and Woodlands				
Bigcone Douglas-Fir	13,006.59	2.43%	12,998.72	2.47%
Douglas-Fir - Ponderosa Pine	66.70	0.01%	66.70	0.01%
Subtotal	*13,073.29*	*2.44%*	*13,065.42*	*2.48%*
California Annual and Perennial Grassland	190.65	0.04%	190.65	0.04%
Perennial Grasses and Forbs	32.71	0.01%	32.71	0.01%
Subtotal	*1,787.70*	*0.33%*	*1,639.95*	*0.31%*
Oak Woodlands and Forests				
Black Oak	7,592.62	1.42%	7,584.25	1.44%
Californian broadleaf forest and woodland	0.10	0.00%	0.10	0.00%
Canyon Live Oak	29,812.92	5.57%	29,654.28	5.62%
Coast Live Oak	256.85	0.05%	206.50	0.04%
Coastal Mixed Hardwood	1.26	0.00%	1.26	0.00%
Interior Live Oak	516.50	0.10%	516.50	0.10%
Interior Mixed Hardwood	666.53	0.12%	666.53	0.13%
Subtotal	*38,846.78*	*7.26%*	*38,629.41*	*7.33%*
Pine Forests and Woodland				
Californian montane conifer forest	439.88	0.08%	439.67	0.08%

Table 8.
Vegetation Communities and Other Land Covers
within the Mountain Region of San Bernardino County

	Acres within County Boundary	% within County Boundary	Acres Within County Jurisdiction	% within County Jurisdiction
Agriculture				
Agriculture	721.19	0.13%	699.99	0.13%
Orchard Agriculture	19.57	0.00%	18.63	0.00%
Pastures and Crop Agriculture	13.42	0.00%	13.42	0.00%
Subtotal	*754.18*	*0.14%*	*732.03*	*0.14%*
Alpine Scrub				
Alpine Mixed Scrub	17.82	0.00%	17.82	0.00%
Subtotal	*17.82*	*0.00%*	*17.82*	*0.00%*
Barren				
Barren	5,410.46	1.01%	5,406.72	1.03%
Subtotal	*5,410.46*	*1.01%*	*5,406.72*	*1.03%*
California Bay Forest and Woodland				
California Bay	9.53	0.00%	9.53	0.00%
Subtotal	*9.53*	*0.00%*	*9.53*	*0.00%*
Chenopod Scrub				
Saltbush	60.52	0.01%	60.52	0.01%
Subtotal	*60.52*	*0.01%*	*60.52*	*0.01%*
Coastal Montane Douglas-fir Forests and Woodlands				
Bigcone Douglas-Fir	13,006.59	2.43%	12,998.72	2.47%
Douglas-Fir - Ponderosa Pine	66.70	0.01%	66.70	0.01%
Subtotal	*13,073.29*	*2.44%*	*13,065.42*	*2.48%*
Coulter Pine	7,129.31	1.33%	7,129.21	1.35%
Eastside Pine	28,876.54	5.39%	28,646.80	5.43%
Great Basin Pinyon - Juniper Woodland	10.89	0.00%	10.89	0.00%
Jeffrey Pine	13,564.08	2.53%	13,505.13	2.56%
Knobcone Pine	1,054.18	0.20%	1,047.90	0.20%
Limber Pine	947.19	0.18%	947.19	0.18%
Lodgepole Pine	6.68	0.00%	6.68	0.00%
Mixed Conifer - Pine	35,499.99	6.63%	35,499.99	6.73%
Ponderosa Pine	2,949.94	0.55%	2,949.94	0.56%
Singleleaf Pinyon Pine	46,352.93	8.66%	46,352.93	8.79%
Subalpine Conifers	8,454.92	1.58%	8,454.92	1.60%
Subtotal	*145,286.54*	*27.14%*	*144,991.25*	*27.50%*
Riparian Forest and Woodland				
Black Cottonwood	4.70	0.00%	4.70	0.00%

Table 8.
Vegetation Communities and Other Land Covers
within the Mountain Region of San Bernardino County

	Acres within County Boundary	% within County Boundary	Acres Within County Jurisdiction	% within County Jurisdiction
Agriculture				
Agriculture	721.19	0.13%	699.99	0.13%
Orchard Agriculture	19.57	0.00%	18.63	0.00%
Pastures and Crop Agriculture	13.42	0.00%	13.42	0.00%
Subtotal	*754.18*	*0.14%*	*732.03*	*0.14%*
Alpine Scrub				
Alpine Mixed Scrub	17.82	0.00%	17.82	0.00%
Subtotal	*17.82*	*0.00%*	*17.82*	*0.00%*
Barren				
Barren	5,410.46	1.01%	5,406.72	1.03%
Subtotal	*5,410.46*	*1.01%*	*5,406.72*	*1.03%*
California Bay Forest and Woodland				
California Bay	9.53	0.00%	9.53	0.00%
Subtotal	*9.53*	*0.00%*	*9.53*	*0.00%*
Chenopod Scrub				
Saltbush	60.52	0.01%	60.52	0.01%
Subtotal	*60.52*	*0.01%*	*60.52*	*0.01%*
Coastal Montane Douglas-fir Forests and Woodlands				
Bigcone Douglas-Fir	13,006.59	2.43%	12,998.72	2.47%
Douglas-Fir - Ponderosa Pine	66.70	0.01%	66.70	0.01%
Subtotal	*13,073.29*	*2.44%*	*13,065.42*	*2.48%*
California Sycamore	104.34	0.02%	93.55	0.02%
Fremont Cottonwood	134.74	0.03%	132.56	0.03%
Riparian Mixed Hardwood	827.15	0.15%	778.08	0.15%
Southwestern North American riparian evergreen and deciduous woodland	6.12	0.00%	6.12	0.00%
White Alder	450.61	0.08%	450.61	0.09%
Subtotal	*1527.66*	*0.29%*	*1,465.62*	*0.28%*
Riparian Scrub				
Baccharis (Riparian)	43.90	0.01%	43.90	0.01%
Riparian Mixed Shrub	7.73	0.00%	7.73	0.00%
Southwestern North American riparian/wash scrub	54.93	0.01%	54.93	0.01%
Willow	173.40	0.03%	150.49	0.03%
Willow (Shrub)	359.51	0.07%	346.27	0.07%
Subtotal	*639.47*	*0.12%*	*603.33*	*0.11%*

Table 8.
Vegetation Communities and Other Land Covers
within the Mountain Region of San Bernardino County

	Acres within County Boundary	% within County Boundary	Acres Within County Jurisdiction	% within County Jurisdiction
Agriculture				
Agriculture	721.19	0.13%	699.99	0.13%
Orchard Agriculture	19.57	0.00%	18.63	0.00%
Pastures and Crop Agriculture	13.42	0.00%	13.42	0.00%
Subtotal	*754.18*	*0.14%*	*732.03*	*0.14%*
Alpine Scrub				
Alpine Mixed Scrub	17.82	0.00%	17.82	0.00%
Subtotal	*17.82*	*0.00%*	*17.82*	*0.00%*
Barren				
Barren	5,410.46	1.01%	5,406.72	1.03%
Subtotal	*5,410.46*	*1.01%*	*5,406.72*	*1.03%*
California Bay Forest and Woodland				
California Bay	9.53	0.00%	9.53	0.00%
Subtotal	*9.53*	*0.00%*	*9.53*	*0.00%*
Chenopod Scrub				
Saltbush	60.52	0.01%	60.52	0.01%
Subtotal	*60.52*	*0.01%*	*60.52*	*0.01%*
Coastal Montane Douglas-fir Forests and Woodlands				
Bigcone Douglas-Fir	13,006.59	2.43%	12,998.72	2.47%
Douglas-Fir - Ponderosa Pine	66.70	0.01%	66.70	0.01%
Subtotal	*13,073.29*	*2.44%*	*13,065.42*	*2.48%*
Riversidean Alluvial Fan Sage Scrub				
Riversidean Alluvial Scrub	876.83	0.16%	764.14	0.14%
Scalebroom	1,373.06	0.26%	1,370.09	0.26%
Subtotal	*2,249.89*	*0.42%*	*2,134.22*	*0.40%*
Sonoran and Mojavean Desert Scrub				
Creosote Bush	12.47	0.00%	12.47	0.00%
Desert Buckwheat	1,237.27	0.23%	1,237.22	0.23%
Desert Mixed Shrub	4,250.35	0.79%	4,250.35	0.81%
Intermontane deep or well-drained soil scrub	0.30	0.00%	0.30	0.00%
Lower Bajada and Fan Mojavean - Sonoran desert scrub	209.06	0.04%	209.06	0.04%
Mojave and Great Basin upper bajada and toeslope	0.91	0.00%	0.91	0.00%
Mojavean semi-desert wash scrub	0.38	0.00%	0.38	0.00%
Subtotal	*5,710.74*	*1.07%*	*5,710.69*	*1.08%*

Table 8.
Vegetation Communities and Other Land Covers
within the Mountain Region of San Bernardino County

	Acres within County Boundary	% within County Boundary	Acres Within County Jurisdiction	% within County Jurisdiction
Agriculture				
Agriculture	721.19	0.13%	699.99	0.13%
Orchard Agriculture	19.57	0.00%	18.63	0.00%
Pastures and Crop Agriculture	13.42	0.00%	13.42	0.00%
Subtotal	*754.18*	*0.14%*	*732.03*	*0.14%*
Alpine Scrub				
Alpine Mixed Scrub	17.82	0.00%	17.82	0.00%
Subtotal	*17.82*	*0.00%*	*17.82*	*0.00%*
Barren				
Barren	5,410.46	1.01%	5,406.72	1.03%
Subtotal	*5,410.46*	*1.01%*	*5,406.72*	*1.03%*
California Bay Forest and Woodland				
California Bay	9.53	0.00%	9.53	0.00%
Subtotal	*9.53*	*0.00%*	*9.53*	*0.00%*
Chenopod Scrub				
Saltbush	60.52	0.01%	60.52	0.01%
Subtotal	*60.52*	*0.01%*	*60.52*	*0.01%*
Coastal Montane Douglas-fir Forests and Woodlands				
Bigcone Douglas-Fir	13,006.59	2.43%	12,998.72	2.47%
Douglas-Fir - Ponderosa Pine	66.70	0.01%	66.70	0.01%
Subtotal	*13,073.29*	*2.44%*	*13,065.42*	*2.48%*
Undifferentiated Chaparral Scrub				
Birchleaf Mountain Mahogany	3,971.40	0.74%	3,971.40	0.75%
Californian mesic chaparral	47.01	0.01%	46.41	0.01%
Californian xeric chaparral	124.30	0.02%	119.59	0.02%
Ceanothus Mixed Chaparral	14,231.79	2.66%	13,822.68	2.62%
Chamise	15,096.43	2.82%	14,940.97	2.83%
Curlleaf Mountain Mahogany	1,950.10	0.36%	1,936.99	0.37%
Curlleaf Mountain Mahogany (tree)	119.48	0.02%	119.48	0.02%
Great Basin - Mixed Chaparral Transition	8,418.15	1.57%	8,417.86	1.60%
Lower Montane Mixed Chaparral	80,201.36	14.98%	78,486.67	14.89%
Manzanita Chaparral	1,480.23	0.28%	1,480.23	0.28%
Scrub Oak	48,990.87	9.15%	48,648.67	9.23%
Semi-Desert Chaparral	8,890.06	1.66%	8,888.85	1.69%
Soft Scrub Mixed Chaparral	4,413.48	0.82%	4,031.92	0.76%

Table 8.
Vegetation Communities and Other Land Covers within the Mountain Region of San Bernardino County

	Acres within County Boundary	% within County Boundary	Acres Within County Jurisdiction	% within County Jurisdiction
Agriculture				
Agriculture	721.19	0.13%	699.99	0.13%
Orchard Agriculture	19.57	0.00%	18.63	0.00%
Pastures and Crop Agriculture	13.42	0.00%	13.42	0.00%
Subtotal	*754.18*	*0.14%*	*732.03*	*0.14%*
Alpine Scrub				
Alpine Mixed Scrub	17.82	0.00%	17.82	0.00%
Subtotal	*17.82*	*0.00%*	*17.82*	*0.00%*
Barren				
Barren	5,410.46	1.01%	5,406.72	1.03%
Subtotal	*5,410.46*	*1.01%*	*5,406.72*	*1.03%*
California Bay Forest and Woodland				
California Bay	9.53	0.00%	9.53	0.00%
Subtotal	*9.53*	*0.00%*	*9.53*	*0.00%*
Chenopod Scrub				
Saltbush	60.52	0.01%	60.52	0.01%
Subtotal	*60.52*	*0.01%*	*60.52*	*0.01%*
Coastal Montane Douglas-fir Forests and Woodlands				
Bigcone Douglas-Fir	13,006.59	2.43%	12,998.72	2.47%
Douglas-Fir - Ponderosa Pine	66.70	0.01%	66.70	0.01%
Subtotal	*13,073.29*	*2.44%*	*13,065.42*	*2.48%*
Sumac Shrub	300.31	0.06%	293.12	0.06%
Tucker / Muller Scrub Oak	903.69	0.17%	903.69	0.17%
Upper Montane Mixed Chaparral	14,783.86	2.76%	14,773.56	2.80%
Western Mojave and Western Sonoran Desert borderland chaparral	15.19	0.00%	15.19	0.00%
Subtotal	*203,937.71*	*38.09%*	*200,897.30*	*38.10%*
Waterway				
Agriculture Pond or Water Feature	0.89	0.00%	0.89	0.00%
Intermittent Lake or Pond	7.18	0.00%	7.18	0.00%
Intermittent Stream Channel	1329.93	0.25%	1,288.71	0.24%
Madrean Warm Semi-Desert Wash Woodland/Scrub	0.41	0.00%	0.41	0.00%
Open Water	12.94	0.00%	12.94	0.00%
Perennial Lake or Pond	5307.88	0.99%	5,142.71	0.98%
Reservoir	9.43	0.00%	9.43	0.00%

Table 8.
Vegetation Communities and Other Land Covers
within the Mountain Region of San Bernardino County

	Acres within County Boundary	% within County Boundary	Acres Within County Jurisdiction	% within County Jurisdiction
Agriculture				
Agriculture	721.19	0.13%	699.99	0.13%
Orchard Agriculture	19.57	0.00%	18.63	0.00%
Pastures and Crop Agriculture	13.42	0.00%	13.42	0.00%
Subtotal	*754.18*	*0.14%*	*732.03*	*0.14%*
Alpine Scrub				
Alpine Mixed Scrub	17.82	0.00%	17.82	0.00%
Subtotal	*17.82*	*0.00%*	*17.82*	*0.00%*
Barren				
Barren	5,410.46	1.01%	5,406.72	1.03%
Subtotal	*5,410.46*	*1.01%*	*5,406.72*	*1.03%*
California Bay Forest and Woodland				
California Bay	9.53	0.00%	9.53	0.00%
Subtotal	*9.53*	*0.00%*	*9.53*	*0.00%*
Chenopod Scrub				
Saltbush	60.52	0.01%	60.52	0.01%
Subtotal	*60.52*	*0.01%*	*60.52*	*0.01%*
Coastal Montane Douglas-fir Forests and Woodlands				
Bigcone Douglas-Fir	13,006.59	2.43%	12,998.72	2.47%
Douglas-Fir - Ponderosa Pine	66.70	0.01%	66.70	0.01%
Subtotal	*13,073.29*	*2.44%*	*13,065.42*	*2.48%*
Riparian	0.37	0.00%	0.37	0.00%
Urban or Industrial Impoundment	100.99	0.02%	100.99	0.02%
Water (General)	209.82	0.04%	207.80	0.04%
Subtotal	*6979.83*	*1.30%*	*6,771.42*	*1.28%*
Grand Total	535,377.06		527,257.89	

Note: Table updated March 2019

Agriculture

Agricultural land composes approximately 0.1% (731.3 acres) of the Mountain Region and includes the following agricultural types: agriculture (general), orchard agriculture, and pastures and crop agriculture (Table 8). Agricultural lands are not considered a sensitive biological resource (CDFG 2010).

HESPERIA

BIG BEAR LAKE

SAN BERNARDINO

HIGHLAND

COLTON

LOMA LINDA

REDLANDS

GRAND TERRACE

YUCAIPA

County Ecological Regions

- Mountain Region

GeneralCommunity

- Agriculture
- Alpine Scrub
- Barren
- California Bay Forest and Woodland
- Chenopod Scrub
- Coastal Montane Douglas-fir Forests and Woodlands
- Coastal Scrub
- Desert Dry Wash Woodland
- Developed and Disturbed Areas
- Eucalyptus Naturalized Forest
- Forest and Woodland dominated by Fir
- Great Basin Scrub
- Joshua Tree Woodland
- Juniper Woodlands
- Meadows
- Native Grasslands
- Non-Native Grassland
- Oak Woodlands and Forests
- Pine Forests and Woodland
- Riparian Forest and Woodland
- Riparian Scrub
- Riversidean Alluvial Fan Sage Scrub
- Sonoran and Mojavean Desert Scrub
- Undifferentiated Chaparral Scrub
- Waterway
- CountyPlanningRegions

N

0 2.5 5 Miles

SOURCE: Bing Maps, 2015; CDFG, 2015

DUDEK

FIGURE 10

Vegetation Communities and Land Covers - Mountain Region

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Alpine Scrub

The alpine scrub general community composes approximately <0.1% (17.8 acres) of the Mountain Region and includes one alliance: alpine mixed scrub (Table 8). Alpine mixed scrub includes a mixture of grasses, herbaceous plants, and often prostrate subshrubs. Rounded, low-profile xerophytic plant forms ("cushion plants") such as southern alpine buckwheat (*Eriogonum kennedyi* var. *alpigenum*) occur with other subshrubs and taller shrubs such as sulphur-flower buckwheat (*Eriogonum umbellatum*), ocean spray bush (*Holodiscus discolor* var. *microphyllus*), wax currant (*Ribes cereum*), gooseberry currant (*R. montigenum*), purple mountainheath (*Phyllodoce breweri*), red elderberry (*Sambucus racemosa*), and shrub willows such as Geyer willow (*Salix geyeriana*) and Lemmon's willow (*S. lemmonii*). Perennials such as Southern California draba (*Draba corrugata*), silky raillardella (*Raillardella argentea*), Parish's catchfly (*Silene parishii*), oneseed pussypaws (*Calyptridium monospermum*), alpine shooting star (*Primula tetrandra*), Eschscholtz's buttercup (*Ranunculus eschscholtzii* var. *oxynotus*), and beautiful hulsea (*Hulsea vestita*), as well as grasses and graminoid species such as western needlegrass (*Stipa occidentalis*), squirreltail (*Elymus elymoides*), rushes, and sedges, may also occur. This community is considered sensitive in the County due to its limited extent and unique habitat value.

Barren

Barren lands compose approximately 0.1% (5,446.0 acres) of the Mountain Region (Table 8). Barren lands include landscapes that are generally devoid of vegetation and may include exposed bedrock, cliffs, interior sandy or gypsum areas. Barren lands may include quarries and mine sites. Barren lands are not considered a sensitive biological resource (CDFG 2010).

California Bay Forest and Woodland

The California bay forest and woodland general community composes approximately <0.1% (9.5 acres) of the Mountain Region and includes one alliance: California bay (Table 8). This community is dominated by California bay (*Umbellularia californica*) and may have other codominant species such as coast live oak (*Quercus agrifolia*) and canyon live oak as well as shrub species including chamise, species of *Ceanothus*, and interior live oak shrubs (*Q. chrysolepis* var. *nana*, *Q. wislizenii* var. *frutescens*). California bay forest is considered a sensitive biological resource (CDFG 2010).

Chenopod Scrub

The chenopod scrub general community composes approximately <0.1% (62.2 acres) of the Mountain Region and includes one alliance: saltbush (Table 8). This community is dominated by fourwing saltbush (*Atriplex canescens*), with common associated species including creosote bush, brittlebush (*Encelia farinosa*), and mesquite (*Prosopis* spp.). The fourwing saltbush alliance is not considered a sensitive biological resource (CDFG 2010).

Coastal Montane Douglas-Fir Forests and Woodlands

The coastal montane Douglas-fir forests and woodlands general community composes approximately 2.4% (13,229.0 acres) of the Mountain Region and includes two alliances: bigcone Douglas-fir and Douglas-fir–ponderosa pine (Table 8). This community is dominated by bigcone Douglas-fir or a combination of bigcone Douglas-fir and Ponderosa pine (*Pinus ponderosa*). The bigcone Douglas-fir alliance is considered a sensitive biological resource (CDFG 2010).

Coastal Scrub

The coastal scrub general community composes approximately 0.6% (3,512.9 acres) of the Mountain Region and includes three alliances: buckwheat, California sagebrush, and encelia scrub (Table 8). This community may be dominated by Eastern Mojave buckwheat, with or without the presence of white sage, California sagebrush scrub, or brittlebush (*Encelia farinosa*, *E. actoni*). These alliances are not considered sensitive biological resources (CDFG 2010).

Developed and Disturbed Areas

Developed and disturbed areas compose approximately 4.8% (26,819.1 acres) of the Mountain Region and include five types: non-native/ornamental conifer, non-native/ornamental grass, non-native ornamental hardwood, urban/developed (general), and urban-related bare soil (Table 8). CDFG does not consider developed and disturbed areas a sensitive biological resource (CDFG 2010).

Eucalyptus Naturalized Forest

Eucalyptus naturalized forest composes approximately <0.1% (10.7 acres) of the Mountain Region (Table 8). These are dense, pure stands of multiple species of eucalyptus, including blue gum (*Eucalyptus globulus*), red gum (*E. camaldulensis*), silver gum (*E. polyanthemos*), and forest red gum (*E. tereticornis*). Naturalization has occurred in disturbed areas, augmented by the ability of this genus to resprout after disturbance. This community is typically adjacent to urban areas and non-native grasses. CDFG does not consider eucalyptus naturalized forest a sensitive biological resource (CDFG 2010).

Forest and Woodland Dominated by Fir

This general community composes approximately 9.4% (52,867.6 acres) of the Mountain Region and includes two alliances: mixed conifer–fir and white fir (Table 8). White fir (*Abies concolor*), composes a prominent portion of the conifer canopy cover, with Jeffrey pine (*Pinus jeffreyi*) and/or Sierra lodgepole pine (*P. contorta* ssp. *murrayana*). Black oak (*Quercus kelloggii*) may occur at lower elevations, below about 5,600 feet amsl, and it is also associated with sugar pine (*P. lambertiana*) on sunnier sites and with Coulter pine (*P. coulteri*) at lower elevations. These alliances are not considered sensitive biological resources (CDFG 2010).

Great Basin Scrub

The Great Basin scrub general community composes approximately 6.1% (34,371.2 acres) of the Mountain Region and includes six alliances: basin sagebrush, bitterbrush–sagebrush, blackbrush, Great Basin–desert mixed scrub, Great Basin mixed scrub, and rabbitbrush (Table 8). The bitterbrush–sagebrush alliance is considered a sensitive biological resource (CDFG 2010).

Joshua Tree Woodland

This general community composes approximately 0.2% (987.6 acres) of the Mountain Region (Table 8). This community consists of Joshua trees with an open to intermittent tree canopy over an open to intermittent ground layer that may include perennial grasses and seasonal annuals (Sawyer et al. 2009). Joshua trees are a protected resource under the Native Desert Plant Protection section of the existing Development Code and are considered a sensitive community by the County.

Juniper Woodlands

The juniper woodlands general community composes approximately 0.1% (741.0 acres) of the Mountain Region and includes two alliances: California juniper (shrub) and western juniper (Table 8). This community includes California juniper as the dominant or co-dominant small tree in the canopy with a sparse or grassy ground layer. This community occurs on alluvial fans, valley bottoms, slopes, ridges and valleys that contain porous, rocky, coarse, sandy, or silty soils that are often shallow. These alliances are not considered sensitive biological resources (CDFG 2010).

Meadows

This general community composes approximately <0.3% (419.2 acres) of the Mountain Region and includes one alliance: wet meadows (Table 8). This community includes a dense growth of sedges, rushes, perennial grasses such as mat muhly (*Muhlenbergia richardsonis*) and San

Bernardino blue grass (*Poa atropurpurea*), and annual and perennial herbaceous species such as false hellebore (*Veratrum californicum*), clovers (*Trifolium variegatum*, *T. wormskioldii*), and seep monkeyflower (*Mimulus guttatus*). This community is considered sensitive in the County due to its limited extent and unique habitat value.

Native Grasslands

The native grasslands general community composes approximately <0.1% (413.8 acres) of the Mountain Region and includes one alliance: alkaline mixed grasses (Table 8). This community is considered sensitive in the County due to its limited extent and unique habitat value.

Non-Native Grassland

The non-native grassland general community composes approximately 0.3% (1,777.3 acres) of the Mountain Region and includes two alliances: annual grasses and forbs and perennial grasses and forbs (Table 8). Many non-native grasses occur within this alliance, including species of wild oats (*Avena* spp.), various bromes (*Bromus* spp.), foxtail fescue (*Vulpia myuros*), filaree (*Erodium* spp.), and Kentucky bluegrass (*Poa pratensis*). Perennial grasses such as slender meadow foxtail (*Alopecurus myosuroides*) and tall fescue (*Festuca arundinacea*) may be present with non-native forbs such as strawberry clover (*Trifolium fragiferum*). Some native forbs such as southern mule-ears (*Wyethia ovata*) may be found as well. Some of these areas are currently being used for livestock pasture. Non-native grasslands are not considered a sensitive biological resource (CDFG 2010).

Oak Woodlands and Forests

This general community composes approximately 7.0% (39,248.6 acres) of the Mountain Region and includes six alliances: black oak, canyon live oak, coast live oak, coastal mixed hardwood, interior live oak, and interior mixed hardwood (Table 8). Oak woodlands and forest have oak trees as the dominant or co-dominant tree with a continuous to open canopy and a sparse to intermittent shrub canopy, and sparse or grassy ground layer. This community is considered sensitive in the County due to its limited extent and unique habitat value.

Pine Forests and Woodland

The pine forests and woodland general community composes approximately 27.1% (152,252.7 acres) of the Mountain Region and includes 10 alliances: Coulter pine, eastside pine, Jeffrey pine, knobcone pine, limber pine, lodgepole pine, mixed conifer–pine, Ponderosa pine, singleleaf pinyon, and subalpine conifers (Table 8). The limber pine alliance is considered a sensitive biological resource (CDFG 2010).

Riparian Forest and Woodland

This general community composes approximately 0.3% (1,574.1 acres) of the Mountain Region and includes five alliances: black cottonwood, California sycamore, Fremont cottonwood, riparian mixed hardwood, and white alder (Table 8). The black cottonwood, California sycamore, and Fremont cottonwood alliances are all considered sensitive biological resources (CDFG 2010).

Riparian Scrub

The riparian scrub general community composes approximately 0.1% (685.9 acres) of the Mountain Region and includes four alliances: baccharis (riparian), riparian mixed shrub, willow, and willow (shrub) (Table 8). Some willow alliances are considered sensitive biological resources (CDFG 2010); however, this community is more widespread and regenerates quickly; therefore, is not considered a sensitive community in the County.

Riversidean Alluvial Fan Sage Scrub

The Riversidean alluvial fan sage scrub general community composes approximately 0.5% (2,599.7) of the Mountain Region and includes two alliances: Riversidean alluvial scrub and scalebroom (Table 8). This community is identified by a dominance of scalebroom. Co-dominants may include Eastern Mojave buckwheat, California sagebrush, white sage, *Encelia* spp., *Opuntia* spp., chaparral yucca, *Rhus* spp., and California juniper. Along the desert washes, associated species may include brittlebush, creosote bush, chaparral yucca, rabbitbrush (*Chrysothamnus nauseosus*), big sagebrush (*Artemisia tridentata*), Fremont cottonwood, and desert willow. Scalebroom scrub is a sensitive community (CDFG 2010) and Riversidean alluvial fan sage scrub is considered a sensitive community in the County.

Sonoran and Mojavean Desert Scrub

The Sonoran and Mojavean desert scrub general community composes approximately 1.2% (6,717.3 acres) of the Mountain Region and includes three alliances: creosote bush, desert buckwheat, and desert mixed shrub (Table 8). These alliances are not considered sensitive biological resources (CDFG 2010).

Undifferentiated Chaparral Scrub

The undifferentiated chaparral scrub general community composes approximately 37.4% (210,327.1 acres) of the Mountain Region and includes 13 alliances: birchleaf mountain mahogany, ceanothus mixed chaparral, chamise, curlleaf mountain mahogany, curlleaf

mountain mahogany (tree), lower montane mixed chaparral, manzanita chaparral, scrub oak, semi-desert chaparral, soft scrub mixed chaparral, sumac shrub, Tucker/Muller scrub oak, and upper montane mixed chaparral (Table 8). These alliances are not considered sensitive biological resources (CDFG 2010).

Waterway

Waterways compose approximately 1.2% (7,000.7 acres) of the Mountain Region and include seven various types: agriculture pond or water feature, intermittent lake or pond, intermittent stream channel, perennial lake or pond, reservoir, urban or industrial impoundment, and water (general) (Table 8). Waterways are a land cover and are not considered a sensitive vegetation community; however, waterways often provide valuable water resources which would be considered sensitive on a case by case basis.

5.3.2 Special-Status Species

Within the Mountain Region, the USFWS has designated critical habitat for a number of plant and wildlife species. Table 9 summarizes the acreages of critical habitat in the Mountain Region and the locations are depicted on Figure 11, Critical Habitat – Mountain Region.

Table 9
Acres of Critical Habitat in the Mountain Region

Critical Habitat Species		Total acres in Mountain Region	Acres within County Jurisdiction in Mountain Region
Common Name	*Scientific Name*		
Plants			
ash-gray paintbrush	*Castilleja cinerea*	1,768	1,756
Big Bear Valley sandwort	*Eremogone ursina*	1,412	1,401
California dandelion	*Taraxacum californicum*	1,956	1,945
Cushenbury buckwheat	*Eriogonum ovalifolium* var. *vineum*	4,497	4,497
Cushenbury milk-vetch	*Astragalus albens*	2,232	2,232
Cushenbury oxytheca	*Acanthoscyphus parishii* var. *goodmaniana*	1,887	1,887
Parish's daisy	*Erigeron parishii*	1,603	1,603
San Bernardino blue grass	*Poa atropurpurea*	1,416	1,405
San Bernardino Mountains bladderpod	*Physaria kingii* ssp. *bernardina*	1,026	1,022
southern mountain buckwheat	*Eriogonum kennedyi* var. *austromontanum*	903	892
Wildlife			
arroyo toad	*Anaxyrus californicus*	2,914	2,621
mountain yellow-legged frog	*Rana muscosa*	2,290	2,138

Table 9
Acres of Critical Habitat in the Mountain Region

Critical Habitat Species		Total acres in Mountain Region	Acres within County Jurisdiction in Mountain Region
Common Name	*Scientific Name*		
Santa Ana sucker	*Catostomus santaanae*	226	214
San Bernardino kangaroo rat	*Dipodomys merriami parvus*	1,257	1,129
southwestern willow flycatcher	*Empidonax traillii extimus*	4,524	4,453

Source: USFWS 2015a.

Special-Status Species Occurrence Summary

Appendix C provides a summary of the 138 special-status species that were documented within the Mountain Region of San Bernardino County, and includes information on status, distribution, and habitat associations.

A total of 91 special-status plant species have been documented, including 16 species that are federally listed as endangered or threatened, 6 that are listed as state endangered or rare, and 73 non-listed species. The 17 listed plant species that are known to occur in the Mountain Region are ash-gray paintbrush (FT), Big Bear Valley sandwort (FT), bird-foot checkerbloom (*Sidalcea pedata*) (FE, SE), California dandelion (FE), Cushenbury buckwheat (FE), Cushenbury milk-vetch (FE), Cushenbury oxytheca (FE), Nevin's barberry (*Berberis nevinii*) (FE, CE), Parish's daisy (FT), San Bernardino blue grass (FE), San Bernardino Mountains bladderpod (*Physaria kingii* ssp. *bernardina*) (FE), slender-petaled thelypodium (*Thelypodium stenopetalum*) (FE, SE), southern mountain buckwheat (*Eriogonum kennedyi* var. *austromontanum*) (FT), thread-leaved brodiaea (*Brodiaea filifolia*) (FT, SE), triple-ribbed milk-vetch (FE), Mojave tarplant (SE), and Parish's checkerbloom (*Sidalcea hickmanii* ssp. *parishii*) (California Rare).

A total of 45 special-status animal species have been documented, including 7 species that are federally endangered or threatened, 8 that are state endangered or threatened, 1 that is a state threatened candidate, 6 that are state fully protected, and 30 that are non-listed species. The 7 listed species known to occur in the Mountain Region are arroyo toad (FE), mountain yellow-legged frog (*Rana muscosa*) (FE, SE), least Bell's vireo (nesting) (FE, SE), southwestern willow flycatcher (nesting) (FE, SE), unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*) (FE, SE), southern rubber boa (*Charina umbratica*) (ST), and bald eagle (nesting and wintering) (SE). The state threatened candidate species is Townsend's big-eared bat. The Santa Ana sucker (FT) has been extirpated from the creeks of the Mountain Region, but planning through the Upper Santa Ana River HCP is underway to reintroduce this species to some of its former range.

5.4 Habitat Linkages and Wildlife Corridors

California Essential Habitat Connectivity Project

Within the Mountain Region of San Bernardino County, the California Essential Habitat Connectivity Project identifies the connections between the San Gabriel Mountains, San Bernardino Mountains, and the Little San Bernardino Mountains (Figure 12, Habitat Connectivity – Mountain Region).

South Coast Missing Linkages Project

A summary of the corridors identified as a result of this effort are below and detailed descriptions can be found in South Coast Wildlands (2008).

San Gabriel–San Bernardino Connection. This linkage provides connectivity between two expansive areas of the Angeles and San Bernardino National Forests and includes three roughly parallel swaths through the Cajon Wash and Pass to accommodate diverse species and ecosystem functions. It partially overlaps the Mountain Region of San Bernardino County. This linkage provides habitat for special-status species wildlife such as American badger. I-15 and SR-138 are the major transportation routes that cross the linkage and pose the most substantial barriers to wildlife movement. There are currently three bridges along I-15 that accommodate animal movement.

San Bernardino–Granite Connection. This linkage comprises two main swaths that connect the San Bernardino National Forest with extensive natural lands in the Granite, Ord, and Rodman Mountains, but occurs primarily in the Desert Region.

Los Angeles County

San Bernardino County

San Bernardino County

Riverside County

- County of San Bernardino
- County of San Bernardino Jurisdiction

Federally Designated Critical Habitat

- Arroyo Toad (*Anaxyrus californicus*)
- Ash-Gray Paintbrush (*Castilleja cinerea*)
- Bear Valley Sandwort (*Arenaria ursina*)
- California Daisy (*Taraxacum californicum*)
- Cushenbury Buckwheat (*Eriogonum ovalifolium*)
- Cushenbury Milk-Vetch (*Astragalus albens*)
- Cushenbury Oxytheca (*Acanthoscyphus parishii* var. *goodmaniana*)
- Mountain Yellow-Legged Frog (*Rana muscosa*)
- Parish's Daisy (*Erigeron parishii*)
- Santa Ana Sucker (*Catostomus santaanae*)
- San Bernardino Blue Grass (*Poa atropurpurea*)
- San Bernardino Kangaroo Rat (*Dipodomys parvus*)
- San Bernardino Mountains Bladderpod (*Physaria kingii* ssp. *bernardina*)
- Southern Mountain Buckwheat (*Eriogonum kennedyi*)
- Southwestern Willow Flycatcher (*Empidonax traillii extimus*)
- Thread-Leaved Brodiaea (*Brodiaea filifolia*)

N

0 2.5 5 Miles

SOURCE: Bing Maps, 2016

DUDEK

FIGURE 11

Critical Habitat - Mountain Region

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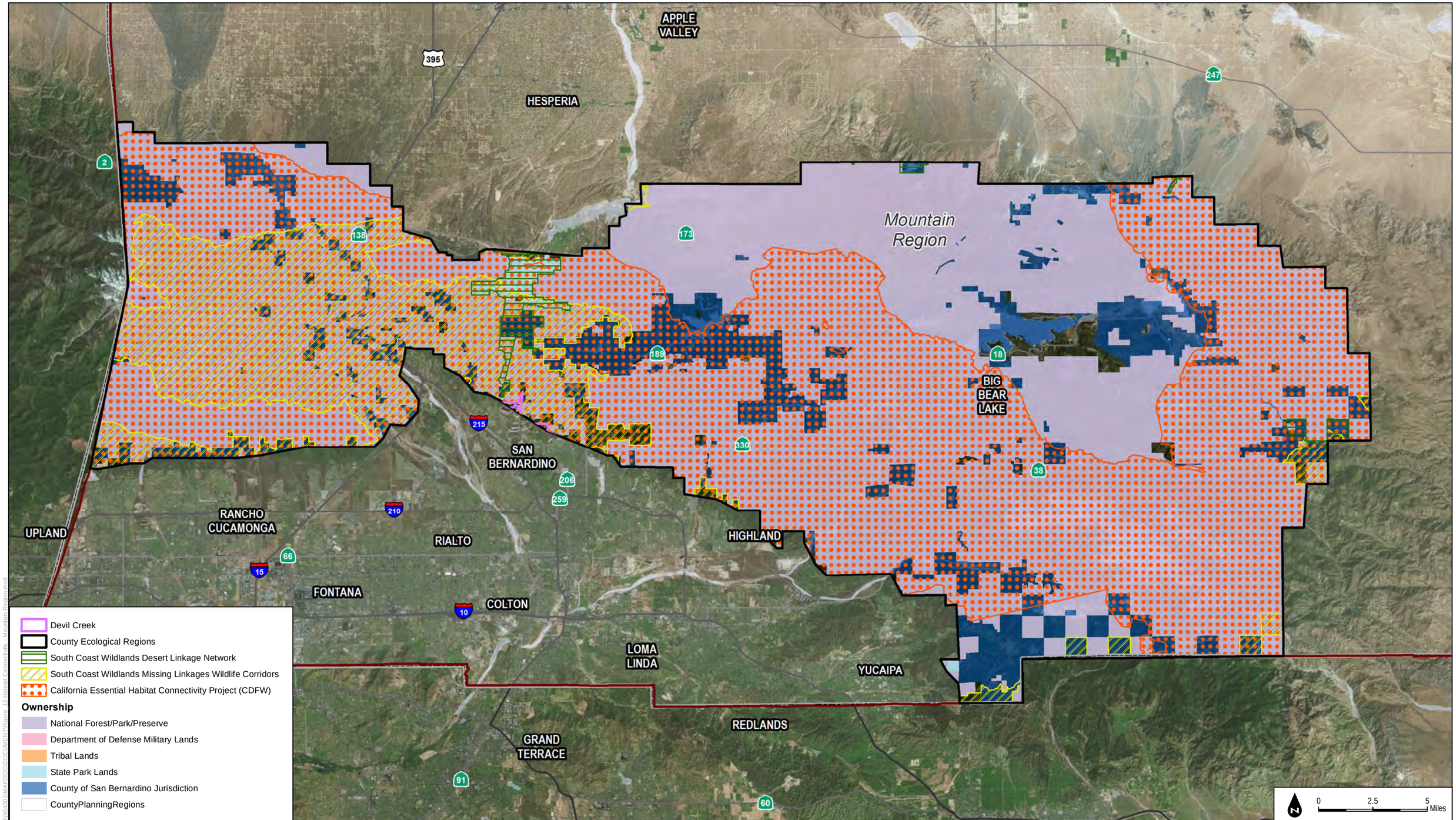

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SOURCE: BING Maps 2016; USFWS 2016; BLM 2014; South Coast Wildlands 2012; CDFW 2010

FIGURE 12

Habitat Connectivity - Mountain Region

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San Bernardino–Little San Bernardino Connection. This linkage connects San Bernardino National Forest with Joshua Tree National Park and includes five major swaths. It partially overlaps the Mountain Region of San Bernardino County. Species expected to use this linkage include Nelson's bighorn sheep, cougar, bobcat, and gray fox. SR-62 is the major transportation route that crosses the linkage.

San Bernardino–San Jacinto Connection. This linkage comprises five swaths and provides a connection between the San Bernardino and San Jacinto Mountains. It partially occurs within San Bernardino County and the Mountain Region, and does not intersect any major transportation corridors. Species expected to use this linkage include bobcat.

California Desert Connectivity Project

Penrod et al. (2012) discus a multitude of corridors in San Bernardino County that link existing blocks of habitat, including the San Bernardino Mountains to habitat blocks in the Desert Region. This includes linking Pipes Canyon and Little Morongo Creek/Canyon located west of Pioneertown with the Bighorn Mountains and areas further to the north in the Desert Region, such as Homestead Valley further to the Marine Corps Air Ground Combat Center at Twentynine Palms. SR-247 is the major transportation corridor that is crossed.

San Bernardino County Open Space Overlay Map

Figure 13, Existing San Bernardino County Open Space Overlay – Mountain Region, and Table 10 show the features within the San Bernardino County open space overlay map that overlap the Mountain Region within County jurisdiction.

Table 10
San Bernardino County Open Space Overlay Features
in the Mountain Region that Occur within County Jurisdiction

Feature	Type	Acres	Description
Banning Canyon	Wildlife Corridor	508.5	This wildlife corridor follows the length of Banning Canyon from approximately Burnt Canyon to the national forest boundary, ultimately connecting with the South Fork of Whitewater River (Corridor 32). This area contains riparian habitat and a bear population, which use the canyon as a dispersion corridor.
Cajon Wash	Wildlife Corridor	1,957.4	This includes a large area along the Cajon Wash from the confluence with Lytle Creek northward to Mormon Rocks. It supports a wash with associated alluvial fan sage scrub habitat, as well as a stream and associated riparian habitat further upstream. Cajon Wash supports important processes and habitat for species such as San Bernardino kangaroo rat, Santa Ana River woollystar, slender-horned spineflower, cactus wren (*Campylorhynchus brunneicapillus*), and Santa Ana speckled dace. Historically, it supported populations of arroyo toad.

Table 10
San Bernardino County Open Space Overlay Features in the Mountain Region that Occur within County Jurisdiction

Feature	Type	Acres	Description
Cajon Wash Tributary	Wildlife Corridor	76.9	This wildlife corridor, a tributary to Cajon Creek, extends through portions of Sections 22 and 2, R6WT3N, and contains riparian habitat. Private inholdings exist in this area.
City Creek	Wildlife Corridor	190.2	This wildlife corridor follows the alignment of City Creek from its headwaters to the confluence with the Santa Ana River. City Creek contains important riparian and alluvial fan habitat and a link between the national forest and the Santa Ana River. Special-status species that occur in this area include the Santa Ana River woollystar, San Bernardino kangaroo rat, Santa Ana speckled dace, and the mountain yellow-legged frog.
Cleghorn Canyon	Wildlife Corridor	83.5	This corridor extends westward from the Cajon Wash along the alignment of the Cleghorn Canyon, ultimately connecting with the Mojave River Headwaters.
Crowder Canyon	Wildlife Corridor	189.6	This wildlife corridor follows the alignment of Crowder Canyon northward from the junction with Cajon Creek to approximately Summit, and contains riparian habitat and potential habitat for the endangered least Bell's vireo.
Day Canyon	Wildlife Corridor	54.5	Extends northward from the boundary of the national forest along the alignment of Day Canyon where a perennial stream and associated riparian areas occur. This area should extend southward to include associated alluvial fans to maintain a connection for wildlife species, such as mule deer, between lower elevations and higher elevations found within the national forest and existing open space areas, such as Day Creek Preserve and Etiwanda Preserve.
Deep Creek	Wildlife Corridor	804.3	This wildlife corridor originates at approximately 6,200 feet amsl and drops about 3,000 feet in its 22-mile course before flowing into the East Fork Mojave River. It contains riparian habitat, and is occupied by the arroyo toad to approximately 4,300 feet amsl.
Dispersion Corridor	Wildlife Corridor	1,941.9	This wildlife corridor located generally between the urbanized areas of Lake Arrowhead and Running Springs. This area is important as the last major undeveloped portion of the mountain rim, and provides crucial habitat area and dispersion for animals moving between the northern and southern exposure of the national forest.
Dispersion Corridor	Wildlife Corridor	1,118.1	This wildlife corridor is located between the Pisgah Peak area and the boundary of the national forest. This area is important as an area to maintain wildlife dispersion between the Pisgah Peak area and the national forest.
East Etiwanda	Wildlife Corridor	253.2	This wildlife corridor includes the southern portion of Etiwanda Canyon, north of the national forest boundary, where private inholdings exist. The canyon contains a stream and associated riparian habitat. This area should extend southward to include associated alluvial fans to maintain a connection for wildlife species, such as mule deer, between lower elevations and higher elevations found within the national forest and existing open space areas, such as the Etiwanda Preserve.
Grass Valley Creek	Wildlife Corridor	918.7	This wildlife corridor follows the alignment of Grass Valley Creek from the national forest to its junction with the Mojave River. This area contains riparian habitat and serves as wildlife corridor to and from the national forest.

Table 10
San Bernardino County Open Space Overlay Features in the Mountain Region that Occur within County Jurisdiction

Feature	Type	Acres	Description
			It supports habitat for southern rubber boa, California spotted owl (*Strix occidentalis occidentalis*), and San Bernardino flying squirrel (*Glaucomys sabrinus californicus*).
Little Horsethief Canyon	Wildlife Corridor	142.0	This wildlife corridor follows the alignment of Little Horsethief Canyon from Section R6WT3N to the junction with the Mojave River. This is one of the few locations in San Bernardino County occupied by arroyo toad. It also supports important riparian habitat and provides an important linkage to the Mojave River.
Little San Gorgonio	Wildlife Corridor	797.3	This wildlife corridor follows the alignment of Little San Gorgonio Creek from the Riverside County line to the national forest, contains riparian habitat, and contains Pisgah Peak. Open space should be maintained in this corridor to preserve habitat values and a wildlife linkage.
Lone Pine Canyon	Wildlife Corridor	822.5	This wildlife corridor follows the alignment of the Lone Pine Canyon northward from Blue Gut to Clyde Ranch, and contains riparian in its lower half. Deer live in and move through the canyon. This area should be maintained both for its habitat values and as part of a large wildlife linkage to and from the national forest and other open space areas.
Lytle Creek	Wildlife Corridor	512.8	This wildlife corridor follows the alignment of Lytle Creek from the Lytle Creek Gatehouse-Dam, north to the boundary of the national forest, and continuing northward to approximately Miller Narrows. It supports a wash with associated alluvial fan sage scrub habitat, as well as a stream and associated riparian habitat further upstream. Lytle Creek supports important processes and habitat for species such as San Bernardino kangaroo rat, Santa Ana River woollystar, and cactus wren.
Middle Fork Lytle Creek	Wildlife Corridor	49.1	This wildlife corridor follows the alignment of the Middle Fork of Lytle Creek from Miller Narrows northward, an area which contains a stream and associated riparian habitat.
Mill Creek	Wildlife Corridor	1,778.2	This wildlife corridor follows the alignment of Mill Creek from Forest Falls to its confluence with the Santa Ana River. Mill Creek supports riparian and alluvial fan habitat. Special-status species known to occur here include southwestern willow flycatcher and San Bernardino kangaroo rat.
Mojave River	Wildlife Corridor	0.2	This wildlife corridor follows the alignment of the Mojave River from Lake Silverwood to Hesperia. The Mojave River is the major perennial river in the Desert Region, and is an area of extreme biological importance, containing rare desert riparian habitat (including habitat that supports arroyo toad, least Bell's vireo, southwestern willow flycatcher, Mojave river vole, yellow-breasted chat, and summer tanager).
Mojave River Headwaters	Wildlife Corridor	181.3	This wildlife corridor follows the alignment of the Mojave River headwaters from approximately Cleghorn Pass to Lake Silverwood. This area contains riparian habitat, and is used by deer.
North Fork Lytle Creek	Wildlife Corridor	327.2	This wildlife corridor extends northward from Miller Narrows to approximately Chalk Peak. This area contains a stream and associated riparian habitat.

Table 10
San Bernardino County Open Space Overlay Features in the Mountain Region that Occur within County Jurisdiction

Feature	Type	Acres	Description
Pipes Canyon	Wildlife Corridor	480.5	This corridor is located along the alignment of Pipes Canyon and Pipes Wash north of Little Morongo Canyon. This corridor contains important wildlife and riparian habitat particularly on the desert side of the mountains.
Santa Ana River	Wildlife Corridor	1,430.0	This includes the mountain portion of the Santa Ana River within San Bernardino County. In its upper reaches, the river supports wild trout and historically Santa Ana sucker.
Sleepy Creek	Wildlife Corridor	164.7	This corridor follows the alignment of Sleepy Creek within the national forest. Sleepy Creek contains important riparian habitat on the desert side of the mountains.
South Fork Lytle Creek	Wildlife Corridor	49.4	This wildlife corridor follows the alignment of the South Fork of Lytle Creek northward from Miller Narrows into the national forest, and contains riparian habitat.
South Fork Whitewater River	Wildlife Corridor	1,290.9	This corridor follows the alignment of the South Fork of the Whitewater River from approximately Raywood Flat to the national forest boundary. This area provides riparian habitat and supports Nelson's bighorn sheep.
Strawberry Creek	Wildlife Corridor	159.5	This wildlife corridor follows the alignment of Strawberry Creek from approximately the City of San Bernardino northward to the national forest and ultimately connects across the national forest to Grass Valley Creek. This area contains important riparian habitat and historically supported Santa Ana speckled dace. Substantial private ownership occurs along the entire length.
Waterman Canyon	Wildlife Corridor	326.4	This wildlife corridor follows the alignment of Waterman Canyon northward from the city of San Bernardino into the national forest, and contains riparian habitat, as well as a good habitat values for deer.
Baldwin Lake	Policy Area	1,200.4	The North Baldwin Ecological Reserve, owned and managed by CDFG, and the surrounding National Forest System lands lie near the northwest shore of Baldwin Lake at about 7,000 feet amsl. Baldwin Lake provides vernal wet meadow and pebble plain habitat, which supports a number of special-status plant species, as well as endemic butterfly species.
Big Bear Lake Watershed	Policy Area	7,617.6	This area includes the entire watershed of Big Bear Lake, and contains a number of specialized habitat areas, which support a large number of endangered plants and animals (as well as commonly occurring mountain species).
Cajon Pass	Policy Area	158.6	This is the area generally within the Cajon Pass area north of Devore to approximately Mormon Rocks. The Cajon Pass area separates the Angeles and San Bernardino National Forest, and is in an area which animals must cross to travel between forests. This area also contains riparian and alluvial fan sage scrub habitat. It is contiguous with downstream areas occupied by San Bernardino kangaroo rat and provides what may be an important elevation gradient.
Holcomb Valley	Policy Area	591.5	This area is located in the Holcomb Valley, which is part of the Big Bear Lake watershed. Holcomb Valley contains several examples of mountain habitat unique to this area, including pebble plains, which support a variety of endangered species. Habitat values should be maintained, potentially controlling development prevent damage to important habitat areas.

Table 10
San Bernardino County Open Space Overlay Features
in the Mountain Region that Occur within County Jurisdiction

Feature	Type	Acres	Description
Lake Arrowhead	Policy Area	2,302.9	This includes the environs of Lake Arrowhead, which is used as a seasonal perching area by the endangered bald eagle. Substantial private ownership and extensive urbanization have occurred in the area around the lake. Open space objectives for this area include maintaining perching sites and habitat for the bald eagle and habitat values for other species.
Lake Silverwood	Policy Area	7.5	This area encompasses the Lake Silverwood area, which is used as a seasonal perching area by the bald eagle and is part of the overall Mojave River wildlife linkage. This area should be preserved to maintain perching sites for the bald eagle, and habitat values for other species found here.
Limestone Deposits	Policy Area	2,481.8	This encompasses an area of limestone deposits on the northern exposure of the San Bernardino Mountains, roughly from White Mountain to Blackhawk Mountain. This area provides habitat for Nelson's bighorn sheep. The limestone deposits support plants unique to this area.
Pisgah Peak	Policy Area	1,693.8	This area is centered Pisgah Peak and include portions of Sections 33, 34, 35, R1WT1S, and Sections 2, 3, 4, R1WT2S. This area consists of a small mountain range, which supports a diversity of wildlife species, including large mammals. Habitat values here should be maintained.
Shay Meadow	Policy Area	302.9	This area located east of Big Bear and north of the Woodlands area. Shay Meadows is an example of rare wet meadow habitat in the mountain, and supports a variety of endangered plants and animals, including the unarmored threespine stickleback. Sticklebacks currently occupy three isolated ponds in the Shay Creek vicinity: Shay Pond and its satellite pond at Shay Meadows, Sugarloaf Pond, and Juniper Springs (USFWS 2009). Sugarloaf Pond and Juniper Springs occur entirely within San Bernardino National Forest lands and therefore benefit from some habitat protection. The major portion of Shay Creek is located on private land in-holdings within the boundaries of the forest. Current threats to Shay Pond and the surrounding wet-meadows habitat include encroachment by emergent vegetation, loss of natural hydrological regime, decreased water quality, unmanaged use by humans and livestock, and vandalism
Spotted Owl Habitat	Policy Area	2,632.9	This includes of old-growth forest which provide habitat suitable for the southern spotted owl and flying squirrel among other species, and generally occurs around Jobs Peak, Cedarpines Park, Valley of Enchantment, Crestline, and Lake Gregory.

5.5 Protected and Wilderness Areas

Blocks of public/government lands in the Mountain Region of San Bernardino County that afford varying degrees of protection for biological resources are described briefly in this subsection and shown on Figure 14, Conservation and Open Space Areas – Mountain Region.

Sand to Snow National Monument

The 154,000-acre Sand to Snow National Monument was designated in February 2016 and extends from BLM lands on the desert floor up to the San Gorgonio Wilderness on the San Bernardino National Forest. A total of 71,000 acres occur in the San Bernardino National Forest and 83,000 acres on BLM lands. Within the monument boundary, approximately 101,000 acres are managed as Wilderness. This monument has a wide range of ecosystems that occur in the Mountain Region of San Bernardino County, including riparian forests, freshwater marshes, meadows, chaparral, and alpine conifer forests. This monument plays an integral role in the San Bernardino–Little San Bernardino Connection, as well as the San Bernardino–San Jacinto Connection.

San Bernardino National Forest

The San Bernardino National Forest is managed by USFS and is composed of three Ranger Districts, two of which are in San Bernardino County: Mountaintop Ranger District and the Front County Ranger District. In San Bernardino County, the San Bernardino National Forest has four designated Wilderness Areas ("where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain ... which is protected and managed to preserve its natural condition." (Wilderness Act 1964)):

- Bighorn Mountain Wilderness (11,800 acres), located northeast of Big Bear Lake in the Mountaintop Ranger District.
- Cucamonga Wilderness (8,581 acres), located east of Mount Baldy in the Front Country Ranger District
- San Gorgonio Wilderness (56,722 acres), located east of Redlands in the Front Country Ranger District
- Sheep Mountain Wilderness (2,401 acres), located south of Wrightwood in the Front Country Ranger District

Lucerne Valley
Cajon Pass
Deep Creek
Silverwood Lake
Lake Arrowhead
Pebble Plains
Big Bear Lake
San Gabriel Mountains
San Bernardino Mountains
San Andreas Fault Zone
Santa Ana River
San Bernardino Mountains
Vivian Creek
0 2.5 5 Miles
County of San Bernardino Jurisdiction
Existing Open Space
Buffers
Open Space Policy Area
Wildlife Corridors

SOURCE: Bing Maps, 2016

FIGURE 13
Existing San Bernardino County Open Space Overlay - Mountain Region

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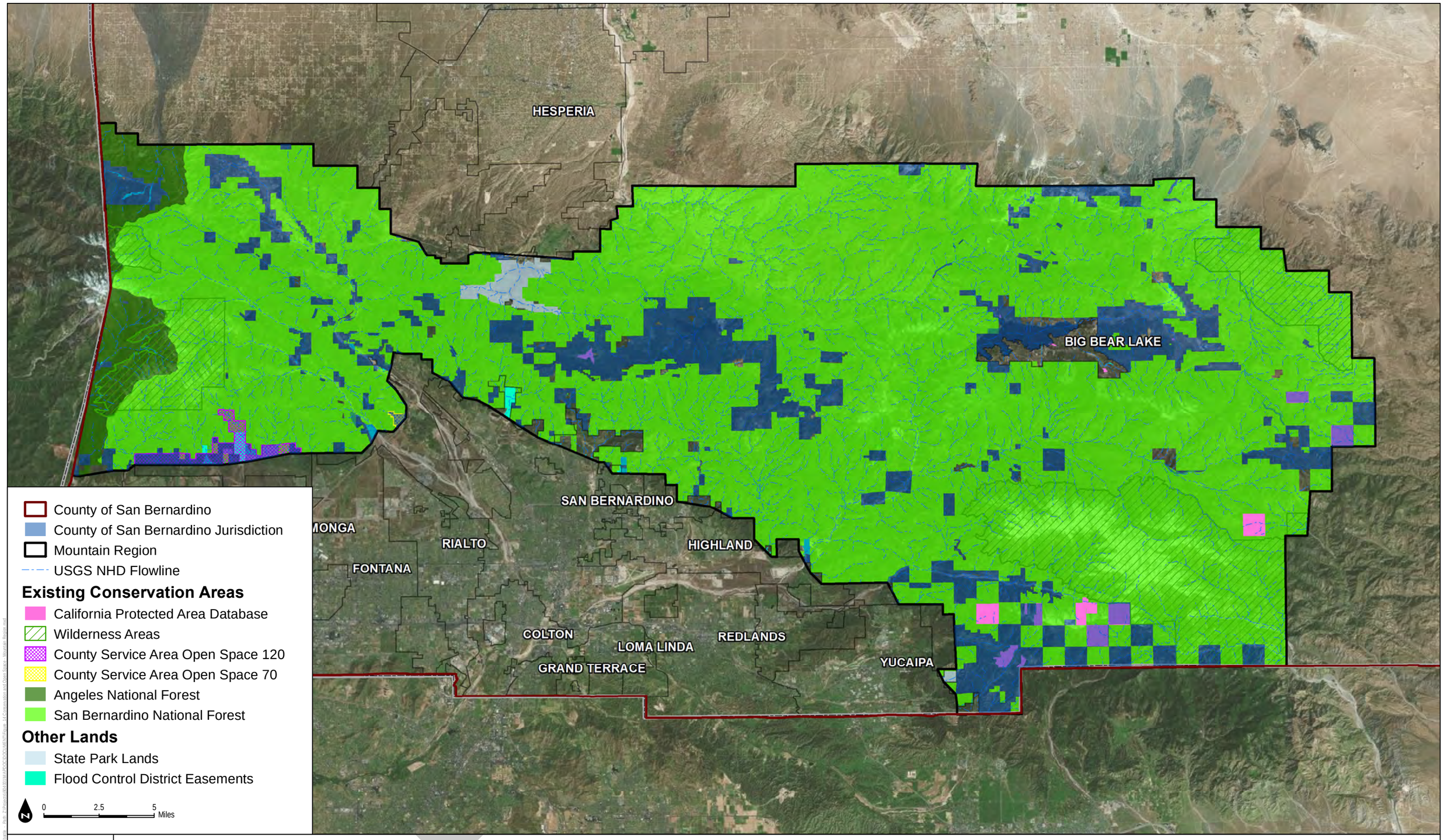

SOURCE: Bing Maps, 2016; CPAD 2014; USGS, 2012

FIGURE 14

Conservation and Open Space Areas - Mountain Region

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6 EXISTING CONDITIONS—VALLEY REGION

6.1 Valley Region – Executive Summary

The Valley Region is composed of a diverse geography including valleys and foothills. The inland valleys within San Bernardino County are bounded on the northeast and northwest by the San Bernardino and San Gabriel Mountain Ranges. The Valley Region is largely developed with approximately 77% of the area within County jurisdiction either developed or under agricultural uses. Nevertheless, the undeveloped portions of the County provide important biological resources.

There are a number of vegetation communities within the Valley Region which should be a priority for conservation as they are designated sensitive communities and/or provide habitat for special status biological resources. Riversidean alluvial fan sage scrub comprises 18% of the lands in the Valley Region within County jurisdiction and provides habitat for a number of federal and/or state listed threatened or endangered species including San Bernardino kangaroo rat, coastal California gnatcatcher, slender horned spineflower, and Santa Ana River woollystar. The sensitivity of this community combined with the significant area under County jurisdiction makes this community a high priority for management by the County. Major drainages with intact Riversidean alluvial fan sage scrub habitat include the Santa Ana River, Mill Creek, Cajon Wash, and Lytle Creek. Other communities in the Valley Region that have high resource value but low overall acreage and are of high priority for management include riparian and wetland communities, native grasslands, and oak woodland. The Valley Region also supports soils and geomorphological features with high resource value including Delhi sands and clay soils.

Within the Valley Region, the USFWS has designated as critical habitat, for the following federally listed threatened or endangered plant and animal species: arroyo toad, least Bell's vireo, Santa Ana sucker, San Bernardino kangaroo rat, and southwestern willow flycatcher. Critical habitat should be conserved where primary constituent elements are present that are critical to the survival of the species. If a project has a federal nexus, consultation with the USFWS is required prior to impacting critical habitat.

The Valley Region supports a number of special-status species. Development areas should be reviewed for the potential to support a special-status species and impacts to special status-species should be avoided and minimized to the maximum extent practicable. A total of 31 special-status plant species have been documented in the Valley Region, including 3 species that are federally and state listed as endangered or threatened, and 28 non-listed species. A total of 42 special-status animal species have been documented in the Valley Region including 13 state or federally listed, 2 state fully protected, and 24 non-listed species. State and federally listed species known to occur currently in the Valley Region are listed in Table 11.

Table 11
Listed and Fully Protected Species in the Valley Region

Common Name	Scientific Name	Federal Status	State Status
Wildlife Species			
arroyo toad	*Anaxyrus californicus*	FE	SSC
coastal California gnatcatcher	*Polioptila californica californica*	FT	SSC
Delhi sands flower-loving fly	*Rhaphiomidas terminatus abdominalis*	FE	None
golden eagle	*Aquila chrysaetos* (nesting & wintering)	None	FP
least Bell's vireo	*Vireo bellii pusillus* (nesting)	FE	SE
southwestern willow flycatcher	*Empidonax traillii extimus* (nesting)	FE	SE
western yellow billed cuckoo	*Coccyzus americanus occidentalis (nesting)*	FT	SE
Swainson's hawk	*Buteo swainsoni (nesting)*	None	ST
San Bernardino kangaroo rat	*Dipodomys merriami parvus*	FE	SSC
Santa Ana sucker	*Catostomus santaanae*	FT	SSC
Stephens' kangaroo rat	*Dipodomys stephensi*	FE	ST
tricolored blackbird	*Agelaius tricolor* (nesting colony)	None	SC/SSC
white-tailed kite	*Elanus leucurus* (nesting)	None	FP
Plant Species			
Nevin's barberry	*Berberis nevinii*	FE	SE
Santa Ana River woollystar	*Eriastrum densifolium* ssp. *sanctorum*	FE	SE
slender-horned spineflower	*Dodecahema leptoceras*	FE	SE

Notes:
FE: federally listed as endangered
FT: federally listed as threatened
FP: fully protected
SE: state listed as endangered
ST: state listed as threatened
SC: state candidate for listing
SSC: state species of special concern

The majority of the Valley Region is developed with significant open space areas adjacent to the Valley Region including Prado Basin to the southwest and the San Bernardino National Forest to the north. Preserved areas occur at the southwest end of the Valley including the Chino Preserve and Chino Hills Open Space, at the eastern end is the Crafton Hills Open Space, and to the north is Cajon Pass. Wildlife movement through the Valley Region would primarily be accommodated along existing waterways and riparian corridors including the Santa Ana River, Cajon Wash, Lytle Creek, Live Oak Canyon, and San Timoteo Canyon. These areas should be high priority for management for wildlife movement and habitat connectivity.

6.2 Physical Conditions

Physical conditions across the landscape play important roles in the distribution of biological resources. The following subsections provide an overview of some key physical characteristics within the Valley Region of San Bernardino County (depicted on Figure 15, Geomorphic Features – Valley Region).

6.2.1 Climate

The Valley Region falls within a Mediterranean climate, with hot and dry summers and cool winters. Winters can be colder than other areas within the Southern California region; morning frost is a common occurrence, with rare snow flurries. Summers are very hot, with numerous days over 100°F. Within the Valley Region, the City of San Bernardino receives an average of 16 inches of rain annually, with most of the rainfall occurring November through April and occasional thunderstorms during the summer months. The Santa Ana winds are common within the Valley Region, as warm and dry winds blow from the desert in the east.

6.2.2 Soils

The Valley Region has soil types that are primarily composed of alluvial deposits with several areas of dune sand (USDA 2015). Soil types critical to the cultivation of sensitive environmental resources are outlined in this section.

Alluvial Fans

Alluvial deposits and active fluvial processes in the Valley Region, along with their associated vegetation, form one of the most imperiled communities in Southern California. An alluvial fan is a fan-shaped landform that forms at the base of steep mountains where valleys and canyons meet. This feature is typically created by the buildup of stream sediments and debris flows (Harden 2004). When viewed aerially, the fan's apex is typically at the mouth of a stream source running down a mountain before it spreads outward into the valley like an open fan. Three phases of vegetation associated with alluvial fans have been recognized based on differences in flooding frequency and intensity: pioneer, intermediate, and mature.

The most frequently flooded areas tend to be located adjacent to the active creek channel and are where early successional (or pioneer) plant species tend to establish and dominate the landscape. Vegetation tends to be sparse and of low species diversity and stature (Hanes et al. 1989, as cited in USFWS 2010a) and soils are characterized by high sand and low organic and clay content. Total vegetative cover in a pioneer phase ranges from 1% to 48% (Smith 1980; Wheeler 1991; both as cited in USFWS 2010a) and lasts approximately 30–40 years after flooding (Smith 1980,

as cited in USFWS 2010a). Special-status species associated with the pioneer stage of alluvial fans include Santa Ana River woollystar, San Bernardino kangaroo rat, San Diego black-tailed jackrabbit, and California glossy snake.

Areas at mid-elevated locations above the active floodplain (or terraces) tend to be much less frequently flooded and support mid-successional (or intermediate) plant species. Vegetation can be rather dense and is composed mainly of subshrubs (Hanes et al. 1989, as cited in USFWS 2010a), and open areas may have cryptogrammic crusts (Burk et al. 2007). Total vegetative cover in an intermediate phase ranges from 49% to 65% (Smith 1980, as cited in USFWS 2010a) and lasts approximately 40–70 years after flooding (Smith 1980, as cited in USFWS 2010a; Burk et al. 2007). Special-status species associated with the intermediate stage of alluvial fans include slender-horned spineflower and San Bernardino kangaroo rat.

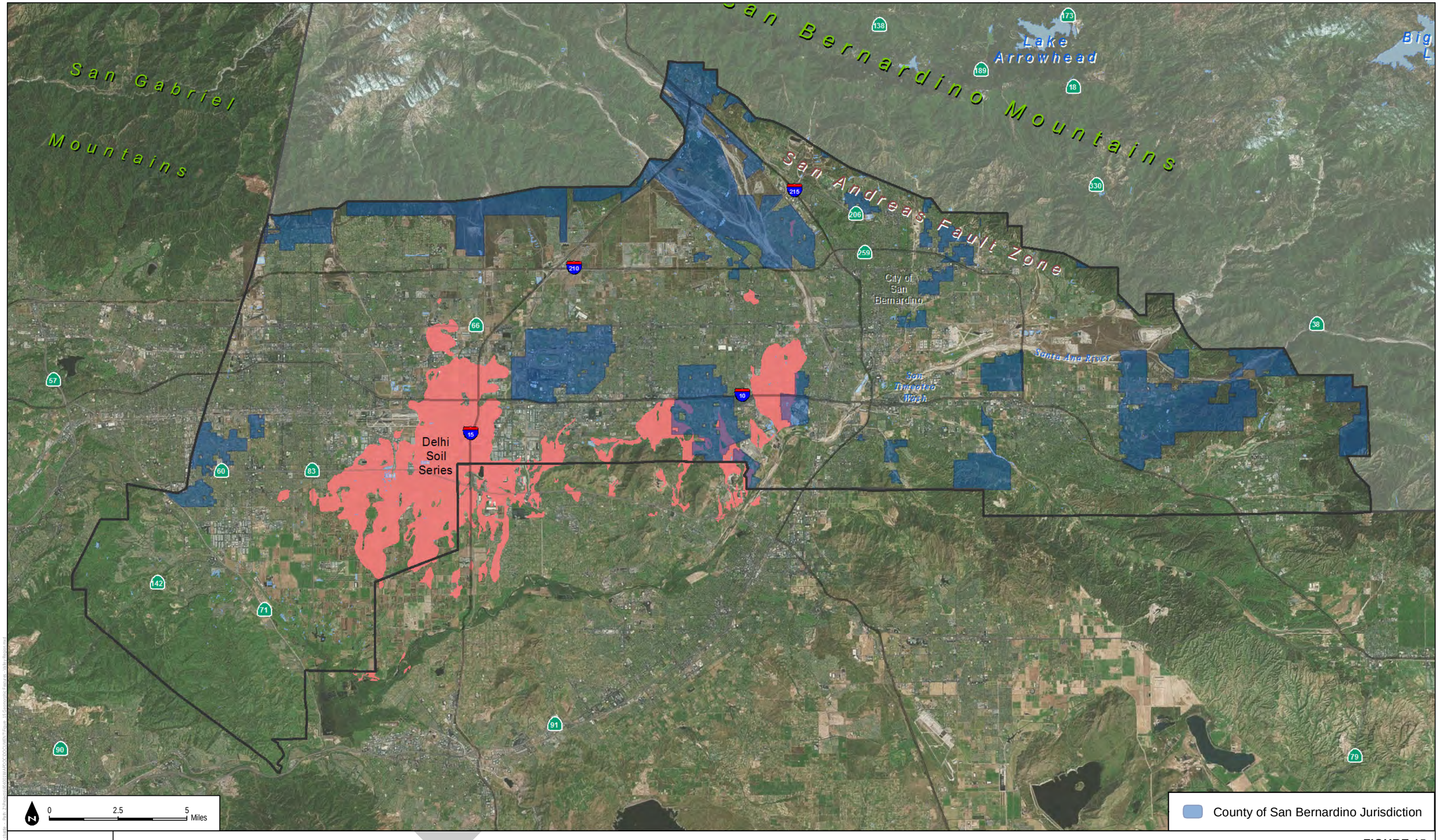
The highest elevated terraces are where flooding only occurs during extreme and rare events and supports late-successional (or mature) plant species. Vegetation is dense and is composed of fully developed subshrubs and woody shrubs (Hanes et al. 1989, as cited in USFWS 2010a). Total vegetative cover in the mature phase ranges from 66% to 88% (Smith 1980, as cited in USFWS 2010a) and lasts approximately 70+ years after flooding (Burk et al. 2007). Special-status species associated with the mature stage of alluvial fans include California gnatcatcher and cactus wren.

Delhi Soil Series

The Colton Dunes (composed of the Delhi soil series) once covered approximately 40 square miles in northwestern Riverside and southwestern San Bernardino counties in Southern California (USFWS 1997). Currently, they only occur in fragmented sections, likely disconnected from wind-blown sand sources that created and maintained the Colton Dunes ecosystem. The Delhi soil series is found in the southern portion of the valley, particularly within the cities of Colton, Rialto, and Fontana. The Delhi soil series is required habitat for the endemic Delhi sands flower-loving fly, a federally endangered species.

Clay Soils

Clay or clay loam soils occur in the southwestern portion of the Valley Region, where it abuts Riverside County. These soils are characterized by more impervious substrate with higher water retention. A common feature of this soil type is vernal pools, which can lead to presence of fairy shrimp species and vernal pool plants, some of which are listed threatened or endangered.



SOURCE: Bing Maps, 2016

FIGURE 15

Geomorphic Features - Valley Region

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San Bernardino Countywide Plan - Biological Resources

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6.2.3 Topography and Geomorphology

The Valley Region is composed of a diverse geography including valleys and foothills. The inland valleys within San Bernardino County are bounded on the northeast and northwest by the San Bernardino and San Gabriel Mountain Ranges. Associated with many mountain ranges are alluvial fans, which is a fan-shaped landform that forms along the base of a mountain front by the buildup of stream sediments and debris flows (Harden 2004). Large, coalescing alluvial fans contain numerous washes called bajadas. Elevation within the heavily urbanized valley/foothills ranges from 700 feet amsl near Rancho Cucamonga to around 4,000 feet amsl near Yucaipa.

6.2.4 Hydrology

The dominant aquatic feature within the Valley Region is the Santa Ana River watershed. The upstream reaches are located within San Bernardino County. Key tributaries within the area include City Creek, Day Creek, Etiwanda Creek, Plunge Creek, San Sevaine Creek, Lytle Creek, Cajon Wash, San Timoteo Wash, and Mill Creek.

Santa Ana River

The Santa Ana River is the largest river fully contained within Southern California. It begins in the San Bernardino Mountains before passing through Seven Oaks Dam at the foothills. The river then heads 96 miles to the Pacific Ocean, alternating between being held in its natural state and being contained in flood control channels.

Day Creek

Day Creek collects runoff from Cucamonga Peak before running south through the Valley Region. Its flows form an alluvial fan at the base of the San Bernardino Mountains before the creek passes through the City of Rancho Cucamonga. It is then channelized and runs through several basins as it runs south into Riverside County before flowing into the Santa Ana River.

Etiwanda Creek

Etiwanda Creek drains runoff from the San Bernardino Mountains while heading south through the Town of Etiwanda, where it becomes channelized. It flows south into Riverside County and then flows into the Santa Ana River.

San Sevaine Creek

San Sevaine Creek originates in the San Bernardino Mountains and runs south into the Town of Etiwanda. It runs parallel to Etiwanda Creek as they both travel south into Riverside County before flowing into the Santa Ana River.

City Creek

City Creek originates in the San Bernardino Mountains and runs through the foothills in the City of Highland. It flows south before joining Plunge Creek. They both reach a confluence with the Santa Ana River just west of the I-210.

Plunge Creek

Plunge Creek originates in the San Bernardino Mountains and runs west through the City of Highland before its confluence with the Santa Ana River, just west of the I-210.

Lytle Creek

Lytle Creek begins in the San Bernardino Mountains and moves southeast into the Valley Region. Its flows form an alluvial fan at the foothills of the mountains before becoming channelized as it passes through the City of Colton. It then continues south before connecting with the Santa Ana River.

Cajon Wash

Cajon Wash carries flows from Cajon Canyon, which carries runoff from both the San Bernardino Mountains and the Cucamonga Wilderness. The Cajon Wash then merges with Lytle Creek over the alluvial fan before Lytle Creek terminates at the Santa Ana River.

San Timoteo Wash

San Timoteo Wash originates in Riverside County where it collects runoff from the Badlands, south of the City of Redlands. It carries the stream northwest into the Valley Region of San Bernardino County before connecting with the Santa Ana River.

Mill Creek

Mill Creek collects runoff from the Angelus Oaks Mountains before heading southwest through the unincorporated area of Mentone. It then flows west into the Santa Ana River.

6.3 Biological Conditions

The following subsections provide a detailed description of the special-status plant and wildlife species and vegetation communities that occur in the Valley Region of San Bernardino County.

6.3.1 Vegetation Communities and Land Covers

The following identifies the vegetation communities and land covers mapped in the Valley Region of San Bernardino County. Table 12 provides a list of the vegetation communities and land covers occurring within the Valley Region. The geographic extent of vegetation communities in the Valley Region is depicted on Figure 16, Vegetation Communities and Land Covers – Valley Region. Appendix A describes each vegetation community and land cover in more detail. The CALVEG categories were cross-walked with alliances from the Manual of California Vegetation (Sawyer et al. 2009). This listing and the associated sensitivity status of each alliance can be found in Appendix B.

Table 12
Vegetation Communities and Other Land Covers
within the Valley Region of San Bernardino County

	Acres within County Boundary	% within County Boundary	Acres Within County Jurisdiction	% within County Jurisdiction
Agriculture				
Agriculture	18,415.25	6.77%	2,659.99	6.37%
Developed and Disturbed Areas	70.53	0.03%	31.09	0.07%
Nurseries	4.85	0.00%	0.00	0.00%
Orchard Agriculture	455.90	0.17%	115.87	0.28%
Pastures and Crop Agriculture	1,156.42	0.43%	17.83	0.04%
Tilled Earth	48.90	0.02%	2.26	0.01%
Vineyard - Shrub Agriculture	3.60	0.00%	0.00	0.00%
Subtotal	*20,155.46*	*7.41%*	*2,827.05*	*6.77%*
Barren				
Barren	440.57	0.16%	77.63	0.19%
Subtotal	*440.57*	*0.16%*	*77.63*	*0.19%*
Coastal Montane Douglas-fir Forests and Woodlands				
Bigcone Douglas-Fir	9.53	0.00%	0.00	0.00%
Subtotal	*9.53*	*0.00%*	*0.00*	*0.00%*
Coastal Scrub				
Buckwheat	6,585.23	2.42%	1,848.02	4.42%
California Sagebrush	7,609.03	2.80%	1,845.44	4.42%
Coastal Cactus	93.04	0.03%	0.00	0.00%

Table 12
Vegetation Communities and Other Land Covers within the Valley Region of San Bernardino County

	Acres within County Boundary	% within County Boundary	Acres Within County Jurisdiction	% within County Jurisdiction
Encelia Scrub	1,532.98	0.56%	44.60	0.11%
Subtotal	*15,820.28*	*5.82%*	*3,738.07*	*8.95%*
Developed and Disturbed Areas				
Developed and Disturbed Areas	6,011.69	2.21%	102.74	0.25%
Non-Native/Ornamental Conifer	3.27	0.00%	1.00	0.00%
Non-Native/Ornamental Conifer/Hardwood	78.74	0.03%	3.94	0.01%
Non-Native/Ornamental Grass	713.04	0.26%	3.48	0.01%
Non-Native/Ornamental Hardwood	174.97	0.06%	17.67	0.04%
Non-Native/Ornamental Shrub	102.22	0.04%	1.08	0.00%
Urban/Developed (General)	151,571.03	55.73%	18,112.80	43.36%
Urban-related Bare Soil	6,029.21	2.22%	1,229.24	2.94%
Subtotal	*164,684.17*	*60.55%*	*19,471.96*	*46.61%*
Eucalyptus Naturalized Forest				
Eucalyptus	155.13	0.06%	17.31	0.04%
Subtotal	*155.13*	*0.06%*	*17.31*	*0.04%*
Juniper Woodlands				
California Juniper (shrub)	64.06	0.02%	13.26	0.03%
Subtotal	*64.06*	*0.02%*	*13.26*	*0.03%*
Marsh				
Tule - Cattail	10.12	0.00%	0.00	0.00%
Subtotal	*10.12*	*0.00%*	*0.00*	*0.00%*
Meadows				
Wet Meadows	93.09	0.03%	0.00	0.00%
Subtotal	*93.09*	*0.03%*	*0.00*	*0.00%*
Native Grasslands				
Alkaline Mixed Grasses	545.66	0.20%	167.90	0.40%
Subtotal	*545.66*	*0.20%*	*167.90*	*0.40%*
Non-Native Grassland				
Annual Grasses and Forbs	34,207.12	12.58%	3,506.49	8.39%
Developed and Disturbed Areas	18.63	0.01%	0.00	0.00%
Non-Native/Invasive Grass	160.16	0.06%	0.00	0.00%
Perennial Grasses and Forbs	165.31	0.06%	0.00	0.00%
Subtotal	*34,551.22*	*12.70%*	*3,506.49*	*8.39%*
Oak Woodlands and Forests				
Canyon Live Oak	151.41	0.06%	106.13	0.25%
Coast Live Oak	1,584.58	0.58%	95.51	0.23%

Table 12
Vegetation Communities and Other Land Covers within the Valley Region of San Bernardino County

	Acres within County Boundary	% within County Boundary	Acres Within County Jurisdiction	% within County Jurisdiction
Coastal Mixed Hardwood	219.77	0.08%	0.00	0.00%
Interior Mixed Hardwood	36.50	0.01%	20.86	0.05%
Subtotal	*1,992.26*	*0.73%*	*222.50*	*0.53%*
Pine Forests and Woodland				
Coulter Pine	14.29	0.01%	0.00	0.00%
Subtotal	*14.29*	*0.01%*	*0.00*	*0.00%*
Riparian Forest and Woodland				
California Sycamore	70.82	0.03%	21.13	0.05%
Fremont Cottonwood	28.56	0.01%	0.00	0.00%
Riparian Mixed Hardwood	308.45	0.11%	104.07	0.25%
Subtotal	*407.83*	*0.15%*	*125.20*	*0.30%*
Riparian Scrub				
Baccharis (Riparian)	69.95	0.03%	18.91	0.05%
Fan Palm	0.28	0.00%	0.00	0.00%
Riparian Mixed Shrub	10.45	0.00%	0.00	0.00%
Willow	647.50	0.24%	0.00	0.00%
Willow (Shrub)	127.99	0.05%	0.00	0.00%
Subtotal	*856.18*	*0.31%*	*18.91*	*0.05%*
Riversidean Alluvial Fan Sage Scrub				
Riversidean Alluvial Scrub	13,064.72	4.80%	4,269.87	10.22%
Scalebroom	4,371.02	1.61%	1,297.26	3.11%
Subtotal	*17,435.74*	*6.41%*	*5,567.13*	*13.33%*
Undifferentiated Chaparral Scrub				
Ceanothus Mixed Chaparral	2,730.06	1.00%	2,333.05	5.58%
Chamise	2,760.22	1.01%	378.80	0.91%
Lower Montane Mixed Chaparral	3,891.95	1.43%	2,174.48	5.20%
Scrub Oak	1,220.30	0.45%	480.67	1.15%
Soft Scrub Mixed Chaparral	1,056.92	0.39%	397.31	0.95%
Sumac Shrub	1,502.21	0.55%	77.05	0.18%
Subtotal	*13,161.66*	*4.84%*	*5,841.36*	*13.98%*
Upland Walnut Woodlands and Forests				
California Walnut	277.78	0.10%	0.00	0.00%
Subtotal	*277.78*	*0.10%*	*0.00*	*0.00%*
Waterway				
Agriculture Pond or Water Feature	136.31	0.05%	1.39	0.00%
Intermittent Lake or Pond	43.22	0.02%	1.88	0.00%

Table 12
Vegetation Communities and Other Land Covers
within the Valley Region of San Bernardino County

	Acres within County Boundary	% within County Boundary	Acres Within County Jurisdiction	% within County Jurisdiction
Intermittent Stream Channel	97.96	0.04%	54.77	0.13%
Perennial Lake or Pond	35.77	0.01%	1.23	0.00%
Reservoir	2.50	0.00%	0.00	0.00%
River/Stream/Canal	206.92	0.08%	0.00	0.00%
Urban or Industrial Impoundment	110.29	0.04%	24.41	0.06%
Water (General)	632.14	0.23%	98.40	0.24%
Waterway	40.72	0.01%	0.00	0.00%
Subtotal	*1,305.82*	*0.48%*	*182.07*	*0.44%*
Grand Total	271,980.84		41,776.85	

Note: Table updated March 2019

Agriculture

Agricultural land composes approximately 6.8% (21,271.1 acres) of the Valley Region and includes the following agricultural types: agriculture (general), nurseries, orchard agriculture, pastures and crop agriculture, tilled earth, and vineyard–shrub agriculture (Table 12). Agricultural lands are not considered a sensitive biological resource (CDFG 2010).

Barren

Barren lands compose a very small portion of the Valley Region and cover approximately 0.1% (468.1 acres) (Table 12). Barren lands are not considered a sensitive biological resource (CDFG 2010).

Coastal Montane Douglas-Fir Forests and Woodlands

Coastal montane Douglas-fir forests and woodlands general community compose <0.1% (9.8 acres) of the Valley Region, with one alliance: bigcone Douglas-fir (Table 12). Bigcone Douglas-fir alliance is considered a sensitive biological resource (CDFG 2010).

Coastal Scrub

The coastal scrub general community composes approximately 5.2% (16,380.4 acres) of the Valley Region and includes four alliances: buckwheat, California sagebrush, coastal cactus, and encelia scrub (Table 12). The coastal cactus alliance is considered a sensitive biological resource (CDFG 2010).

Developed and Disturbed Areas

Developed and disturbed areas compose approximately 64% (202,397.4 acres) of the Valley Region and include seven types: non-native/ornamental conifer, non-native ornamental conifer/ hardwood, non-native/ornamental grass, non-native ornamental hardwood, non-native/ornamental shrub, urban/developed (general), and urban-related bare soil (Table 12). Developed and disturbed areas are not considered a sensitive biological resource (CDFG 2010).

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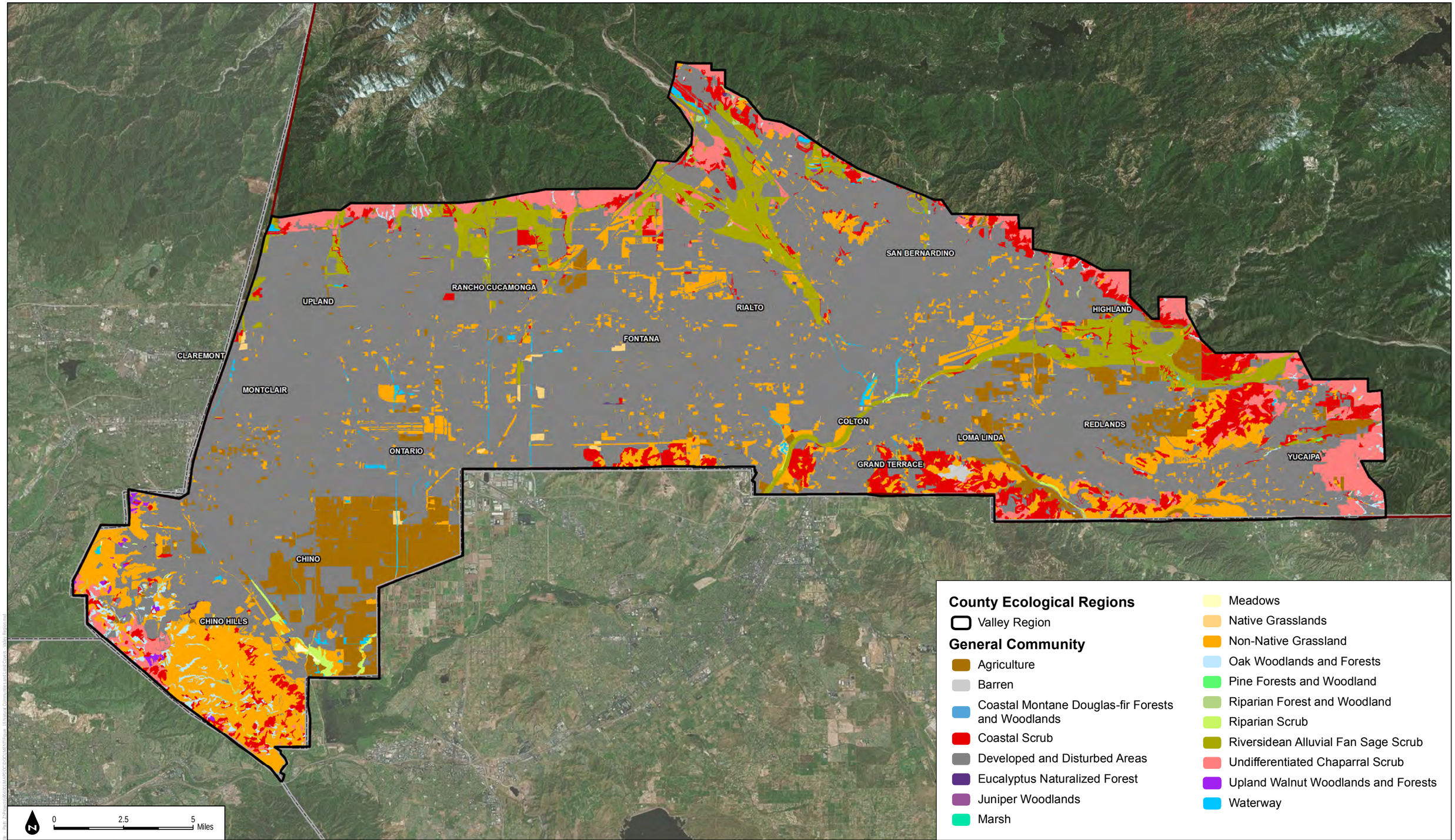

SOURCE: Bing Maps, 2015; CDFG, 2015

FIGURE 16

Vegetation Communities and Land Covers - Valley Region

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Eucalyptus Naturalized Forest

Eucalyptus naturalized forest composes approximately 0.1% (179.7 acres) of the Valley Region (Table 12). These are dense, pure stands of multiple species of *Eucalyptus*, including blue gum, red gum, silver gum, and forest red gum. Naturalization has occurred in disturbed areas, augmented by the ability of this genus to resprout after disturbance. This community is typically adjacent to urban areas and non-native grasses. Eucalyptus naturalized forest is not considered a sensitive biological resource (CDFG 2010).

Juniper Woodlands

The juniper woodlands general community composes <0.1% (66.2 acres) of the Valley Region and includes one alliance: California juniper (shrub) (Table 12). This community includes California juniper as the dominant or co-dominant small tree in the canopy with a sparse or grassy ground layer. This community occurs on alluvial fans, valley bottoms, slopes, ridges and valleys that contain porous, rocky, coarse, sandy or silty soils that are often shallow. California juniper (shrub) alliance is not considered a sensitive biological resource (CDFG 2010).

Marsh

This general community composes approximately <0.1% (10.1 acres) of the Valley Region and includes one alliance: tule–cattail (Table 12). Cattail or tule marshes occur near lakes and springs dominated by sedges, tules, cattails, and spikerushes. Cattail or tule marshes are not a sensitive community (CDFG 2010); however, marshes are a wetland habitat type with limited distribution and are, therefore, considered a sensitive biological resource.

Meadows

This general community composes approximately <0.1% (93.9 acres) of the Valley Region and includes one alliance: wet meadows (Table 12). This community includes a dense growth of sedges, rushes, perennial grasses such as mat muhly and San Bernardino blue grass, and annual and perennial herbaceous species such as false hellebore, clovers, and seep monkeyflower. This community is considered sensitive in the County due to its limited extent and unique habitat value.

Native Grasslands

The native grasslands general community composes approximately 0.2% (559.9 acres) of the Valley Region and includes one alliance: alkaline mixed grasses (Table 12). This community is considered sensitive in the County due to its limited extent and unique habitat value.

Non-Native Grassland

The non-native grassland general community composes approximately 11.6% (36,645.3 acres) of the Valley Region and includes three alliances: annual grasses and forbs, non-native/invasive grass, perennial grasses and forbs (Table 12). Many non-native grasses occur within this alliance including species of wild oats, various bromes, foxtail fescue, filaree, and Kentucky bluegrass. Perennial grasses such as slender meadow foxtail and tall fescue may be present with non-native forbs such as strawberry clover. Some native forbs such as southern mule-ears may be found as well. Some of these areas are currently being used for livestock pasture. Invasive species include broadleaved pepperweed (*Lepidium latifolium*), medusahead (*Elymus (Taeniatherum) caput-medusae*), puncturevine (*Tribulus terrestris*), prickly Russian thistle (*Salsola tragus*), yellow star-thistle (*Centaurea solstitialis*), and other knapweeds (*Centaurea* spp.). Non-native grasslands are not considered a sensitive biological resource (CDFG 2010).

Oak Woodlands and Forests

This general community composes approximately 0.7% (2,083.7 acres) of the Valley Region and includes four alliances: canyon live oak, coast live oak, coastal mixed hardwood, and interior mixed hardwood (Table 12). Oak woodlands and forest have oak trees as the dominant or co-dominant tree with a continuous to open canopy and a sparse to intermittent shrub canopy, and sparse or grassy ground layer. This community is considered sensitive in the County due to its limited extent and unique habitat value.

Pine Forests and Woodland

The pine forests and woodland general community composes approximately <0.1% (15.1 acres) of the Valley Region and includes two alliances: Coulter pine and mixed conifer–pine (Table 12). Coulter pine is dominated by Coulter pine and can have a chaparral understory with mountain whitethorn (*Ceanothus cordulatus*), manzanitas (*Arctostaphylo*s spp.), and chamise. In mixed conifer communities, no single conifer species is dominant; the mixture usually includes high amounts of ponderosa pine or sugar pine, with incense cedar (*Calocedrus decurrens*), bigcone Douglas-fir, white fir, and Coulter pine often also present in various combinations. None of the pine forests and woodlands alliances are considered a sensitive biological resource (CDFG 2010).

Riparian Scrub

The riparian scrub general community composes approximately 0.3% (866.6 acres) of the Valley Region and includes five alliances: baccharis (riparian), fan palm, riparian mixed shrub, willow, and willow (shrub) (Table 12). Some willow alliances are considered a sensitive biological

resource (CDFG 2010); however, this community is more widespread and regenerates quickly; therefore, is not considered a sensitive community in the County.

Riversidean Alluvial Fan Sage Scrub

The Riversidean alluvial fan sage scrub general community composes approximately 5.6% (17,708.0 acres) of the Valley Region and includes two alliances: Riversidean alluvial scrub and scalebroom (Table 12). This community is identified by a dominance of scalebroom. Co-dominants may include Eastern Mojave buckwheat, California sagebrush, white sage, *Encelia* spp., *Opuntia* spp., chaparral yucca, *Rhus* spp., and California juniper. Along the desert washes, associated species may include brittlebush, creosote bush, chaparral yucca, rabbitbrush, big sagebrush, Fremont cottonwood, and desert willow. The scalebroom alliance is considered a sensitive community (CDFG 2010) and Riversidean alluvial fan sage scrub is considered a sensitive community in the County due to its unique habitat value.

Undifferentiated Chaparral Scrub

Undifferentiated chaparral scrub general community composes approximately 4.5% (14,233.2 acres) of the Valley Region and includes six alliances: ceanothus mixed chaparral, chamise, lower montane mixed chaparral, scrub oak, soft scrub mixed chaparral and sumac shrub (Table 12). None of the undifferentiated chaparral scrub alliances are considered sensitive biological resources (CDFG 2010).

Upland Walnut Woodlands and Forests

This general community composes approximately <0.1% (284.0 acres) of the Valley Region and includes one alliance: California walnut (Table 12). This community is dominated by California black walnut (*Juglans californica*), a species endemic to the state. Walnuts are usually widely spaced and associated species include coast live oak, California bay, foothill ash (*Fraxinus dipetala*), Mexican elderberry (*Sambucus mexicana*), sugar sumac (*Rhus ovata*), and skunkbush (*Rhus trilobata*). Coastal sage scrub species such as California sagebrush and black sage may also occur. California walnut woodland is considered a sensitive biological resource (CDFG 2010).

Waterway

Waterways compose approximately 0.4% (1,396.6 acres) of the Valley Region and include eight various types: agriculture pond or water feature, intermittent lake or pond, intermittent stream channel, perennial lake or pond, reservoir, river/stream/canal, urban or industrial impoundment, and water (general) (Table 12). Waterways are a land cover and are not considered a sensitive

vegetation community; however, waterways often provide valuable water resources that would be considered sensitive on a case-by-case basis.

6.3.2 Special-Status Species

Within the Valley Region, the USFWS has designated critical habitat for several wildlife species and one plant species. The acreage of critical habitat is summarized in Table 13 and locations are depicted on Figure 17, Critical Habitat – Valley Region.

Table 13
Acres of Critical Habitat in the Valley Region

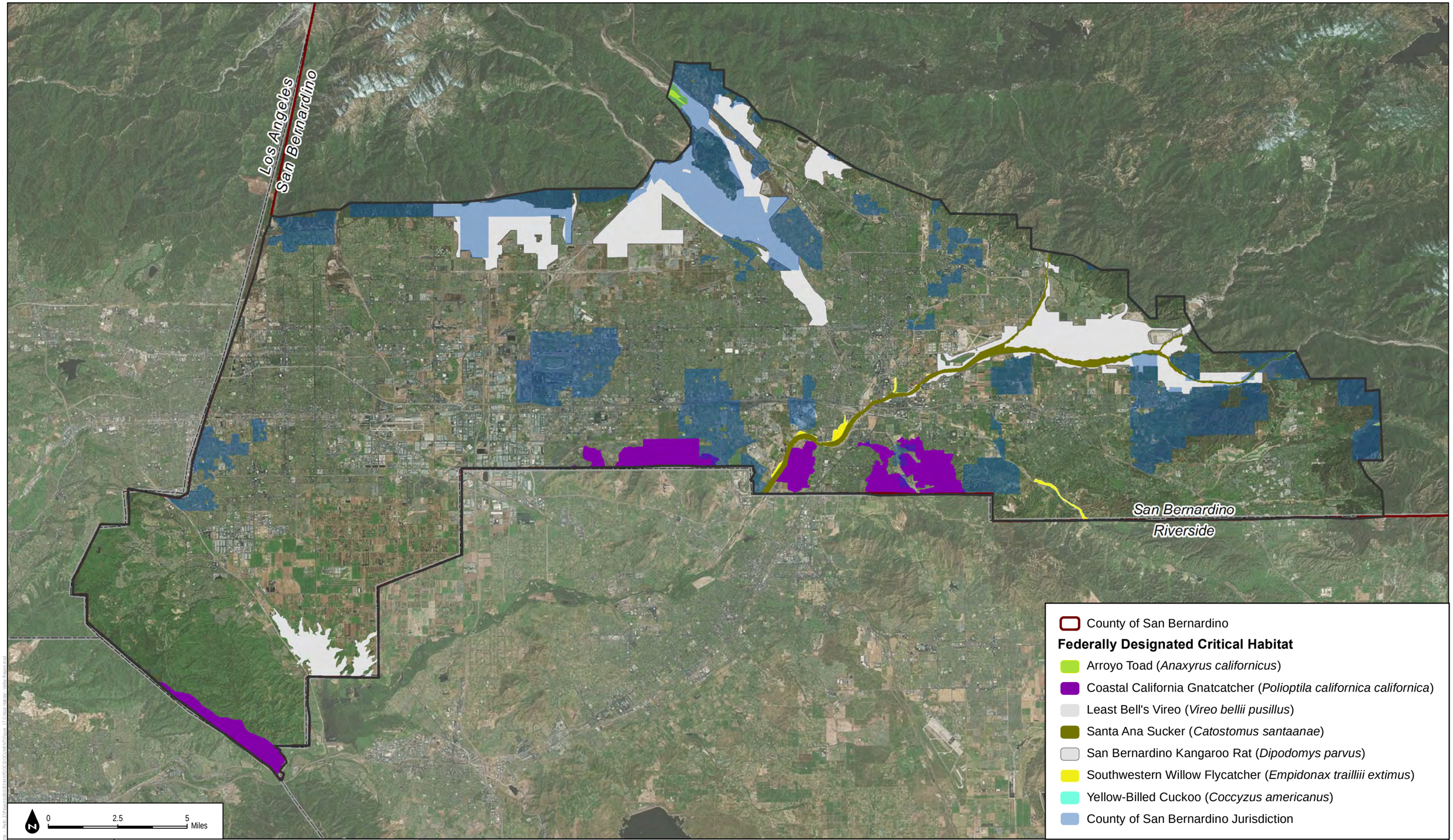
Critical Habitat Species		Total acres in Valley Region	Acres within County Jurisdiction in Valley Region
Common Name	*Scientific Name*		
arroyo toad	*Anaxyrus californicus*	192	103
Coastal California gnatcatcher	*Polioptila californica*	7,449	268
least Bell's vireo	*Vireo bellii pusillus*	2,062	0.0
Santa Ana sucker	*Catostomus santaanae*	2,114	138
San Bernardino kangaroo rat	*Dipodomys merriami parvus*	26,489	7,509
southwestern willow flycatcher	*Empidonax traillii extimus*	2,574	27
western yellow-billed cuckoo[a]	*Coccyzus americanus occidentalis*	389	0.0
Thread-leaved brodiaea	*Brodiaea filifolia,*	61	0.0

Source: USFWS 2015a.
Note: [a] Proposed critical habitat.

Special-Status Species Occurrence Summary

Appendix C provides a summary of the 87 special-status species that have been documented in the Valley Region of San Bernardino County, and includes information on status, distribution, and habitat associations.

A total of 31 special-status plant species have been documented in the Valley Region, including 3 species that are federally and state listed as endangered or threatened. The 3 listed plant species that are known to occur in the Valley Region are Nevin's barberry (FE, SE), Santa Ana River woollystar (FE, SE), and slender-horned spineflower (FE, CE).



SOURCE: Bing Maps, 2016

FIGURE 17

Critical Habitat - Valley Region

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A total of 42 special-status animal species have been documented, including 9 species that are federally endangered or threatened, 5 that are state endangered or threatened, 1 that is a state threatened candidate, 2 that are state fully protected, and 24 that are non-listed species. The listed and fully protected wildlife species currently known to occur in the Valley Region are arroyo toad (FE), coastal California gnatcatcher (*Polioptila californica californica*) (FT), least Bell's vireo (nesting) (FE, SE), white-tailed kite (*Elanus leucurus*) (fully protected, FP), golden eagle (FP), Santa Ana sucker (FT), San Bernardino kangaroo rat (FE), Stephens' kangaroo rat (*Dipodomys stephensi*) (FE, ST), and Delhi sands flower-loving fly (FE). The tricolored blackbird is being evaluated in 2016 for candidacy under CESA, triggering a 12-month period during which CDFW will conduct a status review. As a candidate species, the tricolored blackbird receives the same legal protection afforded to an endangered or threatened species (California Fish and Game Code, Section 2085).

6.4 Habitat Linkages and Wildlife Corridors

California Essential Habitat Connectivity Project

Spencer et al. 2010 includes foothill areas of the San Gabriel and San Bernardino Mountains and associated washes as linkage areas in the Valley Region of San Bernardino County. These are included in the greater San Gabriel–San Bernardino Connection discussed in this section (see Figure 18, Habitat Connectivity – Valley Region, for locations of linkages).

South Coast Missing Linkages Project

Summaries of the corridors identified as a result of this effort are presented in this section and detailed descriptions can be found in South Coast Wildlands (2008).

San Gabriel–San Bernardino Connection. This linkage provides connectivity between two expansive areas of the Angeles and San Bernardino National Forests linkage design including three roughly parallel swaths through the Cajon Wash and Pass to accommodate diverse species and ecosystem functions. It partially occurs in the Valley Region of San Bernardino County, primarily in Cajon Wash and Lytle Creek, as well as the Etiwanda Fan (San Gabriel foothills) from the San Bernardino County line east to near I-215. This linkage provides habitat for special-status species wildlife such as San Bernardino kangaroo rat and American badger. I-15 is the major transportation route that crosses the linkage and poses the most substantial barriers to wildlife movement.

San Bernardino–San Jacinto Connection. This linkage comprises five swaths and provides a connection between the San Bernardino and San Jacinto Mountains. It occurs partially within

San Bernardino County in the Valley Region and does not intersect any major transportation corridors. Linkage areas are identified east of Yucaipa in Wildwood Canyon, Cherry Canyon, Wallace Creek, and Little San Gorgonio Creek that connect with areas in Riverside County to the south. Species expected to use this linkage include bobcat.

Puente–Chino Hills Wildlife Corridor

The Puente–Chino Hills Wildlife Corridor is approximately 31 miles long and extends from Los Angeles County Whittier Narrows areas in the west to the Cleveland National Forest in Orange County to the east. Despite its long history of use and proximity to urban development, there is still sufficient habitat for connectivity. Within San Bernardino County, this corridor occurs within the Chino Hills State Park, but also overlaps many unprotected areas. Natural vegetation communities that occur within this corridor include walnut and oak woodlands, chaparral, native grasslands, and coastal sage scrub that support habitat for species such as California gnatcatcher, cactus wren (*Campylorhynchus brunneicapillus*), mule deer, cougar, coyote (*Canis latrans*), bobcat, American badger, and gray fox.

San Bernardino County Open Space Overlay Map

Figure 19, Existing San Bernardino County Open Space Layer – Valley Region, and Table 14 show the features within the San Bernardino County open space overlay map that overlap the Valley Region within County jurisdiction.

Table 14
San Bernardino County Open Space Overlay Features
in the Valley Region that Occur within County Jurisdiction

Feature	Type	Acres	Description
Cajon Wash	Wildlife Corridor	758.8	This includes a large area along the Cajon Wash from the confluence with Lytle Creek northward to Mormon Rocks. It supports a wash with associated alluvial fan sage scrub habitat, as well as a stream and associated riparian habitat further upstream. Cajon Wash supports important processes and habitat for species such as San Bernardino kangaroo rat, Santa Ana River woollystar, slender-horned spineflower, cactus wren, and Santa Ana speckled dace. Historically, it supported populations of arroyo toad.
Dispersion Corridor	Wildlife Corridor	17.1	This wildlife corridor is located between the Pisgah Peak area and the boundary of the national forest. This area is important as an area to maintain wildlife linkages between the Pisgah Peak area and the national forest.
East Etiwanda	Wildlife Corridor	21.6	This wildlife corridor includes the southern portion of Etiwanda Canyon, north of the national forest boundary, where private inholdings exist. The canyon contains a stream and associated riparian habitat. This area should extend southward to include associated alluvial fans to maintain a connection for wildlife species, such as mule deer, between lower elevations and higher elevations found within the national forest and existing open space areas, such as the Etiwanda Preserve.

Table 14
San Bernardino County Open Space Overlay Features in the Valley Region that Occur within County Jurisdiction

Feature	Type	Acres	Description
Lytle Creek	Wildlife Corridor	220.1	This wildlife corridor follows the alignment of Lytle Creek from the Lytle Creek Gatehouse-Dam, north to the boundary of the national forest, and continuing northward to approximately Miller Narrows. It supports a wash with associated alluvial fan sage scrub habitat, as well as a stream and associated riparian habitat further upstream. Lytle Creek supports important processes and habitat for species such as San Bernardino kangaroo rat, Santa Ana River woollystar, and cactus wren.
Mill Creek	Wildlife Corridor	982.7	This wildlife corridor follows the alignment of Mill Creek from Forest Falls to its confluence with the Santa Ana River. Mill Creek supports riparian and alluvial fan habitat. Special-status species known to occur here include southwestern willow flycatcher and San Bernardino kangaroo rat.
Plunge Creek	Wildlife Corridor	0.4	This wildlife corridor follows a portion of Plunge Creek from the national forest to City Creek. Plunge Creek contains riparian and alluvial fan habitat, and provides a link from the national forest to City Creek and further to the Santa Ana River. Special-status species that occur in this area include the Santa Ana River woollystar, San Bernardino kangaroo rat, and Santa Ana speckled dace.
San Timoteo Canyon	Wildlife Corridor	481.5	This is the portion of the San Timoteo Canyon within the San Bernardino County, from the County line to where it is channelized upstream of its confluence with the Santa Ana River. San Timoteo Canyon supports riparian habitat with occurrences of least Bell's vireo and southwestern willow flycatcher documented.
Santa Ana River	Wildlife Corridor	173.1	This includes the lower portion of the Santa Ana River within San Bernardino County. The Santa Ana River, although urbanized along some portions of its length, is one of the most important habitat areas in the County. It supports primarily riparian and alluvial fan habitat. Listed species supported include Santa Ana sucker, Santa Ana River woollystar, slender-horned spineflower, San Bernardino kangaroo rat, least Bell's vireo, southwestern willow flycatcher, and California gnatcatcher, as well as a number of non-listed special-status species.
Spoor Canyon	Wildlife Corridor	322.0	This wildlife corridor describes a general area that links the Crafton Hills Open Space with national forest land.
Waterman Canyon	Wildlife Corridor	2.9	This wildlife corridor follows the alignment of Waterman Canyon northward from the city of San Bernardino into the national forest, and contains riparian habitat, as well as artesian wells that support habitat as mule deer fawning areas. Downstream, it connects with Strawberry Creek and with water from the Arrowhead Hot Springs.
Cajon Pass	Policy Area	7,523.9	This is the area generally within the Cajon Pass area near Devore. The Cajon Pass area separates the Angeles and San Bernardino national forest, and is in an area which animals must cross to travel between forests. This area also contains important riparian habitat and Cajon Wash and Lytle Creek.
Crafton Hills Grove	Policy Area	2,786.0	This area describes an area of existing citrus operations west of the proposed Crafton Hills Open Space area. This area is of value primarily as an agricultural district, although it also has scenic value as an example of the once widespread citrus operations in the San Bernardino Valley.
Crafton Hills Open Space	Policy Area	1,679.7	This is an area adjacent to Yucaipa Regional Park, described as the lands in the Crafton Hills generally above an elevation of 2,400 feet. This is an important open space resource in the urbanizing Redlands/Yucaipa area, and has significant value as a relatively undisturbed habitat area, a scenic resource, and a potential area for recreational open space use.

Table 14
San Bernardino County Open Space Overlay Features
in the Valley Region that Occur within County Jurisdiction

Feature	Type	Acres	Description
Dispersion Corridor	Policy Area	0.1	This is the portion of the Puente–Chino Hills Wildlife Corridor that occurs within San Bernardino jurisdiction. This corridor is needed to link the Chino Hills area with other open space lands in the vicinity, including the Prado Dam inundation area. It is known to support cougar and cactus wren movement.
Pisgah Peak	Policy Area	470.4	This area is centered Pisgah Peak and include portions of Sections 33, 34, 35, R1WT1S, and Sections 2, 3, 4, R1WT2S. This area consists of a small mountain range, which supports a diversity of wildlife species, including large mammals.

Riparian and Wash Corridors

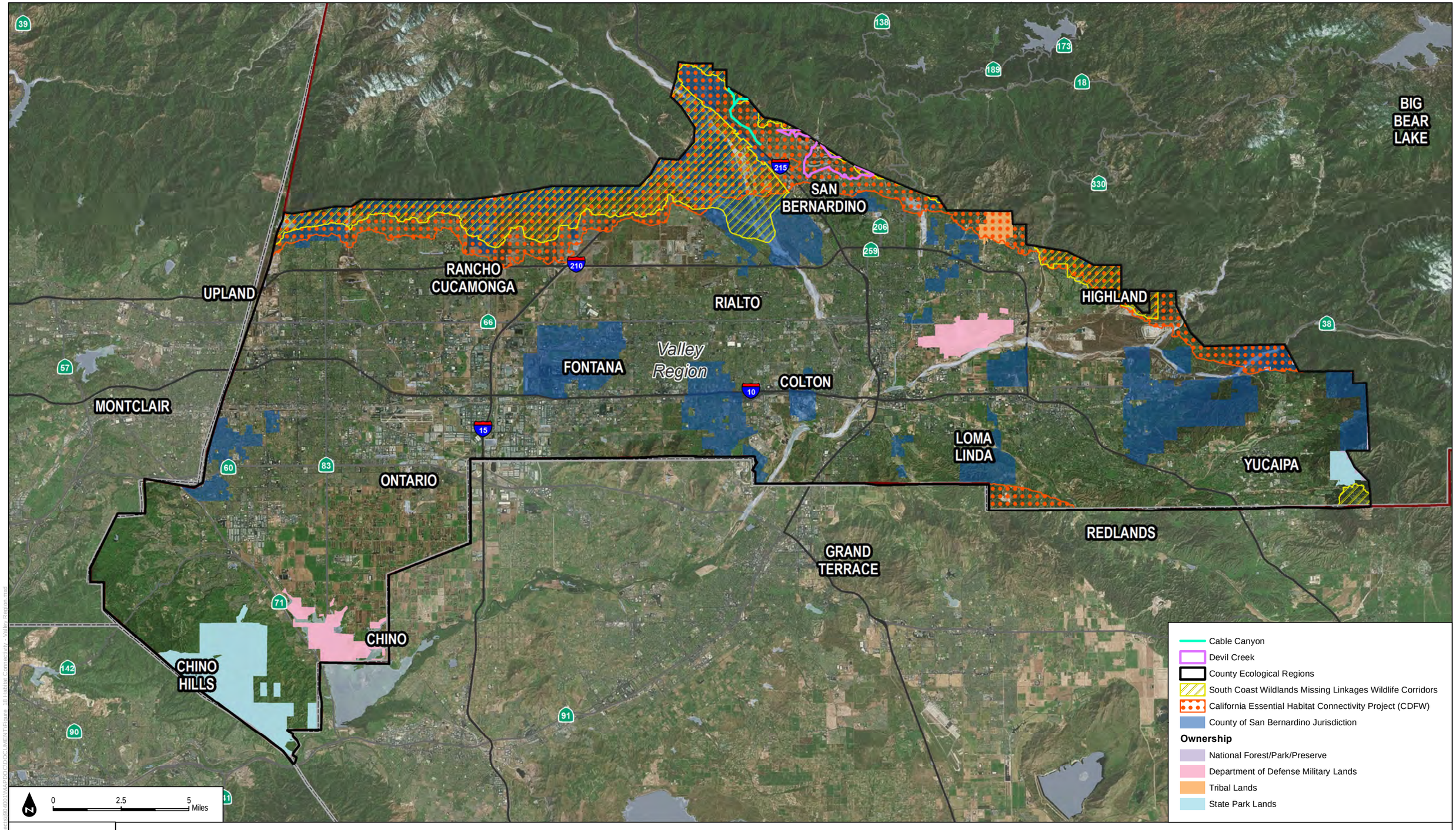
Major washes and riparian corridors within San Bernardino County not otherwise captured with the above existing layers were added to Figure 19.

Cable Creek. Cable Creek, including tributaries (Ames Canyon and Meyers Canyon) and associated springs, provides foothill areas that link to the national forest to the north and east. Its extent is from Little League Drive to the National Forest Boundary. Riparian and alluvial fan habitat are supported, as well as a number of natural springs. Species that have been documented in this area include least Bell's vireo, San Bernardino kangaroo rat, Los Angeles pocket mouse (*Perognathus longimembris brevinasus*), and mule deer (use as a fawning area).

Devil Creek. Devil Creek, including tributaries (Sycamore Canyon and Badger Canyon) and associated springs, provides foothill areas that links to the national forest to the north and east. Its extent is primarily from north of California State University at San Bernardino east to areas north of the City of San Bernardino. Riparian habitat is supported, as well as a number of natural springs. Species that have been documented in this area include California gnatcatcher and springsnails (*Pyrgulopsis* sp.).

6.5 Protected and Wilderness Areas

Protected and wilderness areas within the Valley Region are summarized in this section, and locations are shown on Figures 20A through 20D, Conservation and Open Space Areas – Valley Region.



SOURCE: BING Maps 2016; USFWS 2016; BLM 2014; South Coast Wildlands 2012; CDFW 2010

FIGURE 18

Habitat Connectivity - Valley Region

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San Bernardino Countywide Plan - Biological Resources

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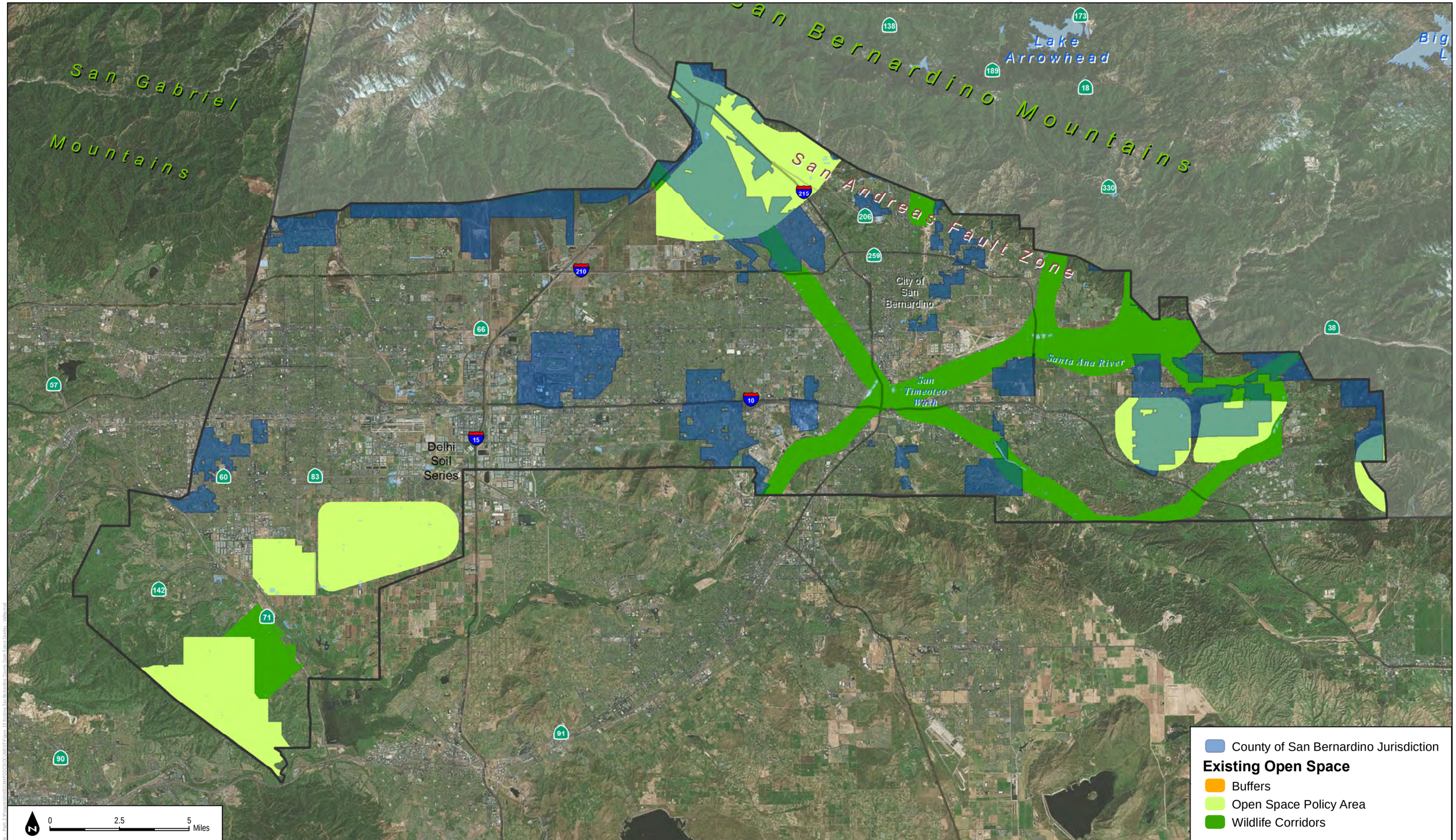

SOURCE: Bing Maps, 2016

FIGURE 19

Existing San Bernardino County Open Space Layer - Valley Region

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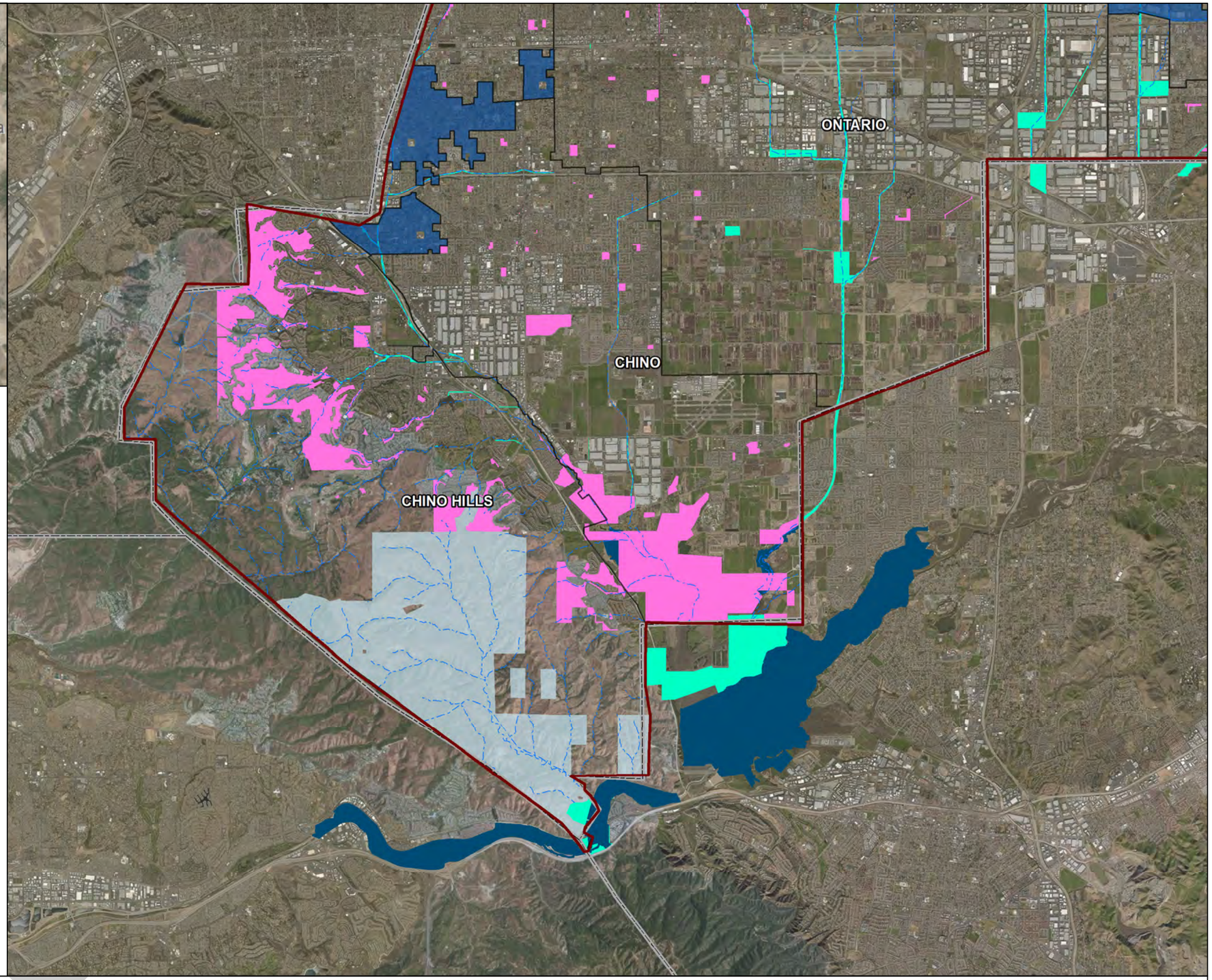

County of San Bernardino

USGS NHD Flowline

Existing Conservation Areas

California Protected Area Database

SCAG Prado Dam Baseline

Other Lands

Flood Control District Easements*

State Park Lands

County of San Bernardino Jurisdiction

*All flood control easements are reserved for District purposes and are not available as a resource for the County or others as potential mitigation lands.

0 2.5 5 Miles

SOURCE: Bing Maps, 2016; CPAD 2014; USGS, 2012

FIGURE 20A

Conservation and Open Space Areas - Valley Region

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County of San Bernardino

USGS NHD Flowline

California Protected Areas

Valley

Day Canyon Preserve

Open Space Areas

Open Space Areas

North Etiwanda Preserve

BLM Resource Management Designations

Wilderness Areas

Existing Conservation Areas

Angeles National Forest

San Bernardino National Forest

California Protected Area Database

Other Lands

Flood Control District Easements*

County of San Bernardino Jurisdiction

*All flood control easements are reserved for District purposes and are not available as a resource for the County or others as potential mitigation lands.

0 2.5 5 Miles

SOURCE: Bing Maps, 2016; BLM 2014; CPAD 2014; USGS 2012

DUDEK

FIGURE 20B

Conservation and Open Space Areas - Valley Region

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County of San Bernardino

USGS NHD Flowline

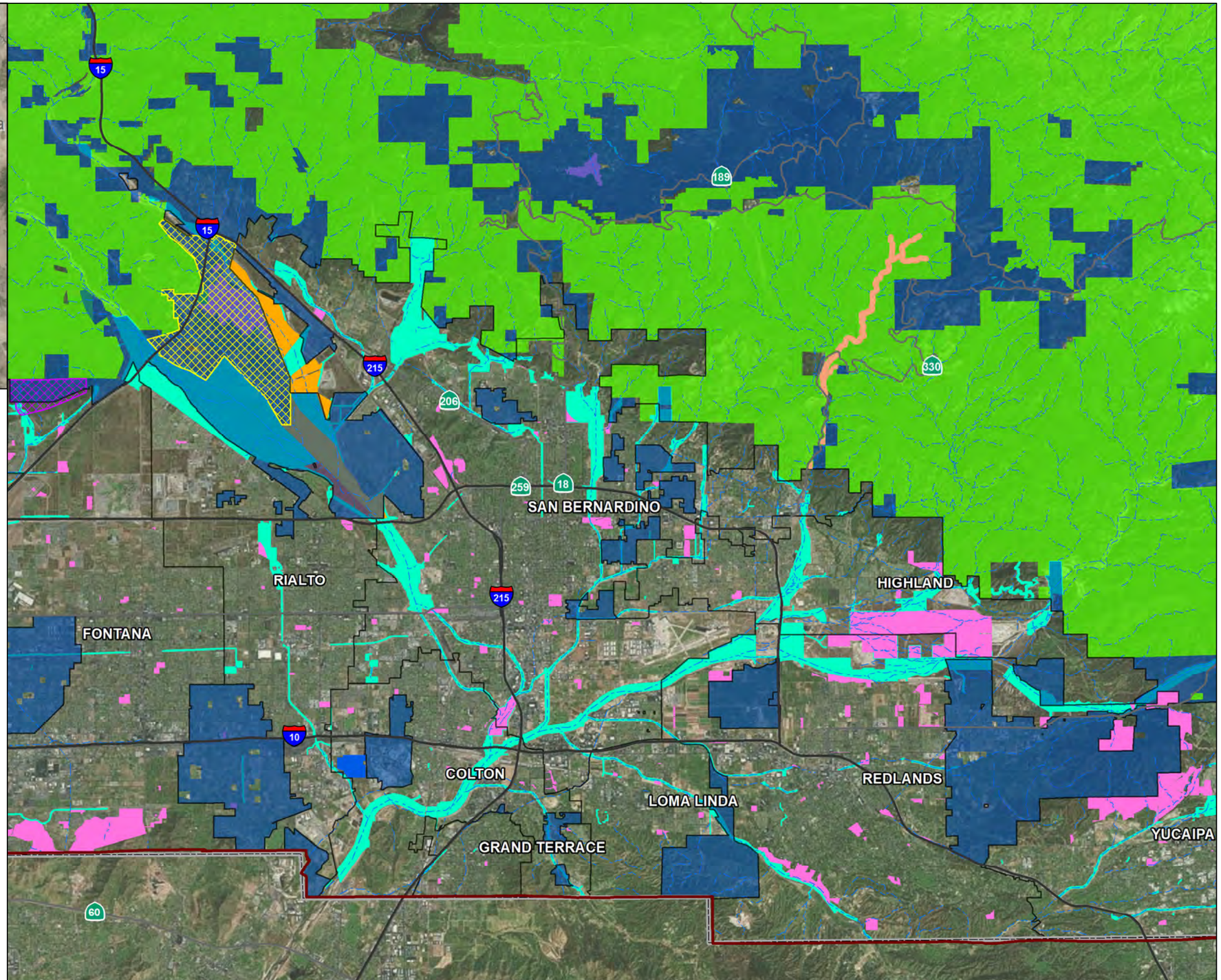
Open Space Areas

- Colton VMC Parcels
- Lytle Creek Conservation Bank
- County Service Area Open Space 120
- County Service Area Open Space 70
- Cajon Creek Conservation Bank and Lands HCP

Existing Conservation Areas

- San Bernardino National Forest
- California Protected Area Database
- Flood Control District Easements*
- Critical Biological Areas
- County of San Bernardino Jurisdiction

*All flood control easements are reserved for District purposes and are not available as a resource for the County or others as potential mitigation lands.



N 0 2.5 5 Miles

SOURCE: Bing Maps, 2016; BLM 2014; CPAD 2014; USGS 2012

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FIGURE 20C

Conservation and Open Space Areas - Valley Region

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County of San Bernardino

USGS NHD Flowline

Existing Conservation Areas

San Bernardino National Forest

California Protected Area Database

Critical Biological Areas

Other Lands

Department of Defense Military Lands

State Park Lands

Flood Control District Easements*

County of San Bernardino Jurisdiction

*All flood control easements are reserved for District purposes and are not available as a resource for the County or others as potential mitigation lands.

0 2.5 5 Miles

SOURCE: Bing Maps, 2016; BLM 2014; CPAD 2014; USGS 2012

DUDEK

FIGURE 20D

Conservation and Open Space Areas - Valley Region

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Former Norton Air Force Base Conservation Management Plan. Approximately 54 acres in two parcels were designated Core Management Areas (CMA-1 and CMA-2), and 214 acres compose an Open Space Management Area. These areas are managed specifically for the San Bernardino kangaroo rat and Santa Ana River woollystar and are permanently protected by conservation easements.

North Etiwanda Preserve. The original preserve, formally established in 1998, was a single 763-acre parcel of Riversidean alluvial fan sage scrub set aside as mitigation for the State Route 30 (now known as State Route 210) Improvements Project. In July 2009, the preserve was expanded to include 440 acres (total of 1,203 acres) of additional land that was set aside for conservation purposes. The preserve is currently managed by the San Bernardino County Special Districts Department.

Day Canyon Preserve. A 200-acre conservation area was set aside through a conservation easement to the San Bernardino County Flood Control District as mitigation for impacts from sand and gravel operations (City of Rancho Cucamonga 2010). The easement is held by the County of San Bernardino.

Colton Dunes Conservation Bank. Vulcan Materials operates the 150-acre bank that contains Delhi sand dunes suitable for the Delhi sands flower-loving fly. The bank is conserved in perpetuity through a conservation easement held by the Riverside Land Conservancy and an endowment providing permanent habitat maintenance funded by Vulcan.

Vulcan Materials Alluvial Fan Sage Scrub Mitigation Bank. This bank is composed of a 567 acre habitat conservation management area along a 6-mile stretch of Cajon Wash and Lytle Creek. There are 24 sensitive wildlife and plant species occurring within this preserve. Species present include the coastal California gnatcatcher, San Bernardino kangaroo rat, and many wildflower species. The bank is owned and managed by Vulcan.

Lytle Creek Conservation Bank. This bank will permanently protect and preserve approximately 182 acres of suitable habitat for the conservation of San Bernardino kangaroo rat and Santa Ana River woollystar. The bank is located in the Lytle Creek wash area north of I-210 and southwest of I-215 in San Bernardino County, near the cities of Fontana and Rialto. It is managed by Wildlands.

Chino Hills State Park. This state park is an open space reserve within the Santa Ana Canyon hills near Riverside, California. This reserve is a critical link in the Puente–Chino Hills biological corridor and encompasses oaks, sycamores, and Riversidean sage scrub with continuous grassy hills nearly 31 miles long. This area stretches from the Santa Ana Mountains to Whittier Hills. Riversidean sage scrub is an important vegetation community that supports sensitive wildlife species, including the coastal California gnatcatcher.

Prado Basin Mitigation Area. A water conservation level behind Prado Dam was elevated in a 1995 agreement between Orange County Water District, ACOE, and USFWS. This allowed for nearly doubling the water to be stored behind the dam. The agreement was based upon the desire to enhance the water conservation and environmental values of Prado Basin, which is a breeding ground for the least Bell's vireo. Nearly 465 acres of constructed wetlands were created within and adjacent to the Orange County Water District property. This reserve has effectively demonstrated the ability to reduce nitrogen levels in the Santa Ana River.

Woolly Star Preserve Area. Located in the upper Santa Ana Wash, the 760-acre preserve was established by ACOE along the Santa Ana River Wash as mitigation for the Seven Oaks Dam project.

Crafton Hills Conservancy. Since 1992, the Crafton Hills Open Space Conservancy has acquired land in the Crafton Hills by donation of land and/or conservation of easements, gifts of land for exchange or sale, and purchase of land with donated funds.

Wildwood Canyon State Park. Wildwood Canyon State Park is located within the eastern foothills of the San Bernardino County near the town of Yucaipa. This park is surrounded by the San Bernardino National Forest.

Oak Glen Preserve–Wildlands. The Oak Glen Preserve, owned by the Wildlands Conservancy, is composed of 2,189 acres. It is located adjacent to the San Bernardino National Forest near Yucaipa Ridge. The goal for the preserve is to promote expansion of the San Gorgonio Wilderness while preventing exploitation of private lands.

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APPENDIX A

Vegetation Communities and Land Covers

APPENDIX A
Vegetation Community Descriptions

The San Bernardino Countywide Plan Biological Resources Existing Conditions Report briefly describes the vegetation communities and land covers by general community. This appendix provides additional detail regarding the vegetation communities and land covers within the Desert, Valley, and Mountain Regions.

1 DESERT REGION

As described within the Existing Conditions Report, vegetation communities and land covers within the Desert Region were mapped using the 2014 Desert Renewable Energy Conservation Plan (DRECP) land cover map. The DRECP group level descriptions below were taken directly from the DRECP Baseline Biology Report (Dudek 2015).

Agriculture

Field crops account for most of the land in production, including alfalfa, Sudangrass for hay, wheat, cotton, barley, Bermuda grass, and sugar beets (UC Davis 2011a). Major vegetable crops include lettuce, cabbage, carrots, onions, broccoli, cauliflower, sweet corn, bell pepper, chili peppers, cantaloupes, mixed melons, and watermelons (UC Davis 2011a). Other crops include alfalfa, dry onions, carrots, potatoes, peaches, grapes, and nectarines.

Arid West Freshwater Emergent Marsh

Arid west freshwater emergent marsh is dominated by either common reed (*Phragmites australis*), tall bulrushes (*Schoenoplectus* spp.), or cattails (*Typha* spp.). Within the Plan Area, much of this vegetation type is mapped at the group level, but a portion is also mapped as the *Typha* (*angustifolia, domingensis, latifolia*) alliance.

Arizonan Upland Sonoran Desert Scrub

Arizonan upland Sonoran desert scrub occurs on rocky or bouldery hills and lower mountains (VegCAMP and AIS 2013). Arizonan upland Sonoran desert scrub includes the following alliance: *Viguiera parishii*. Arizonan upland Sonoran desert scrub primarily occurs along the Colorado River and in the southern portion of the Pinto Lucerne Valley and Eastern Slopes Subarea.

California Annual Grassland

California annual grassland consists of grasses and herbs adapted to Mediterranean climates. If shrubs are present they do not exceed more than 10% cover and/or are not evenly distributed (VegCAMP and AIS 2013). California annual grassland is most common along the boundary north of the San Bernardino National Forest. The California annual grassland (native component) includes Brassica nigra and other mustards, and *Bromus rubens–Schismus* (*arabicus, barbatus*).

High-quality stands of the California annual grassland (native component) are considered a locally rare occurrence (LRO). The California annual grassland macrogroup also includes some areas of Mediterranean California naturalized annual grassland, a subtype that was aggregated into this macrogroup.

California Annual Forb/Grass Vegetation

California annual forb/grass vegetation is a group within the broader California annual and perennial grassland macrogroup. Although non-native forbs and grasses may be dominant, native herbs are characteristic and evenly distributed across the herbaceous layer. Cover and composition of native species vary from year to year, but indicators are usually present in sufficient amounts to differentiate from non-native stands. Diagnostic species include fiddleneck (*Amsinckia* spp.), California poppy (*Eschscholzia* spp.), goldfields (*Lasthenia* spp.), dotseed plantain (*Plantago erecta*), and small fescue (*Festuca microstachys*) (VegCAMP and AIS 2013). California annual forb/grass vegetation occurs mainly in the West Mojave and Eastern Slopes and Mojave and Silurian Valley Subareas, although there is also a small amount in the Ord Mountains of the Pinto Lucerne Valley and Eastern Slopes Subarea. There is one alliance within the California annual forb/grass vegetation group: *Amsinckia* (*menziesii, tessellata*).

Californian Broadleaf Forest and Woodland

Californian broadleaf forest and woodland includes broadleaf evergreen or winter deciduous trees of the California Mediterranean climate zone. It includes mostly oak trees (*Quercus* spp.), but also includes small stands of buckeye (*Aesculus californica*) and black walnut (*Juglans californica*) (VegCAMP and AIS 2013). The Californian broadleaf forest and woodland alliances include *Quercus chrysolepis* tree and *Quercus wislizeni* tree. Californian broadleaf forest and woodland is primarily located along Horsethief Canyon north of San Bernardino National Forest.

Californian Mesic Chaparral

Californian mesic chaparral occurs on sites with mesic conditions, such as north-facing slopes, concavities, and toeslopes with well-drained soils. It is found throughout Mediterranean California, but is primarily inland from the coastal fog belt. Californian mesic chaparral occurs up to 6,000 feet in Southern California. Dominant plant species include a variety of mixed or single-species, evergreen, sclerophyllous shrubs that resprout following fire (VegCAMP and AIS 2013). Although most of this vegetation type is mapped at the coarser group level, there are four alliances: *Cercocarpus montanus*, *Prunus ilicifolia*, *Quercus berberidifolia*, and *Quercus berberidifolia–Adenostoma fasciculatum*.

Californian Montane Conifer Forest

Californian montane conifer forests are characterized by an evenly distributed presence of bigcone Douglas-fir (*Pseudotsuga macrocarpa*) in the canopy, usually with canyon live oak (*Quercus chrysolepis*) as a co-dominant with up to three times the cover of bigcone Douglas-fir. This community is restricted to sheltered sites, including areas protected from canopy fire and relatively steep and shady lower canyons and slopes (VegCAMP and AIS 2013).

Californian Warm Temperate Marsh/Seep

Californian warm temperate marsh/seep is dominated by artic rush (*Juncus arcticus* var. *balticus, mexicanus*) and occurs in temporarily to seasonally flooded meadow environments. Although other native and non-native herbs may be present, arctic rush is prevalent throughout the stand (Aerial Information Systems Inc. 2013). This alliance is present in the southern portion of the West Mojave and Eastern Slopes Subarea and near the Paradise Range in the Mojave and Silurian Valley Subarea.

Californian Xeric Chaparral

Californian xeric chaparral consists of a mixture of obligate seeders, facultative seeders, and resprouters that form sclerophyll shrublands dominated by one or more of the following species: chamise (*Adenostoma fasciculatum*), bigberry manzanita (*Arctostaphylos glauca*), hoaryleaf ceanothus (*Ceanothus crassifolius*), or flannelbush (*Fremontodendron* spp.). Drought-deciduous black sage (*Salvia mellifera*) may be codominant. Californian xeric chaparral typically occurs on well-drained soils with exposures that receive full sun much of the growing season, such as upper slopes, spur ridges, and convexities. Californian xeric chaparral generally occurs inland from maritime chaparral from sea level up to 6,400 feet in elevation. This vegetation type ranges from inland northern Baja California, Mexico, southern, central, and northern California through the northern end of the Great Valley and north into Oregon (VegCAMP and AIS 2013). Californian xeric chaparral occurs along the mountainous areas within the West Mojave and Eastern Slopes Subarea. There are three alliances of California xeric chaparral on site: *Adenostoma fasciculatum*, *Arctostaphylos glauca*, and *Fremontodendron californicum*. *Fremontodendron* californicum is an S2 alliance, which is considered rare.

Central and South Coastal California Seral Scrub

Stands of central and south coastal California seral scrub are typically open and have often recently been disturbed so as to reduce vegetative cover, as in a fire. The following species are dominant or co-dominant: San Joaquin snakeweed (*Gutierrezia californica*), common deerweed (*Acmispon glaber*), silver lupine (*Lupinus albifrons*), narrowleaf goldenbush (*Ericameria linearifolia*), yerba santa (*Eriodictyon* spp.), Mendocino bushmallow (*Malacothamnus fasciculatus*), longstem buckwheat (*Eriogonum elongatum*), naked buckwheat (*Eriogonum*

nudum), common sandaster (*Corethrogyne filaginifolia*), and tree poppy (*Dendromecon rigida*) (VegCAMP and AIS 2013). There are two alliances within the central and south coastal California seral scrub: *Ericameria linearifolia* and *Eriodictyon* (*crassifolium, trichocalyx*). The *Ericameria linearifolia* alliance has a state ranking of S3 and is considered rare. Central and south coastal California seral scrub is found east of the Tehachapi Mountains near Mojave and in the southern portion of the Plan Area from Mountain Top Junction east of Highway 138 east to Mojave River Forks Regional Park.

Central and South Coastal Californian Coastal Sage Scrub

Central and south coastal Californian coastal sage scrub includes Eastern Mojave buckwheat (*Eriogonum fasciculatum*), black sage (*Salvia mellifera*), or bastardsage (*Eriogonum wrightii*) (VegCAMP and AIS 2013). This vegetation type occurs primarily the West Mojave and Eastern Slopes subarea. Two south coastal Californian coastal sage scrub alliances are *Eriogonum fasciculatum* and *Eriogonum wrightii*, the former being much more common than the latter. The *Eriogonum wrightii* alliance has a state ranking of S3 and is considered rare.

Developed and Disturbed Area

Developed and disturbed land includes low- to high-intensity urban development and open space associated with developed areas, including uses such as golf courses. Developed areas are concentrated in the western Mojave in the Palmdale/Lancaster area. Disturbed lands occur primarily in the western Mojave area.

Great Basin Pinyon–Juniper Woodland

Great Basin pinyon–juniper woodland is a desert conifer woodland and has three alliances: *Cercocarpus ledifolius*, *Juniperus californica*, and *Pinus monophylla*. The *Juniperus californica* within the High Desert Plains and Hills is considered an LRO of this alliance. Great Basin pinyon–juniper woodland includes more than 1% absolute cover of singleleaf pine (*Pinus monophylla*) that is evenly distributed throughout the stand and the stand may have equal or higher cover of California juniper (*Juniperus californica*), Joshua tree (*Yucca brevifolia*), and/or Tucker oak (*Quercus john-tuckeri*) (VegCamp and AIS 2013).

Intermontane Deep or Well-Drained Soil Scrub

The intermontane deep or well-drained soil scrub, Mojave and Great Basin upper bajada and toeslope, and Southern Great Basin semi-desert grassland groups are categorized within the Inter-Mountain Dry Shrubland and Grassland vegetation macrogroup. Intermontane deep or well-drained soil scrub includes stands dominated by spiny hopsage (*Grayia spinosa*), winterfat (*Krascheninnikovia lanata*), rough jointfir (*Ephedra nevadensis*), Mormon tea (*E. viridis*), Eastern Mojave buckwheat (*Eriogonum fasciculatum*), water jacket (*Lycium andersonii*), peach

thorn (*L. cooperi*), and Mexican bladdersage (*Scutellaria* (*Salazaria) mexicana*). Intermontane deep or well-drained soil scrub typically occurs on north-facing slopes at lower elevations, but also occurs in basins and on slopes above 3,500 feet. Intermontane deep or well-drained soil scrub can also be found on the medium-textured soils of basin margins and lower fans, especially in cool air drainages. Intermontane deep or well-drained soil scrub includes many similar vegetation types with subtle differences based on soil texture, chemistry, and disturbance regime. This vegetation type recovers rapidly following fire compared to Mojave and Great Basin upper bajada and toeslope (VegCAMP and AIS 2013). Intermontane deep or well-drained soil scrub is located primarily along the southern edge of the West Mojave and Eastern Slopes following northwest to the foothills of the Scodie Mountains, and from the Calico Mountains in the Mojave and Silurian Valley Subarea. The following alliances are mapped within the intermontane deep or well-drained soil scrub group: *Ephedra nevadensis*, *Ephedra viridis*, *Ericameria teretifolia*, *Grayia spinosa*, *Krascheninnikovia lanata*, *Lycium cooperi*, and *Purshia tridentata*. The *Ephedra nevadensis* alliance in the high desert plains and hills is considered an LRO. In addition, the *Krascheninnikovia lanata*, *Lycium andersonii*, *Lycium cooperi*, and *Purshia tridentata* alliances are considered rare.

Intermontane Seral Shrubland

Intermontane seral shrubland is dominated by relatively small, short-lived plants that colonize uplands following both natural and unnatural disturbance events, such as clearing or fire. Characteristic species include Acton's brittlebush (*Encelia actoni*), Virgin River brittlebush (*E. virginensis*), rubber rabbitbrush (*Ericameria nauseosa*), Cooper's goldenbush (*E. cooperi*), or snakeweed (*Gutierrezia* spp.). In addition, burrobrush (*Ambrosia salsola*), Eastern Mojave buckwheat (*Eriogonum fasciculatum*), Nevada jointfir (*Ephedra nevadensis*), turpentinebroom (*Thamnosma montana*), and horsebrush (*Tetradymia* spp.) may be present (VegCAMP and AIS 2013). Intermontane seral shrubland occurs primarily in the mountainous regions in the West Mojave and eastern slopes. The following alliances are within this group: *Encelia* (*actoni, virginensis*), *Ericameria cooperi*, *Ericameria nauseosa*, and *Gutierrezia sarothrae*. Both the *Encelia* (*actoni, virginensis*) and *Gutierrezia sarothrae* alliances are state ranked S3 and are therefore considered rare.

Inter-Mountain Dry Shrubland and Grassland

Inter-mountain dry shrubland and grassland vegetation generally consists of scrubs of the cooler (higher elevation) desert. Most of this macrogroup's diagnostic species are long-lived. Although some of the diagnostic species resprout following fire, some are extremely sensitive to fire. Inter-mountain dry shrubland and grassland is widespread in the higher elevations of the Mojave Desert, but in the western and central Mojave and Sonoran deserts, fires and clearing have resulted in many stands of transitional types that intergrade between seral scrub and more stable persistent stands (VegCAMP and AIS 2013).

Intermountain Mountain Big Sagebrush Shrubland and Steppe

Intermountain mountain big sagebrush shrubland and steppe is a sagebrush community occurring at montane elevations. Intermountain mountain big sagebrush shrubland and steppe typically occurs on flats, ridges, nearly flat ridgetops, and mountain slopes with deep to stony soil. It is composed primarily of mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*) and related taxa. Antelope bitterbrush (*Purshia tridentata*) may occur as a dominant or co-dominant shrub. Other shrubs include snowberry (*Symphoricarpos* spp.), serviceberry (*Amelanchier* spp.), rubber rabbitbrush (*Ericameria nauseosa*), wild crab apple (*Peraphyllum ramosissimum*), wax currant (*Ribes cereum*), and yellow rabbitbrush (*Chrysothamnus viscidiflorus*) (USNVC 2013). Intermountain mountain big sagebrush shrubland and steppe occurs in the San Bernardino Mountains. *Artemisia tridentata* is the only alliance within this group. Intermountain mountain big sagebrush shrubland and steppe also includes inter-mountain west mesic tall sagebrush shrubland and steppe, a subtype that was aggregated into this vegetation type

Lower Bajada and Fan Mojavean – Sonoran Desert Scrub

Lower bajada and fan Mojavean–Sonoran desert scrub occurs on lower slopes, fans, and small sheet flow areas, but does not occur on well-defined washes or arroyos with defined banks and channels. This vegetation type is dominated or co-dominated by the following small to moderate sized shrubs (or perennial grasses): ragweed (*Ambrosia* spp.), brittlebush (*Encelia* spp.), creosote bush (*Larrea tridentata*), senna (*Senna* spp.), paloverde (*Parkinsonia* spp.), desert ironwood (*Olneya tesota*), barrel cactus (*Ferocactus* spp.), dalea (*Psorothamnus* spp.), and ratany (*Krameria* spp.). Where yucca, Mexican bladdersage, hopsage, or Mormon tea are present, they have equal or lower cover. Winters where lower bajada and fan Mojavean–Sonoran desert scrub occurs may experience short frosts, but typically do not experience persistent freezes or snow accumulation (VegCAMP and AIS 2013). Lower bajada and fan Mojavean–Sonoran desert scrub is found throughout most of the Desert Region and includes the following alliances: *Ambrosia dumosa*, *Atriplex polycarpa*, *Encelia farinosa*, *Larrea tridentata*, *Larrea tridentata–Ambrosia dumosa*, and *Larrea tridentata–Encelia farinosa*.

Madrean Warm Semi-Desert Wash Woodland/Scrub

Madrean warm semi-desert wash woodland/scrub is mapped in defined desert washes that are distinctly different in plant composition and/or cover compared to adjacent upland vegetation types. The washes where this community is found are variable and can range from broad and many-channeled to narrow with a singular or few channels. Washes where Madrean warm semi-desert wash woodland/scrub occurs may be found in hills, across moderate sloping fans, or in relatively flat lower toeslopes or basins. Diagnostic species include jointfir (*Ephedra californica* or *E. trifurca*), California broomsage (*Lepidospartum squamatum*), Mojave rabbitbrush (*Ericameria paniculata*), burrobrush (*Ambrosia salsola*), desert almond (*Prunus fasciculata*),

woolly brickellbush (*Brickellia incana*), big sagebrush (*Artemisia tridentata* ssp. *parishii*), catclaw acacia (*Acacia greggii*), desert lavender (*Hyptis emoryi*), honey mesquite (*Prosopis glandulosa*), screwbean mesquite (*P. pubescens*), desert willow (*Chilopsis linearis*), smoketree (*Psorothamnus spinosus*), blue paloverde (*Parkinsonia florida*), and desert ironwood (*Olneya tesota*) (VegCAMP and AIS 2013).

Mojave and Great Basin Upper Bajada and Toeslope

Mojave and Great Basin upper bajada and toeslope are shrublands with shrubs attaining at least 2% cover and evenly distributed. However, indicator species for intermontane deep or well-drained soil scrub, if present, are usually less conspicuous or less dominant than coleogyne (*Coleogyne* spp.), bitterbrush (*Purshia* spp.), menodora (*Menodora* spp.), mountain mahogany (*Cercocarpus* spp.), or yucca (*Yucca* spp.) (VegCAMP and AIS 2013). Mojave and Great Basin upper bajada and toeslope is fairly common throughout much of the Plan Area except the southern portion. It is most common in the Kingston mountains and Providence and Bullion mountains in the eastern portion of the Plan Area (Figure 4-1)., There are five Mojave and Great Basin upper bajada and toeslope alliances: *Coleogyne ramosissima*, *Menodora spinescens*, *Scutellaria (Salazaria) mexicana*, *Yucca brevifolia*, and *Yucca schidigera*. The *Coleogyne ramosissima* alliance is considered an LRO in the high desert plains and hills. In addition, the *Menodora spinescens* and *Yucca brevifolia* alliances are ranked S3 and are considered rare.

Mojavean Semi-Desert Wash Scrub

Mojavean semi-desert wash scrub is one of two groups or vegetation types within the Madrean warm semi-desert wash woodland/scrub macrogroup. This community occurs in many scattered locations, but is most common in the western area, and is differentiated from the Sonoran–Coloradan semi-desert wash woodland/scrub community by specific alliance. This community is dominated, co-dominated, or contains an even distribution of shrubs including jointfir, California broomsage, Mojave rabbitbrush, burrobrush, desert almond, woolly brickellbush, big sagebrush, and sweetbush (*Bebbia juncea*) (VegCAMP and AIS 2013). The alliances include *Ambrosia salsola*, *Brickellia incana*, *Ephedra californica*, *Ericameria paniculata*, *Lepidospartum squamatum*, and *Prunus fasciculata*. All of these alliances, with the exception of *Ambrosia salsola*, are considered rare due to their state ranking.

North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat

North American warm desert alkaline scrub and herb playa and wet flat include dense herbaceous stands that are wet, flooded, or moist throughout the growing season (VegCAMP and AIS 2013). This vegetation type ranges from Edwards Air Force Base to Death Valley in the northeast to Ivanpah Valley along the eastern boundary, and southeast to the Chuckwalla Valley.

North American Warm Desert Bedrock Cliff and Outcrop

North American warm desert bedrock cliff and outcrop is characterized by areas in which vegetation is largely absent. Vegetation is not uniformly distributed across a landscape surface and generally consists of less than 5% cover. There are no evenly spaced trees or shrubs. While North American warm desert bedrock cliff and outcrop is not characterized by herbaceous species most of the time, in years of substantial precipitation, herbaceous annual species may be abundant and evenly distributed (VegCAMP and AIS 2013). North American warm desert bedrock cliff and outcrop is most prevalent in the eastern and southern portions from the Piute Valley south.

North American Warm Dunes and Sand Flats

North American warm desert dunes and sand flats include four mapped alliances: Dicoria *canescens–Abronia villosa*, *Panicum urvilleanum*, *Hilaria (Pleuraphis) rigida*, and *Prosopis glandulosa* (coppice dunes). All of the alliances within this group are considered rare given their state ranking. North American warm desert dunes and sand flats is characterized by open dunes, dune aprons, or sand flats in which vegetation is sparse to very open (less than 10% cover) except for annual blooms in favorable years (VegCAMP and AIS 2013). This community occurs throughout the Mojave Desert and lower Great Basin Desert and 4 systems in the Sonoran Desert.

Open Water

Open water accounts for areas within the wetlands the majority of which is the Salton Sea.

Playa

Playas are dry lake beds that may form shallow lakes after heavy rain events; playas are most prevalent in Ward Valley.

Riparian

Riparian vegetation types include a riverine category and five groups: Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, Sonoran–Coloradan semi-desert wash woodland/scrub, Southwestern North American riparian evergreen and deciduous woodland, and Southwestern North American riparian/wash scrub.

Rural

Rural lands are primarily characterized by rural development or agricultural land uses.

Shadscale–Saltbush Cool Semi-Desert Scrub

Shadscale–saltbush cool semi-desert scrub is dominated or co-dominated by fourwing saltbush (*Atriplex canescens*), shadscale saltbush (*A. confertifolia*), or greasewood (*Sarcobatus vermiculatus*). Shadscale–saltbush cool semi-desert scrub generally occurs in dry lakebeds, low dunes adjacent to lakebeds, rocky uplands, or sandy washes (VegCAMP and AIS 2013). Shadscale-saltbush cool semi-desert scrub alliances include *Atriplex canescens* and *Atriplex confertifolia*.

Sonoran–Coloradan Semi-Desert Wash Woodland/Scrub

Sonoran–Coloradan semi-desert wash woodland/scrub is the second group or community within the Madrean warm semi-desert wash woodland/scrub macrogroup. This community occurs primarily from the Twentynine Palms area southeast to the Palo Verde Valley. Microphyll woodlands, as defined in the DRECP, consist of four alliances within this vegetation type: desert willow (*Chilopsis linearis*), mesquite (*Prosopis glandulosa*), smoke tree (*Psorothamnus spinosus*), and blue palo verde–ironwood (*Parkinsonia florida–Olneya tesota*). Sonoran–Coloradan semi-desert wash woodland/scrub is characterized by wash or wetland margin vegetation of warmer desert areas. Diagnostic species include shrubby "trees," such as mesquite (*Prosopis glandulosa* or *P. pubescens*), desert willow, smoke tree, paloverde, desert ironwood (*Olneya tesota*), or tall wash or wetland shrubs, such as arrowweed (*Pluchea sericea*) and desert lavender. Sonoran–Coloradan semi-desert wash woodland/scrub is often found at the edges of springs, river terraces, washes, and other areas that concentrate water (VegCAMP and AIS 2013). The following alliances occur within this community on site: *Acacia greggii*, *Chilopsis linearis*, *Hyptis emoryi*, *Parkinsonia florida–Olneya tesota*, *Prosopis glandulosa*, and *Psorothamnus spinosus*. Of these, *Chilopsis linearis*, *Hyptis emoryi*, *Prosopis glandulosa*, and *Psorothamnus spinosus* have state rankings of S3 and are considered rare.

Southern Great Basin Semi-Desert Grassland

Southern Great Basin semi-desert grassland is dominated by perennial grasses while shrubs are not evenly distributed (VegCAMP and AIS 2013). Southern Great Basin semi-desert grassland occurs in some scattered locations in the northern portion of the West Mojave and Eastern Slopes Subarea and in the Superior Valley in the Mojave and Silurian Valley Subarea. The following alliance occurs within this community: *Achnatherum speciosum* alliance, which is ranked as S2 and is considered rare in the Plan Area.

Southwestern North American Riparian Evergreen and Deciduous Woodland

Southwestern North American riparian evergreen and deciduous woodlands are characterized by riparian winter deciduous, broad-leaved trees, or tall shrubs, including Fremont cottonwood (*Populus fremontii*), California sycamore (*Platanus racemosa*), and/or willows (*Salix* spp.). This

vegetation type occurs primarily along the Mojave River. The following alliances occur within this community on site: *Platanus racemosa*, *Populus fremontii*, *Salix gooddingii*, *Salix laevigata*, and *Washingtonia filifera*. All of these alliances are considered rare.

Southwestern North American Riparian/Wash Scrub

Southwestern North American riparian/wash scrub is characterized by native or non-native riparian shrubs and lacks a significant cover or presence of riparian trees. Generally, native species of baccharis (*Baccharis* spp.), elderberry (*Sambucus* spp.), swampprivet (*Forestiera* spp.), narrowleaf willow (*Salix exigua*), or arroyo willow (*S. lasiolepis*) are dominant or co-dominant. There may be scattered, unevenly distributed *Populus fremontii* and other willow species (*Salix* spp.) or other riparian trees at less than 10% cover (VegCAMP and AIS 2013). Southwestern North American riparian/wash scrub also includes some areas of Southwestern North American introduced riparian scrub, a subtype that was aggregated into this group. The following alliances occur within the Southwestern North American riparian/wash scrub on site: *Baccharis salicifolia*, *Baccharis sergiloides*, *Forestiera pubescens*, *Salix exigua*, *Salix lasiolepis*, *Sambucus nigra*, and *Tamarix* spp. The *Baccharis sergiloides*, *Forestiera pubescens*, and *Sambucus nigra* alliances have state rankings of S2 or S3 and so are considered rare.

Southwestern North American Salt Basin and High Marsh

Southwestern North American salt basin and high marsh is typically restricted to alkali or salt basins, spring margins, or river terraces with salt or alkali deposits (VegCAMP and AIS 2013). Most of this vegetation type occurs in the West Mojave and Eastern Slopes Subarea. There are several alliances mapped within this group, including *Allenrolfea occidentalis*, *Atriplex lentiformis*, *Atriplex parryi*, *Atriplex spinifera*, *Distichlis spicata*, *Frankenia salina*, *Isocoma acradenia*, and *Suaeda nigra (moquinii)*. The *Allenrolfea occidentalis*, *Atriplex parryi*, *Frankenia salina*, and *Isocoma acradenia* alliances are all considered rare due to their state rankings. Southwestern North American alkali marsh/seep vegetation is also included as a subtype within Southwestern North American salt basin and high marsh and is dominated by either rushes (*Juncus* spp.) or bulrushes (*Schoenoplectus* or *Bolboschoenus* spp.) (VegCAMP and AIS 2013).

Western Mojave and Western Sonoran Desert Borderland Chaparral

Western Mojave and western Sonoran Desert borderland chaparral is characterized by two-tiered shrublands. One layer includes a moderately open to intermittent cover of sclerophyll shrubs such as scrub oaks (*Quercus cornelius-mulleri* and *Quercus john-tuckeri*) and another shorter layer includes drought deciduous subshrubs with at least some presence of xerophylls, such as pricklypear (*Opuntia* spp.), cholla (*Cylindropuntia* spp.), and yucca (*Yucca* or *Hesperoyucca* spp.). Many drought-deciduous species with desert affinities, such as goldenbush (*Ericameria* spp.) and

Acton's brittlebush (*Encelia actoni*), may also be present. Species considered true Mediterranean California chaparral species, such as chamise (*Adenostoma* spp.), manzanita (*Arctostaphylos* spp.), and many ceanothus species (*Ceanothus* spp., other than *C. greggii*), are either lower in cover or absent from the stand (VegCAMP and AIS 2013). Western Mojave and western Sonoran Desert borderland chaparral occurs in scattered locations in the West Mojave and Eastern Slopes Subarea southeast to the little San Bernardino Mountains in the Pinto Lucerne Valley and Eastern Slopes Subarea. Two alliances are within Western Mojave and western Sonoran Desert borderland chaparral: *Quercus cornelius-mulleri* and *Quercus john-tuckeri*.

Wetland

The wetland vegetation includes five vegetation types: arid west freshwater emergent marsh, Californian warm temperate marsh/seep, North American warm desert alkaline scrub and herb playa and wet flat, Southwestern North American alkali marsh/seep vegetation, and Southwestern North American salt basin and high marsh.

2 MOUNTAIN AND VALLEY REGIONS

Vegetation communities and land covers within the Mountain and Valley Regions were mapped based on the Classification and Assessment with Landsat of Visible Ecological Groupings (CALVEG) classification system. The community descriptions below are taken directly from the CALVEG Zone 7, "South Coast and Montane Ecological Province" (CALVEG 2009).

Agriculture (General)

Agricultural land is used primarily for the production of food and includes forest landscapes such as orchards as well as non-forested land uses such as vineyards and field crops.

Agricultural Nurseries (General)

Agricultural nursery sites occur within or outside developed or disturbed lands and include potted or sometimes rooted woody or herbaceous plants that are sold as retail or wholesale species.

Alkaline Mixed Grasses

Alkaline and hyper-saline soils occur in xeric areas in internal drainage basins that accumulate soluble salts and may have moist pockets. This alliance includes areas occupied by herbaceous species and grasses adapted to these conditions at an elevation range of about 100–3,500 feet (31–1,068 meters). These sites are adjacent to other desert species such as creosote bush (*Larrea tridentata*) and saltbush species (*Atriplex* spp.). In addition, herbaceous and graminoid species such as saltgrass (*Distichlis spicata*), alkali sacaton (*Sporobolus airoides*), and bush seepweed (*Suaeda nigra (moquinii)*) may be included in this mixture.

Alpine Mixed Scrub

Alpine mixed scrub alliance occurs above 7,600 feet (2,318 meters) along ridges and slopes. The alliance includes a mixture of grasses, herbaceous plants, and often prostrate subshrubs. Rounded, low-profile xerophytic plant forms ("cushion plants") such as southern alpine buckwheat (*Eriogonum kennedyi* var. *alpigenum*) occur with other subshrubs and taller shrubs such as sulphur-flower buckwheat (*Eriogonum umbellatum*), rock spiraea (*Holodiscus microphyllus*), wax currant (*Ribes cereum*), mountain gooseberry (*Ribes montigenum*), purple mountainheath (*Phyllodoce breweri*), red elderberry (*Sambucus racemosa*), and shrub willows such as Geyer's (*Salix geyeriana*) and Lemmon's (*Salix lemmonii*). Perennials such as *Draba corrugata*, silky raillardella (*Raillardella argentea*), campion (*Silene parishii*), pussypaws (*Calyptridium monospermum*), alpine shooting star (*Dodecatheon alpinum*), buttercup (*Ranunculus eschscholtzii var. oxynotus*), pumice Alpinegold (*Hulsea vestita*) as well as grasses and graminoid species such as needlegrass (*Achnatherum occidentale*), squirreltail (*Elymus elymoides*), rushes (*Juncus* spp.), and sedges (*Carex* spp.) may also occur.

Agriculture Pond or Water Feature

This class includes artificially constructed water features on otherwise agricultural sites on farms, ranches, etc., are large enough to map and document. These sites include stock ponds, small reservoirs, large ditches and other utilitarian or recreational water features.

Annual Grasses and Forbs

Many non-native grasses are occur within this alliance, including species of wild oats (*Avena* spp.), various bromes (*Bromus* spp.), foxtail fescue (*Vulpia myuros*), filaree (Erodium spp.), and Kentucky bluegrass (*Poa pratensis*). In addition, the alliance may also include natives species such as various sedges (*Carex* spp.), melic grass (*Melica* spp.), and checker bloom (*Sidalcea malviflora*). This alliance occurs on sites up to 4,600 feet (1,402 meters) in the Coast Section, up to about 7,800 feet (2,379 meters) in the Mountains Section and on low-gradient sites up to about 6,200 feet (1,890 meters) in the High Desert Plains of the Mojave Section.

Baccharis (Riparian)

This riparian or dry wash alliance is dominated by any species of *Baccharis* occupying wet habitats, including the most common, mulefat (*B. salicifolia*), desert baccharis (*B. sergiloides*), shortleaf baccharis (*B. brachyphylla*), marsh baccharis (*B. douglasii*), broom baccharis (*B. sarothroides*), and willow baccharis (*B. salicina (emoryi)*). Tree willows (Salix spp.), California sycamore (*Platanus racemosa*), Fremont cottonwood (Populus fremontii), and coast live oak (*Quercus agrifolia*) are some associated hardwoods in this alliance. This alliance occurs within the elevation range 200–4,400 feet (60–1,340 meters) on low-gradient slopes.

Barren

Barren lands include landscapes that are generally devoid of vegetation and may include exposed bedrock, cliffs, interior sandy or gypsum areas. Barren lands may include quarries and mine sites.

Basin Sagebrush

Big sagebrush (*Artemisia tridentata*) is identified mainly by the dominance of *Artemisia tridentata* ssp. *tridentata* and/or *A. t*. ssp. *vaseyana*. These sites occur within a range of 1,800–9,200 feet (548–2,806 meters) and in habitats containing low-gradient slopes and coarse, often deep, and well drained soils. Typical sites are dry alluvial fans or washes. Associated species include conifers such as Jeffrey pine (*Pinus jeffreyi*) and singleleaf pinyon (*Pinus monophylla*); dryland and low-elevation chaparral shrubs such as California juniper (*Juniperus californica*), rabbitbrush (*Chrysothamnus* spp.), Tucker's or Muller's oaks (*Quercus john-tuckeri, Q. cornelius-mulleri*), Eastern Mojave buckwheat (*Eriogonum fasciculatum*), redshank (*Adenostoma sparsifolium*), chamise (*A. fasciculatum*), and manzanitas (*Arctostaphylos* spp.); and grasses such as *Bromus* spp.

Bigcone Douglas-Fir

Bigcone Douglas-fir (*Pseudotsuga macrocarpa*) alliance is defined by the clear dominance of this species interspersed with other conifers and occurs up to about 7,000 feet (2,135 meters) in the mountains. Canyon live oak (*Quercus chrysolepis*) can co-occur on protected mesic canyon slopes at lower elevations within its range. This alliance is typically north facing at lower elevations and south-facing or located on steeper slopes in higher elevations. Associated shrub species include *Ceanothus*, birchleaf mountain mahogany (*Cercocarpus betuloides*), Eastern Mojave buckwheat (*Eriogonum fasciculatum*), chamise, and shrub forms of oak (*Quercus* spp.).

Bitterbrush–Sagebrush

Bitterbrush–sagebrush alliance occurs on dry, inland areas at elevations around 7,200 feet (2,196 meters). Both bitterbrush (*Purshia tridentata* var. *glandulosa* and *P. Mexicana* var. *stansburyana*) and big sagebrush (*Artemisia tridentata*) dominate this alliance.

Birchleaf Mountain Mahogany

Birchleaf mountain mahogany (*Cercocarpus betuloides*) alliance is associated with the conifers bigcone Douglas-fir (*Pseudotsuga macrocarpa*) and singleleaf pinyon (*Pinus monophylla*), the hardwoods canyon live oak (*Quercus chrysolepis*), and shrubs such as chamise (*Adenostoma fasciculatum*), species of ceanothus and manzanita (*Arctostaphylos spp*.), various scrub or

shrubby oaks (Quercus spp.), and flannelbush (*Fremontodendron californicum* ssp. c*alifornicum*). This alliance occurs mainly below 8,000 feet (2,440 meters) on steep and often south-facing slopes.

Black Cottonwood

Black cottonwood (*Populus balsamifera* ssp. *trichocarpa*) is the dominant tree in the canopy and occurs within Owens Valley Subsection (Mojave) at elevations generally between 5,100 and 5,300 feet (1,556 and 1,617 meters) and also within the Upper San Gorgonio Mountains at elevations up to 8,000 feet (2,440 meters). Fremont cottonwood (*P. fremontii*) replaces it in Southern California at lower elevations and/or warmer sites. Associated species include coast live oak (*Quercus agrifolia*), California sagebrush and (*Artemisia californica*).

Black Oak

California black oak (*Quercus kelloggii*), is very common in mixed conifer and hardwood stands in association with Jeffrey, Ponderosa, and Coulter pines (*Pinus jeffreyi, P. ponderosa, P. coulteri*), white fir (*Abies concolor*), and bigcone Douglas-fir (*Pseudotsuga macrocarpa*). California black oak alliance occurs on mesic slopes at elevations from about 3,200 to 7,600 feet (976 to 2,318 meters). These stands often develop as a result of intensive fires or other disturbance such as logging of conifers, varying greatly in canopy closure from very dense to savanna-like. Canyon live oak (*Q. chrysolepis*) is the main hardwood associate in pure stands and with this oak in the montane mixed hardwood alliance.

Blackbrush

Blackbrush (*Coleogyne ramosissima*) alliance occurs on non-alkaline soils within the Mojave and occasionally the Colorado Desert. This alliance typically occurs at elevation ranges of about 2,200–6,000 feet (671–1,828 meters) on alluvial or rocky slopes having shallow soils. Associated species include singleleaf (*Pinus monophylla*), California and Utah junipers (*Juniperus californica*, *J. osteosperma*), Joshua tree (*Yucca brevifolia*), Muller oak (*Quercus cornelius-mulleri*), big sagebrush, and brittlebush.

Buckwheat

This alliance is a combination of Eastern Mojave buckwheat (*Eriogonum fasciculatum*) with or without the presence of white sage (*Salvia apiana*) and occurs at elevations up to about 7,000 feet (2,135 meters). Chaparral yucca (*Yucca whipplei*), *Encelia* spp., cholla (*Cylindropuntia* spp.), pricklypear (*Opuntia* spp.), sumacs (*Rhus* and *Malosma* species), and common deerweed (*Acmispon glaber*) are often associated species. This alliance is usually sparsely vegetated. The degradation of chamise or mixed chaparral sites from disturbance likely initiates and expands buckwheat communities.

California Bay

California bay (*Umbellularia californica*) alliance occurs at elevations below about 5,000 feet (1,524 meters). Associated hardwood species include coast live oak (*Quercus agrifolia*) and canyon live oak (*Q. chrysolepis*) as well as shrub species including chamise (*Adenostoma fasciculatum)*, species of *Ceanothus*, and interior live oak shrubs (*Q. chrysolepis* var. *nana, Q. wislizenii* var. *frutescens*).

California Sagebrush

This alliance occurs at elevations below about 3,000 feet (915 meters) and usually has a high density of California sagebrush (*Artemisia californica*) as well as various mixtures of other shrubs, subshrubs, and perennials. Associated species include black or purple Sage (*Salvia mellifera, Salvia leucophylla*), laurel sumac (*Malosma laurina*), lemonade berry (*Rhus integrifolia*), Eastern Mojave buckwheat (*Eriogonum fasciculatum*), coyote brush (*Baccharis pilularis*), California encelia (*Encelia californica*), minor amounts of chamise (*Adenostoma fasciculatum*), common deerweed (*Acmispon glaber*), and grasses. Annual grasses and forbs as well as coast live oak (*Quercus agrifolia*) are commonly found in close proximity to this alliance.

California Juniper (shrub)

California Juniper (*Juniperus californica*) alliance is common in the Little San Bernardino–Bighorn Mountains and desert slopes. This alliance occurs at low to low montane elevations. Singleleaf pinyon (*Pinus monophylla*), Eastern Mojave buckwheat (*Eriogonum fasciculatum*), Muller oak (*Quercus cornelius-mulleri*), creosote bush (*Larrea tridentata*), and blackbrush (*Coleogyne ramosissima*), along with many others, may be found as associates in this alliance.

California Sycamore

California sycamore (*Platanus racemosa*) has been identified to occur at elevations up to about 4,500 feet (1,373 meters). Common associates include Fremont cottonwood (*Populus fremontii*), willows (*Salix* spp.), black walnut (*Juglans californica*), white alder (*Alnus rhombifolia*), and coast live oak (*Quercus agrifolia*). California sycamore alliance occasionally occurs on lower floodplains of more xeric areas and may be adjacent to the Riversidean alluvial scrub alliance in those areas.

California Walnut

California Black Walnut (*Juglans californica*), a species endemic to the state, historically occurred in a restricted range of southern California at elevations from 500 to 2,500 feet (152 to 762 meters) and occur on usually mesic to moist soils on north slopes, creek beds, seeps,

canyon bottoms, and alluvial terraces with deep soils. Walnuts are usually widely spaced and associate species include coast live oak (*Quercus agrifolia*), California bay (*Umbellularia californica*), foothill ash (*Fraxinus dipetala*), Mexican elderberry (*Sambucus mexicana*), sugar sumac (*Rhus ovata*), and skunkbush (*Rhus trilobata*). Coastal sage scrub species such as California sagebrush (*Artemisia californica*) and black sage (*Salvia mellifera*) may also occur.

Canyon Live Oak

Canyon live oak (*Quercus chrysolepis*) is the most widely distributed California oak. This alliance occurs at elevations up to about 8,500 feet (2,593 meters) and sparsely occurs up to approximately 4,400 feet (1,342 meters). There is a wide range of associated species including bigcone Douglas-fir (*Pseudotsuga macrocarpa*) in canyon bottoms and with coulter pine (*Pinus coulteri*) on gentle slopes. Xeric sites include associations with singleleaf pinyon (*P. monophylla*). Other conifer associates include knobcone, Ponderosa, Jeffrey, or gray pines (*P. attenuata, P. ponderosa, P. jeffreyi, P. sabiniana*), and white fir (*Abies concolor*). This alliance is often associated with coast live (*Q. agrifolia*) and blue (*Q. douglasii*) oaks. Common shrubs include deerbrush (*Ceanothus integerrimus*), chaparral whitethorn ceanothus (*C. leucodermis*), birchleaf mountain mahogany (*Cercocarpus betuloides*), poison oak (*Toxicodendron diversilobum*), and manzanita (*Arctostaphylos* spp.).

Catclaw Acacia

Catclaw acacia (*Acacia greggii*) alliance occurs in sandy washes and canyons below 6,000 feet (1,830 meters). Associated species include boxthorn (*Lycium* spp.), burrobush (*Ambrosia salsola* var. *salsola*), creosote bush, brittlebush, cholla (*Cylindropuntia* spp.), and paloverde (*Parkinsonia* spp.).

Ceanothus Mixed Chaparral

This alliance occurs on moderate to high-gradient slopes within the high desert plains and hills subsection, below 5,400 feet (1,646 meters). Ceanothus is the dominant shrub and can include a mixture of desert ceanothus (*Ceanothus greggii* var. *vestitus*), deerbrush (C *integerrimus*), hoaryleaf ceanothus (*C. crassifolius*), mountain whitethorn (*C. cordulatus*), and chaparral whitethorn (*C. leucodermis*). Other minor shrub components include chamise (*Adenostoma fasciculatum*) and sugar sumac (*Rhus ovata*).

Chamise

Chamise (*Adenostoma fasciculatum*), is a dominant shrub identifying this alliance and often develops in harsher environments with shallow soils, recent fire disturbance, xeric or sunnier environments (e.g., south facing slopes) compared to the lower montane mixed chaparral alliance. The elevation range is typically below about 4,800 feet (1,464 meters). It usually

grades with the Eastern Mojave buckwheat (*Eriogonum fasciculatum*) and annual grasses and forbs alliances. Although there are very little additional species found within this alliance, chaparral yucca (*Yucca whipplei*) often occurs on more open sites while coast live oak (*Quercus agrifolia*) can be present in the immediate vicinity.

Coast Live Oak

Coast live oak (*Quercus agrifolia*) alliance occurs at elevations from near sea level to about 5,000 feet (1, 524 meters). This alliance varies in density depending on site conditions such as climate, lithology, and slope angle. This hardwood may be present with species in the California sagebrush and lower montane mixed chaparral alliances such as California sagebrush (*Artemisia californica*), sages (*Salvia* spp.), Eastern Mojave buckwheat (*Eriogonum fasciculatum*), chamise (*Adenostoma fasciculatum*), and species of *Rhus, Malosma*, etc.

Coastal Cactus

Coastal cactus alliance occurs on drier areas up to about 1,800 feet (548 meters). This alliance can be dominated by a combination of *Opuntia* species including coastal or chaparral pricklypear (*Opuntia littoralis*, *O. oricola*) and coastal and snake cholla (*Cylindropuntia prolifera*, *C. californica*). Other associated species include California sagebrush (*Artemisia californica*), Eastern Mojave buckwheat (*Eriogonum fasciculatum*), sumac (*Rhus* spp.), California encelia (*Encelia californica*), black sage (*Salvia mellifera*), bush monkeyflower (*Mimulus aurantiacus*), and grasses.

Coastal Mixed Hardwood

Coastal mixed hardwood alliance does not have a single dominant species, but has a high cover of coast live oak (*Quercus agrifolia*) in the canopy. This alliance often includes black walnut (Juglans californica) individuals in addition to minor proportions of other oaks. Lower elevation shrubs such as California sagebrush (*Artemisia californica*) lemonade berry (*Rhus integrifolia*), laurel sumac (*Malosma laurina*), and chaparral species including *Ceanothus*, toyon (*Heteromeles arbutifolia*), and chamise (*Adenostoma fasciculatum*) may also be present. This alliance occurs at elevations generally less than 3,600 feet (1,098 meters).

Coulter Pine

Coulter pine (*Pinus coulteri*) occurs at elevations generally from 1,000 – 7,000 feet (305 – 2,134 meters). This alliance is dominated by Coulter pine and can have a chaparral understory with mountain whitethorn (*Ceanothus cordulatus*), manzanita (*Arctostaphylo*s spp.), and chamise (*Adenostoma fasciculatum*). Canyon live oaks (*Quercus wislizenii* var. *frutescens*, *Q. chrysolepis* var. *nana*) and associated conifers including ponderosa pine (*P. ponderosa*), bigcone Douglas-fir, and Jeffrey pine (*P. jeffreyi*) may also be present.

Creosote Bush

Creosote bush (*Larrea tridentata*) characterizes much of the desert landscapes in San Bernardino County. This alliance typically occurs up to about 5,200 feet (1,584 meters) and on most slope gradients and aspects. The highest quality habitat however consists of well drained soils with low alkalinity. White bursage (*Ambrosia dumosa*) is the most commonly associated species on these sites. Other associated species include upland desert and semi desert shrubs such as California juniper (*Juniperus californica*), brittlebush (*Encelia farinosa*), species of yucca, cacti (*Opuntia* spp.) as well as desert wash shrub species such as indigo bush (*Psorothamnus schottii*), desert lavender (*Hyptis emoryi*), and bush seepweed (*Suaeda nigra (moquinii)*) may also be found in minor amounts on these sites.

Curlleaf Mountain Mahogany

Curlleaf mountain mahogany (*Cercocarpus ledifolius*) alliance occurs within the elevations of about 4,600–9400 feet (1,402–2,867 meters). Associated species include conifers such as singleleaf pinyon (*Pinus monophylla*) and Jeffrey pine (*Pinus jeffreyi*) and shrubs of semiarid environments such as Big Sagebrush (*Artemisia tridentata*), rubber rabbitbrush (*Chrysothamnus nauseosus*) and Mojave ceanothus (*C. greggii* var. *vestitus*).

Curlleaf Mountain Mahogany (tree)

The tree form of curlleaf mountain mahogany (*Cercocarpus ledifolius*) is the dominant tree in the canopy and occurs on dry and rocky sites at elevations generally between 6,400 and 9,200 feet (1,952 and 2,806 meters). This alliance has been mapped within the San Gorgonio Mountains. Other species present include singleleaf pinyon (*Pinus monophylla*) and Jeffrey pine (*P. jeffreyi*).

Desert Buckwheat

Desert buckwheat alliance is found along most slopes and aspects within the desert as opposed to the buckwheat alliance, which is found within the coastal or chaparral areas. This alliance occurs at elevations from about 1,800 to 6,980 feet (549 to 2,074 meters) and includes Eastern Mojave buckwheat (*Eriogonum fasciculatum*) and other buckwheats such as bastardsage (*Eriogonum wrightii*) and desert trumpet (*E. inflatum*) as the dominant shrubs. Other associated species include white bursage (*Ambrosia dumosa*), big sagebrush (*Artemisia tridentata*), California juniper (*Juniperus californica*), and chamise (*Adenostoma fasciculatum*).

Desert Mixed Shrub

Desert mixed shrub alliance can include a combination of desert shrub species such as cholla (*Cylindropuntia* spp.) or pricklypear (*Opuntia* spp.), Joshua tree, chaparral yucca, Mojave

yucca (*Yucca schidigera*), creosote bush, white bursage, catclaw acacia, species of saltbush (*Atriplex* spp.), ocotillo (*Fouquieria splendens*), brittlebush, hop-sage (*Grayia spinosa*), agave (Agave spp.), Mormon tea (*Ephedra* spp.), barrel cactus (*Ferocactus* spp.), boxthorn (*Lycium* spp.), and blackbrush. Creosote bush and California juniper may also be present. This alliance occurs at elevations up to 6,600 feet (2,012 meters) within the dry margins of the Colorado and Mojave Deserts.

Douglas-Fir–Pine Alliance

This alliance includes a combination of bigcone Douglas-fir (*Pseudotsuga macrocarpa*) and ponderosa pine (*Pinus ponderosa*) that usually occurs on moderately steep slopes at elevation ranges generally from 3,600 to 7,000 feet (1,098 to 2,135 meters). Canyon live oak (*Quercus chrysolepis*) is the most common hardwood associate in mixed stands.

Eastside Pine

Jeffrey pine (*Pinus jeffreyi*) identifies this alliance occurring on the transmontane side of the San Bernardino and San Gabriel Mountains. The alliance has also been mapped in the Northern Transverse Ranges and Upper San Gorgonio Mountains. This alliance occurs at elevations generally from 4,400 to 9,400 feet (1,342 to 2,864 meters), while stands mixed with a hardwood understory are slightly lower, commonly up to 7,800 feet (2,378 meters). Black and canyon live oaks (*Quercus kelloggii*, *Q. chrysolepis*) are the most common hardwood associates. Associated species of semi-arid environments include big sagebrush (*Artemisia tridentata*) and rabbitbrush (*Chrysothamnus* spp.).

Encelia Scrub

Encelia scrub alliance is identified by brittlebush (*Encelia farinosa*) and/or Acton's brittlebush (*E. actoni*), which are found in more arid environments of the desert. This alliance occurs on mid- to high-gradient slopes at elevations up to about 5,000 feet (1,524 meters). Other associated species include creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), and California juniper (*Juniperus californica*).

Eucalyptus

Eucalyptus alliance includes multiple species of *Eucalyptus*—blue gum (*Eucalyptus globulus*), red gum (*E. camaldulensis*), silver gum (*Eucalyptus polyanthemos*), and forest red gum (*Eucalyptus tereticornis*)—and can be established in dense, pure stands at lower elevations, below about 3,000 feet (915 meters). Naturalization has occurred in disturbed areas, augmented by the ability of this genus to resprout after disturbance. Eucalyptus alliances are typically adjacent to urban areas and annual, usually non-native, grasses.

Fan Palm

Fan palm (*Washingtonia filifera*) occurs naturally within oases maintained by seeps, springs, or watercourses in the Colorado Desert. It has also been widely planted and some limited degree of naturalization has occurred. Active faulting processes induced some or all of these sites. As a dominant hardwood of this alliance, fan palm occurs at elevations below about 2,600 feet (792 meters). Other species associated with the fan palm alliance include willows (*Salix* spp.) and Fremont cottonwood (*Populus fremontii*).

Fremont Cottonwood

Fremont cottonwood (*Populus fremontii*) is a relatively long-lived, deciduous riparian tree which germinates best on newly exposed moist alluvium such as stream gravel beds. As a hardwood dominating this alliance, it has been mapped in scattered sites within twenty-one subsections of both sections in the Transverse and Peninsular Ranges at elevations below about 5,600 feet (1,706 meters). Along with other associated trees such as California sycamore (*Platanus racemosa*), white alder (*Alnus rhombifolia*), coast live oak (*Quercus agrifolia*), and willows (*Salix* spp.), Fremont cottonwood becomes a major component of the riparian mixed hardwood alliance.

Great Basin–Desert Mixed Scrub

Great Basin–desert mixed scrub alliance is a transitional alliance that occurs on desert-facing slopes of interior mountains at elevation ranges from about 2,400 to 6,200 feet (732 to 1,890 meters). Great Basin species such as big sagebrush, bitterbrush, and curlleaf mountain mahogany and more southerly Mojave Desert species such as saltbush (*Atriplex* spp.), Mormon tea (*Ephedra nevadensis, E. viridis*), creosote bush, and horsebrush (*Tetradymia glabrata, T. stenolepis*), singleleaf pinyon (*Pinus monophylla*), Tucker's oak, Muller's oak, California juniper, and shrubs in the desert mixed scrub alliance identify this alliance.

Great Basin–Mixed Chaparral Transition

This mixed chaparral to semiarid transitional type is indicated by combinations of dryland shrubs such as big sagebrush (*Artemisia tridentata*), Tucker's or Muller's oaks (*Quercus john-tuckeri*, Q. *cornelius-mulleri*), rabbitbrush (*Chrysothamnus* spp.), coupled with more mesic chaparral species such as mountain whitethorn (*Ceanothus cordulatus*), and manzanitas (*Arctostaphylos* spp.). Minor amounts of Jeffrey pine and singleleaf pinyon may also be found in this alliance. It occurs principally in the transmontane areas of the San Gabriel Mountains and Northern Transverse Ranges Subsections of the Mountain Section, as well as occasionally in 10 other subsections. Slopes are generally desert or south facing, with moderately steep to steep gradients. Most sites fall within elevations from about 1,800 to 8,800 feet (548 to 2,684 meters).

Great Basin Mixed Scrub

Great basin mixed scrub alliance is identified by any combination of species characteristic of the Great Basin and Mojave Desert and can include big sagebrush, bitterbrush (*Purshia tridentata*), Tucker's oak, Muller's scrub oak, curlleaf mountain mahogany (*Cercocarpus ledifolius*), rabbitbrush (*Chrysothamnus* spp.), and interior buckwheats (*Eriogonum* spp.). This alliance occurs at elevations between 2,800 and 7,800 feet (854 and 2,379 meters).

High Desert Mixed Scrub

High desert mixed scrub alliance occurs at elevation ranges from 3,100 – 6,500 feet (946 – 1,983 meters). This alliance is identified by blackbrush, Mormon tea, hopsage, Anderson boxthorn (*Lycium andersonii*), spiny menodora (*Menodora spinescens*), white bursage, and cactus species (*Opuntia* spp.) Creosote bush is generally absent from this alliance.

Interior Live Oak

Interior Live Oak (*Quercus wislizenii*) alliance forms pure stands infrequently at low to intermediate elevations, especially in the San Bernardino Mountains from about 2000 to 6,000 feet (610 to 1,828 meters) with a preference for sites with north-facing slopes. Associated species include chaparral whitethorn (*Ceanothus leucodermis*), chamise (*Adenostoma fasciculatum*), scrub oaks (*Quercus* spp.), and honeysuckle (*Lonicera* spp.).

Interior Mixed Hardwood

Interior mixed hardwood includes a combination of species with no single species being dominant. This alliance occurs within mountains at elevations up to about 6,000 feet (1,830 meters). Mixtures include canyon and interior live oaks (*Quercus chrysolepis, Q. wislizenii*), and valley oak (*Q. lobata*), with minor amounts of black oak (*Q. kelloggii*), blue oak (*Q. douglasii*), and/or Engelmann oak (*Q. engelmannii*). Coast live oak (*Q. agrifolia*), bigleaf maple (*Acer macrophyllum*), and/or California bay (*Umbellularia californica*) are sometimes associated in moist riparian environments. Within the mountains, conifers such as bigcone Douglas-fir (Pseudotsuga macrocarpa) and Coulter pine (Pinus coulteri) may be present.

Intermittent Lake or Pond

Intermittent lake or pond is not described by CALVEG (2009), but includes lakes or ponds that hold water for only parts of the year, typically during the winter or spring months.

Intermittent Stream Channel

Intermittent stream channel is not described by CALVEG (2009), but includes well-defined channels that contain water for only part of the year, typically during the winter or spring months.

Jeffrey Pine

Jeffrey Pine (*Pinus jeffreyi*) stands occur at elevations generally between 3,600 and 9,800 feet (1,096 and 2,986 meters), although most common in the range 4,000–9,000 feet (1,220–2,742 meters). Ponderosa Pine (*P. ponderosa*) may hybridize with Jeffrey pine where the ranges overlap. The most common associated hardwood species is black oak (*Quercus kelloggii*), occurring within the elevation range 4,000 – 7,600 feet (1,220 – 2,316 meters) on low gradient slopes. Canyon live oak (*Quercus chrysolepis*) is also a common hardwood component of these stands, but more often on moderate to steep slopes. Associated shrubs include manzanita species (*Arctostaphylos* spp.), mountain whitethorn (*Ceanothus cordulatus*), deerbrush (*Ceanothus integerrimus*), and bush chinquapin (*Chrysolepis sempervirens*).

Joshua Tree

Joshua tree (*Yucca brevifolia*) alliance is widespread and very characteristic of the Mojave Desert. This alliance has been mapped abundantly in the Little San Bernardino–Bighorn Mountains and occurs within the elevation range of 3,200–5,800 feet (974–1,768 meters) on low-gradient and often north-facing slopes and alluvial fans. Associated species within the Joshua tree alliance include singleleaf pinyon (*Pinus monophylla*), California and Utah junipers (*Juniperus californica, Juniperus osteosperma*), teddybear cholla (*Opuntia bigelovii*), creosote bush (*Larrea tridentata*), muller oak (*Quercus cornelius-mulleri*), boxthorn (*Lycium* spp.), cottonthorn (*Tetradymia* spp.), and Mormon tea (*Ephedra* spp.).

Knobcone Pine

Knobcone pine (*Pinus attenuata*) alliance occurs in San Gorgonio Mountains within the 2,400–5,400 feet (732–1,646 meters) range. It also is known to occur on shallow or coarse granitic soils in the San Bernardino Mountains. This closed-cone conifer is occasionally found with a canyon live oak (*Quercus chrysolepis*) hardwood associate, with conifers such as bigcone Douglas-fir (*Pseudotsuga macrocarpa*) or Coulter pine (*P. coulteri*) and with shrubs such as ceanothus spp., Eastwood manzanita (*Arctostaphylos glandulosa*), chamise (*Adenostoma fasciculatum*), and shrubby oaks (*Quercus* spp.).

Limber Pine

Limber pine (*Pinus flexilis*), a high montane conifer of often remote locations and occurs in scattered open stands or as individual trees above the white fir (*Abies concolor*) range in southern California. It seldom occurs below 8,000 feet (2,438 meters) including higher areas of the San Gabriel and San Bernardino Mountains, such as on Mount Baden-Powell and San Gorgonio Mountain. The trees rarely grow over 30 feet (10 meters) tall and form very scattered and wind-warped forms at the timberline. Slopes are typically high gradient and north facing. Associated conifers within in this alliance include lodgepole pine (*Pinus*

contorta ssp. *murrayana*) and white fir intermixed with limber pine. The understory is very bare, but can include mountain whitethorn (*Ceanothus cordulatus*) or species of manzanita (*Arctostaphylos* spp.).

Lodgepole Pine

This alliance occurs very sparsely at high elevations in the San Bernardino Mountains and has patchy occurrences in the San Jacinto Mountains. Most often found on low-gradient slopes, especially those adjacent to mountain meadows, sites dominated by lodgepole pine (*Pinus contorta* ssp. *murrayana*) have been mapped in the elevation range 8,400–9,200 feet (2,562–2,806 meters). Sites are often east and north facing and have minor components of white fir (*Abies concolor*) or sugar pine (*Pinus lambertiana*). On high windswept peaks, lodgepole pine associates with limber pine (*Pinus flexilis*) in the subalpine conifers alliance.

Lower Montane Mixed Chaparral

Lower montane mixed chaparral alliance occurs mainly on north and east facing slopes within the elevation range of 2,600–5,600 feet (792–1,708 meters). This alliance is highly variable and no single shrub species is dominant. The mixture usually includes any combination of ceanothus, especially desert ceanothus (*C. greggii* ssp. *vestitus*); scrub oak species of manzanita (*Arctostaphylos* spp.); sugar sumac (*Rhus ovata*); and chamise (*Adenostoma fasciculatum*).

Manzanita Chaparral

Manzanita chaparral alliance elevation range is known to occur generally between 2,600 and 7,400 feet (792 and 2,256 meters) in the South Coast and Montane Calveg zones and at elevations between 4,400 and 5,600 feet (1,341 and 1,646 meters) in the Mojave Desert. This alliance is dominated by single or multiple species of Manzanita (*Arctostaphylos* spp.) and can include greenleaf (*Arctostaphylos patula*), bigberry (*A. glauca*), Eastwood (*A. glandulosa*), Mexican (*A. pungens*), and pink-bract manzanitas (*A. pringlei* spp. *drupacea*). Other minor trees and shrubs that may be present include Tucker oak (*Quercus john-tuckeri*), singleleaf pinyon (*Pinus monophylla*) and other dryland species.

Mixed Conifer–Fir

This alliance occurs on mainly north facing, steep slopes at elevation ranges generally from about 5,400 to 9,400 feet (1,646 to 2,864 meters). True fir, usually white fir (*Abies concolor*), comprises a prominent portion of the conifer canopy cover. Jeffrey pine (*Pinus jeffreyi*) is generally present, but may be replaced by lodgepole pine (*Pinus contorta* ssp. *murrayana*) in some areas. Other associated species may include sugar pine (*Pinus lambertiana*), Coulter pine (*Pinus coulteri*), incense cedar (*Calocedrus decurrens*), black oak (*Quercus kelloggii*), and

canyon live oak (*Quercus chrysolepis*). White alder (*Alnus rhombifolia*) and species of willow (*Salix* spp.) may occasionally occur in moist sites of this alliance.

Mixed Conifer–Pine

This alliance occurs on mid to high montane sites, commonly within the elevation range 4,000–8,800 feet (1,220–2,684 meters). Mixed-conifer–pine alliance generally occurs on north facing and steep slopes in stands lacking a prominent hardwood species. No single conifer species is dominant, the mixture usually including high amounts of ponderosa pine (*Pinus ponderosa*) or sugar pine (*P. lambertiana*). Incense cedar (*Calocedrus decurrens*), bigcone Douglas-fir (*Pseudotsuga macrocarpa*), white fir (*Abies concolor*), and Coulter pine (*P. coulteri*) often are present in various combinations. Jeffrey pine (*P. jeffreyi*) and lodgepole pine (*P. contorta* ssp. *murrayana*) are generally absent. Black oak (*Quercus kelloggii*) or canyon live oak (*Q. chrysolepis*) occurs frequently in mixed stands, canyon live oak having a slightly wider elevation range in this alliance. Other minor hardwood components include bigleaf maple (*Acer macrophyllum*), white alder (*Alnus rhombifolia*), and willow (*Salix* spp.) on moist sites.

Non-Native/Invasive Forb/Grass

This alliance includes perennial peppergrass (*Lepidium latifolium*), medusahead grass (*Taeniatherum (Elymus) caput-medusae*), puncturevine (*Tribulus terrestris*), prickly Russian thistle (*Salsola tragus*), yellow star-thistle (*Centaurea solstitialis*), and many other knapweeds (*Centaurea* spp.).

Non-Native/Ornamental Conifer

Planted conifers comprise this alliance, including species such as Canary or Norfolk Island pines (*Araucaria* spp.), Deodar and Atlas cedars (*Cedrus deodar*, *Cedrus atlantica*), Redwood (*Sequoia sempervirens*), Scotch pine (*Pinus sylvestris*), etc. Other non-native hardwoods, shrubs, and grasses may be associated in minor amounts. Mapped areas of this alliance are usually in developed areas, including urban and residential landscapes, parks, recreational areas, highways, cemeteries, etc.

Non-Native/Ornamental Conifer/Hardwood

A mixture of ornamental or non-native conifer and hardwood species comprise the dominant species of this alliance. Small amounts of non-native pure stands of hardwood, conifer, shrubs, and grasses may be also associated with this alliance. Mapped areas of this alliance are usually in developed areas, including urban and residential landscapes, parks, recreational areas, highways, cemeteries, etc.

Non-Native/Ornamental Grass

Ornamental or non-native planted grass species define this alliance, although other non-native conifers, hardwoods, and shrubs may be associated as minor elements. Mapped areas of this alliance are usually in developed areas, including urban and residential landscapes, parks, recreational areas, highways, cemeteries, etc.

Non-Native/Ornamental Hardwood

Ornamental or non-native hardwood species dominate this alliance, although other non-native conifers, shrubs, and grasses may be present. Mapped areas of this alliance are usually in developed areas, including urban and residential landscapes, parks, recreational areas, highways, cemeteries, etc.

Non-Native/Ornamental Shrub

Ornamental or non-native shrub species dominate this alliance. Other non-native conifers, hardwoods, and grasses may be present in this alliance. Mapped areas of this alliance are usually in developed areas, including urban and residential landscapes, parks, recreational areas, highways, cemeteries, etc.

Orchard Agriculture

Orchard agriculture includes evergreen or deciduous small trees producing fruit or nut crops, usually planted in rows with or without irrigation channels. Apples, citrus fruits, avocados, almonds, walnuts, peaches, olives and other familiar crops are common within this land cover.

Pastures and Crop Agriculture

Irrigated or dry crop agriculture is usually harvested in rows as edible herbaceous products such as cereals (wheat, sorghum, oats, millet, corn, rye, etc.) and "vegetables" (squash, celery, beans, peas, etc.) for livestock and human uses. Agricultural crop fields are also occasionally planted for both animal forage and to improve nitrogen levels, as with legumes such as alfalfa and sweet clovers. Certain crops are grown for other multiple uses, such as flax and cotton for their seed oils (that is, linseed and cottonseed oils), fibers and medicinal uses, etc.

Perennial Grasses and Forbs

Perennial grasses and forbs occurs at elevations generally below 5,200 feet (1,586 meters) on seasonally moist, low-gradient slopes. Native perennial grasses such as needlegrass (*Achnatherum* spp.), (*Sporobolus* spp.), squirreltail (*Elymus elymoides*), and wildrye (*Leymus* spp.) may occur. Introduced perennials such as foxtail (*Alopecurus myosuroides*) and tall fescue (*Festuca arundinacea*) may be present with non-native forbs such as strawberry clover

(*Trifolium fragiferum*) and non-native annual grasses such as foxtail chess (*Bromus madritensis*) and ripgut grass (*Bromus diandrus*). Some native forbs such as southern mules ears (*Wyethia ovata*) may be found as well. Some of these areas are currently being used for livestock pasture where the type intergrades with the Annual Grasses and Forbs alliance.

Perennial Lake or Pond

Perennial lake or pond is not described by CALVEG (2009), but includes lakes or ponds that hold water year round during years of normal precipitation levels.

Ponderosa Pine

Ponderosa pine (*Pinus ponderosa*) alliance occurs at elevations generally from 3,400 to 7,000 feet (1,036 to 2,134 meters), and is most common between about 4,400 and 6,400 feet (1,340 and 1,950 meters). The alliance intergrades with the mixed conifer–pine alliance on more productive sites, especially at its upper elevations. California black and canyon live oaks (*Quercus kelloggii, Q. chrysolepis*) commonly occur within this alliance. Ponderosa pine may hybridize with Jeffrey pine (*Pinus jeffreyi*) in the upper part of its elevation range where the two ranges overlap to form individuals with intermediate diagnostic characteristics.

Rabbitbrush

Rubber rabbitbrush and stickyleaf rabbitbrush (*Chrysothamnus nauseosus*, *C. viscidiflorus*) is dominated by either, both, or other species in this genus. It occurs on dry slopes and flats within a wide elevation range of about 2,600–8,800 feet (792–2,684 meters). In semiarid areas, associated species of this alliance include (but are not limited to) singleleaf pinyon (*Pinus monophylla*), California juniper (*Juniperus californica*), bitterbrush (*Purshia tridentata* var. *glandulosa*), big sagebrush (*Artemisia tridentata*), flannel bush (*Fremontodendron californicum* ssp. *californicum*), and desert almond (*Prunus fasciculata*).

Reservoir

Reservoir is not described by CALVEG (2009). Reservoirs may be natural or artificial source of water supply and commonly uses a dam or lock to store water.

Riparian Mixed Hardwood

Riparian mixed hardwood alliance typically occurs below 6,000 feet (1,830 meters). The species mixture includes any combination of native obligate or facultative riparian hardwoods such as white alder (*Alnus rhombifolia*), willow (*Salix* spp.), California sycamore (*Platanus racemosa*), Fremont or black cottonwood (*Populus fremontii, P. balsamifera* ssp. *trichocarpa*), bigleaf maple (*Acer macrophyllum*), coast live oak (*Quercus agrifolia*), California bay

(*Umbellularia californica*), and dogwood (*Cornus* spp.). Associated riparian shrubs include California wildrose (*Rosa californica*), mugwort (*Artemisia douglasiana*), *Baccharis* spp., *Rubus* spp., *Ribes* spp., etc.

Riparian Mixed Shrub

Riparian mixed shrub alliance includes a mixture of riparian shrub species including willow (*Salix* spp.), elderberry (*Sambucus* spp.), wild rose (*Rosa* spp.) and occasionally mulefat (*Baccharis* spp.). This alliance occurs at elevations general below 3,600 feet (1,098 meters) on moist sites often found adjacent to annual grasses and forbs, California sagebrush (*Artemisia californica*), coast live oak (*Quercus agrifolia*), hardwoods of the riparian mixed hardwood alliance, and urban landscapes.

River/Stream/Canal

River/stream/canal is not described by CALVEG (2009). This waterway type includes water features such as rivers, streams, or canals that convey moving water.

Riversidean Alluvial Scrub

Riversidean alluvial scrub alliance occurs within alluvial fans and dry washes on low gradient slopes at elevations up to 5,000 feet (1,524 meters). This alliance is identified by a combination of species including scalebroom (*Lepidospartum squamatum*), Eastern Mojave buckwheat, California sagebrush (*Artemisia californica*), white sage (*Salvia apiana*), *Encelia* spp., *Opuntia* spp., chaparral yucca (*Yucca whipplei*), *Rhus* spp., and California juniper.

Saltbush

Fourwing saltbush (*Atriplex canescens*) alliance is dominated by fourwing saltbush and occurs at elevations below about 6,800 feet (2,074 meters). Common associated species within this alliance include creosote bush (*Larrea tridentata*), brittlebush (*Encelia farinosa*), and mesquite (*Prosopis* spp.).

Scalebroom

Scalebroom alliance occurs within drainages of intermittent streams and may be dominated by Scalebroom (*Lepidospartum squamatum*) in the vicinity of sandy and coarse-textured alluvial fans in this alliance. This alliance occurs at elevations up to about 5,400 feet (1,646 meters). Scalebroom-dominated washes in western Mojave fringe areas have considerable winter and spring hydric flows and are closely related in site preference to the more abundant Riversidean alluvial scrub alliance in these areas. Associated species include California sagebrush (*Artemisia californica*) as well as those of xeric habitats such as brittlebush (*Encelia farinosa*), creosote

bush (*Larrea tridentata*), chaparral yucca (*Y. whipplei*), rabbitbrush (*Chrysothamnus nauseosus*) and big sagebrush (*Artemisia tridentata*). Riparian hardwoods associated to the alliance include Fremont cottonwood (*Populus fremontii*) and desert willow (*Chilopsis linearis*).

Scrub Oak

Scrub oak (*Quercus berberidifolia*) alliance elevation ranges from near sea level to about 9,000 feet (2,745 meters). This alliance include any combination of scrub oak including Alvord Oak (*Q.* × *alvordiana*), Tucker or Muller shrub oak (*Q. john-tuckeri, Q. cornelius-mulleri*), shrub interior live oak (*Q. wislizenii* var. *frutescens*), Brewer oak (*Q. garryana* var. *breweri*), leather oak (*Q. durata*), various shrub oak hybrids, and shrub canyon live oak (*Q. chrysolepis* var. *nana*) may be present in this alliance. Associated species include chamise (*Adenostoma fasciculatum*), birchleaf mountain mahogany (*Cercocarpus betuloides*), toyon (*Heteromeles arbutifolia*), species of ceanothus, sumacs (*Rhus* spp.), and manzanita (*Arctostaphylos* spp.). In drier areas, associated species include redshank (*Adenostoma sparsifolium*), California juniper (*Juniperus californica*), singleleaf pinyon (*Pinus monophylla*), and big sagebrush (*Artemisia tridentata*). Vines such as poison oak (*Toxicodendron diversilobum*), cucumber vine (*Marah macrocarpus*), and honeysuckle (*Lonicera* spp.) also are commonly associated.

Semi-Desert Chaparral

Semi-desert chaparral alliance occurs on slopes at elevation ranges generally between 3,000–5,600 feet (915–1,708 meters). This transitional alliance includes a combination of chaparral shrubs including chamise (*Adenostoma fasciculatum*), scrub oaks (*Quercus* spp.), and Eastern Mojave buckwheat (*Eriogonum fasciculatum*). Other desert or semi-desert trees, shrubs or perennials may be present and include flannelbush (*Fremontodendron californicum*), desert bitterbrush (*Purshia tridentata* var. *glandulosa*), Tucker or Muller scrub oak (*Quercus john-tuckeri*, *Q. cornelius-mulleri*), desert ceanothus (*Ceanothus greggii* var. *vestitus*), rabbitbrush (*Chrysothamnus* spp.), Mojave yucca (*Yucca schidigera*), pricklypear (*Opuntia* spp.) or cholla (*Cylindropuntia* spp.), desert almond or desert apricot (*Prunus fasciculata*, *P. fremontii*), basin sagebrush (*Artemisia tridentata*), and rarely creosote bush (*Larrea tridentata*).

Singleleaf Pinyon

Singleleaf pinyon (*Pinus monophylla*) is an open woodland alliance and is found within the elevation range of 3,000–9,000 feet (915–2,745 meters) in transmontane regions such as the Mojave and Colorado Deserts. It is even more so abundant in the San Gabriel Mountains and Little San Bernardino–Bighorn Mountains. Understories within this alliance are diverse and may include the shrubs big sagebrush (*Artemisia tridentata*), Tucker or Muller oak (*Quercus john-tuckeri, Quercus cornelius-mulleri*), curlleaf mountain mahogany (*Cercocarpus ledifolius*), boxthorn (*Lycium* spp.), and desert bitterbrush (*Purshia tridentata*). California

juniper (*Juniperus californica*) occupies sites at low elevations. Small trees such as Utah juniper (*Juniperus osteosperma*) and Joshua tree (*Yucca brevifolia*) are also known to occur in this alliance.

Soft Scrub Mixed Chaparral

Soft scrub mixed chaparral alliance occurs on steep slopes in the mountains at elevations below about 5,800 feet (1,768 meters). This alliance contains a mixture of subshrubs, forbs, and woody shrubs. Associated species include California sagebrush, Eastern Mojave buckwheat, white sage, common deerweed (*Acmispon glaber*), coyote brush (*Baccharis pilularis*), California encelia, bush monkeyflower, bush poppy (*Dendromecon rigida*), heartleaf keckiella (*Keckiella cordifolia*), yerba santa (*Eriodictyon* spp.), and goldenbush (*Ericameria* spp.). In addition, chamise, species of ceanothus, scrub interior and canyon live oak (*Quercus wislizenii* var. *frutescens*, *Q. chrysolepis* var. *nana*), and scrub oak (*Q. berberidifolia*) may be present at a low cover.

Sumac Shrub

Sumac scrub alliance occurs at elevations below 4,400 feet (1,342 meters) in the mountains on moderate to steep slopes. This alliance is a combination of laurel sumac (*Malosma laurina*) and lemonade berry (*Rhus integrifolia*) and can include associated hardwood species such as coast live oak (*Quercus agrifolia*) and California walnut (*Juglans californica*). Other associated shrubs include sugar sumac (*Rhus ovata*), skunkbush (*Rhus trilobata*), California sagebrush (*Artemisia californica*), and annual grasses and forbs.

Subalpine Conifers

This type is a mixed lodgepole pine (*Pinus contorta* ssp. *murrayana*)–limber pine (*Pinus flexilis*)–mountain juniper (*Juniperus occidentalis* var. *australis*, also called *J. grandis*) open forest that occurs at the higher elevations of the Transverse and San Jacinto Mountains in the Mountains Section. Usually occurring above about 7,000 feet (2,134 meters), on steep and often north-facing slopes, the subalpine conifers alliance may be found as high as 11,000 feet (4,060 meters) or to the extent of local timberline. Limber Pine is most important on exposed high slopes and ridges, where it may form small areas of pure stands in the limber pine alliance. Lodgepole pine becomes locally abundant on similar dry sites. White fir (*Abies concolor*) may be present in small amounts in this mixture. This alliance is defined by the lack of clear dominance of a single conifer on these sites.

Tilled Earth Agriculture

Tilled earth agriculture includes agricultural lands that are barren and lacking vegetation on occasion, such as after harvesting and during seasons prior to crop growth. Some areas may be

kept fallow during and after the growing season for various reasons such as conservation of moisture and nutrients in a crop rotation schedule.

Tucker/Muller Scrub Oak

Tucker/Mueller scrub oak alliance is identified by either Tucker or Muller oak singly or in a combination. Muller oak is found further east on dry washes and slopes along the interior Mojave or Colorado Desert or Great Basin margins in the San Bernardino County while Tucker oak is found on similar xeric habitats further north and west. This alliance occurs at elevation ranges from 3,300 to 6,600 feet (915 to 2,013 meters). Associated species include big basin sagebrush (*Artemisia tridentata* var. *tridentata*), singleleaf pinyon, and junipers.

Tule-Cattail

Cattail or tule marshes occur near lakes and springs as high as 4,600 feet (1,402 meters) in elevation. Dominant species include sedges (*Carex* spp.), tule (*Scirpus* spp.), cattail (*Typha* spp.), and spikerush (*Eleocharis* spp.). There are numerous associated species with this alliance and varies based on geographic area.

Upper Montane Mixed Chaparral

Upper montane mixed chaparral alliance is a combination of chaparral species that occurs on steep slopes with rocky to shallow soils within the mountains at elevations above 4,200 feet (1,280 meters). This alliance includes shrubs such as mountain whitethorn or deerbrush (*Ceanothus cordulatus*, *C. integerrimus*), bush chinquapin (*Chrysolepis sempervirens*), and greenleaf, Parry, Mexican, or pink-bract manzanita (*Arctostaphylos patula*, *A. parryana*, *A. pungens*, *A. pringlei*). Chamise (*Adenostoma fasciculatum*) is generally absent from this alliance.

Urban/Developed (General)

This category applies to landscapes that are dominated by urban structures, residential units, or other developed land use elements such as highways, city parks, cemeteries and the like. In those cases in which the managed landscapes may have a considerable vegetation component, other land use categories may be more appropriate, such as ornamental conifer and hardwood mixtures within city parks. Much of the landscape in Southern California has been mapped in this category.

Urban or Industrial Impoundment

Urban or industrial impoundment is not described by CALVEG (2009). These water features typically include dams, reservoirs, and mining impoundments.

Urban-Related Bare Soil

Urban development in Southern California occurs in phases. When land is cleared prior to being paved, this category represents the occurrence of non-vegetated barren ground that is caused by urbanization. This land-use type also represents other mechanically-caused barren ground, such as open quarries or mined areas, barren ground along highways, and other areas cleared of vegetation prior to construction. This category has been mapped extensively throughout this region, usually adjacent to agricultural areas, already established urbanized centers or paved areas of the landscape.

This alliance is abundantly found in the Upper San Gabriel Mountains, Upper San Gorgonio Mountains, and San Jacinto Mountains Subsections and less frequently in seven other subsections of the Mountains Section in the elevation range 5,400–9,400 feet (1,646–2,864 meters), about 1000 feet (304 meters) higher than the mixed conifer–pine alliance where they occur in the same areas. Sites are mainly north facing and steep. They may be as low as 4,200 feet (1,280 meters) in the southern areas and as high as 10,000 feet (3,048 meters) elsewhere. True fir, usually white fir (*Abies concolor*), comprises a prominent portion of the conifer canopy cover. Jeffrey pine (*Pinus jeffreyi*) is generally present in this alliance but may be replaced by lodgepole pine (*Pinus contorta* ssp. *murrayana*) on some sites. The combination of species may include sugar (Pinus lambertiana) and Coulter (*Pinus coulteri*) pines in addition to incense cedar (*Calocedrus decurrens*) and those mentioned above. Black oak (*Quercus kelloggii*) is the main hardwood associate in the southern Peninsular Ranges, more likely to occur on moderately steep slopes. Canyon live oak (*Quercus chrysolepis*) is a more common associate in the San Jacinto Mountains and both species in the San Bernardino and San Gabriel Mountains. White alder (*Alnus rhombifolia*) and species of willow (*Salix* spp.) may occasionally occur in moist sites of this alliance.

Vineyard–Shrub Agriculture

Vineyard–shrub agriculture includes woody vines or shrubs on agricultural or horticultural lands used in the production of food or fiber such as vines devoted to grapes and kiwi fruit and shrubby nut or fruit crops such as blueberries or raspberries.

Water (General)

Water is labeled in Calveg mapping in those cases in which permanent sources of surface water are identified within a landscape unit of sufficient size to be mapped. The category includes lakes, streams, and canals of various size, bays and estuaries and similar water bodies. These areas are considered to have a minimum of vegetation components, except along the edges, which may be mapped as types such as wet meadows, tule–cattail freshwater marshes, or pickleweed–cordgrass

saline or mixed marshes. Islands of sufficient size within water bodies are mapped according to their terrestrial dominant vegetation types.

White Fir

White fir (*Abies concolor*) alliance typically occurs within an elevation range of about 5,000–9,000 feet (1,524–2,745 meters) often on mesic or shaded slopes. White fir alliance's most frequent hardwood associate is black oak (*Quercus kelloggii*), at lower elevations, below about 5,600 feet (1,706 meters). It is also associated with sugar pine (*Pinus lambertiana*) on sunnier sites and with Coulter pine (*Pinus coulteri*) at lower elevations.

Western Juniper

The western juniper (*Juniperus occidentalis*) alliance is a long-lived, slow growing conifer of unforgiving sites that are usually nutrient-poor but support a water table. Mountain juniper (*Juniperus occidentalis* var. *australis*), the southern variety of western juniper (*J. o.* var. *occidentalis*), has recently been renamed as its own species (*J. grandis*). It occasionally will dominate the tree component of a site, and has been mapped sparsely in the San Bernardino Mountains at elevations between 6,600 and 9,400 feet (2,012 and 2,867 meters). White fir (*Abies concolor*), limber pine (*Pinus flexilis*), and singleleaf pinyon (*Pinus monophylla*) may occur within or adjacent to mountain juniper sites in this area.

Wet Meadows

This alliance occurs at elevations generally above 3,000 feet (914 meters) on fine-textured, moist or wet soils. It often includes a dense growth of sedges (*Carex* spp.), rushes (*Juncus* spp.), perennial grasses such as mat muhly (*Muhlenbergia richardsonis*) and San Bernardino blue grass (*Poa atropurpurea*) and annual and perennial herbaceous species such as false hellebore (*Veratrum californicum*), clovers (*Trifolium variegatum*, *Trifolium wormskioldii*), monkeyflower (*Mimulus guttatus*), etc. Willows (*Salix* spp.), roses (*Rosa* spp.), and blue elderberry (*Sambucus mexicana*) may occur along streambanks associated with this alliance.

White Alder

White alder (*Alnus rhombifolia*) alliance occurs within the elevation range of 300–7,000 feet (92–2,135 meters). Associated riparian trees include Fremont cottonwood (*Populus fremontii*) and willows (*Salix* spp.).

White Bursage

White bursage (*Ambrosia dumosa*) is the dominant shrub in this alliance and is found in often sandy areas below 5,000 feet (1,524 meters). Closely associated species include creosote bush and less frequently brittlebush and California juniper.

Willow

The willow alliance includes the dominance of any single or combination of willow (*Salix* spp.), such as black (*Salix gooddingii*), red (*Salix laevigata*), arroyo (*Salix lasiolepis*), and/or shining (*Salix lucida*) willows. This alliance occurs along stream banks below mainly below about 8,200 feet (2,501 meters). Associates riparian species include Fremont cottonwood (*Populus fremontii*) and California sycamore (*Platanus racemosa*) as well as perennial and annual forbs, including invasive species such as pampas grasses (*Cortaderia* spp.).

Willow (Shrub)

Shrub forms of willow (*Salix* spp.) including narrowleaf (*S. exigua*), arroyo (*S. lasiolepis*), shining and (*S. lucida*) occur at elevations generally below about 7,000 feet (2,135 meters). Riparian associates include tree willows, cottonwoods (*Populus* spp.), white alder (*Alnus rhombifolia*), elderberry (*Sambucus* spp.), baccharis species, and too often, herbaceous species like the invasive giant reed (*Arundo donax*). This alliance also occurs within the high desert plains and hills (Mojave Section) along gravel bars adjacent to permanent water sources at elevations generally from 1,400 to 6,200 feet (426 to 1,890 meters).

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APPENDIX B

Vegetation Communities Sensitivity Designation

General Category Name	Region	MCV2 Name	Sensitive?	CDFG Sensitivity Ranking	Other Sensitivity (Holland, SBCGP)
Southwestern North American riparian/wash scrub	Desert	*Arundo donax*			
Californian montane conifer forest	Desert	Abies concolor			
Mojavean semi-desert wash scrub	Desert	Acacia greggii			
Madrean warm semi-desert wash woodland/scrub	Desert	Acacia greggii			
Inter-mountain dry shrubland and grassland	Desert	Achnatherum hymenoides	Y	S1.2	
North American warm desert dunes and sand flats	Desert	*Achnatherum hymenoides*	Y	S1.2	
Inter-mountain dry shrubland and grassland	Desert	Achnatherum speciosum	Y	S2.2	
Southern Great Basin semi-desert grassland	Desert	Achnatherum speciosum	Y	S2.2	
Californian broadleaf forest and woodland	Desert	Aesculus californica	Y	S3	
Madrean warm semi-desert wash woodland/scrub	Desert	Agave deserti	Y	S3	
Sonoran–Coloradan semi-desert wash woodland/scrub	Desert	Agave deserti	Y	S3	
Southwestern North American salt basin and high marsh	Desert	Allenrolfea occidentalis	Y	S3	
Lower bajada and fan Mojavean–Sonoran desert scrub	Desert	Ambrosia dumosa			
Lower bajada and fan Mojavean–Sonoran desert scrub	Desert	Ambrosia salsola			
California annual forb/grass vegetation	Desert	Amsinckia (menziesii, tessellata)			
Californian xeric chaparral	Desert	Arctostaphylos glauca			
Intermountain mountain big sagebrush shrubland and steppe	Desert	Artemisia tridentata			
Southwestern North American salt basin and high marsh	Desert	Arthrocnemum subterminale	Y	S2	
Riparian	Desert	Arundo donax			
Shadscale–saltbush cool semi-desert scrub	Desert	Atriplex canescens			
Shadscale–saltbush cool semi-desert scrub	Desert	Atriplex confertifolia			
North American warm desert bedrock cliff and outcrop	Desert	Atriplex hymenelytra			
Southwestern North American salt basin and high marsh	Desert	Atriplex lentiformis			
Lower bajada and fan Mojavean–Sonoran desert scrub	Desert	Atriplex polycarpa			
Southwestern North American salt basin and high marsh	Desert	Atriplex spinifera			
Riparian	Desert	Baccharis emoryi	Y	S2?	
Southwestern North American riparian/wash scrub	Desert	*Baccharis emoryi*	Y	S2?	
Southwestern North American riparian/wash scrub	Desert	Baccharis emoryi	Y	S2?	

General Category Name	Region	MCV2 Name	Sensitive?	CDFG Sensitivity Ranking	Other Sensitivity (Holland, SBCGP)
Riparian	Desert	Baccharis sergiloides	Y	S3	
Southwestern North American riparian/wash scrub	Desert	*Baccharis sergiloides*	Y	S3	
Southwestern North American riparian/wash scrub	Desert	Baccharis sergiloides	Y	S3	
California annual and perennial grassland	Desert	Brassica nigra and other mustards			
California annual and perennial grassland	Desert	Brassica nigra and other mustards			
California annual and perennial grassland	Desert	Bromus rubens - Schismus (arabicus, barbatus)			
California annual and perennial grassland	Desert	Bromus rubens–Schismus (arabicus, barbatus)			
Madrean warm semi-desert wash woodland/scrub	Desert	Castela emoryi	Y	S1	
Sonoran–Coloradan semi-desert wash woodland/scrub	Desert	Castela emoryi	Y	S1	
Great Basin pinyon–juniper woodland	Desert	Cercocarpus ledifolius			
Inter-mountain dry shrubland and grassland	Desert	Cercocarpus ledifolius			
Madrean warm semi-desert wash woodland/scrub	Desert	Chilopsis linearis	Y	S3	Holland - Desert Dry Wash Woodland
Sonoran–Coloradan semi-desert wash woodland/scrub	Desert	Chilopsis linearis	Y	S3	Holland - Desert Dry Wash Woodland
Inter-mountain dry shrubland and grassland	Desert	Coleogyne ramosissima			
Mojave and Great Basin upper bajada and toeslope	Desert	Coleogyne ramosissima			
Lower bajada and fan Mojavean–Sonoran desert scrub	Desert	Cylindropuntia bigelovii	Y	S3	
North American warm desert dunes and sand flats	Desert	*Dicoria canescens–Abronia villosa*	Y	S3	
Lower bajada and fan Mojavean–Sonoran desert scrub	Desert	Encelia farinosa			
Intermontane seral shrubland	Desert	Encelia virginensis	Y	S3	
Madrean warm semi-desert wash woodland/scrub	Desert	Ephedra californica	Y	S3	
Mojavean semi-desert wash scrub	Desert	Ephedra californica	Y	S3	
North American warm desert bedrock cliff and outcrop	Desert	Ephedra funerea	Y	S2?	
Intermontane deep or well-drained soil scrub	Desert	*Ephedra nevadensis*			
Inter-mountain dry shrubland and grassland	Desert	Ephedra nevadensis			
Intermontane deep or well-drained soil scrub	Desert	*Ephedra viridis*			
Inter-mountain dry shrubland and grassland	Desert	Ephedra viridis			
Central and south coastal California seral scrub	Desert	Ericameria linearifolia	Y	S3?	
Intermontane seral shrubland	Desert	Ericameria nauseosa			
Madrean warm semi-desert wash woodland/scrub	Desert	Ericameria paniculata	Y	S3	

General Category Name	Region	MCV2 Name	Sensitive?	CDFG Sensitivity Ranking	Other Sensitivity (Holland, SBCGP)
Mojavean semi-desert wash scrub	Desert	Ericameria paniculata	Y	S3	
Intermontane deep or well-drained soil scrub	Desert	*Ericameria teretifolia*			
Intermontane seral shrubland	Desert	Ericameria teretifolia			
Inter-mountain dry shrubland and grassland	Desert	Ericameria teretifolia			
Central and south coastal Californian coastal sage scrub	Desert	Eriogonum fasciculatum			
Central and south coastal Californian coastal sage scrub	Desert	Eriogonum wrightii	Y	S3	
California annual forb/grass vegetation	Desert	Eschscholzia (californica)			
Riparian	Desert	Forestiera pubescens	Y	S2	
Southwestern North American riparian/wash scrub	Desert	*Forestiera pubescens*	Y	S2	
Southwestern North American riparian/wash scrub	Desert	Forestiera pubescens	Y	S2	
Southwestern North American salt basin and high marsh	Desert	Frankenia salina	Y	S3	
Intermontane deep or well-drained soil scrub	Desert	*Grayia spinosa*			
Inter-mountain dry shrubland and grassland	Desert	Grayia spinosa			
Intermontane seral shrubland	Desert	Gutierrezia sarothrae	Y	S3	
Pleuraphis rigida	Desert	*Gutierrezia sarothrae*	Y	S3	
Central and south coastal California seral scrub	Desert	Hazardia squarrosa	Y	S3	
Madrean warm semi-desert wash woodland/scrub	Desert	Hyptis emoryi	Y	S3	
Sonoran–Coloradan semi-desert wash woodland/scrub	Desert	Hyptis emoryi	Y	S3	
Californian warm temperate marsh/seep	Desert	Juncus arcticus (var. balticus, mexicanus)			
Californian warm temperate marsh/seep	Desert	Juncus xiphioides	Y	S2?	
Great Basin pinyon–juniper woodland	Desert	Juniperus californica			
Madrean warm semi-desert wash woodland/scrub	Desert	Justicia californica	Y	S2?	
Sonoran–Coloradan semi-desert wash woodland/scrub	Desert	Justicia californica	Y	S2?	
Central and south coastal Californian coastal sage scrub	Desert	Keckiella antirrhinoides	Y	S3	
Intermontane deep or well-drained soil scrub	Desert	*Krascheninnikovia lanata*	Y	S2	
Inter-mountain dry shrubland and grassland	Desert	Krascheninnikovia lanata	Y	S2	
Agriculture	Desert	Land Cover			
Barren	Desert	Land Cover			
Developed and disturbed areas	Desert	Land Cover			
Open water	Desert	Land Cover			
Rural	Desert	Land Cover			

General Category Name	Region	MCV2 Name	Sensitive?	CDFG Sensitivity Ranking	Other Sensitivity (Holland, SBCGP)
Lower bajada and fan Mojavean–Sonoran desert scrub	Desert	Larrea tridentata			
Lower bajada and fan Mojavean–Sonoran desert scrub	Desert	Larrea tridentata-Ambrosia dumosa			
Lower bajada and fan Mojavean–Sonoran desert scrub	Desert	Larrea tridentata-Encelia farinosa			
Central and south coastal Californian coastal sage scrub	Desert	Lepidospartum squamatum	Y	S3	Holland - RAFSS
Madrean warm semi-desert wash woodland/scrub	Desert	Lepidospartum squamatum	Y	S3	Holland - RAFSS
Mojavean semi-desert wash scrub	Desert	Lepidospartum squamatum	Y	S3	Holland - RAFSS
Californian warm temperate marsh/seep	Desert	Leymus triticoides	Y	S3	
Intermontane deep or well-drained soil scrub	Desert	*Lycium andersonii*	Y	S3	
Inter-mountain dry shrubland and grassland	Desert	Lycium andersonii	Y	S3	
Intermontane deep or well-drained soil scrub	Desert	*Lycium cooperi*	Y	S3?	
Inter-mountain dry shrubland and grassland	Desert	Lycium cooperi	Y	S3?	
Inter-mountain dry shrubland and grassland	Desert	Menodora spinescens	Y	S3	
Mojave and Great Basin upper bajada and toeslope	Desert	Menodora spinescens	Y	S3	
Californian warm temperate marsh/seep	Desert	Mimulus (guttatus)	Y	S3?	
Californian warm temperate marsh/seep	Desert	Muhlenbergia rigens	Y	S2?	
North American warm desert dunes and sand flats	Desert	*Panicum urvilleanum*	Y	S1	
Madrean warm semi-desert wash woodland/scrub	Desert	Parkinsonia florida-Olneya tesota	Y	S3	
Sonoran–Coloradan semi-desert wash woodland/scrub	Desert	Parkinsonia florida-Olneya tesota	Y	S3	
California annual and perennial grassland	Desert	Pennisetum setaceum			
Arid west freshwater emergent marsh	Desert	Phragmites australis			
Great Basin pinyon–juniper woodland	Desert	Pinus monophylla			
Riparian	Desert	Platanus racemosa	Y	S3	
Southwestern North American riparian evergreen and deciduous woodland	Desert	Platanus racemosa	Y	S3	
Inter-mountain dry shrubland and grassland	Desert	Pleuraphis jamesii	Y	S2.2	
Southern Great Basin semi-desert grassland	Desert	Pleuraphis jamesii	Y	S2.2	
Lower bajada and fan Mojavean–Sonoran desert scrub	Desert	Pleuraphis rigida	Y	S2.2	
North American warm desert dunes and sand flats	Desert	*Pleuraphis rigida*	Y	S2.2	
Madrean warm semi-desert wash woodland/scrub	Desert	Pluchea sericea	Y	S3	
Sonoran–Coloradan semi-desert wash woodland/scrub	Desert	Pluchea sericea	Y	S3	
Riparian	Desert	Populus fremontii	Y	S3	

General Category Name	Region	MCV2 Name	Sensitive?	CDFG Sensitivity Ranking	Other Sensitivity (Holland, SBCGP)
Southwestern North American riparian evergreen and deciduous woodland	Desert	Populus fremontii	Y	S3	
Playa	Desert	Project Specific Analysis Needed			
Wetland	Desert	Project Specific Analysis Needed	Y	most S1-S3	
Madrean warm semi-desert wash woodland/scrub	Desert	Prosopis glandulosa	Y	S3.2	SBC - Native Desert Plant
North American warm desert dunes and sand flats	Desert	*Prosopis glandulosa*	Y	S3.2	SBC - Native Desert Plant
Sonoran–Coloradan semi-desert wash woodland/scrub	Desert	Prosopis glandulosa	Y	S3.2	SBC - Native Desert Plant
Madrean warm semi-desert wash woodland/scrub	Desert	Prosopis pubescens	Y	S2.2	
Sonoran–Coloradan semi-desert wash woodland/scrub	Desert	Prosopis pubescens	Y	S2.2	
Madrean warm semi-desert wash woodland/scrub	Desert	Prunus fasciculata	Y	S3	
Mojavean semi-desert wash scrub	Desert	Prunus fasciculata	Y	S3	
Madrean warm semi-desert wash woodland/scrub	Desert	Psorothamnus spinosus	Y	S3	Holland - Desert Dry Wash Woodland
Sonoran–Coloradan semi-desert wash woodland/scrub	Desert	Psorothamnus spinosus	Y	S3	Holland - Desert Dry Wash Woodland
Inter-mountain dry shrubland and grassland	Desert	Purshia stansburiana	Y	S3.2	
Intermontane deep or well-drained soil scrub	Desert	*Purshia tridentata*	Y	S3	
Inter-mountain dry shrubland and grassland	Desert	Purshia tridentata	Y	S3	
Californian broadleaf forest and woodland	Desert	Quercus chrysolepis tree	Y		SBC - Oak Woodland
Western Mojave and Western Sonoran Desert borderland chaparral	Desert	Quercus cornelius-mulleri			
Western Mojave and Western Sonoran Desert borderland chaparral	Desert	Quercus john-tuckeri			
Inter-mountain dry shrubland and grassland	Desert	Salazaria mexicana			
Mojave and Great Basin upper bajada and toeslope	Desert	Salazaria mexicana			
Riparian	Desert	Salix exigua			
Southwestern North American riparian/wash scrub	Desert	*Salix exigua*			
Southwestern North American riparian/wash scrub	Desert	Salix exigua			
Riparian	Desert	Salix gooddingii	Y	S3	
Southwestern North American riparian evergreen and deciduous woodland	Desert	Salix gooddingii	Y	S3	
Riparian	Desert	Salix laevigata	Y	S3	
Southwestern North American riparian evergreen and deciduous woodland	Desert	Salix laevigata	Y	S3	
Riparian	Desert	Salix lasiolepis			

General Category Name	Region	MCV2 Name	Sensitive?	CDFG Sensitivity Ranking	Other Sensitivity (Holland, SBCGP)
Southwestern North American riparian/wash scrub	Desert	*Salix lasiolepis*			
Southwestern North American riparian/wash scrub	Desert	Salix lasiolepis			
Intermontane seral shrubland	Desert	Salvia dorrii	Y	S2	
Riparian	Desert	Sambucus nigra	Y	S3	
Southwestern North American riparian/wash scrub	Desert	*Sambucus nigra*	Y	S3	
Southwestern North American riparian/wash scrub	Desert	Sambucus nigra	Y	S3	
North American warm desert alkaline scrub and herb playa and wet flat	Desert	Sarcobatus vermiculatus			
Arid west freshwater emergent marsh	Desert	Schoenoplectus acutus			
Arizonan upland Sonoran desert scrub	Desert	Simmondsia chinensis	Y	S3?	
Southwestern North American salt basin and high marsh	Desert	Sueda moquinii	Y	S3	
Southwestern North American riparian/wash scrub	Desert	*Tamarix* spp.			
Riparian	Desert	Tamarix spp.			
Arizonan upland Sonoran desert scrub	Desert	Tetracoccus hallii	Y	S1	
Lower bajada and fan Mojavean–Sonoran desert scrub	Desert	Tidestromia oblongifolia	Y	S3	
Arid west freshwater emergent marsh	Desert	Typha (angustifolia, domingensis, latifolia)			
Arizonan upland Sonoran desert scrub	Desert	Viguiera parishii			
Madrean warm semi-desert wash woodland/scrub	Desert	Viguiera reticulata	Y	S3?	
Mojavean semi-desert wash scrub	Desert	Viguiera reticulata	Y	S3?	
Riparian	Desert	Washingtonia filifera	Y	S3.2	
Southwestern North American riparian evergreen and deciduous woodland	Desert	Washingtonia filifera	Y	S3.2	
North American warm desert dunes and sand flats	Desert	*Wislizenia refracta*	Y	S2	
Inter-mountain dry shrubland and grassland	Desert	Yucca brevifolia	Y	S3.2	
Mojave and Great Basin upper bajada and toeslope	Desert	Yucca brevifolia	Y	S3.2	SBC - Joshua Tree Woodland
Inter-mountain dry shrubland and grassland	Desert	Yucca schidigera			
Mojave and Great Basin upper bajada and toeslope	Desert	Yucca schidigera	Y		SBC - Native Desert Plant
Arizonan upland Sonoran desert scrub	Desert	Ziziphus obtusifolia	Y	S2?	
White fir	Mountain	Abies concolor			
Mixed conifer–pine	Mountain	Abies concolor - Pinus lambertiana			

General Category Name	Region	MCV2 Name	Sensitive?	CDFG Sensitivity Ranking	Other Sensitivity (Holland, SBCGP)
White fir	Mountain	Abies concolor - Pinus lambertiana			
Coastal mixed hardwood	Mountain	Acer macrophyllum	Y	S3	
Interior mixed hardwood	Mountain	Acer macrophyllum	Y	S3	
Fremont cottonwood	Mountain	Acer negundo	Y	S2.2	
Perennial grasses and forbs	Mountain	Achnatherum hymenoides	Y	S1.2	
Perennial grasses and forbs	Mountain	Achnatherum speciosum	Y	S2.2	
Chamise	Mountain	Adenostoma fasciculatum			
Chamise	Mountain	Adenostoma fasciculatum - Salvia apiana	Y	S3	
Chamise	Mountain	Adenostoma fasciculatum - Salvia mellifera			
Lower montane mixed chaparral	Mountain	Adenostoma fasciculatum - Salvia mellifera			
Desert mixed shrub	Mountain	Agave deserti	Y	S3.2	
Riparian mixed shrub	Mountain	Alnus rhombifolia			
White alder	Mountain	Alnus rhombifolia			
Perennial grasses and forbs	Mountain	Ambrosia psilostachya			
Desert mixed shrub	Mountain	Ambrosia salsola			
Annual grasses and forbs	Mountain	Amsinckia (menziesii, tessellata)			
Perennial grasses and forbs	Mountain	Amsinckia (menziesii, tessellata)			
Chamise	Mountain	Arctostaphylos glauca			
Manzanita chaparral	Mountain	Arctostaphylos glauca			
Great Basin–mixed chaparral transition	Mountain	Arctostaphylos patula			
Upper montane mixed chaparral	Mountain	Arctostaphylos patula			
Manzanita chaparral	Mountain	Arctostaphylos pringlei ssp. drupacea	Y	S3	
Upper montane mixed chaparral	Mountain	Arctostaphylos pringlei ssp. drupacea	Y	S3	
Perennial grasses and forbs	Mountain	Aristida purpurea	Y	S3?	
California sagebrush	Mountain	Artemisia californica			
Buckwheat	Mountain	Artemisia californica - Eriogonum fasciculatum			
California sagebrush	Mountain	Artemisia californica - Eriogonum fasciculatum			
Riversidean alluvial scrub	Mountain	Artemisia californica - Eriogonum fasciculatum			
California sagebrush	Mountain	Artemisia californica - Salvia mellifera			
Riparian mixed shrub	Mountain	Artemisia dracunculus			
Basin sagebrush	Mountain	Artemisia tridentata			
Great Basin mixed scrub	Mountain	Artemisia tridentata			
Great Basin–desert mixed scrub	Mountain	Artemisia tridentata			
Great Basin–mixed chaparral transition	Mountain	Artemisia tridentata			
Great Basin mixed scrub	Mountain	Artemisia tridentata ssp. vaseyana			

General Category Name	Region	MCV2 Name	Sensitive?	CDFG Sensitivity Ranking	Other Sensitivity (Holland, SBCGP)
Saltbush	Mountain	Atriplex canescens			
Saltbush	Mountain	Atriplex polycarpa			
Annual grasses and forbs	Mountain	Avena (barbata, fatua)			
Baccharis (riparian)	Mountain	Baccharis salicifolia			
Annual grasses and forbs	Mountain	Brassica nigra and other mustards			
Annual grasses and forbs	Mountain	Bromus (diandrus, hordeaceus) - Brachypodium distachyon			
Annual grasses and forbs	Mountain	Bromus rubens - Schismus (arabicus, barbatus)			
Alkaline mixed grasses	Mountain	Carex douglasii	Y	S2?	
Perennial grasses and forbs	Mountain	Carex douglasii	Y	S2?	
Perennial grasses and forbs	Mountain	Carex integra	Y	S2?	
Perennial grasses and forbs	Mountain	Carex microptera	Y	S2?	
Ceanothus mixed chaparral	Mountain	Ceanothus cordulatus			
Upper montane mixed chaparral	Mountain	Ceanothus cordulatus			
Lower montane mixed chaparral	Mountain	Ceanothus crassifolius			
Chamise	Mountain	Ceanothus cuneatus			
Lower montane mixed chaparral	Mountain	Ceanothus cuneatus			
Ceanothus mixed chaparral	Mountain	Ceanothus greggii	Y	S3	
Great Basin–mixed chaparral transition	Mountain	Ceanothus greggii	Y	S3	
Upper montane mixed chaparral	Mountain	Ceanothus integerrimus			
Ceanothus mixed chaparral	Mountain	Ceanothus leucodermis			
Ceanothus mixed chaparral	Mountain	Ceanothus oliganthus			
Annual grasses and forbs	Mountain	Centaurea (solstitialis, melitensis)			
Curlleaf mountain mahogany	Mountain	Cercocarpus ledifolius			
Curlleaf mountain mahogany (tree)	Mountain	Cercocarpus ledifolius			
Upper montane mixed chaparral	Mountain	Chrysolepis sempervirens	Y	S3	
Riparian mixed shrub	Mountain	Cornus sericea	Y	S3?	
Annual grasses and forbs	Mountain	Cynosurus echinatus			
Perennial grasses and forbs	Mountain	Danthonia californica	Y	S3	
Annual grasses and forbs	Mountain	Deinandra fasciculata	Y	S3?	
Alkaline mixed grasses	Mountain	Distichlis spicata			
Perennial grasses and forbs	Mountain	Elymus glaucus	Y	S3?	
Perennial grasses and forbs	Mountain	Elymus multisetus			
Desert mixed shrub	Mountain	Encelia farinosa			
Desert mixed shrub	Mountain	Ephedra californica	Y	S3.3	
Desert mixed shrub	Mountain	Ephedra nevadensis			
Great Basin–desert mixed scrub	Mountain	Ephedra nevadensis			
Great Basin–desert mixed scrub	Mountain	Ephedra viridis			
Rabbitbrush	Mountain	Ericameria nauseosa			

General Category Name	Region	MCV2 Name	Sensitive?	CDFG Sensitivity Ranking	Other Sensitivity (Holland, SBCGP)
Desert mixed shrub	Mountain	Ericameria paniculata	Y	S3	
Rabbitbrush	Mountain	Ericameria parryi	Y	S3	
Rabbitbrush	Mountain	Ericameria teretifolia			
Buckwheat	Mountain	Eriogonum cinereum	Y	S3	
California sagebrush	Mountain	Eriogonum cinereum	Y	S3	
Buckwheat	Mountain	Eriogonum fasciculatum			
Desert buckwheat	Mountain	Eriogonum fasciculatum			
Buckwheat	Mountain	Eriogonum fasciculatum - Salvia apiana			
Riversidean alluvial scrub	Mountain	Eriogonum fasciculatum - Salvia apiana			
Desert mixed shrub	Mountain	Eriogonum heermannii	Y	S2?	
Desert buckwheat	Mountain	Eriogonum wrightii	Y	S3	
Annual grasses and forbs	Mountain	Eschscholzia (californica)			
Eucalyptus	Mountain	Eucalyptus camaldulensis			
Eucalyptus	Mountain	Eucalyptus globulus			
Perennial grasses and forbs	Mountain	Festuca rubra	Y	S3?	
Lower montane mixed chaparral	Mountain	Frangula californica			
Desert mixed shrub	Mountain	Grayia spinosa	Y	S3.3	
Desert mixed shrub	Mountain	Hyptis emoryi	Y	S3	
Perennial grasses and forbs	Mountain	Iris missouriensis			
Perennial grasses and forbs	Mountain	Juncus arcticus (var. balticus, mexicanus)			
Barren	Mountain	Juncus parryi			
California juniper (shrub)	Mountain	Juniperus californica			
Western juniper	Mountain	Juniperus grandis			
Agriculture (general)	Mountain	Land Cover			
Agriculture pond or water feature	Mountain	Land Cover			
Alpine mixed scrub	Mountain	Land Cover			
Intermittent lake or pond	Mountain	Land Cover			
Intermittent stream channel	Mountain	Land Cover			
Non-native/ornamental conifer	Mountain	Land Cover			
Non-native/ornamental grass	Mountain	Land Cover			
Non-native/ornamental hardwood	Mountain	Land Cover			
Orchard agriculture	Mountain	Land Cover			
Pastures and crop agriculture	Mountain	Land Cover			
Perennial lake or pond	Mountain	Land Cover			
Reservoir	Mountain	Land Cover			
Urban or industrial impoundment	Mountain	Land Cover			
Urban/developed (general)	Mountain	Land Cover			
Urban-related bare soil	Mountain	Land Cover			
Water (general)	Mountain	Land Cover			
Desert mixed shrub	Mountain	Larrea tridentata			

General Category Name	Region	MCV2 Name	Sensitive?	CDFG Sensitivity Ranking	Other Sensitivity (Holland, SBCGP)
Creosote bush	Mountain	Larrea tridentata - Ambrosia dumosa			
Creosote bush	Mountain	Larrea tridentata - Encelia farinosa			
Annual grasses and forbs	Mountain	Lasthenia californica - Plantago erecta - Vulpia microstachys			
Riversidean alluvial scrub	Mountain	Lepidospartum squamatum	Y	S3	Holland - RAFSS
Scalebroom	Mountain	Lepidospartum squamatum	Y	S3	Holland - RAFSS
Perennial grasses and forbs	Mountain	Leymus cinereus	Y	S2	
Perennial grasses and forbs	Mountain	Leymus condensatus	Y	S3	
Perennial grasses and forbs	Mountain	Leymus triticoides	Y	S3	
Annual grasses and forbs	Mountain	Lolium perenne			
Annual grasses and forbs	Mountain	Lotus purshianus			
Soft scrub mixed chaparral	Mountain	Lotus scoparius			
Desert mixed shrub	Mountain	Lycium andersonii	Y	S3	
California sagebrush	Mountain	Malosma laurina			
Riversidean alluvial scrub	Mountain	Malosma laurina			
Sumac shrub	Mountain	Malosma laurina			
Perennial grasses and forbs	Mountain	Muhlenbergia richardsonis			
Perennial grasses and forbs	Mountain	Muhlenbergia rigens	Y	S2?	
Perennial grasses and forbs	Mountain	Nassella cernua	Y	S3?	
Perennial grasses and forbs	Mountain	Nassella lepida	Y	S3?	
Desert mixed shrub	Mountain	Nolina bigelovii	Y	S2.2	
Desert mixed shrub	Mountain	Nolina parryi	Y	S2.2	
Perennial grasses and forbs	Mountain	Oxyria digyna	Y	S3?	
Knobcone pine	Mountain	Pinus attenuata			
Lodgepole pine	Mountain	Pinus contorta ssp. murrayana			
Coulter pine	Mountain	Pinus coulteri			
Limber pine	Mountain	Pinus flexilis	Y	S3.2	
Subalpine conifers	Mountain	Pinus flexilis	Y	S3.2	
Eastside pine	Mountain	Pinus jeffreyi			
Jeffrey pine	Mountain	Pinus jeffreyi			
Mixed conifer–fir	Mountain	Pinus jeffreyi			
Singleleaf pinyon	Mountain	Pinus monophylla			
Eastside pine	Mountain	Pinus ponderosa			
Ponderosa pine	Mountain	Pinus ponderosa			
Mixed conifer–pine	Mountain	Pinus ponderosa - Calocedrus decurrens			
Annual grasses and forbs	Mountain	Plagiobothrys nothofulvus			
California sycamore	Mountain	Platanus racemosa	Y	S3	
Perennial grasses and forbs	Mountain	Poa secunda	Y	S3?	
Fremont cottonwood	Mountain	Populus fremontii	Y	S3.2	
Black cottonwood	Mountain	Populus trichocarpa	Y	S3	

General Category Name	Region	MCV2 Name	Sensitive?	CDFG Sensitivity Ranking	Other Sensitivity (Holland, SBCGP)
Wet meadow	Mountain	Project Specific Analysis Needed	Y	most S1-S3	
Upper montane mixed chaparral	Mountain	Prunus emarginata			
Desert mixed shrub	Mountain	Prunus fasciculata	Y	S3.3	
Lower montane mixed chaparral	Mountain	Prunus ilicifolia	Y	S3	
Bigcone Douglas-firc	Mountain	Pseudotsuga macrocarpa	Y	S3.2	
Bitterbrush–sagebrush	Mountain	Purshia tridentata	Y	S3	
Great Basin mixed scrub	Mountain	Purshia tridentata	Y	S3	
Great Basin–desert mixed scrub	Mountain	Purshia tridentata	Y	S3	
Great Basin–mixed chaparral transition	Mountain	Purshia tridentata	Y	S3	
Coastal mixed hardwood	Mountain	Quercus (agrifolia, douglasii, garryana, kelloggii, lobata, wislizeni)			
Interior live oak	Mountain	Quercus (agrifolia, douglasii, garryana, kelloggii, lobata, wislizeni)			
Scrub oak	Mountain	Quercus berberidifolia			
Scrub oak	Mountain	Quercus berberidifolia - Adenostoma fasciculatum			
Canyon live oak	Mountain	Quercus chrysolepis	Y		SBC - Oak Woodland
Scrub oak	Mountain	Quercus chrysolepis (shrub)	Y	S3	SBC - Oak Woodland
Upper montane mixed chaparral	Mountain	Quercus chrysolepis (shrub)	Y	S3	SBC - Oak Woodland
Great Basin–mixed chaparral transition	Mountain	Quercus cornelius-mulleri			
Scrub oak	Mountain	Quercus cornelius-mulleri			
Tucker/Muller scrub oak	Mountain	Quercus cornelius-mulleri			
Black oak	Mountain	Quercus kelloggii			
Scrub oak	Mountain	Quercus palmeri	Y	S2?	
Semi-desert chaparral	Mountain	Quercus palmeri	Y	S2?	
Interior live oak	Mountain	Quercus wislizeni			
Scrub oak	Mountain	Quercus wislizeni (shrub)			
Semi-desert chaparral	Mountain	Rhus ovata			
Riparian mixed shrub	Mountain	Rosa californica	Y	S3	
Riparian mixed shrub	Mountain	Rubus armeniacus			
Riparian mixed shrub	Mountain	Rubus parviflorus			
Riparian mixed shrub	Mountain	Rubus ursinus	Y	S3	
Desert mixed shrub	Mountain	Salazaria mexicana			
Riparian mixed shrub	Mountain	Salix exigua			
Willow (shrub)	Mountain	Salix exigua			
Riparian mixed hardwood	Mountain	Salix laevigata	Y	S3	
Willow	Mountain	Salix laevigata	Y	S3	
Riparian mixed shrub	Mountain	Salix lasiolepis			
Willow	Mountain	Salix lasiolepis			
Willow (shrub)	Mountain	Salix lasiolepis			

General Category Name	Region	MCV2 Name	Sensitive?	CDFG Sensitivity Ranking	Other Sensitivity (Holland, SBCGP)
Willow	Mountain	Salix lucida	Y	S3.2	
Riparian mixed shrub	Mountain	Salix lutea	Y	S3?	
Willow (shrub)	Mountain	Salix lutea	Y	S3?	
California sagebrush	Mountain	Salvia apiana	Y	S3	
Barren	Mountain	Sedum spathulifolium			
Perennial grasses and forbs	Mountain	Sedum spathulifolium			
Annual grasses and forbs	Mountain	Selaginella bigelovii	Y	S3	
Barren	Mountain	Selaginella bigelovii	Y	S3	
Alkaline mixed grasses	Mountain	Sporobolus airoides	Y	S2.2	
Perennial grasses and forbs	Mountain	Sporobolus airoides	Y	S2.2	
California bay	Mountain	Umbellularia californica	Y	S3	
Coastal mixed hardwood	Mountain	Umbellularia californica	Y	S3	
Desert mixed shrub	Mountain	Viguiera parishii			
Desert mixed shrub	Mountain	Viguiera reticulata	Y	S3?	
Creosote bush	Mountain	Yucca schidigera	Y		SBC - Native Desert Plant
Coastal mixed hardwood	Valley	Acer macrophyllum	Y	S3	
Interior mixed hardwood	Valley	Acer macrophyllum	Y	S3	
Fremont cottonwood	Valley	Acer negundo	Y	S2.2	
Perennial grasses and forbs	Valley	Achnatherum hymenoides	Y	S1.2	
Perennial grasses and forbs	Valley	Achnatherum speciosum	Y	S2.2	
Chamise	Valley	Adenostoma fasciculatum			
Chamise	Valley	Adenostoma fasciculatum - Salvia apiana	Y	S3	
Chamise	Valley	Adenostoma fasciculatum - Salvia mellifera			
Lower montane mixed chaparral	Valley	Adenostoma fasciculatum - Salvia mellifera			
Chamise	Valley	Adenostoma fasciculatum - Xylococcus bicolor	Y	S3	
Non-native/invasive grass	Valley	Agropyron cristatum			
Non-native/ornamental grass	Valley	Agropyron cristatum			
Perennial grasses and forbs	Valley	Agrostis (gigantea, stolonifera) - Festuca arundinacea			
Riparian mixed shrub	Valley	Alnus rhombifolia			
Perennial grasses and forbs	Valley	Ambrosia psilostachya			
Annual grasses and forbs	Valley	Amsinckia (menziesii, tessellata)			
Perennial grasses and forbs	Valley	Amsinckia (menziesii, tessellata)			
Chamise	Valley	Arctostaphylos glauca			
Perennial grasses and forbs	Valley	Aristida purpurea	Y	S3?	
California sagebrush	Valley	Artemisia californica			

General Category Name	Region	MCV2 Name	Sensitive?	CDFG Sensitivity Ranking	Other Sensitivity (Holland, SBCGP)
Buckwheat	Valley	Artemisia californica - Eriogonum fasciculatum			
California sagebrush	Valley	Artemisia californica - Eriogonum fasciculatum			
Riversidean alluvial scrub	Valley	Artemisia californica - Eriogonum fasciculatum			
California sagebrush	Valley	Artemisia californica - Salvia mellifera			
Riparian mixed shrub	Valley	Artemisia dracunculus			
Non-native/invasive grass	Valley	Arundo donax			
Non-native/ornamental grass	Valley	Arundo donax			
Annual grasses and forbs	Valley	Avena (barbata, fatua)			
Non-native/invasive grass	Valley	Avena (barbata, fatua)			
Non-native/ornamental grass	Valley	Avena (barbata, fatua)			
Tule–cattail	Valley	Azolla (filiculoides, mexicana)			
Baccharis (riparian)	Valley	Baccharis emoryi	Y	S2?	
Baccharis (riparian)	Valley	Baccharis salicifolia			
Tule–cattail	Valley	Bolboschoenus maritimus			
Annual grasses and forbs	Valley	Brassica nigra and other mustards			
Non-native/invasive grass	Valley	Brassica nigra and other mustards			
Non-native/ornamental grass	Valley	Brassica nigra and other mustards			
Annual grasses and forbs	Valley	Bromus (diandrus, hordeaceus) - Brachypodium distachyon			
Non-native/invasive grass	Valley	Bromus (diandrus, hordeaceus) - Brachypodium distachyon			
Non-native/ornamental grass	Valley	Bromus (diandrus, hordeaceus) - Brachypodium distachyon			
Annual grasses and forbs	Valley	Bromus rubens - Schismus (arabicus, barbatus)			
Non-native/invasive grass	Valley	Bromus rubens - Schismus (arabicus, barbatus)			
Non-native/ornamental grass	Valley	Bromus rubens - Schismus (arabicus, barbatus)			
Non-native/invasive grass	Valley	Bromus tectorum			
Non-native/ornamental grass	Valley	Bromus tectorum			
Non-native/ornamental shrub	Valley	Broom (Cytisus scoparius and Others)			
Lower montane mixed chaparral	Valley	Ceanothus crassifolius			
Chamise	Valley	Ceanothus cuneatus			
Lower montane mixed chaparral	Valley	Ceanothus cuneatus			
Ceanothus mixed chaparral	Valley	Ceanothus spinosus			
Chamise	Valley	Ceanothus verrucosus	Y	S2	

General Category Name	Region	MCV2 Name	Sensitive?	CDFG Sensitivity Ranking	Other Sensitivity (Holland, SBCGP)
Annual grasses and forbs	Valley	Centaurea (solstitialis, melitensis)			
Non-native/invasive grass	Valley	Centaurea (solstitialis, melitensis)			
Non-native/ornamental grass	Valley	Centaurea (solstitialis, melitensis)			
Annual grasses and forbs	Valley	Centromadia (pungens)	Y	S2?	
Non-native/invasive grass	Valley	Conium maculatum - Foeniculum vulgare			
Non-native/ornamental grass	Valley	Conium maculatum - Foeniculum vulgare			
California sagebrush	Valley	Coreopsis gigantea	Y	S3?	
Non-native/invasive grass	Valley	Cortaderia (jubata, selloana)			
Non-native/ornamental grass	Valley	Cortaderia (jubata, selloana)			
Perennial grasses and forbs	Valley	Cortaderia (jubata, selloana)			
Alkaline mixed grasses	Valley	Cressa truxillensis - Distichlis spicata			
Annual grasses and forbs	Valley	Cynosurus echinatus			
Non-native/invasive grass	Valley	Cynosurus echinatus			
Non-native/ornamental grass	Valley	Cynosurus echinatus			
Annual grasses and forbs	Valley	Deinandra fasciculata	Y	S3?	
Alkaline mixed grasses	Valley	Distichlis spicata			
Perennial grasses and forbs	Valley	Elymus glaucus	Y	S3?	
Perennial grasses and forbs	Valley	Elymus multisetus			
Encelia scrub	Valley	Encelia californica	Y	S3	
Encelia scrub	Valley	Encelia farinosa			
Buckwheat	Valley	Eriogonum cinereum	Y	S3	
California sagebrush	Valley	Eriogonum cinereum	Y	S3	
Buckwheat	Valley	Eriogonum fasciculatum			
Buckwheat	Valley	Eriogonum fasciculatum - Salvia apiana			
Riversidean alluvial scrub	Valley	Eriogonum fasciculatum - Salvia apiana			
Annual grasses and forbs	Valley	Eschscholzia (californica)			
Eucalyptus	Valley	Eucalyptus (globulus, camaldulensis)			
Non-native/ornamental hardwood	Valley	Eucalyptus (globulus, camaldulensis)			
Lower montane mixed chaparral	Valley	Frangula californica			
California walnut	Valley	Juglans californica	Y	S3.2	
Perennial grasses and forbs	Valley	Juncus arcticus (var. balticus, mexicanus)			
Agriculture (general)	Valley	Land Cover			
Agriculture pond or water feature	Valley	Land Cover			
Intermittent lake or pond	Valley	Land Cover			
Intermittent stream channel	Valley	Land Cover			
Nurseries	Valley	Land Cover			
Orchard agriculture	Valley	Land Cover			
Pastures and crop agriculture	Valley	Land Cover			
Perennial lake or pond	Valley	Land Cover			
Reservoir	Valley	Land Cover			

General Category Name	Region	MCV2 Name	Sensitive?	CDFG Sensitivity Ranking	Other Sensitivity (Holland, SBCGP)
River/stream/canal	Valley	Land Cover			
Tilled earth	Valley	Land Cover			
Urban or industrial impoundment	Valley	Land Cover			
Urban/developed (general)	Valley	Land Cover			
Urban-related bare soil	Valley	Land Cover			
Vineyard–shrub agriculture	Valley	Land Cover			
Water (general)	Valley	Land Cover			
Annual grasses and forbs	Valley	Lasthenia californica - Plantago erecta - Vulpia microstachys			
Tule–cattail	Valley	Lemna (minor) and Relatives			
Riversidean alluvial scrub	Valley	Lepidospartum squamatum	Y	S3	Holland - RAFSS
Scalebroom	Valley	Lepidospartum squamatum	Y	S3	Holland - RAFSS
Perennial grasses and forbs	Valley	Leymus condensatus	Y	S3	
Perennial grasses and forbs	Valley	Leymus triticoides	Y	S3	
Annual grasses and forbs	Valley	Lolium perenne			
Non-native/invasive grass	Valley	Lolium perenne			
Non-native/ornamental grass	Valley	Lolium perenne			
Annual grasses and forbs	Valley	Lotus purshianus			
Soft scrub mixed chaparral	Valley	Lotus scoparius			
Tule–cattail	Valley	Ludwigia (hexapetala, peploides)			
California sagebrush	Valley	Lupinus chamissonis - Ericameria ericoides	Y	S3	
California sagebrush	Valley	Malosma laurina			
Riversidean alluvial scrub	Valley	Malosma laurina			
Sumac shrub	Valley	Malosma laurina			
Perennial grasses and forbs	Valley	Muhlenbergia rigens	Y	S2?	
Perennial grasses and forbs	Valley	Nassella cernua	Y	S3?	
Perennial grasses and forbs	Valley	Nassella lepida	Y	S3?	
Perennial grasses and forbs	Valley	Nassella pulchra	Y	S3?	
Coastal cactus	Valley	Opuntia littoralis			
Non-native/invasive grass	Valley	Pennisetum setaceum			
Non-native/ornamental grass	Valley	Pennisetum setaceum			
Non-native/invasive grass	Valley	Phalaris aquatica			
Non-native/ornamental grass	Valley	Phalaris aquatica			
Tule–cattail	Valley	Phragmites australis			
Annual grasses and forbs	Valley	Plagiobothrys nothofulvus			
California sycamore	Valley	Platanus racemosa	Y	S3	
Perennial grasses and forbs	Valley	Poa secunda	Y	S3?	
Fremont cottonwood	Valley	Populus fremontii	Y	S3.2	
Non-native/ornamental conifer	Valley	Project Specific Analysis Needed			
Non-native/ornamental conifer/hardwood	Valley	Project Specific Analysis Needed			

General Category Name	Region	MCV2 Name	Sensitive?	CDFG Sensitivity Ranking	Other Sensitivity (Holland, SBCGP)
Wet meadow	Valley	Project Specific Analysis Needed	Y	most S1-S3	
Lower montane mixed chaparral	Valley	Prunus ilicifolia	Y	S3	
Coastal mixed hardwood	Valley	Quercus (agrifolia, douglasii, garryana, kelloggii, lobata, wislizeni)			
Coast live oak	Valley	Quercus agrifolia	Y		SBC - Oak Woodland
Coastal mixed hardwood	Valley	Quercus agrifolia	Y		SBC - Oak Woodland
Scrub oak	Valley	Quercus berberidifolia			
Scrub oak	Valley	Quercus berberidifolia - Adenostoma fasciculatum			
Scrub oak	Valley	Quercus wislizeni (shrub)			
Riparian mixed shrub	Valley	Rosa californica	Y	S3	
Non-native/ornamental shrub	Valley	Rubus armeniacus			
Riparian mixed shrub	Valley	Rubus armeniacus			
Riparian mixed shrub	Valley	Rubus parviflorus			
Riparian mixed shrub	Valley	Rubus ursinus	Y	S3	
Riparian mixed shrub	Valley	Salix exigua			
Willow	Valley	Salix gooddingii	Y	S3	
Riparian mixed hardwood	Valley	Salix laevigata	Y	S3	
Willow	Valley	Salix laevigata	Y	S3	
Riparian mixed shrub	Valley	Salix lasiolepis			
Willow	Valley	Salix lasiolepis			
Willow	Valley	Salix lucida	Y	S3.2	
California sagebrush	Valley	Salvia apiana	Y	S3	
Riparian mixed hardwood	Valley	Sambucus nigra	Y	S3	
Non-native/ornamental hardwood	Valley	Schinus (molle, terebinthifolius) - Myoporum laetum			
Tule–cattail	Valley	Schoenoplectus acutus			
Tule–cattail	Valley	Schoenoplectus americanus			
Tule–cattail	Valley	Schoenoplectus californicus			
Tule–cattail	Valley	Scirpus microcarpus			
Annual grasses and forbs	Valley	Selaginella bigelovii	Y	S3	
Barren	Valley	Selaginella bigelovii	Y	S3	
Alkaline mixed grasses	Valley	Sporobolus airoides	Y	S2.2	
Perennial grasses and forbs	Valley	Sporobolus airoides	Y	S2.2	
Tule–cattail	Valley	Stuckenia (pectinata) - Potamogeton spp.			
Tule–cattail	Valley	Typha (angustifolia, domingensis, latifolia)			
Fan palm	Valley	Washingtonia filifera	Y	S3.2	

APPENDIX C

Documented Special-Status Plant and Wildlife Species – Desert, Mountain, and Valley Regions

Desert Region
Documented Special-Status Plant Species

Common Name	Scientific Name	Federal Status	State Status	CRPR	Status (Federal/State/CRPR)	Primary Habitat Associations, Life form, Blooming period, Elevation Range)	Arid West Wetland Indicator Status	Upper SAR HCP	Wash Plan HCP	Apple Valley Plan	DRECP	West Mojave Plan	West Valley HCP	USFWS Critical Habitat
Abert's sanvitalia	*Sanvitalia abertii*	None	None	2B.2	None/ None/ 2B.2	Pinyon and juniper woodland(carbonate)/ annual herb/ Aug-Sep(Oct)/ 5151-5906	None							
alkali mariposa lily	*Calochortus striatus*	None	None	1B.2	None/ None/ 1B.2	Chaparral, Chenopod scrub, Mojavean desert scrub, Meadows and seeps/alkaline, mesic/ perennial bulbiferous herb/ Apr-Jun/ 230-5233	FACW				x	x		
Amargosa beardtongue	*Penstemon fruticiformis var. amargosae*	None	None	1B.3	None/ None/ 1B.3	Mojavean desert scrub/ perennial herb/ Apr-Jun/ 2789-4593	None							
appressed muhly	*Muhlenbergia appressa*	None	None	2B.2	None/ None/ 2B.2	Coastal scrub, Mojavean desert scrub, Valley and foothill grassland/rocky/ annual herb/ Apr-May/ 66-5249	None							
Arizona cottontop	*Digitaria californica var. californica*	None	None	2B.3	None/ None/ 2B.3	Mojavean desert scrub, Sonoran desert scrub/rocky/ perennial herb/ Jul-Nov/ 951-4888	None							
Arizona pholistoma	*Pholistoma auritum var. arizonicum*	None	None	2B.3	None/ None/ 2B.3	Mojavean desert scrub/ annual herb/ Mar/ 902-2740	None							
Aven Nelson's phacelia	*Phacelia anelsonii*	None	None	2B.3	None/ None/ 2B.3	Joshua tree woodland, Pinyon and juniper woodland/carbonate, sandy or gravelly/ annual herb/ Apr-May/ 3937-4921	None							
bare-stem larkspur	*Delphinium scaposum*	None	None	2B.3	None/ None/ 2B.3	Sonoran desert scrub/rocky, sometimes washes/ perennial herb/ Mar-Apr/ 886-3461	None				x			
Barneby's phacelia	*Phacelia barnebyana*	None	None	2B.3	None/ None/ 2B.3	Great Basin scrub, Pinyon and juniper woodland/usually carbonate, gravelly, rocky/ annual herb/ May-Jul/ 5249-8858	None							
Barstow woolly sunflower	*Eriophyllum mohavense*	None	None	1B.2	None/ None/ 1B.2	Chenopod scrub, Mojavean desert scrub, Playas/ annual herb/ (Mar),Apr-May/ 1640-3150	None				x	x		
Beaver Dam breadroot	*Pediomelum castoreum*	None	None	1B.2	None/ None/ 1B.2	Joshua tree woodland, Mojavean desert scrub/Sandy, washes and roadcuts/ perennial herb/ Apr-May/ 2001-5003	None							
bitter hymenoxys	*Hymenoxys odorata*	None	None	2B.1	None/ None/ 2B.1	Riparian scrub, Sonoran desert scrub/sandy/ annual herb/ Feb-Nov/ 148-492	None							
black bog-rush	*Schoenus nigricans*	None	None	2B.2	None/ None/ 2B.2	Marshes and swamps(often alkaline)/ perennial herb/ Aug-Sep/ 492-6562	OBL							
Booth's evening-primrose	*Eremothera boothii ssp. boothii*	None	None	2B.3	None/ None/ 2B.3	Joshua tree woodland, Pinyon and juniper woodland/ annual herb/ Apr-Sep/ 2674-7874	None							
Booth's hairy evening-primrose	*Eremothera boothii ssp. intermedia*	None	None	2B.3	None/ None/ 2B.3	Great Basin scrub(sandy), Pinyon and juniper woodland/ annual herb/ (May),Jun/ 4921-7054	None							
Boyd?s monardella	*Monardella boydii*	None	None	1B.2	None/ None/ 1B.2	Mojavean desert scrub, Pinyon and juniper woodland, Riparian scrub(desert)/Usually in alluvial soils and cracks of bedrock in washes on canyon bottoms and rocky slopes./ perennial shrub/ Aug-Oct/ 4593-5413	None							
burro grass	*Scleropogon brevifolius*	None	None	2B.3	None/ None/ 2B.3	Mojavean desert scrub(decomposed granitic)/ perennial stoloniferous herb/ Oct/ 5200-5249	None							
California ayenia	*Ayenia compacta*	None	None	2B.3	None/ None/ 2B.3	Mojavean desert scrub, Sonoran desert scrub/rocky/ perennial herb/ Mar-Apr/ 492-3593	None							
cave evening-primrose	*Oenothera cavernae*	None	None	2B.1	None/ None/ 2B.1	Great Basin scrub, Joshua tree woodland, Mojavean desert scrub/gravelly, often calcareous/ annual herb/ Mar-Nov/ 2493-4199	None							
Chambers' physaria	*Physaria chambersii*	None	None	2B.3	None/ None/ 2B.3	Pinyon and juniper woodland(carbonate, rocky)/ perennial herb/ Apr-May/ 4921-8497	None							
chaparral sand-verbena	*Abronia villosa var. aurita*	None	None	1B.1	None/ None/ 1B.1	Chaparral, Coastal scrub, Desert dunes/sandy/ annual herb/ Jan-Sep/ 246-5249	None							
Charleston sandwort	*Eremogone congesta var. charlestonensis*	None	None	1B.3	None/ None/ 1B.3	Pinyon and juniper woodland(sandy)/ perennial herb/ Jun/ 7218-7300	None							
Cima milk-vetch	*Astragalus cimae var. cimae*	None	None	1B.2	None/ None/ 1B.2	Great Basin scrub, Joshua tree woodland, Pinyon and juniper woodland/clay/ perennial herb/ Apr-May/ 2920-6070	None							
Clark Mountain green-gentian	*Frasera albomarginata var. induta*	None	None	1B.2	None/ None/ 1B.2	Pinyon and juniper woodland/Rocky or gravelly, usually carbonate./ perennial herb/ May-Jun(Sep)/ 5594-5807	None							
Clark Mountain monardella	*Monardella eremicola*	None	None	1B.3	None/ None/ 1B.3	Pinyon and juniper woodland, Riparian scrub(desert)/Granitic or carbonate. Usually in bedrock cracks and benches along canyon washes./ perennial shrub/ Jun-Aug/ 4921-6890	None							
Clark Mountain spurge	*Euphorbia exstipulata var. exstipulata*	None	None	2B.1	None/ None/ 2B.1	Mojavean desert scrub(rocky)/ annual herb/ Sep/ 4199-6562	None							
Clokey's cryptantha	*Cryptantha clokeyi*	None	None	1B.2	None/ None/ 1B.2	Mojavean desert scrub/ annual herb/ Apr/ 2379-4478	None					x		
Coulter's goldfields	*Lasthenia glabrata ssp. coulteri*	None	None	1B.1	None/ None/ 1B.1	Marshes and swamps(coastal salt), Playas, Vernal pools/ annual herb/ Feb-Jun/ 3-4003	None							
Coves' cassia	*Senna covesii*	None	None	2B.2	None/ None/ 2B.2	Sonoran desert scrub(sandy)/ perennial herb/ Mar-Jun/ 935-3510	None							
coyote gilia	*Aliciella triodon*	None	None	2B.2	None/ None/ 2B.2	Great Basin scrub, Pinyon and juniper woodland/sometimes sandy/ annual herb/ Apr-Jun/ 2001-5577	None							
creamy blazing star	*Mentzelia tridentata*	None	None	1B.3	None/ None/ 1B.3	Mojavean desert scrub/rocky, gravelly, sandy/ annual herb/ Mar-May/ 2297-3855	None							
curved-spine beavertail	*Opuntia xcurvispina*	None	None	2B.2	None/ None/ 2B.2	Chaparral, Mojavean desert scrub, Pinyon and juniper woodland/ perennial stem succulent/ Apr-Jun/ 3281-4593	None							
Cushenbury buckwheat	*Eriogonum ovalifolium var. vineum*	FE	None	1B.1	FE/ None/ 1B.1	Joshua tree woodland, Mojavean desert scrub, Pinyon and juniper woodland/carbonate/ perennial herb/ May-Aug/ 4593-8005	None				x			x
Cushenbury milk-vetch	*Astragalus albens*	FE	None	1B.1	FE/ None/ 1B.1	Joshua tree woodland, Mojavean desert scrub, Pinyon and juniper woodland/usually carbonate, rarely granitic/ perennial herb/ Mar-Jun/ 3593-6562	None							x
Cushenbury oxytheca	*Acanthoscyphus parishii var. goodmaniana*	FE	None	1B.1	FE/ None/ 1B.1	Pinyon and juniper woodland(carbonate, talus)/sandy, carbonate/ annual herb/ May-Oct/ 3999-7799	None							x
Darlington's blazing star	*Mentzelia puberula*	None	None	2B.2	None/ None/ 2B.2	Mojavean desert scrub, Sonoran desert scrub/sandy or rocky/ perennial herb/ Mar-May/ 295-4199	None							
Death Valley round-leaved phacelia	*Phacelia mustelina*	None	None	1B.3	None/ None/ 1B.3	Mojavean desert scrub, Pinyon and juniper woodland/carbonate or volcanic, gravelly or rocky/ annual herb/ May-Jul/ 2395-8596	None							
Death Valley sandpaper-plant	*Petalonyx thurberi ssp. gilmanii*	None	None	1B.3	None/ None/ 1B.3	Desert dunes, Mojavean desert scrub/ perennial evergreen shrub/ May-Sep/ 853-4741	None							
delicate muhly	*Muhlenbergia fragilis*	None	None	2B.3	None/ None/ 2B.3	Pinyon and juniper woodland(carbonate, gravelly)/ annual herb/ Oct/ 5249-5249	None							
desert ageratina	*Ageratina herbacea*	None	None	2B.3	None/ None/ 2B.3	Pinyon and juniper woodland(rocky)/ perennial herb/ Jul-Oct/ 5003-7218	None							
desert beardtongue	*Penstemon pseudospectabilis ssp. pseudospectabilis*	None	None	2B.2	None/ None/ 2B.2	Mojavean desert scrub, Sonoran desert scrub/often sandy washes, sometimes rocky/ perennial herb/ Jan-May/ 262-6348	None							
desert bedstraw	*Galium proliferum*	None	None	2B.2	None/ None/ 2B.2	Joshua tree woodland, Mojavean desert scrub, Pinyon and juniper woodland/rocky, carbonate/ annual herb/ Mar-Jun/ 3904-5348	None							
desert cymopterus	*Cymopterus deserticola*	None	None	1B.2	None/ None/ 1B.2	Joshua tree woodland, Mojavean desert scrub/sandy/ perennial herb/ Mar-May/ 2067-4921	None				x	x		
desert germander	*Teucrium glandulosum*	None	None	2B.3	None/ None/ 2B.3	Sonoran desert scrub(rocky)/ perennial stoloniferous herb/ Apr-May/ 1312-2592	None							
desert green-gentian	*Frasera albomarginata var. albomarginata*	None	None	2B.2	None/ None/ 2B.2	Pinyon and juniper woodland(rocky or gravelly)/ perennial herb/ Apr-Jun(Jul),(Aug),(Sep)/ 4495-7595	None							
desert mountain thistle	*Cirsium arizonicum var. tenuisectum*	None	None	1B.2	None/ None/ 1B.2	Joshua tree woodland, Mojavean desert scrub, Pinyon and juniper woodland/rocky, disturbed areas, often roadsides/ perennial herb/ Jun-Nov/ 4921-9186	None							
desert pincushion	*Coryphantha chlorantha*	None	None	2B.1	None/ None/ 2B.1	Joshua tree woodland, Mojavean desert scrub, Pinyon and juniper woodland/carbonate, gravelly, rocky/ perennial stem succulent/ Apr-Sep/ 148-5594	None							
desert wing-fruit	*Acleisanthes nevadensis*	None	None	2B.1	None/ None/ 2B.1	Joshua tree woodland, Mojavean desert scrub/rocky, gravelly/ perennial herb/ Apr-Sep/ 2608-4101	None							
Drummond's false pennyroyal	*Hedeoma drummondii*	None	None	2B.2	None/ None/ 2B.2	Great Basin scrub, Pinyon and juniper woodland/rocky or gravelly, usually carbonate/ perennial herb/ May-Jul/ 4593-5577	None							

Desert Region
Documented Special-Status Plant Species

Common Name	Scientific Name	Federal Status	State Status	CRPR	Status (Federal/State/CRPR)	Primary Habitat Associations, Life form, Blooming period, Elevation Range)	Arid West Wetland Indicator Status	Upper SAR HCP	Wash Plan HCP	Apple Valley Plan	DRECP	West Mojave Plan	West Valley HCP	USFWS Critical Habitat
dwarf abutilon	*Abutilon parvulum*	None	None	2B.3	None/ None/ 2B.3	Chenopod scrub(rocky)/ perennial herb/ Apr-May/ 2953-4265	None							
Emory's crucifixion-thorn	*Castela emoryi*	None	None	2B.2	None/ None/ 2B.2	Mojavean desert scrub, Playas, Sonoran desert scrub/gravelly/ perennial deciduous shrub/ (Apr),Jun-Jul(Sep),(Oct)/ 295-2379	None					x		
false buffalo-grass	*Munroa squarrosa*	None	None	2B.2	None/ None/ 2B.2	Pinyon and juniper woodland(gravelly or rocky)/ annual herb/ Oct/ 4921-5906	None							
few-flowered muhly	*Muhlenbergia pauciflora*	None	None	2B.3	None/ None/ 2B.3	Pinyon and juniper woodland(rocky)/ perennial rhizomatous herb/ Sep-Oct/ 5758-6102	None							
forked buckwheat	*Eriogonum bifurcatum*	None	None	1B.2	None/ None/ 1B.2	Chenopod scrub(sandy)/ annual herb/ Apr-Jun/ 2116-2657	None							
forked purple mat	*Nama dichotoma var. dichotoma*	None	None	2B.3		Pinyon and juniper woodland(granitic or carbonate)/ annual herb/ Sep-Oct/ 6234-7218	None							
Fremont barberry	*Berberis fremontii*	None	None	2B.3	None/ None/ 2B.3	Joshua tree woodland, Pinyon and juniper woodland/Rocky, sometimes granitic/ perennial evergreen shrub/ Mar-May/ 3757-5643	None							
Gilman's cymopterus	*Cymopterus gilmanii*	None	None	2B.3	None/ None/ 2B.3	Mojavean desert scrub(often carbonate)/ perennial herb/ Apr-May/ 3002-6562	None							
glandular ditaxis	*Ditaxis claryana*	None	None	2B.2	None/ None/ 2B.2	Mojavean desert scrub, Sonoran desert scrub/sandy/ perennial herb/ Oct-Mar/ 0-1526	None							
Goodding's phacelia	*Phacelia pulchella var. gooddingii*	None	None	2B.2	None/ None/ 2B.2	Mojavean desert scrub(clay, often alkaline)/ annual herb/ Apr-Jun/ 2510-3281	None							
Graham's fishhook cactus	*Mammillaria grahamii var. grahamii*	None	None	2B.2	None/ None/ 2B.2	Sonoran desert scrubgravelly or rocky/ perennial stem succulent/ Apr-Sep/ 984-2953	None							
Great Basin onion	*Allium atrorubens var. atrorubens*	None	None	2B.3	None/ None/ 2B.3	Great Basin scrub, Pinyon and juniper woodland/rocky or sandy/ perennial bulbiferous herb/ May-Jun/ 3937-7595	None							
hairy erioneuron	*Erioneuron pilosum*	None	None	2B.3	None/ None/ 2B.3	Pinyon and juniper woodland(rocky, sometimes carbonate)/ perennial herb/ May-Jun/ 4659-6594	None							
hairy-podded fine-leaf hymenopappus	*Hymenopappus filifolius var. eriopodus*	None	None	2B.3	None/ None/ 2B.3	Pinyon and juniper woodland/carbonate/ perennial herb/ May-Jul/ 5249-5577	None							
Harwood's eriastrum	*Eriastrum harwoodii*	None	None	1B.2	None/ None/ 1B.2	Desert dunes/ annual herb/ Mar-Jun/ 410-3002	None							
Harwood's milk-vetch	*Astragalus insularis var. harwoodii*	None	None	2B.2	None/ None/ 2B.2	Desert dunes, Mojavean desert scrub/sandy or gravelly/ annual herb/ Jan-May/ 0-2329	None							
hot springs fimbristylis	*Fimbristylis thermalis*	None	None	2B.2	None/ None/ 2B.2	Meadows and seeps(alkaline, near hot springs)/ perennial rhizomatous herb/ Jul-Sep/ 361-4396	OBL							
Howe's hedgehog cactus	*Echinocereus engelmannii var. howei*	None	None	1B.1	None/ None/ 1B.1	Mojavean desert scrub/ perennial stem succulent/ Apr-May/ 1411-2543	None							
inland rush	*Juncus interior*	None	None	2B.2	None/ None/ 2B.2	Pinyon and juniper woodland/ perennial herb/ Jun-Aug/ 6004-6053	FAC							
intermountain milkwort	*Polygala intermontana*	None	None	2B.1	None/ None/ 2B.1	Pinyon and juniper woodland/ perennial shrub/ Jun-Jul(Oct)/ 6594-10105	None							
jackass-clover	*Wislizenia refracta ssp. refracta*	None	None	2B.2	None/ None/ 2B.2	Desert dunes, Mojavean desert scrub, Playas, Sonoran desert scrub/ annual herb/ Apr-Nov/ 1969-2625	None							
Jaeger's ivesia	*Ivesia jaegeri*	None	None	1B.3	None/ None/ 1B.3	Pinyon and juniper woodland, Upper montane coniferous forest/carbonate, rocky/ perennial herb/ Jun-Jul/ 6004-11811	None							
Jaeger's phacelia	*Phacelia perityloides var. jaegeri*	None	None	1B.3	None/ None/ 1B.3	Pinyon and juniper woodland(rocky, often carbonate)/ perennial herb/ May-Jul/ 6004-7694	None							
Johnson's bee-hive cactus	*Sclerocactus johnsonii*	None	None	2B.2	None/ None/ 2B.2	Mojavean desert scrub(granitic)/ perennial stem succulent/ Apr-May/ 1640-3937	None							
juniper sulphur-flowered buckwheat	*Eriogonum umbellatum var. juniporinum*	None	None	2B.3	None/ None/ 2B.3	Mojavean desert scrub, Pinyon and juniper woodland/ perennial herb/ Jul-Oct/ 4265-8202	None							
King's eyelash grass	*Blepharidachne kingii*	None	None	2B.3	None/ None/ 2B.3	Great Basin scrub(usually carbonate)/ perennial herb/ May/ 3494-7005	None							
Kingston Mountains bedstraw	*Galium hilendiae ssp. kingstonense*	None	None	1B.3	None/ None/ 1B.3	Lower montane coniferous forest, Pinyon and juniper woodland/rocky/ perennial herb/ (May),Jun/ 3937-6890	None							
Kingston Mountains ivesia	*Ivesia patellifera*	None	None	1B.3	None/ None/ 1B.3	Pinyon and juniper woodland(granitic, rocky)/ perennial herb/ Jun-Oct/ 4593-6890	None							
knotted rush	*Juncus nodosus*	None	None	2B.3	None/ None/ 2B.3	Meadows and seeps(mesic), Marshes and swamps(lake margins)/ perennial rhizomatous herb/ Jul-Sep/ 98-6496	OBL							
Kofa Mountain barberry	*Berberis harrisoniana*	None	None	1B.2	None/ None/ 1B.2	Chaparral, Mojavean desert scrub/usually north-facing talus slopes, sometimes volcanic/ perennial evergreen shrub/ Jan-Mar/ 2559-2756	None							
Lane Mountain milk-vetch	*Astragalus jaegerianus*	FE	None	1B.1	FE/ None/ 1B.1	Joshua tree woodland, Mojavean desert scrub/granitic, sandy or gravelly/ perennial herb/ Apr-Jun/ 2953-3937	None				x			
Latimer's woodland-gilia	*Saltugilia latimeri*	None	None	1B.2	None/ None/ 1B.2	Chaparral, Mojavean desert scrub, Pinyon and juniper woodland/rocky or sandy, often granitic, sometimes washes/ annual herb/ Mar-Jun/ 1312-6234	None							
limestone beardtongue	*Penstemon calcareus*	None	None	1B.3	None/ None/ 1B.3	Joshua tree woodland, Mojavean desert scrub, Pinyon and juniper woodland/carbonate, rocky/ perennial herb/ Apr-May/ 3494-6693	None							
limestone daisy	*Erigeron uncialis var. uncialis*	None	None	1B.2	None/ None/ 1B.2	Great Basin scrub, Pinyon and juniper woodland, Subalpine coniferous forest/carbonate/ perennial herb/ May-Jul/ 6234-9514	None							
Lincoln rockcress	*Boechera lincolnensis*	None	None	2B.3	None/ None/ 2B.3	Chenopod scrub, Mojavean desert scrub/carbonate/ perennial herb/ Mar-May/ 3609-8875	None							
Little San Bernardino Mtns. linanthus	*Linanthus maculatus*	None	None	1B.2	None/ None/ 1B.2	Desert dunes, Joshua tree woodland, Mojavean desert scrub, Sonoran desert scrub/sandy/ annual herb/ Mar-May/ 640-6808	None				x			
lobed ground-cherry	*Physalis lobata*	None	None	2B.3	None/ None/ 2B.3	Mojavean desert scrub(decomposed granitic), Playas/ perennial herb/ (May),Sep-Jan/ 1640-2625	None							
long-stem evening-primrose	*Oenothera longissima*	None	None	2B.2	None/ None/ 2B.2	Mojavean desert scrub, Pinyon and juniper woodland/seasonally mesic/ annual / perennial herb/ Jul-Sep/ 3281-5577	OBL							
many-flowered bahia	*Bahia neomexicana*	None	None	2B.3	None/ None/ 2B.3	Pinyon and juniper woodland(sandy)/ annual herb/ Sep-Oct/ 4921-5577	None							
Mojave Desert plum	*Prunus eremophila*	None	None	1B.2	None/ None/ 1B.2	Mojavean desert scrub/granitic or rhyolitic, usually washes/ perennial deciduous shrub/ Mar-Apr/ 3199-3855	None							
Mojave menodora	*Menodora spinescens var. mohavensis*	None	None	1B.2	None/ None/ 1B.2	Mojavean desert scrub/Andesite gravel, rocky hillsides, canyons/ perennial deciduous shrub/ Apr-May/ 2264-6562	None							
Mojave milkweed	*Asclepias nyctaginifolia*	None	None	2B.1	None/ None/ 2B.1	Mojavean desert scrub, Pinyon and juniper woodland/ perennial herb/ May-Jun/ 2871-5577	None							
Mojave monkeyflower	*Mimulus mohavensis*	None	None	1B.2	None/ None/ 1B.2	Joshua tree woodland, Mojavean desert scrub/sandy or gravelly, often in washes/ annual herb/ Apr-Jun/ 1969-3937	None				x	x		
Mojave tarplant	*Deinandra mohavensis*	None	CE	1B.3	None/ CE/ 1B.3	Chaparral, Coastal scrub, Riparian scrub/mesic/ annual herb/ (May),Jun-Oct(Jan)/ 2100-5249	None				x	x		
Mormon needle grass	*Stipa arida*	None	None	2B.3	None/ None/ 2B.3	Joshua tree woodland, Pinyon and juniper woodland/carbonate/ perennial herb/ May-Jul/ 1640-8432	None							
narrow-leaved psorothamnus	*Psorothamnus fremontii var. attenuatus*	None	None	2B.3	None/ None/ 2B.3	Sonoran desert scrub(granitic or volcanic)/ perennial shrub/ Apr/ 1099-3002	None							
narrow-leaved yerba santa	*Eriodictyon angustifolium*	None	None	2B.3	None/ None/ 2B.3	Pinyon and juniper woodland/ perennial evergreen shrub/ May-Aug/ 4921-6234	None							
Nevada onion	*Allium nevadense*	None	None	2B.3	None/ None/ 2B.3	Pinyon and juniper woodland(sandy or gravelly)/ perennial bulbiferous herb/ Apr-May/ 2657-5577	None							
New Mexico locust	*Robinia neomexicana*	None	None	2B.3	None/ None/ 2B.3	Pinyon and juniper woodland(sandy)/ perennial deciduous shrub/ May-Jul/ 4921-5807	None							
nine-awned pappus grass	*Enneapogon desvauxii*	None	None	2B.2	None/ None/ 2B.2	Pinyon and juniper woodland(rocky, carbonate)/ perennial herb/ Aug-Sep/ 4183-5988	None							
Orocopia Mountains spurge	*Euphorbia jaegeri*	None	None	1B.1	None/ None/ 1B.1	Mojavean desert scrub/Rocky hillsides and arroyos, gravelly or rocky crevices; granitic, carbonate, or metamorphic/ perennial shrub/ Oct-May/ 1969-2789	None							

Desert Region
Documented Special-Status Plant Species

Common Name	Scientific Name	Federal Status	State Status	CRPR	Status (Federal/State/CRPR)	Primary Habitat Associations, Life form, Blooming period, Elevation Range)	Arid West Wetland Indicator Status	Upper SAR HCP	Wash Plan HCP	Apple Valley Plan	DRECP	West Mojave Plan	West Valley HCP	USFWS Critical Habitat
Palmer's mariposa lily	*Calochortus palmeri var. palmeri*	None	None	1B.2	None/ None/ 1B.2	Chaparral, Lower montane coniferous forest, Meadows and seeps/mesic/ perennial bulbiferous herb/ Apr-Jul/ 2329-7841	None							
Parish's alkali grass	*Puccinellia parishii*	None	None	1B.1	None/ None/ 1B.1	Meadows and seeps(alkaline springs and seeps)/ annual herb/ Apr-May/ 2297-3281	OBL				x	x		
Parish's brittlescale	*Atriplex parishii*	None	None	1B.1	None/ None/ 1B.1	Chenopod scrub, Playas, Vernal pools/alkaline/ annual herb/ Jun-Oct/ 82-6234	FAC							
Parish's club-cholla	*Grusonia parishii*	None	None	2B.2	None/ None/ 2B.2	Joshua tree woodland, Mojavean desert scrub, Sonoran desert scrub/sandy, rocky/ perennial stem succulent/ May-Jun(Jul)/ 984-5000	None							
Parish's daisy	*Erigeron parishii*	FT	None	1B.1	FT/ None/ 1B.1	Mojavean desert scrub, Pinyon and juniper woodland/usually carbonate, sometimes granitic/ perennial herb/ May-Aug/ 2625-6562	None				x			x
Parish's phacelia	*Phacelia parishii*	None	None	1B.1	None/ None/ 1B.1	Mojavean desert scrub, Playas/clay or alkaline/ annual herb/ Apr-May(Jun),(Jul)/ 1772-3937	FACU				x	x		
Parish's popcorn-flower	*Plagiobothrys parishii*	None	None	1B.1	None/ None/ 1B.1	Great Basin scrub, Joshua tree woodland/alkaline, mesic/ annual herb/ Mar-Jun(Nov)/ 2461-4593	OBL							
pinyon rockcress	*Boechera dispar*	None	None	2B.3	None/ None/ 2B.3	Joshua tree woodland, Mojavean desert scrub, Pinyon and juniper woodland/granitic, gravelly/ perennial herb/ Mar-Jun/ 3937-8333	None							
Pioneertown linanthus	*Linanthus bernardinus*	None	None	1B.2	None/ None/ 1B.2	Joshua tree woodland, Pinyon and juniper woodland/ annual herb/ Mar-May/ 3904-4396	None							
plains bee balm	*Monarda pectinata*	None	None	2B.3	None/ None/ 2B.3	Joshua tree woodland, Pinyon and juniper woodland/rocky/ annual herb/ Jul-Sep/ 3773-5003	None							
plains flax	*Linum puberulum*	None	None	2B.3	None/ None/ 2B.3	Great Basin scrub, Joshua tree woodland, Mojavean desert scrub, Pinyon and juniper woodland/ perennial herb/ May-Jul/ 3281-8202	None							
plains stoneseed	*Lithospermum incisum*	None	None	2B.3	None/ None/ 2B.3	Pinyon and juniper woodland/ perennial herb/ May/ 5413-5643	None							
playa milk-vetch	*Astragalus allochrous var. playanus*	None	None	2B.2	None/ None/ 2B.2	Mojavean desert scrub(sandy)/ perennial herb/ Apr/ 2625-2625	None							
Plummer's woodsia	*Woodsia plummerae*	None	None	2B.3	None/ None/ 2B.3	Pinyon and juniper woodland(granitic, rocky)/ perennial rhizomatous herb/ May-Sep/ 5249-6562	None							
polished blazing star	*Mentzelia polita*	None	None	1B.2	None/ None/ 1B.2	Mojavean desert scrub/carbonate/ perennial herb/ Apr-Aug/ 3937-5184	None							
Preuss' milk-vetch	*Astragalus preussii var. preussii*	None	None	2B.1	None/ None/ 2B.1	Chenopod scrub, Mojavean desert scrub/clay/ perennial herb/ Apr-Jun/ 2461-2641	None							
Providence Mountains lotus	*Acmispon argyraeus var. notitius*	None	None	1B.3	None/ None/ 1B.3	Pinyon and juniper woodland/ perennial herb/ May-Aug/ 3937-6562	None							
pungent glossopetalon	*Glossopetalon pungens*	None	None	1B.2	None/ None/ 1B.2	Chaparral, Pinyon and juniper woodland/carbonate/ perennial deciduous shrub/ May-Jun/ 5495-6562	None							
purple-nerve cymopterus	*Cymopterus multinervatus*	None	None	2B.2	None/ None/ 2B.2	Mojavean desert scrub, Pinyon and juniper woodland/sandy or gravelly/ perennial herb/ Mar-Apr/ 2592-5906	None							
Rau?s jaffueliobryum moss	*Jaffueliobryum raui*	None	None	2B.3	None/ None/ 2B.3	Alpine dwarf scrub, Chaparral, Mojavean desert scrub, Sonoran desert scrub/Dry openings, rock crevices, carbonate/ moss/ N.A./ 1608-6890	None							
red four o'clock	*Mirabilis coccinea*	None	None	2B.3	None/ None/ 2B.3	Pinyon and juniper woodland/ perennial herb/ May-Jul/ 3510-5906	None							
Red Rock poppy	*Eschscholzia minutiflora ssp. twisselmannii*	None	None	1B.2	None/ None/ 1B.2	Mojavean desert scrub(volcanic tuff)/ annual herb/ Mar-May/ 2231-4035	None							
Reveal's buckwheat	*Eriogonum contiguum*	None	None	2B.3	None/ None/ 2B.3	Mojavean desert scrub(sandy)/ annual herb/ (Feb),Mar-May(Jun)/ 98-4331	None							
rigid fringepod	*Thysanocarpus rigidus*	None	None	1B.2	None/ None/ 1B.2	Pinyon and juniper woodland/Dry rocky slopes/ annual herb/ Feb-May/ 1969-7218	None							
Ripley's aliciella	*Aliciella ripleyi*	None	None	2B.3	None/ None/ 2B.3	Mojavean desert scrub(carbonate)/ perennial herb/ May-Jul/ 1001-6398	None							
Robison's monardella	*Monardella robisonii*	None	None	1B.3	None/ None/ 1B.3	Pinyon and juniper woodland/ perennial rhizomatous herb/ (Feb),Apr-Sep(Oct)/ 2001-4921	None							
rosy two-toned beardtongue	*Penstemon bicolor ssp. roseus*	None	None	1B.1	None/ None/ 1B.1	Joshua tree woodland, Mojavean desert scrub/rocky or gravelly, sometimes disturbed areas/ perennial herb/ May/ 2297-4921	None							
rough menodora	*Menodora scabra*	None	None	2B.3	None/ None/ 2B.3	Joshua tree woodland, Mojavean desert scrub, Pinyon and juniper woodland/ perennial herb/ May-Jun/ 3937-5906	None							
roughstalk witch grass	*Panicum hirticaule ssp. hirticaule*	None	None	2B.1	None/ None/ 2B.1	Desert dunes, Joshua tree woodland, Mojavean desert scrub, Sonoran desert scrub/sandy, silty, depressions/ annual herb/ Aug-Dec/ 148-4314	None							
Rusby's desert-mallow	*Sphaeralcea rusbyi var. eremicola*	None	None	1B.2	None/ None/ 1B.2	Joshua tree woodland, Mojavean desert scrub/ perennial herb/ Mar-Jun/ 3199-5397	None							
sagebrush loeflingia	*Loeflingia squarrosa var. artemisiarum*	None	None	2B.2	None/ None/ 2B.2	Desert dunes, Great Basin scrub, Sonoran desert scrub/sandy/ annual herb/ Apr-May/ 2297-5299	None							
saguaro	*Carnegiea gigantea*	None	None	2B.2	None/ None/ 2B.2	Sonoran desert scrub(rocky)/ perennial stem succulent/ May-Jun/ 164-4921	None							
Salina Pass wild-rye	*Elymus salina*	None	None	2B.3	None/ None/ 2B.3	Pinyon and juniper woodland(rocky)/ perennial rhizomatous herb/ May-Jun/ 4429-7005	None							
salt spring checkerbloom	*Sidalcea neomexicana*	None	None	2B.2	None/ None/ 2B.2	Chaparral, Coastal scrub, Lower montane coniferous forest, Mojavean desert scrub, Playas/alkaline, mesic/ perennial herb/ Mar-Jun/ 49-5020	FACW					x		
San Bernardino aster	*Symphyotrichum defoliatum*	None	None	1B.2	None/ None/ 1B.2	Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Meadows and seeps, Marshes and swamps, Valley and foothill grassland(vernally mesic)/near ditches, streams, springs/ perennial rhizomatous herb/ Jul-Nov/ 7-6693	OBL							
San Bernardino milk-vetch	*Astragalus bernardinus*	None	None	1B.2	None/ None/ 1B.2	Joshua tree woodland, Pinyon and juniper woodland/Often granitic or carbonate/ perennial herb/ Apr-Jun/ 2953-6562	None							
San Bernardino Mountains dudleya	*Dudleya abramsii ssp. affinis*	None	None	1B.2	None/ None/ 1B.2	Pebble plain, Pinyon and juniper woodland, Upper montane coniferous forest/granitic, quartzite, or carbonate/ perennial herb/ Apr-Jul/ 4101-8530	None							
sand evening-primrose	*Chylismia arenaria*	None	None	2B.2	None/ None/ 2B.2	Sonoran desert scrub(sandy or rocky)/ annual / perennial herb/ Nov-May/ -230-3002	None							
scaly cloak fern	*Astrolepis cochisensis ssp. cochisensis*	None	None	2B.3	None/ None/ 2B.3	Joshua tree woodland, Pinyon and juniper woodland/carbonate/ perennial rhizomatous herb/ Apr-Oct/ 2953-5906	None							
scrub lotus	*Acmispon argyraeus var. multicaulis*	None	None	1B.3	None/ None/ 1B.3	Pinyon and juniper woodland(granitic)/ perennial herb/ Apr-Jun/ 3937-4921	None							
Shockley's rockcress	*Boechera shockleyi*	None	None	2B.2	None/ None/ 2B.2	Pinyon and juniper woodland(carbonate or quartzite, rocky or gravelly)/ perennial herb/ May-Jun/ 2871-7579	None					x		
short-joint beavertail	*Opuntia basilaris var. brachyclada*	None	None	1B.2	None/ None/ 1B.2	Chaparral, Joshua tree woodland, Mojavean desert scrub, Pinyon and juniper woodland/ perennial stem succulent/ Apr-Jun(Aug)/ 1394-5906	None					x		
sky-blue phacelia	*Phacelia coerulea*	None	None	2B.3	None/ None/ 2B.3	Mojavean desert scrub, Pinyon and juniper woodland/ annual herb/ Apr-May/ 4593-6562	None							
slender cottonheads	*Nemacaulis denudata var. gracilis*	None	None	2B.2	None/ None/ 2B.2	Coastal dunes, Desert dunes, Sonoran desert scrub/ annual herb/ (Mar),Apr-May/ -164-1312	None							
small-flowered androstephium	*Androstephium breviflorum*	None	None	2B.2	None/ None/ 2B.2	Desert dunes, Mojavean desert scrub(bajadas)/ perennial bulbiferous herb/ Mar-Apr/ 722-2625	None							
small-flowered bird's-beak	*Cordylanthus parviflorus*	None	None	2B.3	None/ None/ 2B.3	Joshua tree woodland, Mojavean desert scrub, Pinyon and juniper woodland/ annual herb (hemiparasitic)/ Aug-Oct/ 2297-7218	None							
small-flowered rice grass	*Stipa divaricata*	None	None	2B.3	None/ None/ 2B.3	Pinyon and juniper woodland(gravelly, carbonate)/ perennial herb/ Jun-Sep/ 2297-9678	None							
small-flowered sand-verbena	*Tripterocalyx micranthus*	None	None	2B.3	None/ None/ 2B.3	Desert dunes, Mojavean desert scrub(sandy)/ perennial herb/ Apr-May/ 1804-2805	None							
southern mountains skullcap	*Scutellaria bolanderi ssp. austromontana*	None	None	1B.2	None/ None/ 1B.2	Chaparral, Cismontane woodland, Lower montane coniferous forest/mesic/ perennial rhizomatous herb/ Jun-Aug/ 1394-6562	None							
southwestern false cloak-fern	*Argyrochosma limitanea ssp. limitanea*	None	None	2B.1	None/ None/ 2B.1	Pinyon and juniper woodland(carbonate, rocky)/ perennial rhizomatous herb/ Apr-Oct/ 5906-5906	None							

Desert Region
Documented Special-Status Plant Species

Common Name	Scientific Name	Federal Status	State Status	CRPR	Status (Federal/State/CRPR)	Primary Habitat Associations, Life form, Blooming period, Elevation Range)	Arid West Wetland Indicator Status	Upper SAR HCP	Wash Plan HCP	Apple Valley Plan	DRECP	West Mojave Plan	West Valley HCP	USFWS Critical Habitat
spearleaf	*Matelea parvifolia*	None	None	2B.3	None/ None/ 2B.3	Mojavean desert scrub, Sonoran desert scrub/rocky/ perennial herb/ Mar-May/ 1444-3593	None							
spiny cliff-brake	*Pellaea truncata*	None	None	2B.3	None/ None/ 2B.3	Pinyon and juniper woodland(volcanic or granitic, rocky)/ perennial rhizomatous herb/ Apr-Jun/ 3937-7054	None							
spiny-hair blazing star	*Mentzelia tricuspis*	None	None	2B.1	None/ None/ 2B.1	Mojavean desert scrub/sandy, gravelly, slopes, and washes/ annual herb/ Mar-May/ 492-4199	None							
Stephens' beardtongue	*Penstemon stephensii*	None	None	1B.3	None/ None/ 1B.3	Mojavean desert scrub, Pinyon and juniper woodland/usually carbonate, rocky/ perennial herb/ Apr-Jun/ 3806-6070	None							
Tecopa bird's-beak	*Chloropyron tecopense*	None	None	1B.2	None/ None/ 1B.2	Mojavean desert scrub, Meadows and seeps/Mesic, alkaline/ annual herb (hemiparasitic)/ Jul-Oct/ 197-2953	FACW							
Thompson's beardtongue	*Penstemon thompsoniae*	None	None	2B.3	None/ None/ 2B.3	Pinyon and juniper woodland(gravelly, carbonate)/ perennial herb/ May-Jun/ 4921-8858	None							
Thorne's buckwheat	*Eriogonum thornei*	None	CE	1B.2	None/ CE/ 1B.2	Pinyon and juniper woodland(gravelly)/ perennial shrub/ Jul-Aug/ 5906-6004	None							
thorny milkwort	*Polygala acanthoclada*	None	None	2B.3	None/ None/ 2B.3	Chenopod scrub, Joshua tree woodland, Pinyon and juniper woodland/ perennial shrub/ May-Aug/ 2493-7497	None							
three-awned grama	*Bouteloua trifida*	None	None	2B.3	None/ None/ 2B.3	Mojavean desert scrub(carbonate, rocky)/ perennial herb/ May-Sep/ 2297-6562	None							
Tidestrom's milk-vetch	*Astragalus tidestromii*	None	None	2B.2	None/ None/ 2B.2	Mojavean desert scrub/carbonate, sandy or gravelly/ perennial herb/ (Jan),Apr-Jul/ 1969-5200	None							
tough muhly	*Muhlenbergia arsenei*	None	None	2B.3	None/ None/ 2B.3	Pinyon and juniper woodland(rocky, carbonate)/ perennial rhizomatous herb/ Aug-Oct/ 4593-6102	None							
triple-ribbed milk-vetch	*Astragalus tricarinatus*	FE	None	1B.2	FE/ None/ 1B.2	Joshua tree woodland, Sonoran desert scrub/sandy or gravelly/ perennial herb/ Feb-May/ 1476-3904	None				x			
Utah beardtongue	*Penstemon utahensis*	None	None	2B.3	None/ None/ 2B.3	Chenopod scrub, Great Basin scrub, Mojavean desert scrub, Pinyon and juniper woodland/rocky/ perennial herb/ Apr-May/ 3494-8202	None							
Utah daisy	*Erigeron utahensis*	None	None	2B.3	None/ None/ 2B.3	Pinyon and juniper woodland(carbonate)/ perennial herb/ May-Jun/ 4921-7612	None							
vaginulate grimmia	*Grimmia vaginulata*	None	None	1B.1	None/ None/ 1B.1	Chaparral(openings)/Rocky, boulder and rock walls, carbonate/ moss/ N.A./ 2247-2247	None							
violet twining snapdragon	*Maurandella antirrhiniflora*	None	None	2B.3	None/ None/ 2B.3	Joshua tree woodland, Mojavean desert scrub/carbonate/ perennial herb/ Apr-May/ 2493-5003	None							
viviparous foxtail cactus	*Coryphantha vivipara var. rosea*	None	None	2B.2	None/ None/ 2B.2	Mojavean desert scrub, Pinyon and juniper woodland/carbonate/ perennial stem succulent/ May-Jun/ 4101-8858	None							
wand-like fleabane daisy	*Erigeron oxyphyllus*	None	None	2B.3	None/ None/ 2B.3	Sonoran desert scrub/dry, rocky slopes and washes/ perennial herb/ May/ 2116-2592	None							
white bear poppy	*Arctomecon merriamii*	None	None	2B.2	None/ None/ 2B.2	Chenopod scrub, Mojavean desert scrub/rocky/ perennial herb/ Apr-May/ 1608-5906	None							
white-bracted spineflower	*Chorizanthe xanti var. leucotheca*	None	None	1B.2	None/ None/ 1B.2	Coastal scrub(alluvial fans), Mojavean desert scrub, Pinyon and juniper woodland/sandy or gravelly/ annual herb/ Apr-Jun/ 984-3937	None							
white-margined beardtongue	*Penstemon albomarginatus*	None	None	1B.1	None/ None/ 1B.1	Desert dunes(stabilized), Mojavean desert scrub(sandy)/ perennial herb/ Mar-May/ 2100-3494	None				x	x		
Wiggins' cholla	*Opuntia wigginsii*	None	None	3.3	None/ None/ 3.3	Sonoran desert scrub(sandy)/ perennial stem succulent/ Mar/ 98-2904	None							
wing-seed blazing star	*Mentzelia pterosperma*	None	None	2B.2	None/ None/ 2B.2	Mojavean desert scrub/clay, gypseous/ annual / perennial herb/ Apr-Jun/ 3740-3740	None							
wolftail	*Muhlenbergia alopecuroides*	None	None	2B.2	None/ None/ 2B.2	Joshua tree woodland, Pinyon and juniper woodland/ perennial herb/ Aug-Sep/ 1640-1640	None							
Wright?s jaffueliobryum moss	*Jaffueliobryum wrightii*	None	None	2B.3	None/ None/ 2B.3	Alpine dwarf scrub, Mojavean desert scrub, Pinyon and juniper woodland/Dry openings, rock crevices, carbonate/ moss/ N.A./ 525-8202	None							
Wright's bedstraw	*Galium wrightii*	None	None	2B.3	None/ None/ 2B.3	Lower montane coniferous forest, Pinyon and juniper woodland/carbonate, rocky/ perennial herb/ Jun-Oct/ 5249-6562	None							

Desert Region
Documented Special-Status Wildlife Species

Common Name	Scientific Name	Federal Status	State Status	Habitat	Upper SAR HCP	Wash Plan HCP	Apple Valley Plan	DRECP	West Mojave Plan	West Valley HCP	USFWS Critical Habitat
Amphibians											
California red-legged frog	*Rana draytonii*	FT	SSC	Lowland streams, wetlands, riparian woodlands, livestock ponds; dense, shrubby or emergent vegetation associated with deep, still or slow-moving water; uses adjacent uplands. Not observed since 1960's in the Mojave River, and no critical habitat designated for this region.							
arroyo toad	*Anaxyrus californicus*	FE	SSC	Semi-arid areas near washes, sandy riverbanks, riparian areas, palm oasis, Joshua tree, mixed chaparral and sagebrush; stream channels for breeding(typically 3rd order); adjacent stream terraces and uplands for foraging and wintering	x			x			x
western pond turtle	*Actinemys marmorata*	None	SSC	Slow-moving permanent or intermittent streams, ponds, small lakes, reservoirs with emergent basking sites; adjacent uplands used for nesting and during winter							
Sonoran desert toad	*Incilius alvarius*	None	SSC	Desert and semi-arid habitats including desert scrub, semi-arid grasslands and woodlands; usually associated with large permanent streams. There is one documented occurrence of this species in the most eastern border of San Bernardino County, within the Colorado River. Though this occurrence is not dated, the last documented occurrence of this species prior to thios occurred in 1950, and this species is listed as "likely extirpated" from this area (CNDDB 2015).							
Reptiles											
banded gila monster	*Heloderma suspectum cinctum*	None	SSC	Rocky areas in desert scrub and semi-desert grassland							
Blainville's horned lizard	*Phrynosoma blainvillii*	None	SSC	Open areas of sandy soil in valleys, foothills and semi-arid mountains including coastal scrub, chaparral, valley-foothill hardwood, conifer, riparian, pine-cypress, juniper and annual grassland							
Desert tortoise	*Gopherus agassizii*	FT	ST	Arid and semi-arid habitats in Mojave and Sonoran Deserts, including sandy or gravelly locations along riverbanks, washes sandy dunes, canyon bottoms, desert oases, rocky hillsides, creosote flats and hillsides.				x			x
Mohave fringe-toed lizard	*Uma scoparia*	None	SSC	Loose wind-blown sand dunes, flats with sandy hummocks, washes and banks of rivers				x	x		
red diamondback rattlesnake	*Crotalus ruber*	None	SSC	Coastal scrub, chaparral, oak and pine woodlands, rocky grasslands, cultivated areas, and desert flats. There are three documented occurrences of this species in San Bernardino County, all directly east of the San Bernardino Mountains. The most recent of this occurrences was in 2008, and this species is presumed extant in this area (CNDDB 2015).							
Birds											
burrowing owl	*Athene cunicularia (burrow sites & some wintering sites)*	None	SSC	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows.							
California black rail	*Laterallus jamaicensis coturniculus*	None	ST, FP	Tidal marshes, shallow freshwater margins, wet meadows and flooded grassy vegetation. Populations in San Bernardino known from Big Morongo Canyon and Havasu National Wildlife Refuge (Conway et al. 2002, Corman 2005)				x			
loggerhead shrike	*Lanius ludovicianus (nesting)*	None	SSC	Nests and forages in open habitats with scattered shrubs, trees, or other perches							
Swainson's hawk	*Buteo swainsoni (nesting)*	None	ST	Nests in open woodland and savanna, riparian and in isolated large trees; forages in nearby grasslands and agriculturals areas such as wheat and alfalfa fields and pasture. This species occasionally stops over during migration. Not recently recorded as nesting in San Bernardino County.							
yellow warbler	*Setophaga petechia (nesting)*	None	SSC	Nests and forages in riparian and oak woodlands, montane chaparral, open ponderosa pine and mixed conifer habitats							
bald eagle	*Haliaeetus leucocephalus (nesting & wintering)*	FDL	SE, FP	Nests in forested areas adjacent to large bodies of water, including seacoasts, rivers, swamps, large lakes; winters near large bodies of water in lowlands and mountains. There is a single record of a nesting pair at the Cooper Basin Reservoir as recently as 2011 (CNDDB 2016).							
tricolored blackbird	*Agelaius tricolor (nesting colony)*	None	SSC	Nests near fresh water, emergent wetland with cattails or tules, but also in Himalayan blackberrry; forages in grasslands, woodland, and agriculture. There are documented occurrences of this species amongst cattails along the Mojave River as recent as 2015 (UC Davis 2016). This species is a candidate for listing under the California Endangered Species Act.							
least Bell's vireo	*Vireo bellii pusillus (nesting)*	FE	SE	Nests and forages in low, dense riparian thickets along water or along dry parts of intermittent streams; forages in riparian and adjacent shrubland late in nesting season							
long-eared owl	*Asio otus (nesting)*	None	SSC	Nests in riparian habitat, live oak thickets, other dense stands of trees, edges of coniferous forest; forages in nearby open habitats							
southwestern willow flycatcher	*Empidonax traillii extimus (nesting)*	FE	SE	Nests in dense riparian habitats along streams, reservoirs, or wetlands; uses variety of riparian and shrubland habitats during migration							x
yellow-breasted chat	*Icteria virens (nesting)*	None	SSC	Nests and forages in dense, relatively wide riparian woodlands and thickets of willows, vine tangles and dense brush							
northern harrier	*Circus cyaneus (nesting)*	None	SSC	Nests in open wetlands including marshy meadows, wet lightly-grazed pastures, old fields, freshwater and brackish marshes, but also in drier habitats such as grassland and grain fields; forages in variety of habitats, including grassland, scrubs, rangelands, emergent wetlands, and other open habitats. Although Harper Dry Lake in western San Bernardino County had long supported harriers, breeding has not been suspected there since the mid-1990s.							
American white pelican	*Pelecanus erythrorhynchos (nesting colony)*	None	SSC	Nests colonially on isolated islands in freshwater lakes with sandy, earthen, or rocky substrates; minimal disturbance from humans or mammalian predators required, as is close access to productive foraging areas; forages on inland marshes, lakes or rivers; winters on shallow coastal bays, inlets and estuaries							
golden eagle	*Aquila chrysaetos (nesting & wintering)*	None	FP	Nests and winters in hilly, open/semi-open areas, including shrublands, grasslands, pastures, riparian areas, mountainous canyon land, open desert rimrock terrain; nests in large trees and on cliffs in open areas and forages in open habitats							
Arizona bell's vireo	*Vireo bellii arizonae (nesting)*	None	SE	Nests and forages in lowland riparian areas with low, shrubby vegetation							
Bendire's thrasher	*Toxostoma bendirei*	None	SSC	Nests and forages in desert succulent shrub and Joshua tree habitat in Mojave Desert; nests in yucca, cholla and other thorny scrubs or small trees				x	x		
Crissal thrasher	*Toxostoma crissale*	None	SSC	Nests and forages in desert riparian and desert wash; dense thickets of sagebrush and other shrubs such as mesquite, iron catclaw acacia, and arroweed willow within juniper and pinyon-juniper woodlands							
elf owl	*Micrathene whitneyi (nesting)*	None	SE	Nests in desert riparian with cottonwood, sycamore, willow, and mesquite. There are three documented occurrences of this species at the easternmost extent of San Bernardino County, along the Colorado River in the vicinity of Mohave Valley. The most recent of these documented occurences was in 1999. (CNDDB 2015).							
Gila woodpecker	*Melanerpes uropygialis*	None	SE	Nests and forages in Saguaro cacti, riparian woodland and residential areas. All documented occurrences of this species occur along the eastern San Bernardino County line. While this species is presumed extant, there is only one documented occurrence (2009) since the previous occurrence in 1987 (CNDDB 2015).				x			
gilded flicker	*Colaptes chrysoides*	None	SE	Nests and forages in desert riparian, desert wash and Joshua tree woodland							
gray vireo	*Vireo vicinior (nesting)*	None	SSC	Nests and forages in pinyon-juniper woodland, oak, and chamise and redshank chaparral							
Lucy's warbler	*Oreothlypis luciae (nesting)*	None	SSC	Nests and forages in desert wash and desert riparian habitats, especially dominated by mesquite, but also in other shrubs and tamarisk							
mountain plover	*Charadrius montanus (wintering)*	None	SSC	Winters in shortgrass prairies, plowed fields, open sagebrush and sandy deserts							
summer tanager	*Piranga rubra (nesting)*	None	SSC	Nests and forages in mature desert riparian habitats dominated by cottonwoods and willows							

Desert Region
Documented Special-Status Wildlife Species

Common Name	Scientific Name	Federal Status	State Status	Habitat	Upper SAR HCP	Wash Plan HCP	Apple Valley Plan	DRECP	West Mojave Plan	West Valley HCP	USFWS Critical Habitat
vermilion flycatcher	*Pyrocephalus rubinus (nesting)*	None	SSC	Nests in riparian woodlands, riparian scrub, and freshwater marshes; typical desert riparian with cottonwood, willow, mesquite adjacent to irrigated fields, ditches or pastures							
western snowy plover	*Charadrius alexandrinus nivosus (nesting)*	FT	SSC	On coasts nests on sandy marine and estuarine shores; in the interior nests on sandy, barren or sparsely vegetated flats near saline or alkaline lakes, reservoirs, and ponds. They have been recorded at China, Searles, and Harper lakes in San Bernardino County during sttewide surveys.							
western yellow-billed cuckoo	*Coccyzus americanus occidentalis (nesting)*	FT	SE	Nests dense, wide riparian woodlands and forest with well-developed understories. While there are occurrences within San Bernardino County, this species is listed as "possibly extirpated," as there has not been an occurrence since 1991, save for one sighting in Victorville (CNDDB 2015).							
white-tailed kite	*Elanus leucurus (nesting)*	None	FP	Nests in woodland, riparian, and individual trees near open lands; forages opportunistically in grassland, meadows, scrubs, agriculture, emergent wetland, savanna, and disturbed lands							
Fishes											
Amargosa Canyon speckled dace	*Rhinichthys osculus ssp. 1*	None	SSC	Found only in Amargosa Canyon and tributaries of the Amargosa River, esp. Willow Creek & Willow Creek Reservoir. There are two documented occurrences in San Bernardino County, though these occurrences were in 1981 and 1985 (CNDDB 2015).							
Amargosa pupfish	*Cyprinodon nevadensis amargosae*	None	SSC	Permanent water sections of the lower Amargosa River. There are 3 documented occurrences in San Bernardino County. The most recent of these occurrences took place in 1989. (CNDDB 2015).							
bonytail	*Gila elegans*	FE	SE	Found in the Colorado River bordering California. The last documented occurrence of this species was in 2004 (CNDDB 2015).							
Colorado pikeminnow	*Ptychocheilus lucius*	FE	SE, FP	Was native to the Colorado River bordering California, but has been extirpated from the Lower Colorado River Basin since the 1970's.							
Mohave tui chub	*Siphateles bicolor mohavensis*	FE	SE, FP	Lacustrine ponds or pools with minimum water depth of 4 ft and some freshwater flow for a mineralized and alkaline environment; aquatic plants (e.g., Ruppia maritima, Typha spp., and Juncus spp.), that provide habitat for aquatic invertebrate prey and substrate for egg attachment; aquatic ditchgrass (Ruppia maritima) appears to be preferred vegetation for egg attachment and thermal refuge in summer months. As of 2011, there were five populations of genetically pure Mohave tui chubs: Soda Springs and Morning Star Mine at Mojave National Preserve, Lark Seep at China Lake Naval Air Weapons Station, Camp Cady Wildlife Area, and the Lewis Center in Apple Valley.				x			
razorback sucker	*Xyrauchen texanus*	FE	SE, FP	Found in the Colorado River bordering California. The last documented occurrence of this species was in 2003 (CNDDB 2015). Currently, only occurs in Lake Mead within San Bernardino County.							
Saratoga Springs pupfish	*Cyprinodon nevadensis nevadensis*	None	SSC	Only known from Saratoga Springs and its outflow in Death Valley. There are two documented occurrences of this species in San Bernardino County from 1985 and 1989 (CNDDB 2015).							
Mammals											
pallid bat	*Antrozous pallidus*	None	SSC	Grasslands, shrublands, woodlands, forests; most common in open dry habitats with rocky outcrops for roosting, but also roosts in man-made structures and trees				x	x		
American badger	*Taxidea taxus*	None	SSC	Dry, open, treeless areas; grasslands, coastal scrub, agriculture, pastures, especially with friable soils							
cave myotis	*Myotis velifer*	None	SSC	Creosote bush scrub, palo verde, brittlebush, and cactus; roosts in crevices in caves, mines, occasionally buildings and bridges; forages in riparian and desert wash							
Colorado River cotton rat	*Sigmodon arizonae plenus*	None	SSC	Moist riverine habitats along the Colorado River floodplain							
Mohave ground squirrel	*Spermophilus (Xerospermophilus) mohavensis*	None	ST	Desert scrub habitats including those dominated by creosote bush and burrobush, desert sink scrub, and desert saltbush scrub							
Mohave river vole	*Microtus californicus mohavensis*	None	SSC	Wet, weedy, herbaceous areas along the Mojave River				x			
pallid San Diego pocket mouse	*Chaetodipus fallax pallidus*	None	SSC	Desert wash, desert scrub, desert succulent scrub and pinyon-juniper woodland							
southwestern river otter	*Lontra canadensis sonora*	None	SSC	Riparian habitat along streams and rivers with sufficient prey. There eare two documented occurrences at the most easternmost extent of San Bernardino County, within the Colorado River. The last documented occurrences are from 1926 and 1933 (CNDDB 2015).							
spotted bat	*Euderma maculatum*	None	SSC	Foothills, mountains, desert regions of southern California, including arid deserts, grasslands, and mixed conifer forests; roosts in rock crevices and cliffs; feeds over water and along washes					x		
Townsend's big-eared bat	*Corynorhinus townsendii*	None	SCT, SSC	Mesic habitats characterized by coniferous and deciduous forests and riparian habitat, but also xeric areas; roosts in limestone caves and lava tubes, also man-made structures and tunnels				x	x		
western mastiff bat	*Eumops perotis californicus*	None	SSC	Chaparral, coastal and desert scrub, coniferous and deciduous forest and woodland; roosts in crevices in rocky canyons and cliffs where the canyon or cliff is vertical or nearly vertical, trees and tunnels					x		
western yellow bat	*Lasiurus xanthinus*	None	SSC	Valley foothill riparian, desert riparian, desert wash, and palm oasis habitats; below 2,000 ft; roost in riparian and palms							
Californian leaf-nosed bat	*Macrotus californicus*	None	SSC	Riparian woodlands, desert wash, desert scrub; roosts in mines and caves, occasionally buildings. Not known to occur in the state of California.				x	x		
Nelson's bighorn sheep	*Ovis canadensis nelsoni*	None	FP	Steep slopes and cliffs, rough and rocky topography, sparse vegetation; also canyons, washes and alluvial fans				x	x		

Mountain Region
Documented Special-Status Plant Species

Common Name	Scientific Name	Federal Status	State Status	CRPR	Status (Federal/State/CRPR)	Primary Habitat Associations, Life form, Blooming period, Elevation Range)	Arid West Wetland Indicator Status	Upper SAR HCP	Wash Plan HCP	Apple Valley Plan	DRECP	West Mojave Plan	West Valley HCP	USFWS Critical Habitat
alkali mariposa lily	*Calochortus striatus*	None	None	1B.2	None/ None/ 1B.2	Chaparral, Chenopod scrub, Mojavean desert scrub, Meadows and seeps/alkaline, mesic/ perennial bulbiferous herb/ Apr-Jun/ 230-5233	FACW				x	x		
ash-gray paintbrush	*Castilleja cinerea*	FT	None	1B.2	FT/ None/ 1B.2	Mojavean desert scrub, Meadows and seeps, Pebble plain, Pinyon and juniper woodland, Upper montane coniferous forest(clay openings)/ perennial herb (hemiparasitic)/ Jun-Aug/ 5906-9711	None							x
Baja navarretia	*Navarretia peninsularis*	None	None	1B.2	None/ None/ 1B.2	Chaparral(openings), Lower montane coniferous forest, Meadows and seeps, Pinyon and juniper woodland/mesic/ annual herb/ Jun-Aug/ 4921-7546	FAC							
Baldwin Lake linanthus	*Linanthus killipii*	None	None	1B.2	None/ None/ 1B.2	Joshua tree woodland, Meadows and seeps(alkaline), Pebble plain, Pinyon and juniper woodland/ annual herb/ May-Jul/ 5577-7874	None							
Barton Flats horkelia	*Horkelia wilderae*	None	None	1B.1	None/ None/ 1B.1	Chaparral(edges), Lower montane coniferous forest, Upper montane coniferous forest/ perennial herb/ May-Sep/ 5495-9596	None							
Bear Lake buckwheat	*Eriogonum microthecum var. lacus-ursi*	None	None	1B.1	None/ None/ 1B.1	Great Basin scrub, Lower montane coniferous forest/clay outcrops/ perennial shrub/ Jul-Aug/ 6562-6890	None							
Bear Valley checkerbloom	*Sidalcea malviflora ssp. dolosa*	None	None	1B.2	None/ None/ 1B.2	Lower montane coniferous forest(meadows and seeps), Meadows and seeps, Riparian woodland, Upper montane coniferous forest(meadows and seeps)/ perennial herb/ May-Aug/ 4905-8809	None							
Bear Valley pyrrocoma	*Pyrrocoma uniflora var. gossypina*	None	None	1B.2	None/ None/ 1B.2	Meadows and seeps, Pebble plain/ perennial herb/ Jul-Sep/ 5249-7546	None							
Big Bear Valley milk-vetch	*Astragalus lentiginosus var. sierrae*	None	None	1B.2	None/ None/ 1B.2	Mojavean desert scrub, Meadows and seeps, Pinyon and juniper woodland, Upper montane coniferous forest/gravelly or rocky/ perennial herb/ Apr-Aug/ 5906-8530	None							
Big Bear Valley phlox	*Phlox dolichantha*	None	None	1B.2	None/ None/ 1B.2	Pebble plain, Upper montane coniferous forest(openings)/ perennial herb/ May-Jul/ 6004-9744	None							
Big Bear Valley sandwort	*Eremogone ursina*	FT	None	1B.2	FT/ None/ 1B.2	Meadows and seeps, Pebble plain, Pinyon and juniper woodland/mesic, rocky/ perennial herb/ May-Aug/ 5906-9514	None							x
Big Bear Valley woollypod	*Astragalus leucolobus*	None	None	1B.2	None/ None/ 1B.2	Lower montane coniferous forest, Pebble plain, Pinyon and juniper woodland, Upper montane coniferous forest/rocky/ perennial herb/ May-Jul/ 3609-9465	None							
bird-foot checkerbloom	*Sidalcea pedata*	FE	CE	1B.1	FE/ CE/ 1B.1	Meadows and seeps(mesic), Pebble plain/ perennial herb/ May-Aug/ 5249-8202	OBL							
black bog-rush	*Schoenus nigricans*	None	None	2B.2	None/ None/ 2B.2	Marshes and swamps(often alkaline)/ perennial herb/ Aug-Sep/ 492-6562	OBL							
California dandelion	*Taraxacum californicum*	FE	None	1B.1	FE/ None/ 1B.1	Meadows and seeps(mesic)/ perennial herb/ May-Aug/ 5315-9186	FACW							x
California satintail	*Imperata brevifolia*	None	None	2B.1	None/ None/ 2B.1	Chaparral, Coastal scrub, Mojavean desert scrub, Meadows and seeps(often alkali), Riparian scrub/mesic/ perennial rhizomatous herb/ Sep-May/ 0-3986	FAC							
Cienega Seca oxytheca	*Acanthoscyphus parishii var. cienegensis*	None	None	1B.3	None/ None/ 1B.3	Joshua tree woodland, Pinyon and juniper woodland, Upper montane coniferous forest(sandy, granitic)/ annual herb/ Jun-Sep/ 6906-8038	None							x
Cushenbury buckwheat	*Eriogonum ovalifolium var. vineum*	FE	None	1B.1	FE/ None/ 1B.1	Joshua tree woodland, Mojavean desert scrub, Pinyon and juniper woodland/carbonate/ perennial herb/ May-Aug/ 4593-8005	None				x			x
Cushenbury milk-vetch	*Astragalus albens*	FE	None	1B.1	FE/ None/ 1B.1	Joshua tree woodland, Mojavean desert scrub, Pinyon and juniper woodland/usually carbonate, rarely granitic/ perennial herb/ Mar-Jun/ 3593-6562	None							x
Cushenbury oxytheca	*Acanthoscyphus parishii var. goodmaniana*	FE	None	1B.1	FE/ None/ 1B.1	Pinyon and juniper woodland(carbonate, talus)/sandy, carbonate/ annual herb/ May-Oct/ 3999-7799	None							
Fremont's gentian	*Gentiana fremontii*	None	None	2B.3	None/ None/ 2B.3	Meadows and seeps(mesic), Upper montane coniferous forest/ annual herb/ Jun-Aug/ 7874-8858	OBL							
frosted mint	*Poliomintha incana*	None	None	2A	None/ None/ 2A	Lower montane coniferous forest(mesic)/ perennial shrub/ Jun-Jul/ 5249-5577	None							
Greata's aster	*Symphyotrichum greatae*	None	None	1B.3	None/ None/ 1B.3	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Riparian woodland/mesic/ perennial rhizomatous herb/ Jun-Oct/ 984-6594	None							
grey-leaved violet	*Viola pinetorum var. grisea*	None	None	1B.3	None/ None/ 1B.3	Meadows and seeps, Subalpine coniferous forest, Upper montane coniferous forest/ perennial herb/ Apr-Jul/ 4921-11155	None							
Hall's monardella	*Monardella macrantha ssp. hallii*	None	None	1B.3	None/ None/ 1B.3	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Valley and foothill grassland/ perennial rhizomatous herb/ Jun-Oct/ 2395-7201	None							
hot springs fimbristylis	*Fimbristylis thermalis*	None	None	2B.2	None/ None/ 2B.2	Meadows and seeps(alkaline, near hot springs)/ perennial rhizomatous herb/ Jul-Sep/ 361-4396	OBL							
Johnston's buckwheat	*Eriogonum microthecum var. johnstonii*	None	None	1B.3	None/ None/ 1B.3	Subalpine coniferous forest, Upper montane coniferous forest/rocky/ perennial deciduous shrub/ Jul-Sep/ 6001-9600	None							
Jokerst?s monardella	*Monardella australis ssp. jokerstii*	None	None	1B.1	None/ None/ 1B.1	Chaparral, Lower montane coniferous forest/Steep scree or talus slopes between breccia, secondary alluvial benches along drainages and washes./ perennial rhizomatous herb/ Jul-Sep/ 4429-5741	None							
knotted rush	*Juncus nodosus*	None	None	2B.3	None/ None/ 2B.3	Meadows and seeps(mesic), Marshes and swamps(lake margins)/ perennial rhizomatous herb/ Jul-Sep/ 98-6496	OBL							
Latimer's woodland-gilia	*Saltugilia latimeri*	None	None	1B.2	None/ None/ 1B.2	Chaparral, Mojavean desert scrub, Pinyon and juniper woodland/rocky or sandy, often granitic, sometimes washes/ annual herb/ Mar-Jun/ 1312-6234	None							
lemon lily	*Lilium parryi*	None	None	1B.2	None/ None/ 1B.2	Lower montane coniferous forest, Meadows and seeps, Riparian forest, Upper montane coniferous forest/mesic/ perennial bulbiferous herb/ Jul-Aug/ 4003-9006	OBL							
little purple monkeyflower	*Mimulus purpureus*	None	None	1B.2	None/ None/ 1B.2	Meadows and seeps, Pebble plain, Upper montane coniferous forest/ annual herb/ May-Jun/ 6234-7546	FACU							
Los Angeles sunflower	*Helianthus nuttallii ssp. parishii*	None	None	1A	None/ None/ 1A	Marshes and swamps(coastal salt and freshwater)/ perennial rhizomatous herb/ Aug-Oct/ 33-5495	None							
male fern	*Dryopteris filix-mas*	None	None	2B.3	None/ None/ 2B.3	Upper montane coniferous forest(granitic, rocky)/ perennial rhizomatous herb/ Jul-Sep/ 7874-10171	None							
Mingan moonwort	*Botrychium minganense*	None	None	2B.2	None/ None/ 2B.2	Bogs and fens, Lower montane coniferous forest, Upper montane coniferous forest/Mesic/ perennial rhizomatous herb/ Jul-Sep/ 4774-7152	None							
Mojave milkweed	*Asclepias nyctaginifolia*	None	None	2B.1	None/ None/ 2B.1	Mojavean desert scrub, Pinyon and juniper woodland/ perennial herb/ May-Jun/ 2871-5577	None							
Mojave tarplant	*Deinandra mohavensis*	None	CE	1B.3	None/ CE/ 1B.3	Chaparral, Coastal scrub, Riparian scrub/mesic/ annual herb/ (May),Jun-Oct(Jan)/ 2100-5249	None				x	x		
Orcutt's linanthus	*Linanthus orcuttii*	None	None	1B.3	None/ None/ 1B.3	Chaparral, Lower montane coniferous forest, Pinyon and juniper woodland/openings/ annual herb/ May-Jun/ 3002-7037	None							
Palmer's mariposa lily	*Calochortus palmeri var. palmeri*	None	None	1B.2	None/ None/ 1B.2	Chaparral, Lower montane coniferous forest, Meadows and seeps/mesic/ perennial bulbiferous herb/ Apr-Jul/ 2329-7841	None							
Parish's alumroot	*Heuchera parishii*	None	None	1B.3	None/ None/ 1B.3	Alpine boulder and rock field, Lower montane coniferous forest, Subalpine coniferous forest, Upper montane coniferous forest/rocky, sometimes carbonate/ perennial rhizomatous herb/ Jun-Aug/ 4921-12467	None							
Parish's checkerbloom	*Sidalcea hickmanii ssp. parishii*	None	CR	1B.2	None/ CR/ 1B.2	Chaparral, Cismontane woodland, Lower montane coniferous forest/ perennial herb/ Jun-Aug/ 3281-8199	None							
Parish's daisy	*Erigeron parishii*	FT	None	1B.1	FT/ None/ 1B.1	Mojavean desert scrub, Pinyon and juniper woodland/usually carbonate, sometimes granitic/ perennial herb/ May-Aug/ 2625-6562	None				x			x
Parish's rockcress	*Boechera parishii*	None	None	1B.2	None/ None/ 1B.2	Pebble plain, Pinyon and juniper woodland, Upper montane coniferous forest/rocky, quartzite on clay, or sometimes carbonate/ perennial herb/ Apr-May/ 5807-9810	None							
Parish's yampah	*Perideridia parishii ssp. parishii*	None	None	2B.2	None/ None/ 2B.2	Lower montane coniferous forest, Meadows and seeps, Upper montane coniferous forest/ perennial herb/ Jun-Aug/ 4806-9843	None							
Parry's spineflower	*Chorizanthe parryi var. parryi*	None	None	1B.1	None/ None/ 1B.1	Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland/sandy or rocky, openings/ annual herb/ Apr-Jun/ 902-4003	None							
Peirson's spring beauty	*Claytonia lanceolata var. peirsonii*	None	None	3.1	None/ None/ 3.1	Subalpine coniferous forest, Upper montane coniferous forest/Scree/ perennial herb/ (Mar),May-Jun/ 4954-9006	None							
pinyon rockcress	*Boechera dispar*	None	None	2B.3	None/ None/ 2B.3	Joshua tree woodland, Mojavean desert scrub, Pinyon and juniper woodland/granitic, gravelly/ perennial herb/ Mar-Jun/ 3937-8333	None							
Plummer's mariposa lily	*Calochortus plummerae*	None	None	4.2	None/ None/ 4.2	Chaparral, Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Valley and foothill grassland/granitic, rocky/ perennial bulbiferous herb/ May-Jul/ 328-5577	None							

Mountain Region
Documented Special-Status Plant Species

Common Name	Scientific Name	Federal Status	State Status	CRPR	Status (Federal/State/CRPR)	Primary Habitat Associations, Life form, Blooming period, Elevation Range)	Arid West Wetland Indicator Status	Upper SAR HCP	Wash Plan HCP	Apple Valley Plan	DRECP	West Mojave Plan	West Valley HCP	USFWS Critical Habitat
prairie wedge grass	*Sphenopholis obtusata*	None	None	2B.2	None/ None/ 2B.2	Cismontane woodland, Meadows and seeps/mesic/ perennial herb/ Apr-Jul/ 984-6562	FAC							
pygmy hulsea	*Hulsea vestita ssp. pygmaea*	None	None	1B.3	None/ None/ 1B.3	Alpine boulder and rock field, Subalpine coniferous forest/granitic, gravelly/ perennial herb/ Jun-Oct/ 9301-12795	None							
pygmy pussypaws	*Calyptridium pygmaeum*	None	None	1B.2	None/ None/ 1B.2	Subalpine coniferous forest, Upper montane coniferous forest/sandy or gravelly/ annual herb/ Jun-Aug/ 6496-10203	None							
Rock Creek broomrape	*Orobanche valida ssp. valida*	None	None	1B.2	None/ None/ 1B.2	Chaparral, Pinyon and juniper woodland/granitic/ perennial herb (parasitic)/ May-Sep/ 4101-6562	None							
rock sandwort	*Arenaria lanuginosa var. saxosa*	None	None	2B.3	None/ None/ 2B.3	Subalpine coniferous forest, Upper montane coniferous forest/mesic, sandy/ perennial herb/ Jul-Aug/ 5906-8530	None							
rock-loving oxytrope	*Oxytropis oreophila var. oreophila*	None	None	2B.3	None/ None/ 2B.3	Alpine boulder and rock field, Subalpine coniferous forest/gravelly or rocky/ perennial herb/ Jun-Sep/ 11155-12467	None							
San Antonio milk-vetch	*Astragalus lentiginosus var. antonius*	None	None	1B.3	None/ None/ 1B.3	Lower montane coniferous forest, Upper montane coniferous forest/ perennial herb/ Apr-Jul/ 4921-8530	None							
San Bernardino aster	*Symphyotrichum defoliatum*	None	None	1B.2	None/ None/ 1B.2	Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Meadows and seeps, Marshes and swamps, Valley and foothill grassland(vernally mesic)/near ditches, streams, springs/ perennial rhizomatous herb/ Jul-Nov/ 7-6693	OBL							
San Bernardino blue grass	*Poa atropurpurea*	FE	None	1B.2	FE/ None/ 1B.2	Meadows and seeps(mesic)/ perennial rhizomatous herb/ (Apr),May-Jul(Aug)/ 4462-8054	FACW							x
San Bernardino gilia	*Gilia leptantha ssp. leptantha*	None	None	1B.3	None/ None/ 1B.3	Lower montane coniferous forest(sandy or gravelly)/ annual herb/ Jun-Aug/ 4921-8399	None					x		
San Bernardino grass-of-Parnassus	*Parnassia cirrata var. cirrata*	None	None	1B.3	None/ None/ 1B.3	Lower montane coniferous forest, Meadows and seeps, Upper montane coniferous forest/mesic, streamsides, sometimes calcareous/ perennial herb/ Aug-Sep/ 4101-8005	None							
San Bernardino milk-vetch	*Astragalus bernardinus*	None	None	1B.2	None/ None/ 1B.2	Joshua tree woodland, Pinyon and juniper woodland/Often granitic or carbonate/ perennial herb/ Apr-Jun/ 2953-6562	None							
San Bernardino Mountains bladderpod	*Physaria kingii ssp. bernardina*	FE	None	1B.1	FE/ None/ 1B.1	Lower montane coniferous forest, Pinyon and juniper woodland, Subalpine coniferous forest/usually carbonate/ perennial herb/ May-Jun/ 6070-8858	None							x
San Bernardino Mountains dudleya	*Dudleya abramsii ssp. affinis*	None	None	1B.2	None/ None/ 1B.2	Pebble plain, Pinyon and juniper woodland, Upper montane coniferous forest/granitic, quartzite, or carbonate/ perennial herb/ Apr-Jul/ 4101-8530	None							
San Bernardino Mountains monkeyflower	*Mimulus exiguus*	None	None	1B.2	None/ None/ 1B.2	Meadows and seeps, Pebble plain, Upper montane coniferous forest/mesic, clay/ annual herb/ May-Jul/ 5906-7595	FACU							
San Bernardino Mountains owl's-clover	*Castilleja lasiorhyncha*	None	None	1B.2	None/ None/ 1B.2	Chaparral, Meadows and seeps, Pebble plain, Riparian woodland, Upper montane coniferous forest/mesic/ annual herb (hemiparasitic)/ May-Aug/ 4265-7841	None							
San Bernardino ragwort	*Packera bernardina*	None	None	1B.2	None/ None/ 1B.2	Meadows and seeps(mesic, sometimes alkaline), Pebble plain, Upper montane coniferous forest/ perennial herb/ May-Jul/ 5906-7546	FACU							
San Bernardino rockcress	*Boechera peirsonii*	None	None	1B.2	None/ None/ 1B.2	Subalpine coniferous forest(rocky)/ perennial herb/ Mar-Aug/ 8858-10499	None							
San Gabriel linanthus	*Linanthus concinnus*	None	None	1B.2	None/ None/ 1B.2	Chaparral, Lower montane coniferous forest, Upper montane coniferous forest/rocky, openings/ annual herb/ Apr-Jul/ 4987-9186	None							
San Gabriel manzanita	*Arctostaphylos glandulosa ssp. gabrielensis*	None	None	1B.2	None/ None/ 1B.2	Chaparral(rocky)/ perennial evergreen shrub/ Mar/ 1952-4921	None							
Santa Ana River woollystar	*Eriastrum densifolium ssp. sanctorum*	FE	CE	1B.1	FE/ CE/ 1B.1	Chaparral, Coastal scrub(alluvial fan)/sandy or gravelly/ perennial herb/ Apr-Sep/ 299-2001	None	x	x					
scalloped moonwort	*Botrychium crenulatum*	None	None	2B.2	None/ None/ 2B.2	Bogs and fens, Lower montane coniferous forest, Meadows and seeps, Marshes and swamps(freshwater), Upper montane coniferous forest/ perennial rhizomatous herb/ Jun-Sep/ 4160-10761	FACW							
Shockley's rockcress	*Boechera shockleyi*	None	None	2B.2	None/ None/ 2B.2	Pinyon and juniper woodland(carbonate or quartzite, rocky or gravelly)/ perennial herb/ May-Jun/ 2871-7579	None					x		
short-joint beavertail	*Opuntia basilaris var. brachyclada*	None	None	1B.2	None/ None/ 1B.2	Chaparral, Joshua tree woodland, Mojavean desert scrub, Pinyon and juniper woodland/ perennial stem succulent/ Apr-Jun(Aug)/ 1394-5906	None					x		
short-sepaled lewisia	*Lewisia brachycalyx*	None	None	2B.2	None/ None/ 2B.2	Lower montane coniferous forest, Meadows and seeps/mesic/ perennial herb/ Feb-Jun(Jul)/ 4495-7546	FACU							
silver-haired ivesia	*Ivesia argyrocoma var. argyrocoma*	None	None	1B.2	None/ None/ 1B.2	Meadows and seeps(alkaline), Pebble plain, Upper montane coniferous forest/ perennial herb/ Jun-Aug/ 4800-9711	None							
slender mariposa lily	*Calochortus clavatus var. gracilis*	None	None	1B.2	None/ None/ 1B.2	Chaparral, Coastal scrub, Valley and foothill grassland/ perennial bulbiferous herb/ Mar-Jun/ 1050-3281	None							
slender-horned spineflower	*Dodecahema leptoceras*	FE	CE	1B.1	FE/ CE/ 1B.1	Chaparral, Cismontane woodland, Coastal scrub(alluvial fan)/sandy/ annual herb/ Apr-Jun/ 656-2493	None	x	x					
slender-petaled thelypodium	*Thelypodium stenopetalum*	FE	CE	1B.1	FE/ CE/ 1B.1	Meadows and seeps(mesic, alkaline)/ perennial herb/ May-Sep/ 5249-8202	FAC							
Sonoran maiden fern	*Thelypteris puberula var. sonorensis*	None	None	2B.2	None/ None/ 2B.2	Meadows and seeps(seeps and streams)/ perennial rhizomatous herb/ Jan-Sep/ 164-2001	None							
southern alpine buckwheat	*Eriogonum kennedyi var. alpigenum*	None	None	1B.3	None/ None/ 1B.3	Alpine boulder and rock field, Subalpine coniferous forest/granitic, gravelly/ perennial herb/ Jul-Sep/ 8530-11483	None							
southern jewel-flower	*Streptanthus campestris*	None	None	1B.3	None/ None/ 1B.3	Chaparral, Lower montane coniferous forest, Pinyon and juniper woodland/rocky/ perennial herb/ (Apr),May-Jul/ 2953-7546	None							
southern mountain buckwheat	*Eriogonum kennedyi var. austromontanum*	FT	None	1B.2	FT/ None/ 1B.2	Lower montane coniferous forest(gravelly), Pebble plain/ perennial herb/ Jun-Sep/ 5807-9482	None							x
thread-leaved brodiaea	*Brodiaea filifolia*	FT	CE	1B.1	FT/ CE/ 1B.1	Chaparral(openings), Cismontane woodland, Coastal scrub, Playas, Valley and foothill grassland, Vernal pools/often clay/ perennial bulbiferous herb/ Mar-Jun/ 82-3675	FAC							
timberland blue-eyed-grass	*Sisyrinchium longipes*	None	None	2B.2	None/ None/ 2B.2	Meadows and seeps/mesic/ perennial herb/ Jun-Aug/ 6759-6759	FACW							
triple-ribbed milk-vetch	*Astragalus tricarinatus*	FE	None	1B.2	FE/ None/ 1B.2	Joshua tree woodland, Sonoran desert scrub/sandy or gravelly/ perennial herb/ Feb-May/ 1476-3904	None				x			
vanishing wild buckwheat	*Eriogonum evanidum*	None	None	1B.1	None/ None/ 1B.1	Chaparral, Cismontane woodland, Lower montane coniferous forest, Pinyon and juniper woodland/sandy or gravelly/ annual herb/ Jul-Oct/ 3609-7300	None							
wedgeleaf woodbeauty	*Drymocallis cuneifolia var. cuneifolia*	None	None	1B.1	None/ None/ 1B.1	Riparian scrub, Upper montane coniferous forest/Sometimes carbonate/ perennial herb/ Jun-Aug/ 5906-7267	None							
western sedge	*Carex occidentalis*	None	None	2B.3	None/ None/ 2B.3	Lower montane coniferous forest, Meadows and seeps/ perennial rhizomatous herb/ Jun-Aug/ 5397-10285	None							
white bog adder's-mouth	*Malaxis monophyllos var. brachypoda*	None	None	2B.1	None/ None/ 2B.1	Bogs and fens, Meadows and seeps, Upper montane coniferous forest/mesic/ perennial bulbiferous herb/ Jun-Aug/ 7218-8999	None							
white-bracted spineflower	*Chorizanthe xanti var. leucotheca*	None	None	1B.2	None/ None/ 1B.2	Coastal scrub(alluvial fans), Mojavean desert scrub, Pinyon and juniper woodland/sandy or gravelly/ annual herb/ Apr-Jun/ 984-3937	None							
white-margined everlasting	*Antennaria marginata*	None	None	2B.3	None/ None/ 2B.3	Lower montane coniferous forest, Upper montane coniferous forest/ perennial stoloniferous herb/ May-Aug/ 6955-11001	None							
woolly mountain-parsley	*Oreonana vestita*	None	None	1B.3	None/ None/ 1B.3	Lower montane coniferous forest, Subalpine coniferous forest, Upper montane coniferous forest/gravel or talus/ perennial herb/ Mar-Sep/ 5299-11483	None							

Mountain Region
Documented Special-Status Wildlife Species

Common Name	Scientific Name	Federal Status	State Status	Habitat	Upper SAR HCP	Wash Plan HCP	Apple Valley Plan	DRECP	West Mojave Plan	West Valley HCP	USFWS Critical Habitat
Amphibians											
California red-legged frog	*Rana draytonii*	FT	SSC	Lowland streams, wetlands, riparian woodlands, livestock ponds; dense, shrubby or emergent vegetation associated with deep, still or slow-moving water; uses adjacent uplands. Not known to currently occur in the mountain region.							
arroyo toad	*Anaxyrus californicus*	FE	SSC	Semi-arid areas near washes, sandy riverbanks, riparian areas, palm oasis, Joshua tree, mixed chaparral and sagebrush; stream channels for breeding(typically 3rd order); adjacent stream terraces and uplands for foraging and wintering	x			*			x
large-blotched salamander	*Ensatina klauberi*	None	SSC	Moist and shaded evergreen and deciduous woodlands							
western spadefoot	*Spea hammondii*	None	SSC	Primarily grassland and vernal pools, but also in ephemeral wetlands that persist at least 3 weeks in chaparral, coastal scrrub, valley-foothill woodlands, pastures, and other agriculture							
coast range newt	*Taricha torosa*	None	SSC	Found in wet forests, oak forests, chaparral, and rolling grasslands. In southern California, drier chaparral, oak woodland, and grasslands are used. Documented from upper drainages of the Etiwanda Fan and one mapped occurrence in the San Bernardino Mountains near Mount Baldy.							
southern mountain yellow-legged frog	*Rana muscosa*	FE	SE, SSC	Lakes, ponds, meadow streams, isolated pools and open riverbanks; rocky canyons in narrow canyons and in chaparral							x
Reptiles											
California mountain kingsnake (San Bernardino population)	*Lampropeltis zonata (parvirubra)*	None	SSC	Wide range of habitats including conifer forest, oak-pine woodlands, riparian woodland, chaparral, manzanita and coastal scrub							
coast patch-nosed snake	*Salvadora hexalepis virgultea*	None	SSC	Brushy or shrubby vegetation; requires small mammal burrows for refuge and overwintering sites							
southern rubber boa	*Charina umbratica*	None	ST	Montane oak-conifer and mixed conifer forests, montane chaparral, wet meadows; usually in vicinity of streams or wet meadows							
Blainville's horned lizard	*Phrynosoma blainvillii*	None	SSC	Open areas of sandy soil in valleys, foothills and semi-arid mountains including coastal scrub, chaparral, valley-foothill hardwood, conifer, riparian, pine-cypress, juniper and annual grassland							
two-striped gartersnake	*Thamnophis hammondii*	None	SSC	Streams, creeks, pools, streams with rocky beds, ponds, lakes, vernal pools							
Birds											
bald eagle	*Haliaeetus leucocephalus (nesting & wintering)*	FDL	SE, FP	Nests in forested areas adjacent to large bodies of water, including seacoasts, rivers, swamps, large lakes; winters near large bodies of water in lowlands and mountains							
least Bell's vireo	*Vireo bellii pusillus (nesting)*	FE	SE	Nests and forages in low, dense riparian thickets along water or along dry parts of intermittent streams; forages in riparian and adjacent shrubland late in nesting season							
southwestern willow flycatcher	*Empidonax traillii extimus (nesting)*	FE	SE	Nests in dense riparian habitats along streams, reservoirs, or wetlands; uses variety of riparian and shrubland habitats during migration							x
loggerhead shrike	*Lanius ludovicianus (nesting)*	None	SSC	Nests and forages in open habitats with scattered shrubs, trees, or other perches							
Swainson's hawk	*Buteo swainsoni (nesting)*	None	ST	Nests in open woodland and savanna, riparian and in isolated large trees; forages in nearby grasslands and agriculturals areas such as wheat and alfalfa fields and pasture. This species occasionally stops over during migration, but is not known to nest in the mountain region of San Bernardino County.							
bank swallow	*Riparia riparia (nesting)*	None	ST	Nests in riparian, lacustrian and coastal areas with vertical banks, bluffs and cliffs with sandy soils; open country and water during migration. This species is now absent as a breeding bird in southern California.							
long-eared owl	*Asio otus (nesting)*	None	SSC	Nests in riparian habitat, live oak thickets, other dense stands of trees, edges of coniferous forest; forages in nearby open habitats							
white-tailed kite	*Elanus leucurus (nesting)*	None	FP	Nests in woodland, riparian, and individual trees near open lands; forages opportunistically in grassland, meadows, scrubs, agriculture, emergent wetland, savanna, and disturbed lands							
black tern	*Chlidonias niger (nesting colony)*	None	SSC	Freshwater marsh with emergent vegetation; in the Central Valley primarily nest and forage in rice fields and other flooded agricultral fields with weeds and other residual aquatic vegetation							
California spotted owl	*Strix occidentalis occidentalis*	None	SSC	Nests and forages in dense, old-growth, multi-layered mixed conifer, redwood and Douglas-fir habitats							
gray vireo	*Vireo vicinior (nesting)*	None	SSC	Nests and forages in pinyon-juniper woodland, oak, and chamise and redshank chaparral							
northern goshawk	*Accipiter gentilis (nesting)*	None	SSC	Nests primarily in middle and higher elevation dense conifer forests; winters at lower elevations along coast, foothills and northern deserts in riparian and pinyon-juniper woodland. Nesting in San Bernardino not currently known, but may haven been present prior to 1944.							
olive-sided flycatcher	*Contopus cooperi (nesting)*	None	SSC	Nests in mixed conifer, montane hardwood-conifer, Douglas-fir, redwood, red fir, lodgepole pine; usually close to water							
purple martin	*Progne subis (nesting)*	None	SSC	Nest and forages in woodland habitats including riparian, coniferous, and valley foothill and montane woodlands; in the Sacramento region often nests in weep holes under elevated freeways. Martins are very rare in the San Bernardino Mountains.							
redhead	*Aythya americana (nesting)*	None	SSC	Nests in relatively deep (>3 ft) permanent or semi-permanent wetlands of at least one acre, with about 75% open water and emergent tules, bulrushes (Scirpus spp.) and cattails (Typha spp.) up to about three feet in height; winters in coastal estuaries and large, deep ponds, lakes, and reservoirs of the interior. A few pairs may nest at Baldwin Lake.							
Vaux's swift	*Chaetura vauxi (nesting)*	None	SSC	Late stage conifer forest and mixed conifer-deciduous forest; nests in redwood, Douglas-fir and other conifers, and occasionally building and chimneys. San Bernarino County is outside the known current breeding range for this species.							
yellow-headed blackbird	*Xanthocephalus xanthocephalus (nesting)*	None	SSC	Nests in marshes with tall emergent vegetation, often along borders of lakes and ponds; forages in emergent wetlands, open areas, croplands, and muddy shores of lacustrine habitat							
golden eagle	*Aquila chrysaetos (nesting & wintering)*	None	FP	Nests and winters in hilly, open/semi-open areas, including shrublands, grasslands, pastures, riparian areas, mountainous canyon land, open desert rimrock terrain; nests in large trees and on cliffs in open areas and forages in open habitats							
black swift	*Cypseloides niger (nesting)*	None	SSC	Nests in moist crevices, caves, and cliffs behind or adjacent to waterfalls in deep canyons; forages over a wide range of habitats. Only one nesting site is documented in San Bernrdino County: Big Falls in Mill Creek Canyon, San Bernardino Mountains.							
Fishes											
arroyo chub	*Gila orcuttii*	None	SSC	Warm, fluctuating streams with slow-moving or backwater sections of warm to cool streams at depths >40 centimeters; substrates of sand or mud. There is one occurrence in the mountain region of San Bernardino County, within Holcomb Creek (CNDDB 2015).	x						

Mountain Region
Documented Special-Status Wildlife Species

Common Name	Scientific Name	Federal Status	State Status	Habitat	Upper SAR HCP	Wash Plan HCP	Apple Valley Plan	DRECP	West Mojave Plan	West Valley HCP	USFWS Critical Habitat
Santa Ana sucker	*Catostomus santaanae*	FT	SSC	Small, shallow, cool, clear streams less than 7 meters in width and a few centimeters to more than a meter in depth; substrates are generally coarse gravel, rubble and boulder	x						x
Santa Ana speckled dace	*Rhinichthys osculus ssp. 3*	None	SSC	Headwaters of the Santa Ana and San Gabriel rivers. May be extirpated from the Los Angeles River system.	x						
unarmored threespine stickleba	*Gasterosteus aculeatus williamsoni*	FE	SE, FP	Slow-moving and backwater areas							
Mammals											
American badger	*Taxidea taxus*	None	SSC	Dry, open, treeless areas; grasslands, coastal scrub, agriculture, pastures, especially with friable soils					x		
ringtail	*Bassariscus astutus*	None	FP	Mixed forests and shrublands near rocky area or riparian habitats; forages near water and is seldom found more than 1 km (0.62 mi) from a water source							
spotted bat	*Euderma maculatum*	None	SSC	Foothills, mountains, desert regions of southern California, including arid deserts, grasslands, and mixed conifer forests; roosts in rock crevices and cliffs; feeds over water and along washes							
western red bat	*Lasiurus blossevillii*	None	SSC	Forest, woodland, riparian, mesquite bosque and orchards, including fig, apricot, peach, pear, almond, walnut, and orange; roosts in tree canopy							
pallid San Diego pocket mouse	*Chaetodipus fallax pallidus*	None	SSC	Desert wash, desert scrub, desert succulent scrub and pinyon-juniper woodland							
San Bernardino flying squirrel	*Glaucomys sabrinus californicus*	None	SSC	Coniferous and decidious forests including riparian forests							
Townsend's big-eared bat	*Corynorhinus townsendii*	None	SC, SSC	Mesic habitats characterized by coniferous and deciduous forests and riparian habitat, but also xeric areas; roosts in limestone caves and lava tubes, also man-made structures and tunnels				x	x		
western mastiff bat	*Eumops perotis californicus*	None	SSC	Chaparral, coastal and desert scrub, coniferous and deciduous forest and woodland; roosts in crevices in rocky canyons and cliffs where the canyon or cliff is vertical or nearly vertical, trees and tunnels							
white-eared pocket mouse	*Perognathus alticolus alticolus*	None	SSC	Arid ponderosa pine communities					x		
Nelson's bighorn sheep	*Ovis canadensis nelsoni*	None	FP	Steep slopes and cliffs, rough and rocky topography, sparse vegetation; also canyons, washes and alluvial fans				x			
Invertebrates											
springsnail	*Pyrgulopsis californiensis*	None	None	Springsnails occur in springs and short lengths of spring-fed stream riparian areas. They prefer sand, gravel, and cobble substrates and use acquatic vegetation in slow to moderate current. They are distributed in a number of springs in the foothills of the San Berarndino Mountains. This species is described as being wide-spread, but locally rare. It is potentially undersplit taxonomically, and there is a need for genetic studies to determine whether they may be a unique species.							

Valley Region
Documented Special-Status Plant Species

Common Name	Scientific Name	Federal Status	State Status	CRPR	Primary Habitat Associations, Life form, Blooming period, Elevation Range)	Arid West Wetland Indicator Status	Upper SAR HCP	Wash Plan HCP	Apple Valley Plan	DRECP	West Mojave Plan	West Valley HCP	USFWS Critical Habitat
Alvin Meadow bedstraw	*Galium californicum ssp. primum*	None	None	1B.2	Chaparral, Lower montane coniferous forest/granitic, sandy/ perennial herb/ May-Jul/ 4429-5577	None							
Brand's star phacelia	*Phacelia stellaris*	None	None	1B.1	Coastal dunes, Coastal scrub/ annual herb/ Mar-Jun/ 3-1312. This species is not expected to occur because it is outside its known documented range, though there is single record occurrence in the region (CNDDB 2016).	None							
bristly sedge	*Carex comosa*	None	None	2B.1	Coastal prairie, Marshes and swamps(lake margins), Valley and foothill grassland/ perennial rhizomatous herb/ May-Sep/ 0-2051	OBL							
California satintail	*Imperata brevifolia*	None	None	2B.1	Chaparral, Coastal scrub, Mojavean desert scrub, Meadows and seeps(often alkali), Riparian scrub/mesic/ perennial rhizomatous herb/ Sep-May/ 0-3986	FAC							
California sawgrass	*Cladium californicum*	None	None	2B.2	Meadows and seeps, Marshes and swamps/alkaline or freshwater/ perennial rhizomatous herb/ Jun-Sep/ 197-2838	OBL							
Coulter's saltbush	*Atriplex coulteri*	None	None	1B.2	Coastal bluff scrub, Coastal dunes, Coastal scrub, Valley and foothill grassland/alkaline or clay/ perennial herb/ Mar-Oct/ 10-1509	FACU							
Horn's milk-vetch	*Astragalus hornii var. hornii*	None	None	1B.1	Meadows and seeps, Playas/lake margins, alkaline/ annual herb/ May-Oct/ 197-2789	None							
intermediate mariposa lily	*Calochortus weedii var. intermedius*	None	None	1B.2	Chaparral, Coastal scrub, Valley and foothill grassland/rocky, calcareous/ perennial bulbiferous herb/ May-Jul/ 344-2805	None							
Los Angeles sunflower	*Helianthus nuttallii ssp. parishii*	None	None	1A	Marshes and swamps(coastal salt and freshwater)/ perennial rhizomatous herb/ Aug-Oct/ 33-5495	None							
lucky morning-glory	*Calystegia felix*	None	None	3.1	Meadows and seeps(sometimes alkaline), Riparian scrub(alluvial)/Historically associated with wetland and marshy places, but possibly in drier situations as well. P/ annual rhizomatous herb/ Mar-Sep/ 98-705	None							
many-stemmed dudleya	*Dudleya multicaulis*	None	None	1B.2	Chaparral, Coastal scrub, Valley and foothill grassland/often clay/ perennial herb/ Apr-Jul/ 49-2592	None							
mesa horkelia	*Horkelia cuneata var. puberula*	None	None	1B.1	Chaparral(maritime), Cismontane woodland, Coastal scrub/sandy or gravelly/ perennial herb/ Feb-Jul(Sep)/ 230-2657	None							
Nevin's barberry	*Berberis nevinii*	FE	CE	1B.1	Chaparral, Cismontane woodland, Coastal scrub, Riparian scrub/sandy or gravelly/ perennial evergreen shrub/ Mar-Jun/ 899-2707. Three occurences known from the Loma Linda Hills area in southern San Bernardino County: one near the mouth of Scott Canyon, one near Pilgrim Road, and one in a side canyon off of San Timoteo Canyon	None							
Parish's bush-mallow	*Malacothamnus parishii*	None	None	1A	Chaparral, Coastal scrub/ perennial deciduous shrub/ Jun-Jul/ 1001-1493	None							
Parish's desert-thorn	*Lycium parishii*	None	None	2B.3	Coastal scrub, Sonoran desert scrub/ perennial shrub/ Mar-Apr/ 443-3281	None							
Parish's gooseberry	*Ribes divaricatum var. parishii*	None	None	1A	Riparian woodland/ perennial deciduous shrub/ Feb-Apr/ 213-984	None							
Parry's spineflower	*Chorizanthe parryi var. parryi*	None	None	1B.1	Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland/sandy or rocky, openings/ annual herb/ Apr-Jun/ 902-4003	None							
Plummer's mariposa lily	*Calochortus plummerae*	None	None	4.2	Chaparral, Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Valley and foothill grassland/granitic, rocky/ perennial bulbiferous herb/ May-Jul/ 328-5577	None							
Peruvian dodder	*Cuscuta obtusiflora var. glandulosa*	None	None	2B.2	Marshes and swamps(freshwater)/ annual vine (parasitic)/ Jul-Oct/ 49-919	None							
prairie wedge grass	*Sphenopholis obtusata*	None	None	2B.2	Cismontane woodland, Meadows and seeps/mesic/ perennial herb/ Apr-Jul/ 984-6562	FAC							
Pringle's monardella	*Monardella pringlei*	None	None	1A	Coastal scrub(sandy)/ annual herb/ May-Jun/ 984-1312	None							
prostrate vernal pool navarretia	*Navarretia prostrata*	None	None	1B.1	Coastal scrub, Meadows and seeps, Valley and foothill grassland(alkaline), Vernal pools/Mesic/ annual herb/ Apr-Jul/ 49-3970	OBL							
salt spring checkerbloom	*Sidalcea neomexicana*	None	None	2B.2	Chaparral, Coastal scrub, Lower montane coniferous forest, Mojavean desert scrub, Playas/alkaline, mesic/ perennial herb/ Mar-Jun/ 49-5020	FACW					x		
San Bernardino aster	*Symphyotrichum defoliatum*	None	None	1B.2	Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Meadows and seeps, Marshes and swamps, Valley and foothill grassland(vernally mesic)/near ditches, streams, springs/ perennial rhizomatous herb/ Jul-Nov/ 7-6693	OBL							
Sanford's arrowhead	*Sagittaria sanfordii*	None	None	1B.2	Marshes and swamps(assorted shallow freshwater)/ perennial rhizomatous herb/ May-Oct(Nov)/ 0-2133	OBL							
Santa Ana River woollystar	*Eriastrum densifolium ssp. sanctorum*	FE	CE	1B.1	Chaparral, Coastal scrub(alluvial fan)/sandy or gravelly/ perennial herb/ Apr-Sep/ 299-2001	None	x	x					
singlewhorl burrobrush	*Ambrosia monogyra*	None	None	2B.2	Chaparral, Sonoran desert scrub/sandy/ perennial shrub/ Aug-Nov/ 33-1640	UPL							
slender-horned spineflower	*Dodecahema leptoceras*	FE	CE	1B.1	Chaparral, Cismontane woodland, Coastal scrub(alluvial fan)/sandy/ annual herb/ Apr-Jun/ 656-2493	None	x	x					
smooth tarplant	*Centromadia pungens ssp. laevis*	None	None	1B.1	Chenopod scrub, Meadows and seeps, Playas, Riparian woodland, Valley and foothill grassland/alkaline/ annual herb/ Apr-Sep/ 0-2100	None							
white-bracted spineflower	*Chorizanthe xanti var. leucotheca*	None	None	1B.2	Coastal scrub(alluvial fans), Mojavean desert scrub, Pinyon and juniper woodland/sandy or gravelly/ annual herb/ Apr-Jun/ 984-3937	None							
Yucaipa onion	*Allium marvinii*	None	None	1B.1	Chaparral(clay, openings)/ perennial bulbiferous herb/ Apr-May/ 2493-3494	None							

Valley Region
Documented Special-Status Wildlife Species

Common Name	Scientific Name	Federal Status	State Status	Habitat	Upper SAR HCP	Wash Plan HCP	Apple Valley Plan	DRECP	West Mojave Plan	West Valley HCP	USFWS Critical Habitat
Amphibians											
arroyo toad	*Anaxyrus californicus*	FE	SSC	Semi-arid areas near washes, sandy riverbanks, riparian areas, palm oasis, Joshua tree, mixed chaparral and sagebrush; stream channels for breeding(typically 3rd order); adjacent stream terraces and uplands for foraging and wintering	x			x			x
Western spadefoot	*Spea hammondii*	None	SSC	Primarily grassland and vernal pools, but also in ephemeral wetlands that persist at least 3 weeks in chaparral, coastal scrrub, valley-foothill woodlands, pastures, and other agriculture	x						
Reptiles											
orangethroat whiptail	*Aspidoscelis hyperythra*	None	SSC	Low-elevation coastal scrub,chaparral, and valley-foothill hardwood							
California glossy snake	*Arizona elegans occidentalis*	None	None	Inhabits arid scrub, rocky washes, grasslands, and chaparral							
silvery legless lizard	*Anniella pulchra pulchra*	None	SSC	Stabilized dunes, beaches, dry washes, chaparral, scrubs, pine, oak, and riparian woodlands; associated with sparse vegetation and sandy or loose, loamy soils							
south coast garter snake	*Thamnophis sirtalis ssp.*	None	None	Prefers shallow, low gradient freshwater aquatic habitats such as wetlands and marshes, and upland dense multistoried riparian vegetation. Records from Prado Basin and upstream in the Sanata Ana River.	x						
Blainville's horned lizard	*Phrynosoma blainvillii*	None	SSC	Open areas of sandy soil in valleys, foothills and semi-arid mountains including coastal scrub, chaparral, valley-foothill hardwood, conifer, riparian, pine-cypress, juniper and annual grassland.							
western pond turtle	*Actinemys marmorata*	None	SSC	Slow-moving permanent or intermittent streams, ponds, small lakes, reservoirs with emergent basking sites; adjacent uplands used for nesting and during winter. There are several occurrences on the westernmost edge of San Bernardino County (CNDDB 2015).							
Birds											
burrowing owl	*Athene cunicularia (burrow sites & some wintering sites)*	None	SSC	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows.							
loggerhead shrike	*Lanius ludovicianus (nesting)*	None	SSC	Nests and forages in open habitats with scattered shrubs, trees, or other perches							
Swainson's hawk	*Buteo swainsoni (nesting)*	None	ST	Nests in open woodland and savanna, riparian and in isolated large trees; forages in nearby grasslands and agriculturals areas such as wheat and alfalfa fields and pasture. This species occasionally stops over during migration, but is not known to currently nest in San Bernardino County.							
white-faced ibis	*Plegadis chihi (nesting colony)*	None	WL	Nests in shallow marshes with areas of emergent vegetation; winter foraging in shallow lacustrine waters, flooded agricultural fields, muddy ground of wet meadows, marshes, ponds, lakes, rivers, flooded fields and estuaries. This species is known to nest in marsh habitat near Prado Dam.							
tricolored blackbird	*Agelaius tricolor (nesting colony)*	None	SSC	Nests near fresh water, emergent wetland with cattails or tules, but also in Himalayan blackberrry; forages in grasslands, woodland, and agriculture. This species is a candidate for listing under the California Endangered Species Act.							
yellow warbler	*Setophaga petechia (nesting)*	None	SSC	Nests and forages in riparian and oak woodlands, montane chaparral, open ponderosa pine and mixed conifer habitats							
coastal California gnatcatcher	*Polioptila californica californica*	FT	SSC	Nests and forages in various sage scrub communities, often dominated by California sagebrush and buckwheat; generally avoids nesting in areas with a slope of greater than 40%; majority of nesting at less than 1,000 ft in elevation	x	x					x
least Bell's vireo	*Vireo bellii pusillus (nesting)*	FE	SE	Nests and forages in low, dense riparian thickets along water or along dry parts of intermittent streams; forages in riparian and adjacent shrubland late in nesting season							x
cactus wren	*Campylorhynchus brunneicapillus*	None	None	Nests and forages in cactus, yucca, and mesquite. Typically found in low, dry habitats							
long-eared owl	*Asio otus (nesting)*	None	SSC	Nests in riparian habitat, live oak thickets, other dense stands of trees, edges of coniferous forest; forages in nearby open habitats							
southwestern willow flycatcher	*Empidonax traillii extimus (nesting)*	FE	SE	Nests in dense riparian habitats along streams, reservoirs, or wetlands; uses variety of riparian and shrubland habitats during migration							x
white-tailed kite	*Elanus leucurus (nesting)*	None	FP	Nests in woodland, riparian, and individual trees near open lands; forages opportunistically in grassland, meadows, scrubs, agriculture, emergent wetland, savanna, and disturbed lands							
yellow-breasted chat	*Icteria virens (nesting)*	None	SSC	Nests and forages in dense, relatively wide riparian woodlands and thickets of willows, vine tangles and dense brush							
yellow-headed blackbird	*Xanthocephalus xanthocephalus (nesting)*	None	SSC	Nests in marshes with tall emergent vegetation, often along borders of lakes and ponds; forages in emergent wetlands, open areas, croplands, and muddy shores of lacustrine habitat							
golden eagle	*Aquila chrysaetos (nesting & wintering)*	None	FP	Nests and winters in hilly, open/semi-open areas, including shrublands, grasslands, pastures, riparian areas, mountainous canyon land, open desert rimrock terrain; nests in large trees and on cliffs in open areas and forages in open habitats							
western yellow-billed cuckoo	*Coccyzus americanus occidentalis (nesting)*	FT	SE	Nests in dense, wide riparian woodlands and forest with well-developed understories. Only known from Prado Basin in the valley region of San Bernardino County.							
Fishes											
arroyo chub	*Gila orcuttii*	None	SSC	Warm, fluctuating streams with slow-moving or backwater sections of warm to cool streams at depths >40 centimeters; substrates of sand or mud	x						
Santa Ana sucker	*Catostomus santaanae*	FT	SSC	Small, shallow, cool, clear streams less than 7 meters in width and a few centimeters to more than a meter in depth; substrates are generally coarse gravel, rubble and boulder	x						x
Mammals											
San Diego desert woodrat	*Neotoma lepida intermedia*	None	SSC	Coastal scrub, desert scrub, chaparral, cacti, rocky areas							
pallid bat	*Antrozous pallidus*	None	SSC	Grasslands, shrublands, woodlands, forests; most common in open dry habitats with rocky outcrops for roosting, but also roosts in man-made structures and trees				x	x		
American badger	*Taxidea taxus*	None	SSC	Dry, open, treeless areas; grasslands, coastal scrub, agriculture, pastures, especially with friable soils							
Los Angeles pocket mouse	*Perognathus longimembris brevinasus*	None	SSC	Lower elevation grassland, alluvial sage scrub, and coastal scrub	x						
northwestern San Diego pocket mouse	*Chaetodipus fallax fallax*	None	SSC	Coastal scrub, mixed chaparral, sagebrush, desert wash, desert scrub, desert succulent shrub, pinyon-juniper, and annual grassland							
pocketed free-tailed bat	*Nyctinomops femorosaccus*	None	SSC	Pinyon-juniper woodlands, desert scrub, desert succulent shrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, palm oases; roosts in high cliffs or rock outcrops with dropoffs, caverns, buildings					x		
western red bat	*Lasiurus blossevillii*	None	SSC	Forest, woodland, riparian, mesquite bosque and orchards, including fig, apricot, peach, pear, almond, walnut, and orange; roosts in tree canopy							
San Bernardino kangaroo rat	*Dipodomys merriami parvus*	FE	SSC	Sparse scrub habitat, alluvial scrub/coastal scrub habitats on gravelly and sandy soils near river and stream terraces	x	x					x
San Diego black-tailed jackrabbit	*Lepus californicus bennettii*	None	SSC	Arid habitats with open ground; grasslands, coastal scrub, agriculture, disturbed areas, and rangelands	x						
southern grasshopper mouse	*Onychomys torridus ramona*	None	SSC	Grassland and sparse coastal scrub							
Stephens' kangaroo rat	*Dipodomys stephensi*	FE	ST	Annual and perennial grassland habitats, coastal scrub or sagebrush with sparse canopy cover or in disturbed areas. Only occurs in low abudance at the very southwestern edge of San Bernardino County.							
western mastiff bat	*Eumops perotis californicus*	None	SSC	Chaparral, coastal and desert scrub, coniferous and deciduous forest and woodland; roosts in crevices in rocky canyons and cliffs where the canyon or cliff is vertical or nearly vertical, trees and tunnels					x		
western yellow bat	*Lasiurus xanthinus*	None	SSC	Valley foothill riparian, desert riparian, desert wash, and palm oasis habitats; below 2,000 ft; roost in riparian and palms							
Invertebrates											
Delhi Sands flower-loving fly	*Rhaphiomidas terminatus abdominalis*	FE	None	Delhi fine sandy soils and dunes, scrub and ruderal vegetation in the sand verbena series with <50% cover	x					x	
springsnail	*Pyrgulopsis californiensis*	None	None	Springsnails occur in springs and short lengths of spring-fed stream riparian areas. They prefer sand, gravel, and cobble substrates and use acquatic vegetation in slow to moderate current. They are distributed in a number of springs in the foothills of the San Beranrdino Mountains. This species is described as being wide-spread, but locally rare. It is potentially undersplit taxonomically, and there is a need for genetic studies to determine whether they may be a unique species.							
Greenest tiger beetle	*Cicindela tranquebarica viridissima*	None	None	Occurs within Santa Ana River Plan Area along the Santa Ana River in and near the City of Riverside. The only other known occurrence is near Bautista Creek in Hemet.							

APPENDIX D

Outreach Summary

APPENDIX D
Outreach Summary

In addition to the research and data compiled herein, public and agency input collected for the Countywide Plan also touched upon issues related to biological resources. Some biological resources topics discussed by outreach participants are listed by region in Table D1.

Table D1
Biological Resources Issues Identified in Public Outreach, 2015–2018

Issues Identified by the Community	Valley	Mountain	North Desert	East Desert
Encourage more land banking		X		X
Preserve wildlife corridors		X		X
Lack of focused habitat conservation strategy		X	X	X
Conflict between mineral extraction and special species			X	X
Conflict between utility-scale solar and special species			X	X
Threats to windblown sand habitat			X	X
Protect riparian corridors	X	X	X	X
Maintain forest health		X		
Improve multi-agency coordination		X	X	X
Preserve dark skies / reduce light pollution	X	X	X	X
Protect scenic vistas		X	X	X
Protect soil quality for agriculture	X	X		
Provide more environmental / drought education		X	X	X
Better enforce OHV regulations			X	X
Keep sand transport zones			X	X
Protect National Forests, Parks and Monuments		X		X
Threats to pebble plain habitat		X		

Engaging residents in a county as large and diverse as San Bernardino required a robust effort to reach residents, agencies, and other stakeholders who live, work, or serve one or more of the county's communities. Between 2015 and 2017, the County engaged over 2,100 individuals from over 80 unincorporated communities throughout the county's four regions. The outreach consisted of over 70 meetings in over 30 different locations, along with in-person and online surveys (total of 910 survey responses).

The public meetings were designed to engage residents in a workshop setting to identify problems and potential solutions to address specific issues unique to each community planning area. Attendees were given a presentation and materials on the overall Countywide Plan effort. Specific questions asked of the community (in person and through the surveys), included the following:

- What areas are there for improvement in the community?
- What internal or external factors or resources could be opportunities for your community?

- What are threats to your community?
- What outside factors outside of the control of the community could threaten your community?

The second phase of public meetings took place in 2017 and 2018 through two rounds of 17 regional meetings in 13 different locations throughout the county's four regions. Over 600 individuals attended these meetings, including representatives from over 50 agencies and organizations associated with federal, state, regional, and local services and interests. The first round of regional meeting was designed to engage residents, agencies, service, providers, advocacy groups, and other stakeholders to identify and discuss issues that are unique to specific communities or regions or are countywide. The second round of regional meetings presented draft policy recommendations based on input received and as directed by state law. Throughout 2018, the County conducted individual interviews with service agencies, advocacy groups, and other organizationally-oriented stakeholders.

Finally, with over 100 communities spread across 20,000 square miles, the County anticipated that attendance at public meetings would not be feasible for many community members. To maximize input and access to information, the County posted all of the meeting material online (countywideplan.com/cp) in advance of public meetings (summary information and electronic versions of surveys posted after the meetings). An individual webpage was dedicated for each community planning area (e.g., countywideplan.com/bloomington) so that community members could focus on information and provide input specific to their area of interest.

The County also maintained individual email addresses for each community (for example: bakercp@lus.sbcounty.gov) and provided an online submission form (no email required) for people to submit comments and questions. Over the span of the three-year outreach effort, the project website was used by over 13,000 unique visitors (excluding County/consultant usage), with the County receiving hundreds of comments and questions through the email addresses and online submission forms (anonymous if desired). A portion of these comments and questions addressed matters related to biological resources.