

DRAFT MEMORANDUM

To: Colin Drukker, PlaceWorks
From: Mike Howard, Linda Archer, Mikael Romich
Subject: San Bernardino Countywide Plan
Biological Resource Conservation – Key Points
Date: Revised November 28, 2016

This draft memorandum provides a summary of the key points related to biological resource conservation for the San Bernardino Countywide Plan (CWP). This summary is based on information and data used to prepare the CWP, including the *San Bernardino Countywide Plan Biological Resources Existing Conditions* report (Dudek 2016). Additionally, this draft memorandum documents the supporting data and maps used for biological resources, land ownership and designation information, and countywide biological constraints. Detailed acreage summaries supporting this draft memorandum were previously distributed and are available but were not included in this revised draft.

BIOLOGICAL RESOURCES POINTS

San Bernardino County spans three distinct ecoregions covering nearly 13 million acres and supporting an enormous diversity of plant and animal species and vegetation communities. Key points related to biological resources that are important for the development of the CWP are listed below.

- Regions (i.e., Valley, Mountain, and Desert (North and East)) are meaningful ecological groupings for species and vegetation communities given the relatively well-defined topographic, geologic, and climatic boundaries that separate these three regions in the County.
- The biological resources in the County are thoroughly documented in the *San Bernardino Countywide Plan Biological Resources Existing Conditions* report¹. Key biological

¹ Dudek. 2016. *San Bernardino Countywide Plan Biological Resources Existing Conditions*. Prepared for the County of San Bernardino. November, 2016.

resources include habitat linkages², vegetation communities³, and wildlife and plant species⁴. Highlights of the biological resources by region are provided below.

o Desert (North and East) Region Biological Resources

- *Ecological Processes and Landscape Features:* Processes related to surficial geology and hydrology (e.g., wind erosion and deposition, soil structure, nutrient cycling, fluvial and alluvial systems) strongly influence the distribution and composition of biological resources across the resource-limited desert landscape. Additionally, environmental gradients (e.g., topographic and climatic gradients) often dictate where conditions are suitable to support wildlife and plant species. Species movement through habitat linkages and wildlife corridors is important in all regions, including in the mapped linkages of the desert, especially in the face of changing climate conditions.
- *Vegetation Communities:* This region is dominated by vast expanses of desert scrub communities, like creosote, white bursage, and saltbush scrubs. Vegetation communities of conservation interest in this region include: desert washes and woodlands, Joshua tree woodlands, juniper woodlands, playas and wetlands, dune communities, alluvial fan sage scrub, and riparian communities.
- *Wildlife and Plant Species:* In the desert region, there are occurrence records for 41 federally or state listed or fully protected species, 232 special-status species, and 1,714 other species with lower or no special status. High-profile species of conservation interest in this region include, but are not limited to, desert tortoise, Mojave fringe-toed lizard, burrowing owl, least Bell's vireo, southwestern willow flycatcher, golden eagle, Mohave ground squirrel, and desert bighorn sheep.

² Data sources for the modeled habitat linkages in the County include California Essential Habitat Connectivity Project, South Coast Wildlands Desert Linkage Network, South Coast Wildlands Joshua Tree Twenty Nine Palms Wildlife Corridors, South Coast Wildlands Missing Linkages Wildlife Corridors, and Desert Tortoise Conservation Areas and Linkages.

³ Data sources of the vegetation layer for the County is National Vegetation Classification Standard (NVCS)-Based Mapping from the Mojave Desert Ecosystem Project (CDFG 2012), Classification and Assessment with Landsat of Visible Ecological Groupings (CALVEG) (USFS 2014), and SANBAG existing land-use layer (SANBAG 2012).

⁴ The data source for species occurrences in the County is a standardized species occurrence dataset created for San Bernardino County from data from CNDDDB, US Fish and Wildlife Service, US Forest Service, US Bureau of Land Management, San Bernardino County Museum, San Bernardino County Department of Public Works, Upper Santa Ana River HCP, VertNET (post-1990 records), and California Consortium of Herbaria (post-1990 records).

o Mountain Region Biological Resources

- *Ecological Processes and Landscape Features:* Topographic relief of the San Bernardino Mountains (with multiple peaks above 10,000 feet amsl) and the resulting climate and hydrologic features are key characteristics of this region. Species movement through habitat linkages and wildlife corridors is important in all regions, including in the mapped linkages of the mountain region, especially in the face of changing climate conditions.
- *Vegetation Communities:* Pine, fir, and oak forests and woodlands, chaparral, and scrub communities dominate the mountain region. Vegetation communities of conservation interest in this region include: juniper woodlands, meadows, pebble plains, and riparian communities.
- *Wildlife and Plant Species:* In the mountain region, there are occurrence records for 41 federally or state listed or fully protected species, 117 special-status species, and 1,988 other species with lower or no special status. High-profile species of conservation interest in this region include, but are not limited to, Santa Ana sucker, arroyo toad, mountain yellow-legged frog, southern rubber boa, California spotted owl, bald eagle (wintering and nesting), and the San Bernardino Mountain carbonate and pebble plain plants.

o Valley Region Biological Resources

- *Ecological Processes and Landscape Features:* Urban and agricultural uses determine the distribution of biological resources in much of the valley region. In the valley region in particular, species movement is constrained to narrow habitat patches (e.g., riparian corridors, washes) through developed land uses. Special features like Lytle Creek and Cajon Wash, Chino Hills, Chino Valley, Delhi soil series, and the Santa Ana River corridor support important biological resources in this region.
- *Vegetation Communities:* Aside from developed lands and agriculture, chaparral, scrub, and grassland communities dominate the valley region. Vegetation communities of conservation interest in this region include: alluvial fan sage scrub, coastal scrub, and riparian communities.
- *Wildlife and Plant Species:* In the valley region, there are occurrence records for 27 federally or state listed or fully protected species, 65 special-status species, and 984 species with lower or no special status. High-profile species of conservation interest in this region include, but are not limited to,

Santa Ana sucker, Delhi sands flower-loving fly, coastal California gnatcatcher, burrowing owl, San Bernardino kangaroo rat, least Bell's vireo, slender-horned spineflower, and Santa Ana River woollystar.

RESOURCE CONSERVATION POINTS

San Bernardino County has a complex matrix of land uses, land ownerships, and land use designations that influence resource conservation across the landscape. Key points related to resource conservation that are important for the development of the CWP are listed below.

- Key elements of the biological resource regulatory setting and planning context for the CWP include laws, regulations, policies, and planning related to:
 - **Endangered Species** (Federal and State Endangered Species Acts)
 - **Wetlands and Waters** (Clean Water Act, Lake and Streambed Alteration Program, Porter-Cologne Water Quality Control Act)
 - **Other Special-status Species** (Bald and Golden Eagle Protection Act, Migratory Bird Treaty Act, California Fish and Game Code regulations, desert native plant protection code)

The environmental effects of activities on federal lands are evaluated through the National Environmental Policy Act (NEPA) process and may be subject to land use designations and policies of the individual federal entities (e.g., Federal Land Policy and Management Act [FLPMA] and existing Resource Management Plans on BLM-administered lands; Land and Resource Management Plans on Forest Service-administered lands; Integrated Natural Resource Management Plans on military lands). On non-federal lands, environmental effects are evaluated through the California Environmental Quality Act (CEQA) process and are subject to land use designations and policies of entities with land use jurisdiction (e.g., County, incorporated cities, special districts).

- Regions (i.e., Valley, Mountain, and Desert (North and East)) are useful planning groupings for evaluating resource conservation because each region, at a coarse scale, has a distinct pattern of land uses and land ownership.
- Resource protection status across the County varies according to land ownership, designations, and management⁵. Of the approximately 13 million-acre County, 42% of the

⁵ Resource protection status developed for the County of San Bernardino based on multiple data sources, including public land ownership and land allocations from <http://www.blm.gov/ca/gis/>; City and region boundaries from the County of San Bernardino and the PlaceWorks CWP dataset; Other open space designations from SANBAG and California Protected Areas Database at <http://www.calands.org/>. It should be noted that, in many cases, boundaries

land is protected areas on public land (e.g., National Parks, Wilderness, Monument) and 25% is public lands with multiple uses including resource conservation (e.g., BLM ACECs, National Forests, State Parks and Recreation lands). Other open space areas (e.g., land trust lands, other public lands, and county/city park lands) account for 1% of the County. Military and Tribal lands combined make up another 18% of the County. The remaining 15% of the County are considered undesignated and are comprised largely of privately-owned land with no resource protection status.

- Countywide, the County of San Bernardino has land use jurisdiction over approximately 1,513,000 acres (12%). The remaining 88% of the County is under the land use jurisdiction of federal or state agencies, incorporated cities, or special districts.
- The following highlight the countywide, landscape-scale analysis of resource protection status and conservation gaps.
 - Modeled habitat linkages cover a large portion of the entire desert region; approximately 75% are in open space (protected areas, multiple use areas and other open space), approximately 15% are on military and tribal lands, and approximately 10% are on undesignated/unprotected lands. In the mountain region, a majority (72%) of the habitat linkages are on multiple use public lands (i.e., San Bernardino National Forest) and an additional 17% of the habitat linkages are on protected public lands and other open space. Approximately 11% of the habitat linkages in the mountain region are undesignated/unprotected. In the valley region, there are relatively fewer modeled habitat linkages and a majority (90%) are undesignated/unprotected.
 - The protection status for vegetation communities varies by community and by region across the County. The analysis highlights the following:
 - Vegetation communities of conservation interest that are undesignated/unprotected in the desert region include: 6% (7,087 acres) of dunes, 14% (86,291 acres) of Joshua Tree woodland, 9% (39,118 acres) of riparian and desert wash, and 40% (8,203 acres) of wetlands and waters.
 - Vegetation communities of conservation interest that are undesignated/unprotected in the mountain region include: 16% (334 acres)

differ and conflict between data sources for this type of information. Boundary information for the 2016 designated National Monuments in the desert has known privately-owned inholdings. Additionally, the collection of information about protected lands in the County is an ongoing process; such data is often held by individual jurisdictions, districts, land trusts, etc. and not in a single repository and data gaps exist.

of riparian and wash, 29% (657 acre) of Riversidian alluvial fan sage scrub, and 57% (4,236 acres) of wetlands and waters.

- Vegetation communities of conservation interest that are undesignated/unprotected in the valley region include: 54% (760 acres) of riparian and wash, 83% (15,016 acres) of Riversidian alluvial fan sage scrub, and 74% (1,117 acres) of wetlands and waters.
- A majority (1,344,761 acres; 89%) of the lands within County land use jurisdiction are undesignated/unprotected.
- The protection status varies by species by region across the County. The analysis highlights the following related to the resource protection status of species of conservation interest with relatively high numbers of occurrence records in the County
 - Arroyo toad: Mountain region locations are relatively well protected but Desert region locations are largely undesignated/unprotected.
 - Coastal California gnatcatcher locations occur primarily in the Valley region and are largely undesignated/unprotected.
 - Golden eagle locations occur primarily in the Desert region largely on public lands.
 - There are a relatively high number of least bell's vireo locations in the Valley region and most are undesignated/unprotected.
 - Mohave ground squirrel occurs primarily in the west Mojave area of the Desert region on public lands managed for resource protection, military lands, and undesignated/unprotected lands.
 - There are a high number of San Bernardino kangaroo rat locations in the Valley region and most are undesignated/unprotected.
 - There are a set of plant species that occur primarily in the Mountain region that occur primarily on multiple use public lands (i.e., National Forests), like ash-gray paintbrush, Big Bear Valley sandwort, bird-foot checkerbloom, California dandelion, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, Parish's checkerbloom, Parish's daisy, San Bernardino Mountain bladderpod, and southern mountain buckwheat.
 - Slender-horned spineflower and Santa Ana River woollystar occurs largely in the Valley region and in primarily undesignated/unprotected areas.

- Desert tortoise occupies the Desert region of the County on public lands with resource protection, military lands, and undesignated/unprotected lands.

COUNTYWIDE BIOLOGICAL CONSTRAINTS

As part of the development process for the San Bernardino CWP, land use scenario models are being developed and analyzed. In an effort to synthesize the data in this memo for the purposes of providing biological input into the scenario models, a countywide biological constraints data layer was prepared. The countywide biological constraints layer was created by combining the following data layers:

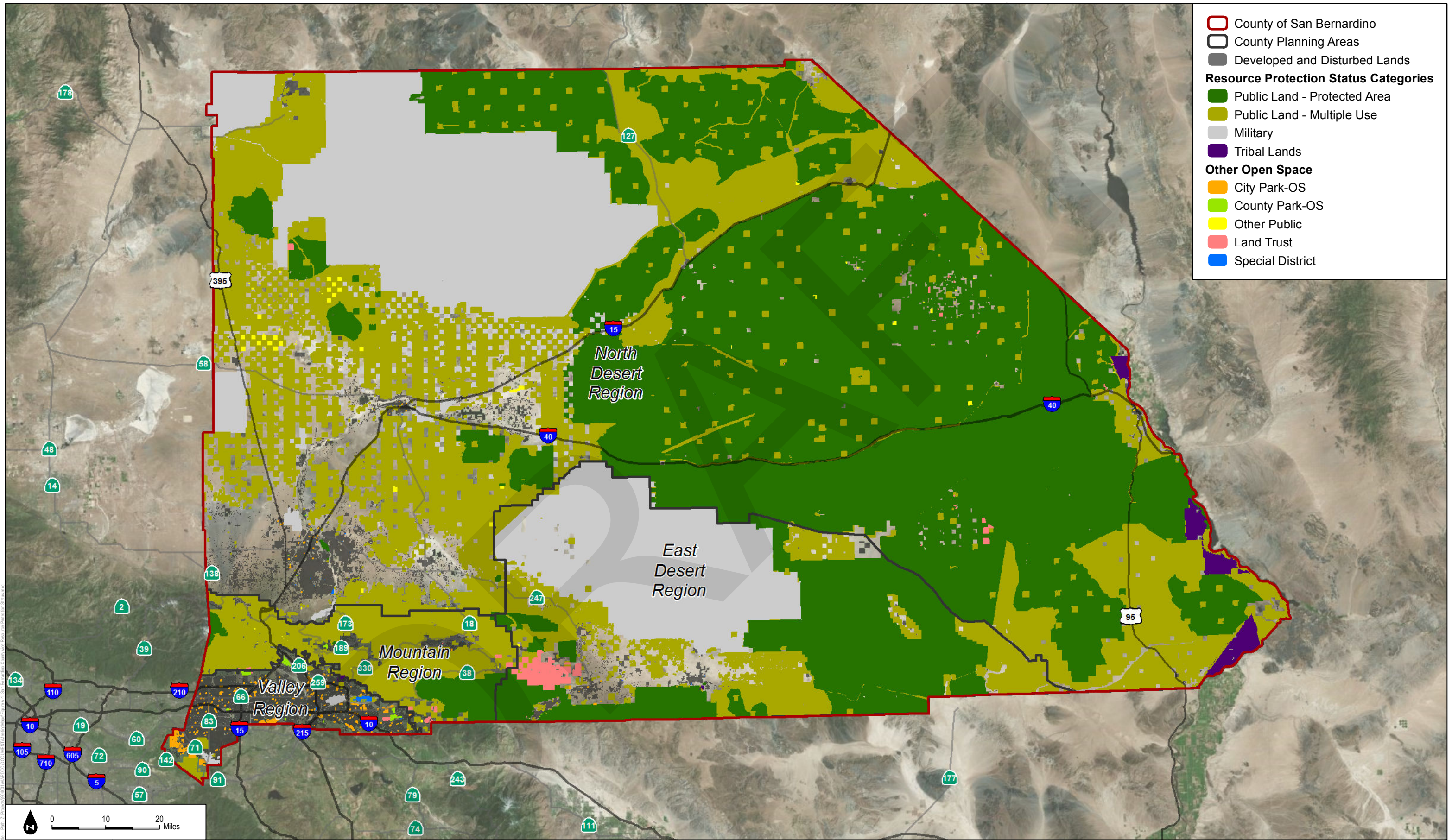
- Habitat linkages: Modeled habitat linkages in the County from multiple sources (see Footnote #2) were considered a potential biological constraint.
- Vegetation communities: Vegetation communities (see Footnote #3 for sources) of conservation interest were considered a potential biological constraint. The following vegetation communities mapped at the broadest, “general” community level were included: dune communities, Joshua tree woodland, riparian and wash communities, Riversidian alluvial scrub communities, wetland communities and waterways.
- Wildlife and plant species: Special-status species occurrences (see Footnote #4 for sources) were considered a potential biological constraint. Special-status species include those that are federally and state endangered, threatened, or candidate species; state fully protected species; state species of special concern; and California Rare Plant Rank List 1 or List 2 species. Occurrence point locations from current (post-1990) records were buffered by 400 feet for the purposes of preparing the constraints layer.

These three components were combined to create two indicators of potential biological constraints: (1) composite biological constraints and (2) cumulative biological constraints. The composite biological constraints indicator has a 1 or 0 value (i.e., Yes/No) if any of the three mapped components occur. The cumulative biological constraints indicator sums the three mapped components, yielding a value of 0 (i.e., no mapped biological constraints occur) to 3 (i.e., all three of the mapped biological constraints occur). Resource protection status overlays would also be a constraint in the scenario models and should be used in combination with these values.

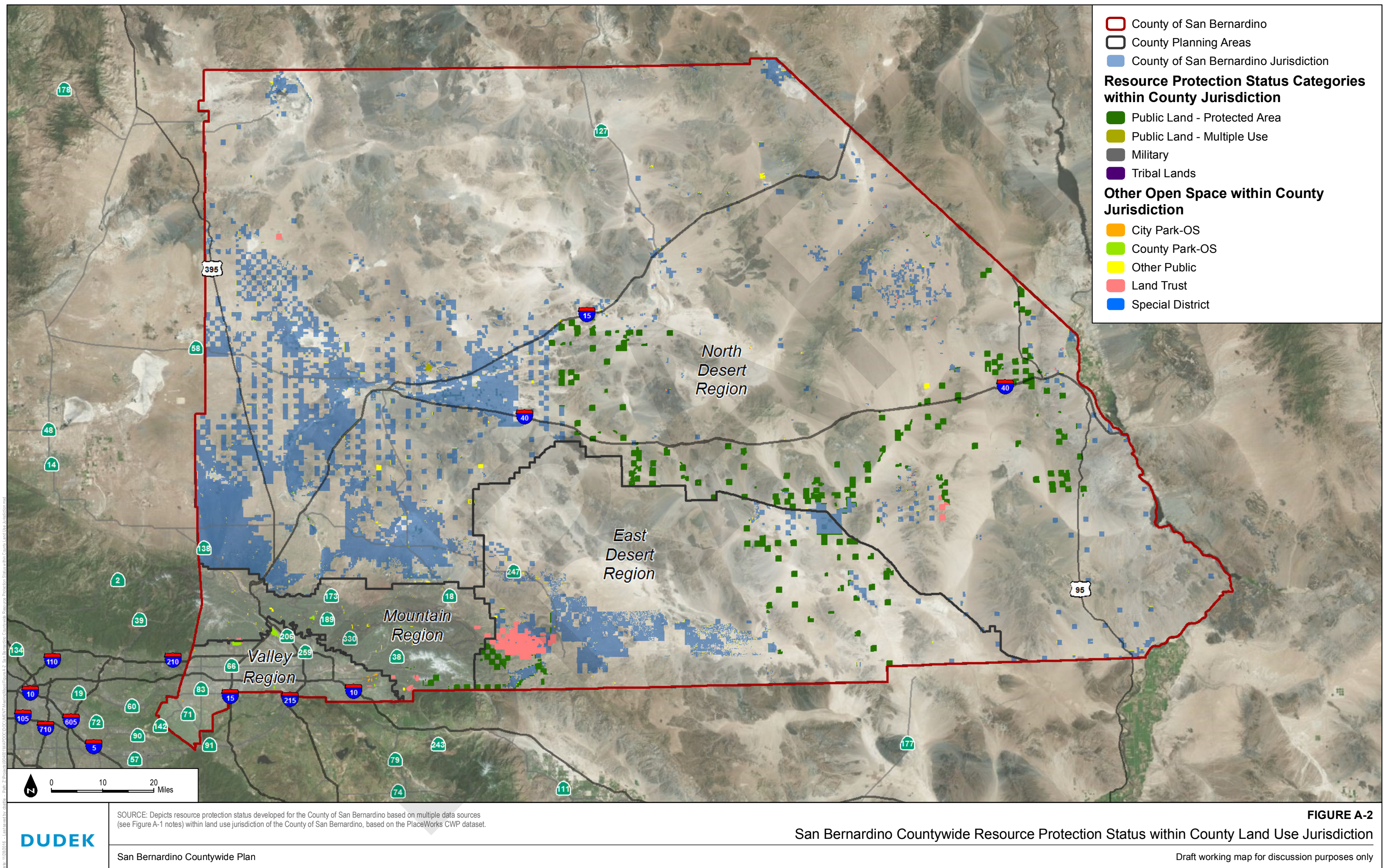
ATTACHMENT A
SAN BERNARDINO COUNTYWIDE PLAN
BIOLOGICAL RESOURCE CONSERVATION MAP SET

The maps included in Attachment A are intended to summarize and characterize the key biological resources and resource protection status in the County. These maps are intended to provide an overview and synthesis of voluminous and complex data for the purposes of supporting development of the CWP. The San Bernardino CWP Biological Resource Conservation map set includes the following figures:

- Figure A-1: San Bernardino Countywide Resource Protection Status
- Figure A-2: San Bernardino Countywide Resource Protection Status within County Land Use Jurisdiction
- Figure A-3: Valley and Mountain Region Resource Protection Status and Other Local Designations
- Figure A-4: Valley and Mountain Region Key Biological Resources
- Figure A-5: North and East Desert Region (Partial) Resource Protection Status and Other Local Designations
- Figure A-6: North and East Desert Region (Partial) Key Biological Resources
- Figure A-7: Countywide Composite Biological Constraints
- Figure A-8: Countywide Cumulative Biological Constraints



SOURCE: Depicts resource protection status developed for the County of San Bernardino based on multiple data sources, including public land ownership and land allocations from <http://www.blm.gov/ca/gis/>; region boundaries from the County of San Bernardino and the PlaceWorks CWP dataset; other open space designations from California Protected Areas Database at <http://www.calands.org/>; imagery from Bing, 2016.



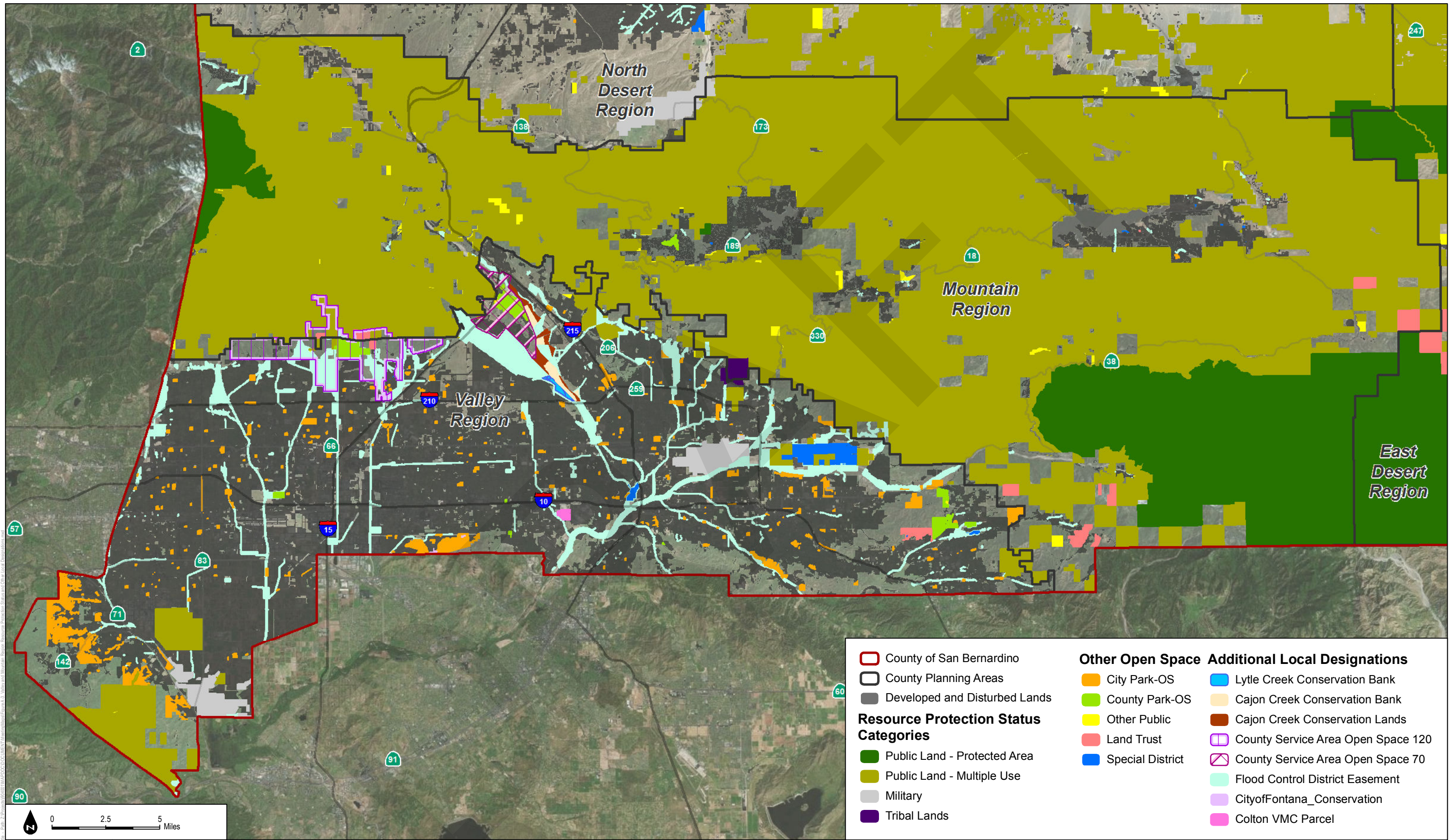
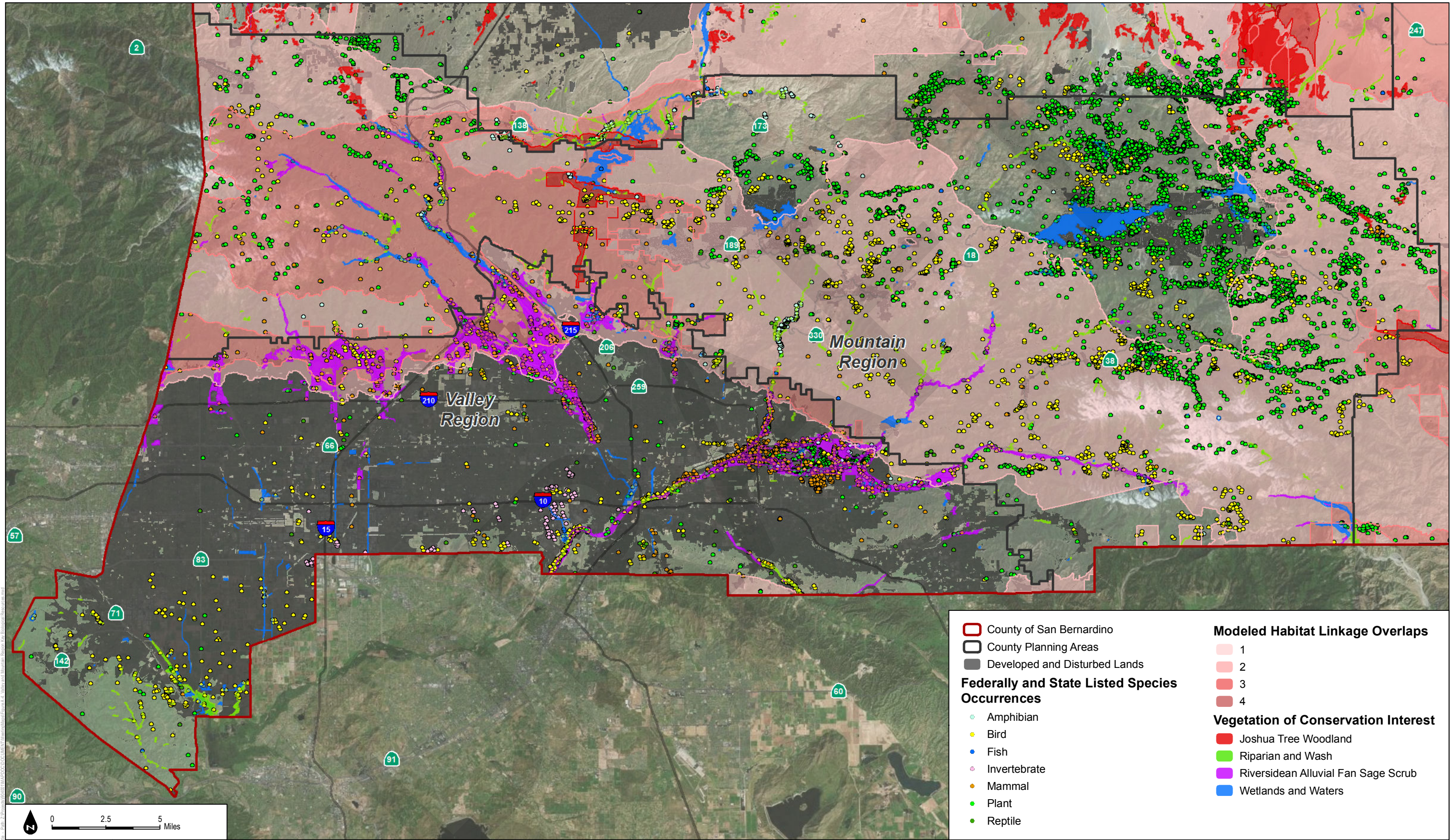


FIGURE A-3

Valley and Mountain Region Resource Protection Status and Other Local Designations

Draft working map for discussion purposes only



SOURCE: Sources for the modeled habitat linkages include California Essential Habitat Connectivity Project, South Coast Wildlands Desert Linkage Network, South Coast Wildlands Joshua Tree Twenty Nine Palms Wildlife Corridors, South Coast Wildlands Missing Linkages Wildlife Corridors, and Desert Tortoise Conservation Areas and Linkages. Source of the vegetation layer is National Vegetation Classification Standard (NVCS)-Based Mapping from the Mojave Desert Ecosystem Project (CDFG 2012), Classification and Assessment with Landsat of Visible Ecological Groupings (CALVEG) (USFS 2014), and SANBAG existing land-use layer (SANBAG 2012). The standardized species occurrence dataset is from multiple sources, including post-1990 records from CNDDB, US Fish and Wildlife Service, US Forest Service, US Bureau of Land Management, San Bernardino County Museum, San Bernardino County Department of Public Works, Upper Santa Ana River HCP, VertNET, and California Consortium of Herbaria.

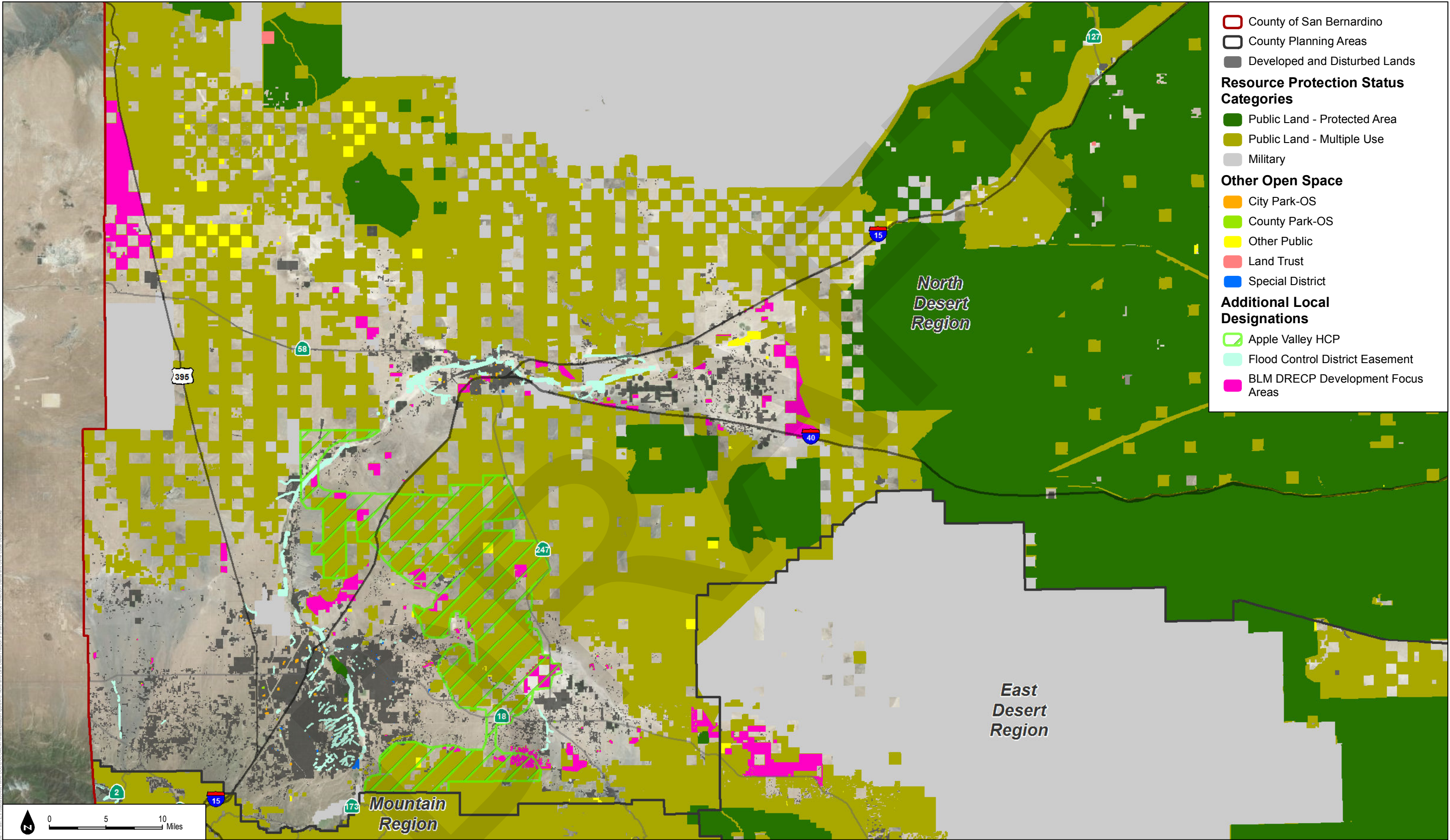
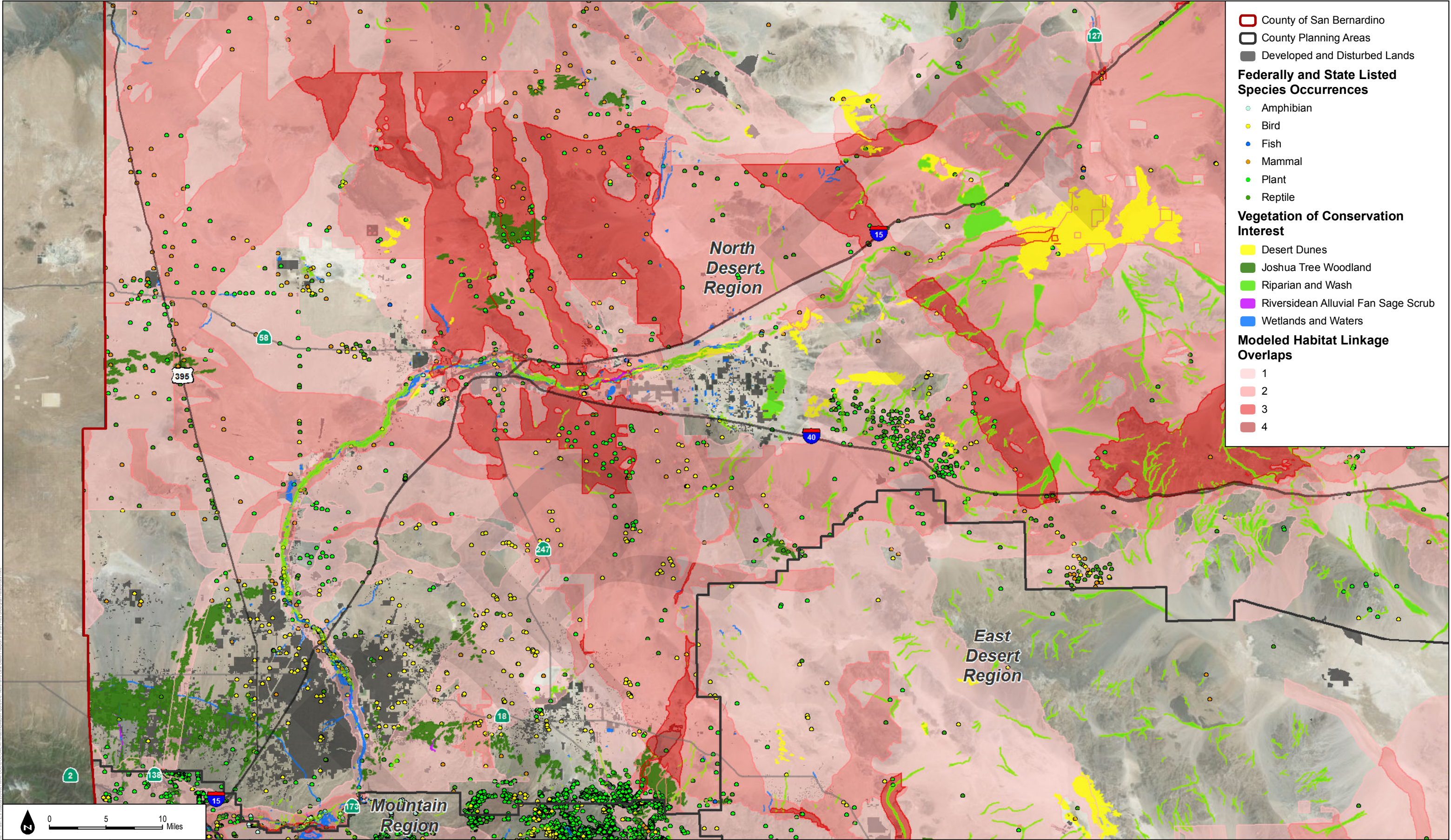


FIGURE A-5

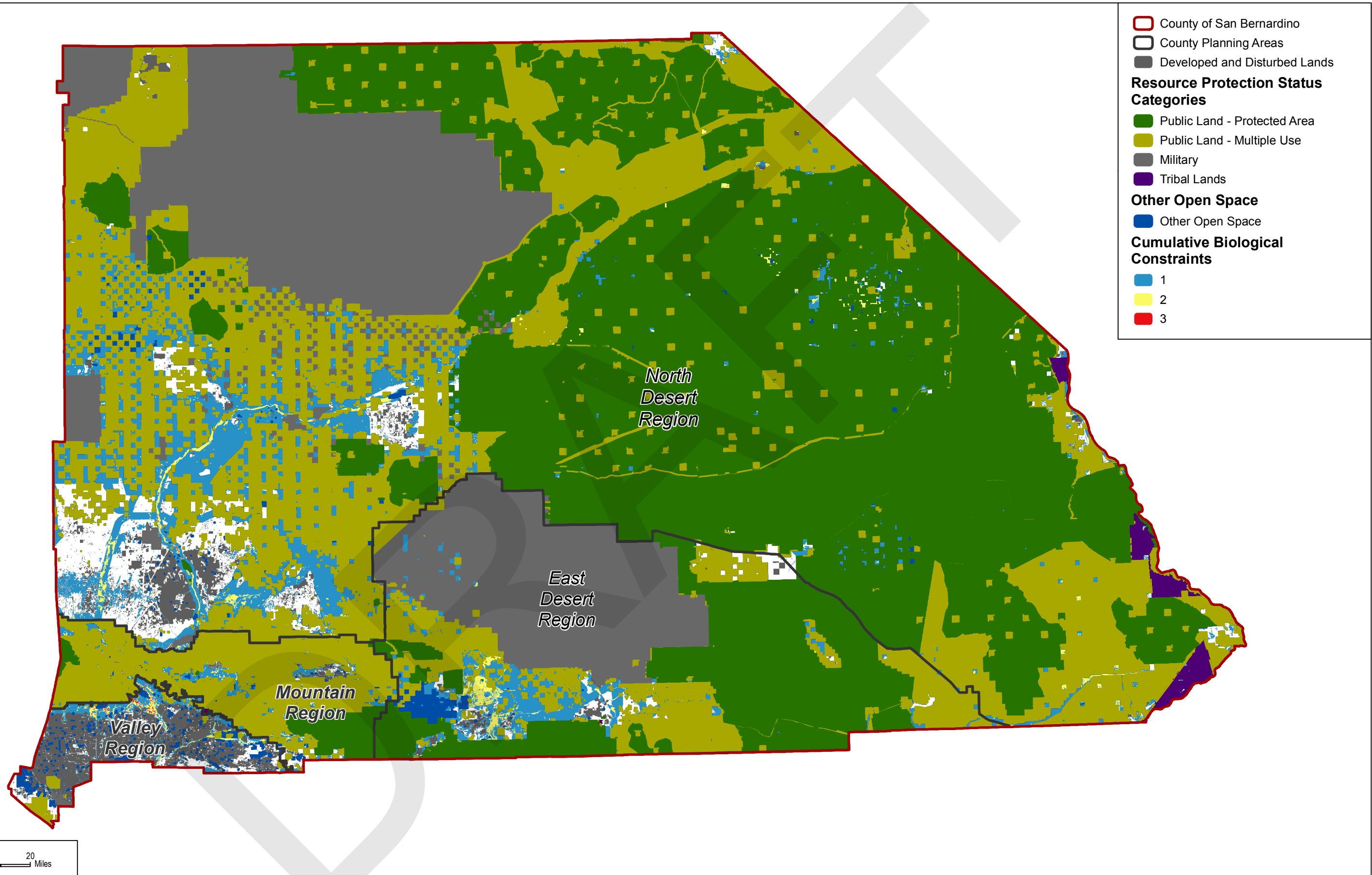
North and East Desert Region (Partial) Resource Protection Status and Other Local Designations

Draft working map for discussion purposes only



SOURCE: Sources for the modeled habitat linkages include California Essential Habitat Connectivity Project, South Coast Wildlands Desert Linkage Network, South Coast Wildlands Joshua Tree Twenty Nine Palms Wildlife Corridors, South Coast Wildlands Missing Linkages Wildlife Corridors, and Desert Tortoise Conservation Areas and Linkages. Source of the vegetation layer is National Vegetation Classification Standard (NVCS)-Based Mapping from the Mojave Desert Ecosystem Project (CDFG 2012), Classification and Assessment with Landsat of Visible Ecological Groupings (CALVEG) (USFS 2014), and SANBAG existing land-use layer (SANBAG 2012). The standardized species occurrence dataset is from multiple sources, including post-1990 records from CNDDB, US Fish and Wildlife Service, US Forest Service, US Bureau of Land Management, San Bernardino County Museum, San Bernardino County Department of Public Works, Upper Santa Ana River HCP, VertNET, and California Consortium of Herbaria.

FIGURE A-6
North and East Desert Region (Partial) Key Biological Resources



SOURCE: Depicts a cumulative summary of the potential countywide biological constraints based on the presence of the following factors: habitat linkages, vegetation communities of conservation interest, and special-status species locations