

The Biological resources section provides background information on sensitive biological resources within Napa County, the regulations and programs that provide for their protection, and an assessment of the potential impacts to biological resources of implementing the Napa County General Plan Update. This section is based upon information presented in the Biological Resources Chapter of the Napa County Baseline Data Report (Napa County, BDR 2005). Additional information on the topics presented herein can be found in these documents. Both documents are incorporated into this section by reference.

This section addresses biological resources other than fisheries which are separately addressed in Section 4.6.

4.5.1 SETTING

REGIONAL SETTING

The Napa County is located in the Coast Ranges Geomorphic Province. This province is bounded on the west by the Pacific Ocean and on the east by the Great Valley geomorphic province. A dominant characteristic of the Coast Ranges Province is the general northwest-southeast orientation of its valleys and ridgelines. In Napa County, located in the eastern, central section of the province, this trend consists of a series of long, linear, major and lesser valleys, separated by steep, rugged ridge and hill systems of moderate relief that have been deeply incised by their drainage systems. The County is located within the California Floristic Province, the portion of the state west of the Sierra Crest that is known to be particularly rich in endemic plant species (Hickman 1993, Stein et al. 2000).

LOCAL SETTING

The County's highest topographic feature is Mount St. Helena, which is located in the northwest corner of the County and whose peak elevation is 4,343 feet. Principal ridgelines have maximum elevations that roughly vary between 1,800 and 2,500 feet to sea level. These elevations decrease in the southern part of the County. These physical features have influenced the local climate (creating a variety of microclimates) and the development of soils.

Napa Valley is the main valley in the County. It extends southeast along the west side of the County to near the edge of San Pablo Bay. Valley floor elevations are up to approximately 400 feet near the north end of the valley and approach sea level on the south. Pope Valley is a similar but smaller valley in the upper watershed flowing into Lake Berryessa Reservoir (formerly Berryessa Valley) along the east central part of the County. In the west and east, the County line coincides with the crest of major northwest-trending ridge systems that border on Sonoma and Yolo Counties. Lake and Solano County boundaries are located to the north and southeast, respectfully.

The County covers approximately 507,438 acres and has a high natural level of biodiversity relative to California as a whole (Napa County, BDR 2005). This high level of biodiversity is attributable to a combination of topographic diversity, the relatively wide range of elevations present, and the numerous microclimates found, thereby creating an unusually diverse array of habitats.

The County's climate and location is characterized by medium to high rainfall. In general, precipitation increases from south to north and with increasing elevation. Annual precipitation varies by a factor of three within the County, from 22.5 to 75 inches per year (Napa County, BDR 2005). This spatial variation in rainfall is another attribute that influences biological diversity within

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the County. The eastern half of the County is located within the Inner North Coast Ranges, characterized by low rainfall and hot, dry summers, resulting in dominance by chaparral and pine/oak woodland (Hickman 1993). The western half of the County is within the Outer north Coast range, characterized by high rainfall, resulting in the growth of redwood (*Sequoia sempervirens*), mixed evergreens and mixed hardwood forests (Hickman 1993, Napa County, BDR 2005).

The County is particularly diverse from the standpoint of plants. Napa County is an area of overlap for many species and unique ecotones at the limit of their ranges. Although the County as a whole comprises only 0.5% of California, it contains 1,102 native plant taxa, or 32% of the state's native flora (Thorne et al. 2004). This floristic diversity is a function of the County's diverse topographic and geologic landscape, reaching from marshes at sea level to the peak of Mt. St Helena, as well as the County's large variations in climate conditions.

The County is also home to many wildlife species, including many rare, threatened and endangered species. Coniferous forests in the northwest part of the County support populations of the threatened Northern spotted owl (*Strix occidentalis caurina*). The County's baylands, at the mouth of the Napa River, are a component of the largest estuarine system on the west coast of North or South America—the San Francisco Bay-Delta—which supports a wealth of aquatic flora and fauna. The low-lying baylands of the County serve resident and migratory waterfowl and are home to the endangered California clapper rail (*Rallus longirostris obsoletus*). The County's rivers and streams provide habitat for many species of plants, invertebrates, and amphibians, including the threatened California red-legged frog (*Rana aurora draytonii*) and endangered California freshwater shrimp (*Syncaris pacifica*). Fisheries associated with streams and rivers are discussed separately in Section 4.6.

Major plant communities within the county include grassland, chaparral/scrub, oak woodland, riparian woodlands, coniferous forest, wetlands, open water, and agricultural cropland. Rural Lands are the predominant land use category within the unincorporated areas of Napa County, with 221,476 acres (43.7%). Of these 221,476 acres, 70% are vacant lands (lands including not only publicly-owned and privately-owned unused or abandoned land or land that once had structures on it, but also the land that supports structures that have been abandoned, derelict, boarded up, partially destroyed, or razed). Parks and Open Space lands also comprise a large amount of land within Napa County (27.6%), and Farming and Grazing together comprise 19.3% of total land. Urban/suburban and Rural Residential uses are a relatively small percentage of land within the County (2%).

Biotic Communities

Biotic communities are characteristic assemblages of plants and animals found in a given range of soil, climate, and topographic conditions across a region. Characterizing the biotic communities in a region is the first step in assessing and planning biological resource management options. The descriptions of biotic communities used in this chapter are derived from Chapter 4 of the Napa County Baseline Data Report (Napa County, BDR 2005).

Fifty-nine different natural and human-influenced biotic communities have been identified in the County. For planning and mapping purposes, the fifty-nine communities have been aggregated into eleven land cover types and are displayed in **Figure 4.5-1**. Of those eleven land cover types, seven principal land cover types: (1) grassland, (2) chaparral/scrub, (3) oak woodland, (4) riparian woodlands and forests, (5) coniferous forest, (6) aquatic (including wetlands and open water), (7) agricultural cropland are discussed in detail in this section. The following also includes a discussion of rock outcrops, which provide additional habitat containing unique biological



LEGEND

- | | | |
|--|---|---|
|  Grassland |  Coniferous Forest |  Rock Outcrop |
|  Chaparral / Scrub |  Wetlands |  Developed |
|  Oak Woodland |  Open Water |  Other* |
|  Riparian Woodland & Forest |  Agricultural Cropland |  Evaluation Areas |
| | |  Major Roads |

Land Cover

Napa County



1 inch = 22,000 feet

16,000 8,000 0 16,000 32,000 Feet

Horizontal Datum: NAD 83,
CA State Plane Coordinates, Zone II, feet
Source: Napa County, 2004; Jones & Stokes,
2005; Thorne et al. 2004

resources in Napa County. Urban or built land is found in many portions of the County but because it generally does not support highly valued biological resources, it is not further discussed. **Figure 4.5-1** depicts the distribution of these various types of land cover in the County.

Grassland

Grassland is a relatively common biotic community in the County, covering over 53,700 acres or nearly 11% of the County (see **Figure 4.5-1**). Large grassland areas are most common in the southeastern portion of the County. However, grassland also occurs elsewhere throughout the County in large patches on flat to gently rolling hills. Three common grassland assemblages exist within the County: (1) annual grassland, (2) native grassland and (3) serpentine (bunchgrass) grassland. Of these assemblages, both native grassland and serpentine grassland are considered sensitive biotic communities. Vernal pools, which provide habitat for a number of special-status species, are found in some grassland areas.

Chaparral/Scrub

Chaparral/scrub is the second most common land cover/biotic community in the County, covering approximately 107,000 acres or 21% of the County (see **Figure 4.5-1**). This community is dominated by woody shrubs, with less than 10% cover of trees, and generally occurs in settings that are too hot, dry, rocky, and steep to support tree-dominated habitats. They occur especially on south and southwest-facing slopes.

Chaparral/scrub occurs on a wide variety of geologic substrate including recent volcanic rocks with shallow soils, serpentinite, slates, and metamorphosed volcanic rock; they do not occur on alluvial/sedimentary soils. Chaparral shrubs have thick, stiff, leathery evergreen leaves, called sclerophylls, uniquely adapting them to heat and drought. Chaparral/scrub is particularly abundant in the Knoxville Area, forming almost half of the land cover in that area, and is found throughout the rest of the County when soil and climate conditions are favorable. There are 12 subcategories of the chaparral/scrub group in the County. The three most common chaparral/scrub subcategories present are chamise chaparral, leather oak–white leaf manzanita–chamise (a serpentine chaparral), and scrub interior live oak–scrub oak (*Quercus berberidifolia*).

Oak Woodland

Oak woodland is the most common biotic community in the County, occurring on over 167,000 acres (33% of the County's area; see **Figure 4.5-1**). It occurs throughout the County across a broad range of elevations, on gentle to steep slopes. Oak woodlands are most common in the southern interior valleys where it constitutes almost 70% of the land cover. There are 13 vegetation types (alliances or associations) within the oak woodland group. Six of these are dominated by evergreen oak species, six are dominated by deciduous oak species, and one is a mixture of deciduous and evergreen oaks. The four most common oak woodland types/associations in the County are mixed oak woodlands, (evergreen) coast live oak (*Quercus agrifolia*) woodlands, interior live oak woodlands, and (deciduous) blue oak (*Quercus douglasii*) woodlands.

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Riparian Woodland and Forest

Riparian woodlands and forests are relatively rare but highly valuable biotic communities in the County. They commonly occur as linear and rather narrow assemblages, on over 11,000 acres (2% of the County's total area) in the County (see **Figure 4.5-1**). In general, they occur throughout the County along riparian and stream corridors. Just over half of the County's riparian woodland is found in the County's Western Mountains (32%) and on the Napa Valley floor (20%). There are seven types (alliances or associations) that are strongly associated with riparian and stream corridors; 1) Coast redwood alliance, 2) Coast redwood-Douglas-fir/California bay NFD (not formally defined) association, 3) Valley oak-(California bay-coast live oak-walnut-Oregon ash) riparian forest NFD association, 4) Valley oak-Fremont cottonwood-(coast live oak) riparian forest NFD association, 5) White alder (*Alnus rhombifolia*) (mixed willow-California bay-big leaf maple) riparian forest association, 6) Brewer willow alliance, and 7) Mixed willow super alliance. Valley oak woodlands are the most common riparian woodland type in the County, followed by Coast redwood- Douglas-fir/California bay forests.

Coniferous Forest

Coniferous forests are relatively common in localized areas of the County, occurring on almost 38,000 acres (7.5% of County, see **Figure 4.5-1**). There are eleven types of coniferous forest in the County. Four of these are Douglas-fir redwood forest types, five are pine forest types, and two are cypress woodland. Almost all coniferous forest (79%) in the County is concentrated in four general areas: Western Mountains, Eastern Mountains, Livermore Ranch, and Angwin.

Sargent cypress woodland, McNab cypress woodland, redwood forest, and old-growth Douglas-fir-Ponderosa pine forest are considered sensitive communities by the California Department of Fish and Game (DFG). Ponderosa pine forests are considered sensitive communities because they are locally rare within the County, covering less than 170 acres, or 0.03% of the County, and occur at the edge of regional distribution. Foothill pine forests are also relatively rare in the County, covering less than 3,000 acres or 0.5% of the County's total area and primarily located in the northern portions of the County.

Sargent cypress forest covers approximately 2,000 acres (0.4%) of the County and is typically found on sites having rocky and infertile soil compared to surrounding soils. Approximately 2,300 acres (0.5%) of McNab cypress forest are found within the County.

Aquatic (including wetlands, springs, pools, creeks/streams and open water)

Aquatic, as classified through the methodology presented in the BDR (Napa County, BDR 2005) is a land cover type that includes freshwater wetland, salt marsh, streams and reservoirs.

Wetlands (including freshwater and salt marsh) occur throughout the County, and are highly diverse in size, type, hydrology, water chemistry, and functions. They may be perennial, holding water year-round, or seasonal, holding water only in the rainy season and drying up in the summer months. They may be freshwater wetlands, which are generally small in size and distributed throughout the County, or saline, occurring in the south of the County and covering an extensive area at the mouth of the Napa River. Vernal pools as well as springs and seeps are unique wetland types that also occur in the County.

Wetlands are highly productive habitats for plants and wildlife. Coastal wetlands and riparian wetlands (linear areas adjacent to streams, creeks and drainages) are especially productive for plants, because recurrent flooding in these areas delivers influxes of soil and nutrients. This highly

productive biotic community provides shelter and food sources for resident and migratory wildlife. The structural complexity and existence of native vegetation in these areas enhance the productivity of wetlands for wildlife species, by providing diverse sites for foraging and breeding. Four types of wetland types in Napa County are considered sensitive by DFG: coastal and valley freshwater marsh, coastal brackish marsh, northern coastal salt marsh, and northern vernal pool.

Freshwater wetlands are distributed in most major valleys throughout the County in low lying areas and swales. The combined acreage of freshwater wetlands is roughly 553 acres. Twenty-nine percent of the freshwater wetlands mapped in the County occurs in the Pope Valley area. Freshwater wetlands include bulrush-cattail freshwater marsh, and *Carex-Juncus* wet meadow grasses. Vernal pools are a subset of freshwater wetlands.

Salt marshes include saltgrass-pickleweed salt marsh and the related habitat of riverine, lacustrine, and tidal mudflats. More than 3,000 acres of salt marsh are mapped in the tidal areas around the mouth of the Napa River, mostly below Cuttings Wharf. Over 7,000 acres of salt ponds and their associated levees at the mouth of the Napa River in Napa and Sonoma Counties are being restored to tidal and open-water habitats. In addition, nearly 200 acres of associated mud flats are found adjacent to salt marsh and tidally influenced portions of the Napa River. Overall however, salt marsh and its related habitats represent less than 2% of the total land area of the County.

Salt marsh in the County is dominated by salt grass (*Distichlis spicata*) and pickle weed. These species are generally dominant in a patchy mosaic. Associate species include alkali heath (*Frankenia salina*), arrow grasses (*Triglochin* spp.), cordgrass (*Spartina* spp.), sea-lavender (*Limonium californicum*), and gumplant (*Grindelia stricta*). Mud flats in the County remain largely unvegetated apart from a variety of algae species, although patches of vegetation are located at the mudflat-marsh fringe, typically including brass buttons (*Cotula coronopifolia*), fleshy jaumea (*Jaumea carnosa*), and Mason's lilaepsis (*Lilaeopsis masonii*), a special-status species (Napa County, BDR 2005).

Several wildlife species are highly adapted to salt marsh habitats and are not found elsewhere in the County, including California black rail, endangered California clapper rail (*Rallus longirostris*), and endangered salt marsh harvest mouse (*Reithrodontomys raviventris*). In addition, many widespread, common aquatic bird species found in most wetland habitats are also found in salt marshes, including great egret (*Ardea alba*), great blue heron (*Ardea herodias*), snowy egret (*Egretta thula*), black-crowned night-heron (*Nycticorax nycticorax*), Virginia rail (*Rallus limicola*), sora (*Porzana carolina*), northern harrier (*Circus cyaneus*), marsh wren (*Cistothorus palustris*), San Francisco common yellowthroat (*Geothlypis trichas arizela*), and song sparrow (*Melospiza melodia*) (Napa County, BDR 2005).

Open water aquatic habitats occur throughout the County, and are highly diverse in size, type, water chemistry, and hydraulic functions. Streams are mapped throughout the County and vary from narrow mountain streams to broad lowland rivers. The County contains approximately 6,650 miles of stream channels, including ephemeral washes with a bed and bank but no riparian vegetation or feeder streams (see **Figure 4.5-2** for water features associated with the Napa River Watershed and **Figure 4.11-3** for hydrologic features of the entire County).

Agricultural Cropland

Agricultural cropland, including vineyard, walnut orchard, olive orchard, and hay, occupies over 64,000 (Napa County, BDR 2005, p.4-38) acres of the County (see **Figure 4.5-1**). Neither pasture, rangeland nor timberland is included in this total.

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Nearly half of the agricultural cropland in the County is located on the Napa Valley floor. The primary types of agricultural cropland in the County are vineyard, walnut and olive orchards, and hay. Vineyards occupy a majority of the County's cropland. Forage crops (namely hay) accounted for approximately 183 acres of cropland in 2005, while walnuts, olives, and flowers and nursery products, the next most important crops in terms of sales, totaled less than 300 acres in the County in 2004. The biological value of these agricultural cropland types depend on several factors, including the level of pesticides and herbicides used; the quantity, type and timing of fertilizers applied; and whether or not a perennial cover crop is maintained. These factors affect the diversity of the soil microbial and invertebrate community in particular, and the wildlife community generally. Agricultural cropland may provide valuable linkages between natural habitats for larger species of mammals and for birds.

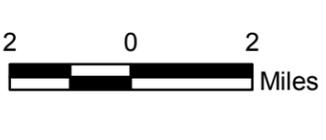
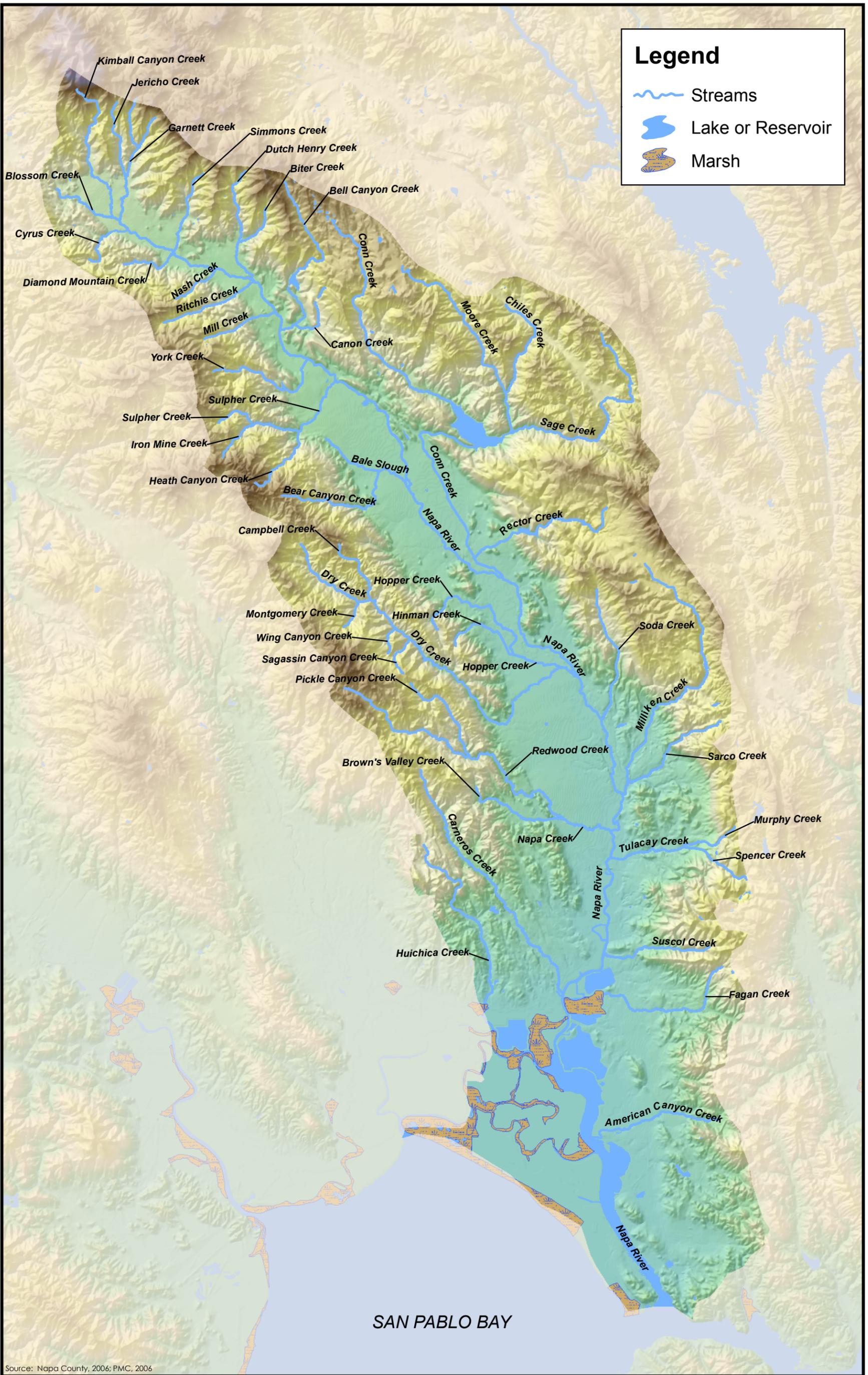
Rock Outcrop

Rock outcrops are not treated here as a biological community, because species composition in these sites varies a great deal depending on the surrounding biological community. They are described here because they provide important habitat features for special-status plant and wildlife species. Rock outcrops cover approximately 1,700 acres or 0.5% of the County (see **Figure 4.5-1**). Over 50% of the County's rock outcrops are located along the mountain ridges of the central portions of the County, generally on the steeper ridgelines of the Sonoma Volcanics. Three types of rock outcrop are recognized in Napa County: volcanic rock outcrops, sandstone rock outcrops, and serpentine barren [Napa County, BDR 2005].

Sensitive Natural Communities

Twenty-three biotic communities in the County are considered sensitive by DFG because of their rarity, high biological diversity, and/or susceptibility to disturbance or destruction (California Department of Fish and Game 2003a). These CNDDDB-designated sensitive natural communities are listed below. The San Francisco Bay Area Gap Analysis (Wild 2002) identified some of these sensitive communities as priorities for conservation.

- Serpentine bunchgrass grassland.
- Wildflower field (located within native grassland).
- Creeping ryegrass grassland.
- Purple needlegrass grassland.
- One-sided bluegrass grassland.
- Mixed serpentine chaparral.
- McNab cypress woodland.
- Oregon white oak woodland.
- California bay forests and woodlands.
- Fremont cottonwood riparian forests.
- Arroyo willow riparian forests.
- Black willow riparian forests.
- Pacific willow riparian forests.
- Red willow riparian forests.
- Narrowleaf willow riparian forests.
- Mixed willow riparian forests.
- Sargent cypress woodland.
- Douglas-fir-ponderosa pine forest (old-growth).
- Redwood forest.
- Coastal and valley freshwater marsh.
- Coastal brackish marsh.
- Northern coastal salt marsh.
- Northern vernal pool.



**FIGURE 4.5-2
MAJOR FEATURES OF THE
NAPA RIVER WATERSHED**



Biotic Communities of Limited Distribution

Other natural communities in the County are considered sensitive due to limited local distribution. The following six communities each encompass less than 500 acres of cover within the County and are considered by local biological experts to be worthy of conservation. The 500-acre threshold was selected in order to focus regulatory protection on the rarest communities in the County for special protection.

- Native grassland (perennial grassland, bunch grasslands).
- Tanbark oak alliance.
- Brewer willow alliance.
- Ponderosa pine alliance.
- Riverine, lacustrine, and tidal mudflats.
- Wet meadow grasses NFD super alliance.

The known distribution of these communities in the County is shown in **Figure 4.5-3**.

Because only 19 of the 23 sensitive communities recognized by DFG are mapped in the County, inclusion of these six additional land cover types brings the total number of identified sensitive biotic communities to 25. These land cover types cover slightly under 81,500 acres (16%) of the County.

Special-Status Species

Special-status species are plants and animals that are legally protected under the federal Endangered Species Act (ESA), the California Endangered Species Act (CESA), or other federal, state, or local regulations, or are considered sufficiently rare by the scientific community to qualify for such protection [Napa County, BDR 2005].

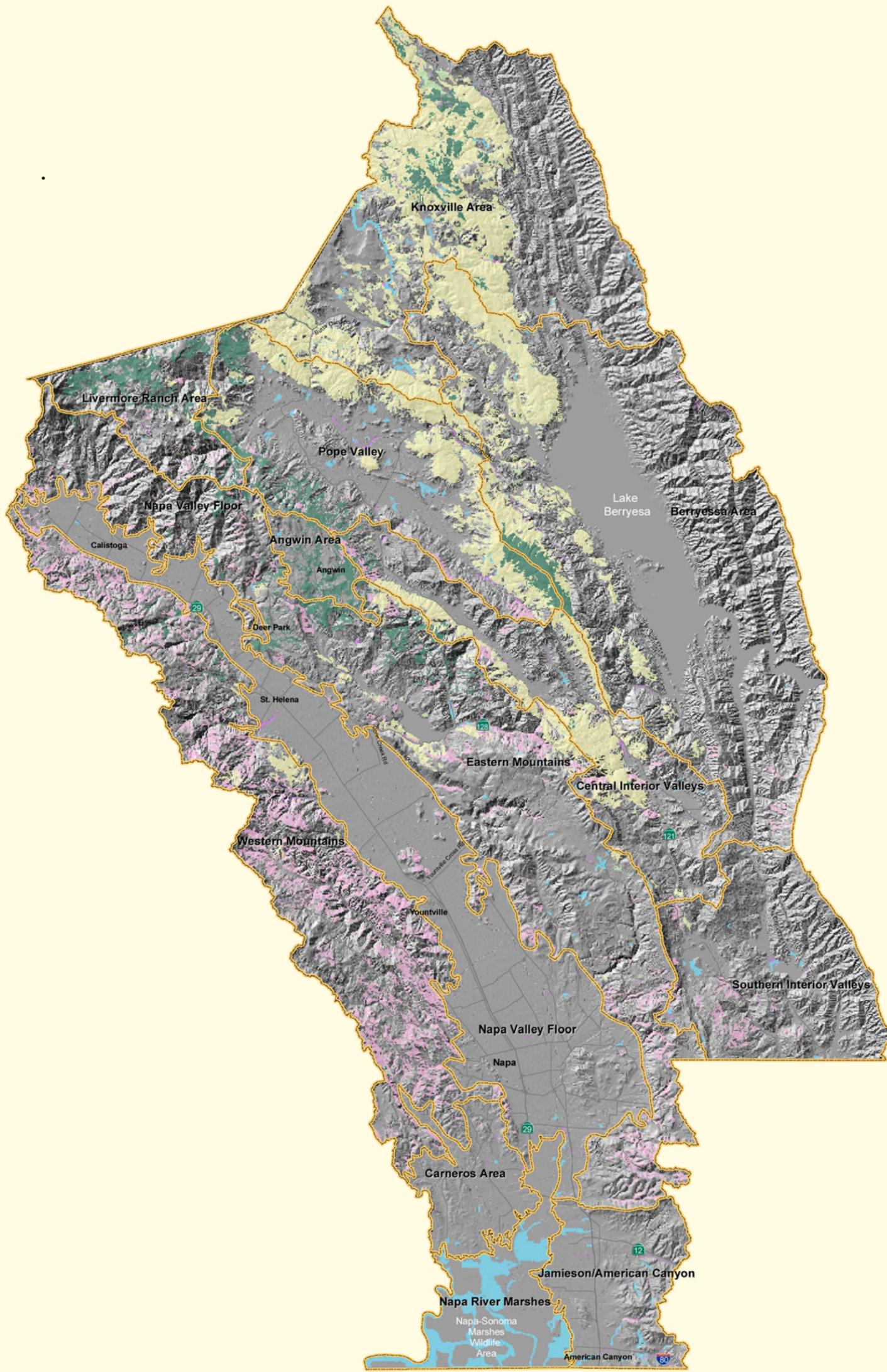
In Napa County, special-status plants are species of plants that meet the definition of "endangered, rare, or threatened," under the California Environmental Quality Act (CEQA) (see Section 15380 of the *State CEQA Guidelines*). For the purposes of this document, this includes all species that meet any of the following criteria:

- Listed or proposed for listing as threatened or endangered under the ESA (50 Code of Federal Regulations (50 CFR 17-12 [listed plants] and various notices in the Federal Register [proposed species]).
- Candidates for possible future listing as threatened or endangered under the ESA.
- Listed or candidates for listing by the State of California as threatened or endangered under the CESA (14 CCR 670.5).
- Listed as rare under the California Native Plant Protection Act (California Fish and Game Code, Section 1900 et seq.).
- Considered by CNPS to be rare, threatened, or endangered in California (CNPS Lists 1B and 2)
- Considered by local experts in the field of rare plants to be rare in the County portion of its range, although it may be more common elsewhere.

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Special-status wildlife are animals that meet the definition of “endangered, rare, or threatened” under CEQA (State CEQA Guidelines Section 15380). For the purposes of this document, this includes all species that meet any of the following criteria:

- Listed or proposed for listing as threatened or endangered under ESA (50 CFR 17-11 [listed animals] and various notices in the Federal Register [proposed species]).
- Candidates for possible future listing as threatened or endangered under ESA.
- Listed or candidates for listing by the State of California as threatened or endangered under CESA (14 CCR 670.5).



Legend

- Riparian Woodland & Forest**
- Coniferous Forest**
 - Coast Redwood Alliance
 - Douglas-fir - Ponderosa Pine Alliance
 - Ponderosa Pine Alliance
- Oak Woodland**
 - California Bay - Madrone - Coast Live Oak NFD Super Alliance
 - Oregon White Oak Alliance
 - Tanbark Oak Alliance

- Grassland**
 - California Annual Grasslands Alliance
 - Upland Annual Grasslands & Forbs Formation

- Chaparral / Scrub**
 - California Bay - Leather Oak - (Rhamnus spp.) Mesic Serpentine NFD Super Alliance
 - Leather Oak - California Bay - Rhamnus spp. Mesic Serpentine NFD Alliance
 - Leather Oak - White Leaf Manzanita - Chamise Xeric Serpentine NFD Super Alliance
 - White Leaf Manzanita - Leather Oak - (Chamise - Ceanothus spp.) Xeric Serpentine NFD Super Alliance

- Wetland**
 - (Bulrush - Cattail) Fresh Water Marsh NFD Super Alliance
 - (Carex spp. - Juncus spp - Wet Meadow Grasses) NFD Super Alliance
 - Brewer Willow Alliance
 - Mixed Willow Super Alliance
 - Riverine, Lacustrine and Tidal Mudflats
 - Saltgrass - Pickleweed NFD Super Alliance

- Evaluation Areas**
- Major Roads**

Sensitive Biotic Communities

Napa County



Horizontal Datum: NAD 83,
CA State Plane Coordinates, Zone II, feet
Source: Napa County, 2004; Jones & Stokes,
2005; Thorne et al. 2004

FIGURE 4.5-3
SENSITIVE BIOTIC COMMUNITIES

- Fully protected under California Fish and Game Code Section 3511 (birds), Section 4700 (mammals), and Section 5050 (reptiles and amphibians).
- On DFG's Special Animals List (mammals) (California Department of Fish and Game 2004b).
- On the Point Reyes Bird Observatory (PRBO) and California Department of Fish and Game's draft List of Bird Species of Special Concern (Point Reyes Bird Observatory 2003).
- Considered by local experts in the field of rare animals to be rare in the County portion of its range, although it may be more common elsewhere.

Special-Status Plants

Eighty-one special-status plant species occur, or are thought to occur, in the County (see **Table 4.5-1**). Seventy-eight species have been observed, while suitable habitat exists for the remaining three. Of these 81 plants, 73 are forbs, six are shrubs, one is a grass, and one is a tree. Documented occurrences of these plant species are shown throughout the County as illustrated in **Figure 4.5-4** (Napa County, BDR 2005).

Seven of the County's special-status plant species are federally endangered, while one additional species is a federal species of concern. Two of these species are recognized under CESA as state endangered, four are listed as state threatened under CESA, and two are listed under the California Native Plant Protection Act as rare.

Special-status plants are found in all of the principal biotic communities in the County. Napa County is a hotspot of native plant diversity (Thorne et al. 2004), as well as rare plants. Most rare plant occurrences are concentrated in the central and northwestern portions of the County (CDFG 2003b). The County contains 55 documented occurrences of the 2,089 rare plant species in California that are tracked by the CNDDDB (California Natural Diversity Database 2006; CDFG 2003b). This represents 2.5% of the state's tracked rare plant species on less than 0.5% of the state's area, indicating that the density of rare plant species documented in the County is five times the average for California overall. Many of these rare species occur on specific substrates such as alkaline or serpentine soils, or are associated with specific biotic communities such as oak woodlands or chaparral.

Some biotic communities support a disproportionately large number of special-status plants. For example, the 29 special-status plant species associated with the County's serpentine grasslands represent 36% of the County's special-status plant species, but occur on only 0.4% of the County's area. While all of the County's biotic communities serve an important role in maintaining and protecting the County's biodiversity, communities like serpentine grassland are especially critical for a large number of special-status plant species. Other communities and habitat features that are especially critical for rare plants include riparian woodland, wetlands, and rock outcrops.

Two plant species, Napa bluegrass (*Poa napensis*) and Calistoga popcorn flower (*Plagiobothrys strictus*), are strictly endemic to the County (i.e. they are found nowhere else). Both of these species are associated with hot springs in the Calistoga area and both are known from only two well-documented occurrences. Estimated population size is less than 5,000 individuals. These species are representative of a subgroup of the County's special-status plants, namely, those that are associated with specific habitats that have always been rare.

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TABLE 4.5-1
SPECIAL-STATUS PLANT SPECIES POTENTIALLY OCCURRING IN NAPA COUNTY

Scientific and Common Names	Status: Federal/State/CNPS or Other ¹	Habitat			Distribution	
		Biotic Community	Soil Affinity ²	Elevation Limitations	California Distribution	Known Napa County Locations ³
<i>Amorpha californica</i> , var. <i>napensis</i> Napa false indigo	SC/-1B	Broadleaf upland forest (openings), chaparral, cismontane woodland		between 450–6,250'	Cascade Range and Central Western California, in Monterey, Marin, Napa, Shasta, and Sonoma Counties	Western Napa County; Rutherford, Kenwood, Sonoma, Detert Reservoir, and St. Helena quads
<i>Amsinckia lunaris</i> Bent-flowered fiddleneck	SLC/-1B	Cismontane woodland, valley and foothill grassland		between 160–1,650'	San Francisco Bay Area, Inner North Coast Ranges, Cascade Range, Klamath Range, in Alameda, Contra Costa, Lake, Marin, Napa, Santa Cruz, Shasta, and Siskiyou Counties	Aetna Springs quad, near Napa-Lake County Line
<i>Arctostaphylos manzanita</i> ssp. <i>Elegans</i> Konocti manzanita	-/-1B	Chaparral, cismontane woodland, lower montane coniferous forest (volcanic)	Volcanic soils	1,000–5,000'	Colusa, Glenn, Lake, Mendocino, Napa, Sonoma, and Tehama Counties	Northwestern Napa County; Detert Reservoir and Mt. St. Helena quads
<i>Asclepias solanoana</i> Solano milkweed	-/-14, LR	Serpentine chaparral	Serpentine soils		North Coast Ranges-Napa to Trinity	Northern Napa County- Knoxville
<i>Aster lentus</i> Suisun Marsh aster	SC/-1B	Brackish and freshwater marsh		below 500'	Sacramento - San Joaquin delta, Suisun Marsh, Suisun Bay; Contra Costa, Napa, Sacramento, San Joaquin, and Solano Counties	Southern Napa County, near mouth of Napa River; Cuttings Wharf quad
<i>Astragalus clarianus</i> Clara Hunt's milk-vetch	E/T/1B	Serpentine grassland and open grassy areas in oak woodland, on thin volcanic or serpentinite soils	Thin volcanic or serpentine soils	between 330–500'	Southern north Coast Ranges, endemic to Napa and Sonoma Counties	Central-Western Napa County (Rutherford and St. Helena quads)
<i>Astragalus rattanii</i> var. <i>jepsonianus</i> Jepson's milk-vetch	SLC/-1B	Grasslands and open grassy areas in chaparral, on serpentinite soils	Serpentine soils	between 1,140–2,000'	Southern inner north Coast Range, Colusa, Glenn, Lake, Napa, Tehama, and Yolo Counties	Northern Napa County, in Knoxville and Walter Springs quad
<i>Astragalus tener</i> var. <i>tener</i> Alkali milk-vetch	SC/-1B	Grassy flats and vernal pool margins, on alkali soils	Alkali soils	below 200'	Merced, Solano, and Yolo Counties; historically more widespread	Southern Napa County, in Cuttings Wharf quad
<i>Atriplex joaquiniana</i> San Joaquin spearscale	SC/-1B	Alkali grassland, alkali scrub, alkali meadows, saltbush scrub	Alkali soils	below 1,000'	West edge of Central Valley from Glenn County to Tulare County	Southern Napa County, in Cuttings Wharf and Napa quads
<i>Balsamorhiza macrolepis</i> var. <i>macrolepis</i> . Big-scale balsamroot	SLC/-1B	Rocky annual grassland and fields, foothill woodland hillsides, sometimes serpentine	Rocky soils, sometimes serpentine	below 4,600'	San Francisco Bay region, Sierra Nevada foothills, Coast Ranges, eastern Cascade Ranges, Sacramento Valley	Southern Napa County, in Cordelia quad
<i>Brodiaea californica</i> var. <i>leptandra</i> Narrow-anthered California brodiaea	SC/-1B	Broadleafed upland forest, chaparral, lower montane coniferous forest	Often on serpentine	300–3,000'	Lake, Napa, and Sonoma Counties	Mainly in Western Napa County, in Sonoma; St. Helena, Mt. St. Helena, Aetna Springs and Detert Reservoir quads; also in Mt. George, Capell Valley in Eastern Napa County
<i>Calochortus uniflorus</i> Large-flowered pink star tulip	-/-LR	Seeps and swales in serpentine chaparral, low wet meadows in grassland and woodland	Sometimes on serpentine soils		Coast Ranges-Monterey to Oregon border	Calistoga, St. Helena, Conn Valley

Scientific and Common Names	Status: Federal/State/CNPS or Other ¹	Habitat			Distribution	
		Biotic Community	Soil Affinity ²	Elevation Limitations	California Distribution	Known Napa County Locations ³
<i>Calystegia collina</i> ssp. <i>oxyphylla</i> Mt. Saint Helena morning-glory	SLC/-/4	Chaparral, lower montane coniferous forest, valley and foothill grasslands (serpentine)	Sometimes on serpentine soils	900–3,500'	Lake, Mendocino, Napa, and Sonoma Counties	Northwestern Napa County
<i>Castilleja affinis</i> ssp. <i>Neglecta</i> Tiburon Indian paintbrush	E/T/1B	Serpentine grasslands	Serpentine soils		Southern inner north Coast Ranges, northwestern San Francisco Bay region, Marin, Napa and Santa Clara Counties	Southern Napa County, in Cordelia quad
<i>Castilleja ambigua</i> ssp. <i>Ambigua</i> Salt marsh owl's clover	SLC/-/-	coastal bluffs and grassland		between 0 and 328'	Alameda, Contra Costa, Del Norte, Humboldt, Lake, Mendocino, Monterey, Marin, Napa, Santa Cruz, San Luis Obispo, San Mateo, Solano, Sonoma, and Yolo Counties	Central Napa County, in Yountville, Napa and St. Helena quads; most recent observation in Napa is from 1964
<i>Castilleja rubicundula</i> ssp. <i>rubicundula</i> Pink creamsacs	SLC/-/1B	Chaparral (openings), cismontane woodland, meadows and seeps, valley and foothill grassland / serpentinite	Sometimes on serpentine soils		Butte, Colusa, Glenn, Lake, and Napa Counties	Knoxville quad, in Northern Napa County
<i>Ceanothus confusus</i> Rincon Ridge ceanothus	SC/-/1B	Chaparral, on volcanic or serpentine substrates	Volcanic or serpentine soils		Inner North Coast Range, Lake, Mendocino, Napa, and Sonoma Counties	Western Napa County; Rutherford, Aetna Springs, Detert Reservoir, and St. Helena quads
<i>Ceanothus divergens</i> Calistoga ceanothus	SC/-/1B	Chaparral on serpentinite or volcanic, rocky substrate	Rocky volcanic or serpentine soils		North Coast Ranges, Lake, Napa, and Sonoma Counties	Western Napa County, in St. Helena, Calistoga, Detert Reservoir, Mt. St. Helena and Rutherford quads
<i>Ceanothus purpureus</i> Holly-leaf ceanothus	SLC/-/1B	Chaparral on volcanic, rocky substrate	Rocky, volcanic soils		Inner North Coast Ranges, Napa and Solano Counties	Central and Eastern Napa County, in Capell Valley, Mt. George, St. Helena, and Yountville quads
<i>Ceanothus sonomensis</i> Sonoma ceanothus	SC/-/1B	Chaparral on sandy, serpentinite or volcanic soils	Sandy, volcanic, or serpentine soils		Outer North Coast Ranges, Hood Mountain range, Napa and Sonoma Counties	Western Napa County, in Sonoma, Rutherford, and Detert Reservoir quads
<i>Clarkia gracilis</i> ssp. <i>tracyi</i> Tracy's clarkia	-/-/4	Chaparral, usually on serpentine soils	Usually serpentine soils	200–2,000'	Inner North Coast Ranges, Colusa, Humboldt, Lake, Mendocino, Napa, Tehama, and Trinity Counties	Eastern Napa County
<i>Cordylanthus mollis</i> ssp. <i>mollis</i> Soft bird's-beak	E/R/1B	Tidal salt marsh			San Francisco Bay region, Suisun Marsh, Contra Costa, Marin*, Napa, Solano, Sacramento*, and Sonoma* Counties	Southern Napa County, in Cuttings Wharf quad
<i>Cryptantha clevelandii</i> var. <i>dissita</i> Serpentine cryptantha	SLC/-/1B	Serpentine chaparral	Serpentine soils		Lake and Napa Counties	Eastern Napa County, in Cappel Valley quad
<i>Cuscuta howelliana</i> Boggs Lake dodder	-/-/LR	Volcanic vernal pools in chaparral	Volcanic		Napa, Ranges surround; Sacramento Valley and Northern California	Eastern Napa County, in Mt. George, Cappel Valley quads
<i>Downingia pusilla</i> Dwarf downingia	-/-/2	Vernal pools and mesic valley and foothill grasslands	Clay soils	1,500'	California's central valley	Southeastern Napa County, in Capell Valley, Yountville, Mt. George and Cuttings Wharf quads
<i>Equisetum palustre</i> Marsh horsetail	-/-/3, LR	Freshwater marsh			Lake, Napa, San Francisco, San Mateo Counties	May be throughout County
<i>Erigeron angustatus</i> Narrow-leaved daisy	SLC/-/1B	Serpentine chaparral	Serpentine soils		Lake, Napa, and Sonoma Counties	Central and western Napa County, in Yountville, Detert Reservoir, Chiles Valley and St. Helena quads

4.5 BIOLOGICAL RESOURCES

Scientific and Common Names	Status: Federal/State/CNPS or Other ¹	Habitat			Distribution	
		Biotic Community	Soil Affinity ²	Elevation Limitations	California Distribution	Known Napa County Locations ³
<i>Eriogonum luteolum</i> var. <i>caninum</i> Tiburon buckwheat	SLC/-/3	Chaparral, coastal prairie, valley and foothill grassland, on serpentine	Serpentine soils	30-1,600'	Central Inner North Coast Range, northern Central coast, and northern San Francisco Bay area; Alameda, Colusa, Lake, Marin, Napa, Santa Clara, San Mateo, and Sonoma* Counties	Capell Valley, Mt. George, Walter Springs and Detert Reservoir quads
<i>Eriogonum nervulosum</i> Snow Mtn. buckwheat	SC/-/1B	Serpentine chaparral	Serpentine soils		North Coast Ranges: Colusa, Lake, Napa, Sonoma, Yolo, and possibly Glenn Counties	Northern Napa County, in Jericho Valley quad
<i>Eriogonum tripodum</i> Tripod buckwheat	-/-/4, LR	Rocky slopes in serpentine chaparral	Serpentine soils		Central Coast Range to Sierra Foothills	Northern Napa County (Knoxville)
<i>Eriogonum umbellatum</i> var. <i>bahiiiforme</i> Bay buckwheat	-/-/4	Cismontane woodland, lower montane coniferous forest, rocky or serpentine areas	Sometimes on serpentine soils	2,100-6,600'	Southern North Coast Ranges, Northern South Coast Ranges, and San Francisco Bay Area; Alameda, Contra Costa, Colusa, Glenn, Humboldt, Lake, Mendocino, Monterey, Napa, San Benito, Santa Clara, Siskiyou, San Joaquin, Stanislaus Counties	Northern and Eastern Napa County
<i>Erodium macrophyllum</i> Round-leaved filaree	-/-/2	Open sites, dry grasslands, and shrublands	Clay soils, often friable clay soils	below 4,000'	Sacramento Valley, northern San Joaquin Valley, Central Western California, South Coast, and northern Channel Islands (Santa Cruz Island)	Northern Napa County, in Jericho Valley quad
<i>Erythronium helenae</i> St. Helena fawn lily	SLC/-/4	Chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland on volcanic or serpentinite soils	Volcanic or serpentine soils		Lake, Napa and Sonoma Counties	Western Napa County, in Detert Reservoir and Mt. St. Helena quads, possibly elsewhere
<i>Fritillaria pluriflora</i> Adobe-lily	SC/-/1B	Adobe soil, chaparral, woodland, valley and foothill grassland	Adobe soils		Northern Sierra Nevada foothills, inner Coast Range foothills, Sacramento Valley, Butte, Colusa, Glenn, Lake, Napa, Plumas, Solano, Tehama, and Yolo Counties	Northern Napa County, in Jericho Valley, Knoxville and Aetna Springs quads
<i>Harmonia hallii</i> Hall's harmonia	SC/-/1B	Serpentine chaparral	Serpentine soils	1,500-3,000'	Colusa, Lake, Napa and Yolo Counties	Northern Napa County, in Jericho Valley, Knoxville and Detert Reservoir quads
<i>Hesperolinon bicarpellatum</i> Two-carpellate western flax	SC/-/1B	Serpentine chaparral	Serpentine soils		Lake, Napa, and Sonoma Counties	Central Napa County, in Capell Valley, Yountville, St. Helena, Chiles Valley, Walter Springs and Aetna Springs quads
<i>Hesperolinon breweri</i> Brewer's western flax	SC/-/1B	Serpentine slopes in chaparral, oak woodlands, and grasslands, often at transition between grassland and chaparral, or in openings in chaparral	Rocky soils on serpentine, sandstone or volcanic substrates	100-2,300'	Southern North Inner Coast Range, northeast San Francisco Bay region, especially Mt. Diablo; known only from Contra Costa, Napa, and Solano Counties	Eastern Napa County, in Capell Valley, Mt. George, and Monticello Dam quads
<i>Hesperolinon drymarioides</i> Drymaria-like western flax	SC/-/1B	Closed-cone coniferous forest, chaparral, cismontane woodland, valley and foothill grassland on soils derived from serpentinite	Serpentine soils		Colusa, Glenn, Lake, Napa, and Yolo Counties	Northern Napa County, in Jericho Valley and Knoxville quads
<i>Hesperolinon serpentinum</i> Napa western flax	SC/-/1B	Serpentine chaparral	Serpentine soils		Alameda, Lake, Napa and Stanislaus Counties	Northern and Central Napa County, in Detert Reservoir, Aetna Springs, Walter Springs, Chiles Valley, Yountville, Capell Valley, and St. Helena quads

Scientific and Common Names	Status: Federal/State/CNPS or Other ¹	Habitat			Distribution	
		Biotic Community	Soil Affinity ²	Elevation Limitations	California Distribution	Known Napa County Locations ³
<i>Juglans californica</i> var. <i>hindsii</i> a.k.a. <i>Juglans hindsii</i> Northern California black walnut	SC/-/1B	Canyons, valleys, riparian forest, riparian woodland,		160-660'	Last two native stands in Napa and Contra Costa Counties; historically widespread through southern north inner Coast Range, southern Sacramento Valley, northern San Joaquin Valley, San Francisco Bay region	Southern and Central Napa County, in Capell Valley and Napa quads
<i>Lasthenia conjugens</i> Contra Costa goldfields	E/-/1B	Alkaline or saline vernal pools and swales	Alkali or saline soils	below 700'	Scattered occurrences in Coast Range valleys and southwest edge of Sacramento Valley, Alameda, Contra Costa, Mendocino, Napa, Santa Barbara*, Santa Clara*, and Solano Counties; historically distributed through the north coast, southern Sacramento Valley, San Francisco Bay region and the south coast	Southern and Central Napa County, in Capell Valley and Cuttings Wharf quads
<i>Lathyrus jepsonii</i> var. <i>jepsonii</i> Delta tulle pea	SC/-/1B	Coastal and estuarine marshes		below 1,000'	Central valley, especially the San Francisco Bay region, Alameda, Contra Costa, Fresno, Marin, Napa, Sacramento, San Benito, Santa Clara, San Joaquin, and Solano Counties	Southern Napa County, in Cuttings Wharf and Napa quads
<i>Layia septentrionalis</i> Colusa layia	SLC/-/1B	Sandy or serpentine soils in grasslands and openings in chaparral and foothills woodlands	Sandy or serpentine soils	300-3,600'	Inner north Coast Range; Colusa, Glenn, Lake, Mendocino, Napa, Sonoma, Sutter, Tehama, and Yolo Counties	Northern and Central Napa County, in Detert Reservoir, Knoxville, Walter Springs, Chiles Valley, Aetna Springs, and St. Helena quads
<i>Legenere limosa</i> Legenere	SC/-/1B	Deep, seasonally wet habitats such as vernal pools, ditches, marsh edges, and river banks		below 500'	Primarily located in the lower Sacramento Valley, also from north Coast Ranges, northern San Joaquin Valley and the Santa Cruz mountains	Southern Napa County, in Cuttings Wharf quad
<i>Lessingia hololeuca</i> Woolly-headed lessingia	-/-/3, LR	Dry, grassy areas in foothill woodland			Central California, Coast Ranges	Eastern and Central Napa County, in Mt. George and Napa quads
<i>Lilaeopsis masonii</i> Mason's lilaeopsis	SC/R/1B	Freshwater and intertidal marshes, streambanks in riparian scrub		generally at sea level	Southern Sacramento Valley, Sacramento - San Joaquin River delta, northeast San Francisco Bay area, Alameda, Contra Costa, Marin*, Napa, Sacramento, San Joaquin, and Solano Counties	Southern Napa County, in Cuttings Wharf and Napa quads
<i>Lilium rubescens</i> Chaparral lily	-/-/4, LR	Slopes in chaparral and mixed evergreen forest on volcanic soil	Volcanic		North Coast Range Counties	Mt. St. Helena to Hogback Mtn, Mt. George Area
<i>Limnanthes vinculans</i> Sebastopol meadowfoam	E/E/1B	Vernal pools and wet meadows			Napa and Sonoma Counties	Central Napa County, in Yountville quad
<i>Linanthus acicularis</i> Bristly linanthus	-/-/4, LR	Grassy slopes in foothill woodlands			North Coast Ranges	Central and Eastern Napa County
<i>Linanthus jepsonii</i> Jepson's linanthus	SLC/-/1B	Grassy slopes, on volcanics or periphery of serpentine soils	Volcanic or periphery of serpentine soils		Napa, Sonoma, and Lake Counties	Western and Central Napa County, in Rutherford, Chiles Valley, Calistoga, Mt. St. Helena, and St. Helena quads
<i>Lomatium ciliolatum</i> var. <i>hooveri</i> Hoover's wild parsnip	-/-/4, LR	Rocky slopes and ridgetops in serpentine chaparral	Serpentine soils		Napa, Lake, Colusa, Yolo	Northern Napa County
<i>Lupinus sericatus</i> Cobb Mtn. lupine	SLC/-/1B	In knobcone pine-oak woodland, chaparral, on open wooded slopes in gravelly soils	Gravelly soils		Inner North Coast Ranges, Colusa, Lake, Napa, Sonoma	Western Napa County, in Detert Reservoir, Rutherford, Aetna Springs, Calistoga, Sonoma, and St. Helena quads

4.5 BIOLOGICAL RESOURCES

Scientific and Common Names	Status: Federal/State/CNPS or Other ¹	Habitat			Distribution	
		Biotic Community	Soil Affinity ²	Elevation Limitations	California Distribution	Known Napa County Locations ³
<i>Lythrum californicum</i> California loosestrife	-/-LR	Freshwater marsh			Coast Ranges and Central Valley, Lake County south to Mexico	Calistoga Geysers field and Jericho Valley
<i>Monardella villosa</i> ssp. <i>globosa</i> Robust monardella	SLC/-1B	Openings in northern coastal scrub, chamise chaparral, serpentine chaparral, and mixed evergreen forest; also occurs in grasslands adjacent to these plant communities	Sometimes serpentine soils, sometimes rock outcrops		North Coast Ranges and Eastern San Francisco Bay Area; Alameda, Contra Costa, Humboldt, Lake, Marin, Napa, San Mateo, and Sonoma Counties	Eastern Napa County, in Cappel Valley quad
<i>Navaretia cotulifolia</i> Cotula navaretia	-/-4, LR	Chaparral, foothill woodland, grassland	Adobe (heavy) soils		Reported from 16 counties in coastal and interior North-Central California	Northern Napa County, in Aetna Springs and Walter Springs
<i>Navaretia leucocephala</i> ssp. <i>bakeri</i> Baker's navaretia	SC/-1B	Vernal pools and swales in woodland, lower montane coniferous forest, mesic meadows, and grassland		generally below 5,600'	Inner north Coast Range, western Sacramento Valley, Colusa, Lake, Mendocino, Marin, Napa, Solano, Sonoma, and Tehama Counties	St. Helena quad
<i>Navaretia leucocephala</i> ssp. <i>pauciflora</i> Few-flowered navaretia	E/T/1B	Volcanic ash/mud flow vernal pools	Volcanic soils		Lake and Napa Counties	Central and Eastern Napa County, in Capell Valley and Yountville quads
<i>Navaretia rosulata</i> Marin County navaretia	SLC/-1B	Rocky areas in chaparral, Sargent cypress forest	Rocky or serpentine soils		Marin and Napa Counties	North and Central Napa County, in Chiles Valley and Aetna Springs quads
<i>Navaretia sinistra</i> ssp. <i>pinnatisecta</i> Pinnate-leaved gilia	-/-4	Chaparral, lower montane coniferous forest (serpentine or red volcanic)	Serpentine or volcanic	900-6,600'	Inner North Coast Ranges, Glenn, Humboldt, Lake, Mendocino, Napa, Tehama, and Trinity Counties	Collected in 1943 on east side of Mt St Helena
<i>Penstemon newberryi</i> var. <i>sonomensis</i> Sonoma beardtongue	-/-1B	Rocky areas in chaparral	Rocky soils		Lake, Napa, and Sonoma Counties	Central and northwestern Napa County, in Detert Reservoir, Aetna Springs, and Yountville quads
<i>Perideridia gairdneri</i> ssp. <i>gairdneri</i> Gairdner's yampah	SC/-4	Broad-leaved upland forest, chaparral, coastal prairie, valley and foothill grassland, vernal pools, in mesic areas			Kern, Los Angeles*, Mendocino, Monterey, Marin, Napa, Orange*, San Benito, Santa Clara, Santa Cruz, San Diego*, San Luis Obispo, San Mateo*, Solano, and Sonoma Counties	Unknown
<i>Plagiobothrys strictus</i> Calistoga popcorn-flower	E/T/1B	Alkaline areas near thermal springs	Alkali soils		Napa County, near Calistoga	Western Napa County, in Calistoga quad
<i>Poa napensis</i> Napa blue grass	E/E/1B	Alkaline areas near thermal springs	Alkali soils		Napa County, near Calistoga	Western Napa County, in Calistoga quad
<i>Pogogyne douglasii</i> ssp. <i>parviflora</i> Small-flowered pogogyne	-/-3, LR	Serpentine swales in chaparral and grasslands	Sometimes in serpentine soils		Napa, Sonoma, Lake, and Mendocino Counties	Central and western Napa County
<i>Polygonum marinense</i> Marin knotweed	SC/-3	Coastal salt marsh, brackish marsh			Coastal Marin, Napa, Solano, and Sonoma Counties	Southern Napa County, in Cuttings Wharf quad
<i>Ranunculus lobbii</i> Lobb's aquatic buttercup	-/-4, LR	Vernal pools, ditches, and ponds in grassland and woodland			Coast Ranges-Alameda, Contra Costa, Mendocino, Napa, Santa Clara, Sonoma, and Solano Counties	Throughout Napa County
<i>Rhynchospora californica</i> California beaked-rush	-/-1B	Freshwater marshes and seeps, bogs and fens, and in lower montane coniferous forest			Scattered occurrences in Northern California, including Butte, Mariposa, Marin, Napa, and Sonoma Counties	Southeastern Napa County, in Mt. George quad

Scientific and Common Names	Status: Federal/State/CNPS or Other ¹	Habitat			Distribution	
		Biotic Community	Soil Affinity ²	Elevation Limitations	California Distribution	Known Napa County Locations ³
<i>Sidalcea hickmanii</i> ssp. <i>Viridis</i> Marin checkerbloom	SLC/-/1B	Serpentine chaparral	Serpentine soils		Sonoma County to San Mateo County	In Mt. George and Calistoga quads
<i>Sidalcea oregana</i> ssp. <i>hydrophila</i> Marsh checkerbloom	SC/-/1B	Meadows and moist areas in perennial grassland, riparian forest			Inner north coast range, Glenn, Lake, Mendocino, and Napa Counties	Northwestern Napa County, in Detert Reservoir quad
<i>Streptanthus barbiger</i> Bearded jewelflower	-/-/4, LR	Serpentine chaparral	Serpentine soils		Lake, Mendocino, Napa, Sonoma, and Tehama Counties	St. Helena quad
<i>Streptanthus brachiatus</i> ssp. <i>brachiatus</i> Socrates Mine jewel-flower	SC/-/1B	Chaparral, cypress forest, on serpentine	Serpentine soils		Napa and Sonoma Counties	Northwestern Napa County, in Detert Reservoir quad
<i>Streptanthus brewerii</i> var. <i>hesperides</i> Green jewel-flower	SC/-/1B	Chaparral (openings), cismontane woodland (serpentinite, rocky)	Sometimes rocky, serpentine soils		Lake and Napa Counties	Northern, Central and Western Napa County, in Yountville, Chiles Valley, Detert Reservoir, Rutherford, Aetna Springs, Walter Springs, Knoxville, Jericho Valley, Mt. St. Helena, and St. Helena quads
<i>Streptanthus morrisonii</i> ssp. <i>elatus</i> Three peaks jewel-flower	SC/-/1B	Serpentine chaparral	Serpentine soils		Lake, Napa, and Sonoma Counties	Northern Napa County, in Detert Reservoir, Aetna Springs, Knoxville, and Jericho Valley quads
<i>Streptanthus morrisonii</i> ssp. <i>kruckebergii</i> Kruckeberg's jewel-flower	SC/-/1B	Cismontane woodland on serpentine	Serpentine soils	700-3,400'	Lake, Napa, and Sonoma Counties	Northern Napa County, in Detert Reservoir, Aetna Springs, Knoxville, and Jericho Valley quads
<i>Thelypodium brachycarpum</i> Short-podded thelypodium	-/-/4, LR	Open flat serpentine seeps in chaparral	Serpentine soils		Napa, Colusa, Lake (?), Shasta, Siskiyou, and Trinity Counties	Northern Napa County, in Knoxville quad
<i>Trichostema</i> spp. (was <i>rubisepalum</i> , may be renamed <i>napaensis</i>) Hernandez turpentine weed	-/-/4, LR	Grassy flats in chaparral, foothill woodland, and yellow pine forest	Volcanic		Napa, Tuolumne, Mariposa, and San Benito Counties	Central Napa County
<i>Trifolium amoenum</i> Showy Indian clover	E/-/1B	Low elevation grasslands, including swales and disturbed areas, sometimes on serpentine soils	Sometimes serpentine soils		Coast Range foothills, San Francisco Bay region, Mendocino County to Santa Clara County	Southern Napa County, in Cuttings Wharf and Napa quads
<i>Trifolium depauperatum</i> var. <i>hydrophilum</i> Saline clover	SC/-/1B	Marshes and swamps, vernal pools, valley and foothill grassland (mesic, alkaline)	Sometimes alkali soils	0-1,000'	Alameda, Colusa, Monterey, Napa, San Benito, Santa Clara, San Luis Obispo, San Mateo, Solano, and Sonoma Counties	Western Napa County, in Calistoga quad
<i>Triteleia lugens</i> Dark-mouthed triteleia	-/-/4, LR	Broadleafed upland forest, chaparral, lower montane coniferous forest			Lake, Monterey, Napa, San Benito, Solano, and Sonoma Counties	St. Helena quad
<i>Viburnum ellipticum</i> Oval-leaved viburnum	-/-/2	Chaparral, cismontane woodland, lower montane coniferous forest		650-4,500'	Contra Costa, Fresno, El Dorado, Glenn, Humboldt, Mendocino, Napa, Shasta, and Sonoma Counties	Southeastern Napa County, in Mt. George quad
<i>Zigadenus micranthus</i> var. <i>fontanus</i> Marsh zigadenus	-/-/4	Vernally mesic areas in chaparral, cismontane woodland, lower montane coniferous forest, meadows and seeps, marshes and swamps	Often serpentine		North Coast Ranges, San Francisco Bay Area, Inner South Coast Ranges; Lake, Mendocino, Monterey, Marin, Napa, San Benito, Santa Cruz, San Luis Obispo, San Mateo, and Sonoma Counties	Northern Napa County

Notes: 1 Status explanations:

Federal

4.5 BIOLOGICAL RESOURCES

E = listed as endangered under the federal Endangered Species Act.

T = listed as threatened under the federal Endangered Species Act.

PE = proposed for federal listing as endangered under the federal Endangered Species Act.

PT = proposed for federal listing as threatened under the federal Endangered Species Act.

C = candidate species (species for which USFWS has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposed rule to list).

SLC = species of local concern; species whose status is being monitored by the local USFWS district office, but which has no formal protected status under the federal Endangered Species Act.

SC = species of concern; species for which existing information indicates it may warrant listing but for which substantial biological information to support a proposed rule is lacking.

– = no listing.

State

E = listed as endangered under the California Endangered Species Act.

T = listed as threatened under the California Endangered Species Act.

R = listed as rare under the California Native Plant Protection Act. This category is no longer used for newly listed plants, but some plants listed before the California Native Plant Protection Act was enacted retain this designation.

CE = candidate species for listing as endangered under the California Endangered Species Act.

SSC = species of special concern in California.

– = no listing.

California Native Plant Society

1A = List 1A species: presumed extinct in California.

1B = List 1B species: rare, threatened, or endangered in California and elsewhere.

2 = List 2 species: rare, threatened, or endangered in California but more common elsewhere.

3 = List 3 species: plants about which more information is needed to determine their status.

4 = List 4 species: plants of limited distribution. A watch list.

– = no listing.

* = known populations believed extirpated from Napa County.

? = population location within Napa County uncertain.

Other

LR = considered by local experts to be rare in the Napa County portion of its range, although it may be more common elsewhere.

2 Affinity to a particular soil type provided only when known or applicable.

3 General occurrence information is based on incomplete survey data for Napa County. Species may occur in other areas where surveys are lacking.

4 Source: Special Status Species Occurrences Layer developed for this report. See Methodology section for sources. Data are based on voluntary reporting of incomplete surveys and likely underestimate actual numbers in the field. Occurrences do not necessarily equal populations.

4.5 BIOLOGICAL RESOURCES

TABLE 4.5-2
NAPA COUNTY SPECIAL-STATUS WILDLIFE—HABITAT AND DISTRIBUTION

Scientific and Common Name	Status	Habitats	California Distribution	Known Napa County Locations
Birds				
<i>Accipiter cooperii</i> Cooper's hawk	—/SSC	Nests in a wide variety of habitat types, from riparian woodlands and digger pine-oak woodlands through mixed conifer forests	Throughout California except high altitudes in the Sierra Nevada. Winters in the Central Valley, southeastern desert regions, and plains east of the Cascade Range	Year-round resident; widespread during the winter - uncommon breeder
<i>Accipiter striatus</i> Sharp-shinned hawk	—/SSC	Dense canopy ponderosa pine or mixed-conifer forest and riparian habitats	Permanent resident in the Sierra Nevada, Cascade, Klamath, and north Coast Ranges at mid elevations and along the coast in Marin, San Francisco, San Mateo, Santa Cruz, and Monterey Counties. Winters over the rest of the state except at very high elevations	Wintering birds found throughout the County, only historical confirmed nesting occurrence was in 1934. 1 CNDDDB occurrence. Two recently documented nests in Chiles Valley and Redwood Canyon during the Napa County Breeding Bird Atlas surveys.
<i>Agelaius tricolor</i> Tricolored blackbird	—/SSC	Nests in dense colonies in emergent marsh vegetation, such as tules and cattails, or upland sites with blackberries, nettles, thistles, and grainfields. Habitat must be large enough to support 50 pairs. Probably requires water at or near the nesting colony	Permanent resident in the Central Valley from Butte County to Kern County. Breeds at scattered coastal locations from Marin County south to San Diego County; and at scattered locations in Lake, Sonoma, and Solano Counties. Rare nester in Siskiyou, Modoc, and Lassen Counties	Summer resident; breeding known from Pope Valley, Huichica Creek and Buchli Station; 4 CNDDDB occurrences, all extant
<i>Ammodramus savannarum</i> Grasshopper sparrow	—/SSC/LR	Dry grasslands with scattered shrubs for song perches	Sierra foothills, Coast Ranges, and coastal areas from Humboldt County south to San Diego County	Rare summer resident; only two documented records during the Napa County Breeding Bird Atlas surveys.
<i>Amphispiza belli belli</i> Bell's sage sparrow	—/SSC	Prefers chaparral habitats dominated by chamise	Western Sierra foothills from El Dorado County south to Mariposa County, inner Coast Ranges from Shasta County southward, extending to vicinity of coast from Marin County to San Diego County; from southern San Benito County to San Bernardino County	Year-round resident; locally common but erratically distributed throughout the County's chaparral
<i>Aquila chrysaetos</i> Golden eagle	—/SSC, FP	Nest on cliffs and escarpments or in tall trees overlooking open country. Forages in annual grasslands, chaparral, and oak woodlands with plentiful medium and large-sized mammals	Foothills and mountains throughout California. Uncommon nonbreeding visitor to lowlands such as the Central Valley	Year-round resident; Could occur in suitable habitat throughout the County. There are 4 CNDDDB occurrences, (all extant) as well as a few from the Napa County Breeding Bird Atlas and one observation north of American Canyon.
<i>Ardea herodias</i> Great Blue Heron (rookery)	—/—/LR	Inhabits estuaries and fresh and saline emergent wetlands. Nests in large trees near fresh and salt water; streams and reservoirs provide foraging habitat	Found throughout California.	Year-round resident; rookeries throughout county, esp. in the tidal region in southern Napa County as well as in Lake Hennessy, Pope Valley and Lake Berryessa
<i>Asio flammeus</i> Short-eared owl	—/SSC	Freshwater and salt marshes, lowland meadows, and irrigated alfalfa fields; needs dense tules or tall grass for nesting and daytime roosts	Permanent resident along the coast from Del Norte County to Monterey County although very rare in summer north of San Francisco Bay, in the Sierra Nevada north of Nevada County, in the plains east of the Cascades, and in Mono County; small, isolated populations	Winter resident, known from Fagan Slough
<i>Athene cucularia hypugaea</i> Western burrowing owl	—/SSC	Level, open, dry, heavily grazed or low stature grassland or desert vegetation with available burrows	Lowlands throughout California, including the Central Valley, northeastern plateau, southeastern deserts, and coastal areas. Rare along south coast	Historically known from County, no known breeding records; 1 summer occurrence at Napa Canyon, few records in winter in Pope Valley and the tidal region in southern Napa County
<i>Carduelis lawrencei</i> Lawrence's Goldfinch	FSCC/—	Open oak woodland, adjacent chaparral or grassland where chamise and annual herbs provide food throughout the year; within .3 miles of water	Found year-round in SW portions of state and into northern Baja, summer range extends through coast range, western foothills of the Sierra Nevada and north to Trinity and Shasta counties and occasionally in the Central Valley	Summer resident, Napa Co. but great annual variation in population size and local occurrence; nests in blue oak margins of Lake Hennessy and Lake Berryessa, also observed in Chiles Valley Pope Valley and NW of Napa city
<i>Catharus ustulatus oedicus</i> California Swainson's thrush	—/SSC	Prefers humid riparian and mixed coniferous/alder forests on the coast, and montane meadows and riparian at inland sites; breeds in thickets of willow and walnut; in the hills it is founding dense cover associated with moist openings in forest	Neotropical migrant; breeds in humid forests along the north coast range and in a few locations in the Cascades and Sierra Nevada ranges	Rare summer resident; historically was common in willow habitat along the Napa River and Conn Creek, presently, only known from Napa River near St. Helena
<i>Charadrius alexandrinus nivosus</i> (nesting) Western snowy plover (coastal populations)	T/SSC	Coastal beaches above the normal high tide limit in flat, open areas with sandy or saline substrates; vegetation and driftwood are usually sparse or absent	Population defined as those birds that nest adjacent to or near tidal waters, including all nests along the mainland coast, peninsulas, offshore islands, and adjacent bays and estuaries.	Year-round resident; confirmed nesting at Little Island Salt evaporation pond in So Napa Co. and probably in the Huichica Creek Wildlife Area; 3 CNDDDB occurrences all presumed extant (all in the Cuttings Wharf quad)

4.5 BIOLOGICAL RESOURCES

Scientific and Common Name	Status	Habitats	California Distribution	Known Napa County Locations
<i>Circus cyaneus</i> Northern harrier	—/SSC	Grasslands, meadows, marshes, and seasonal and agricultural wetlands	Occurs throughout lowland California. Has been recorded in fall at high elevations	Year-round resident; nesting confirmed in Napa Marsh area and Lake Berryessa
<i>Contopus cooperi</i> Olive-sided flycatcher	—/SSC	Nests in large coniferous forests and along forest edges where Douglas fir occurs; will nest in eucalyptus groves	Breeds throughout coniferous forests in California; winters in Central and South America.	Summer resident; common locally in coniferous forests especially at Redwood Canyon, Bothe, and Mt St Helena
<i>Dendroica petechia brewsteri</i> (nesting) Yellow warbler	—/SSC	Nests in riparian areas dominated by willows, cottonwoods, sycamores, or alders or in mature chaparral; may also use oaks, conifers, and urban areas near stream courses	Nests in California except in the Central Valley, the Mojave Desert region, and high altitudes and the eastern side of the Sierra Nevada. Winters along the Colorado River and in parts of Imperial and Riverside Counties. Two small permanent populations in San Diego and Santa Barbara Counties	Summer resident; known from suitable habitat in Napa Valley, Conn Valley and Gordon Valley as well as other locations
<i>Calidris canutus</i> Red Knot	FSCC/—	Tidal mudflats, salt marsh, irrigated pastures, salt ponds	Migrates and winters along the coast and rarely in the Central Valley as well as the Salton Sea, the deserts and Great Basin regions in California.	Found in migration, primarily in the tidal marshes and salt ponds of southern Napa County
<i>Elanus leucurus</i> White-tailed kite	—/FP	Low foothills or valley areas with valley or live oaks, riparian areas, and marshes near open grasslands for foraging	Lowland areas west of Sierra Nevada from the head of the Sacramento Valley south, including coastal valleys and foothills to western San Diego County at the Mexico border	Year-round resident; nests in suitable habitat throughout County; 2 CNDDDB occurrences (1 extirpated, 1 extant). Several recently documented nests in valleys and the southern region of the County
<i>Eremophila alpestris actia</i> California horned lark	—/SSC	Common to abundant resident in a variety of open habitats, usually where large trees and shrubs are absent. Grasslands and deserts to dwarf shrub habitats above tree line	Found throughout much of the state, less common in mountainous areas of the north coast and in coniferous or chaparral habitats	Year round resident; more abundant in winter, breeding records confined to Huichica Creek and Stanly Ranch
<i>Falco mexicanus</i> Prairie falcon	—/SSC	Nests on cliffs or escarpments, usually overlooking dry, open terrain or uplands	Permanent resident in the south Coast, Transverse, Peninsular, and northern Cascade Ranges, the southeastern deserts, Inyo-White Mountains, foothills surrounding the Central Valley, and in the Sierra Nevada in Modoc, Lassen, and Plumas Counties.	Year-round resident; confirmed nesting only in Blue Ridge area NE of Lake Berryessa; 4 CNDDDB occurrences, all presumed extant, but 2 observed over 20 yrs ago.
<i>Falco peregrinus anatum</i> American peregrine falcon	—/E, FP	Nests and roosts on protected ledges of high cliffs, usually adjacent to lakes, rivers, or marshes that support large prey populations	Permanent resident along the north and south Coast Ranges. May summer in the Cascade and Klamath Ranges and through the Sierra Nevada to Madera County. Winters in the Central Valley south through the Transverse and Peninsular Ranges and the plains east of the Cascade Range	Year-round resident; documented nesting at two locations in NW Napa County
<i>Geothlypis trichas sinuosa</i> Salt marsh common yellowthroat	—/SSC	Freshwater marshes in summer and salt or brackish marshes in fall and winter; requires tall grasses, tules, and willow thickets for nesting and cover	Found only in the San Francisco Bay Area in Marin, Napa, Sonoma, Solano, San Francisco, San Mateo, Santa Clara, and Alameda Counties	Year-round resident of tidal marsh south of Kennedy Park; 11 CNDDDB occurrences, all extant.
<i>Haliaeetus leucocephalus</i> Bald eagle	T/E	In western North America, nests and roosts in coniferous forests within 1 mile of a lake, reservoir, stream, or the ocean	Nests in Siskiyou, Modoc, Trinity, Shasta, Lassen, Plumas, Butte, Tehama, Lake, and Mendocino Counties and in the Lake Tahoe Basin. Reintroduced into central coast. Winter range includes the rest of California, except the southeastern deserts, very high altitudes in the Sierra Nevada, and east of the Sierra Nevada south of Mono County	Year-round resident; regular winter visitor; 4 CNDDDB occurrences all extant; confirmed nesting at Lake Berryessa and Lake Hennessy
<i>Icteria virens</i> Yellow-breasted Chat	—/SSC/LR	Nests in dense riparian habitats dominated by willows, alders, Oregon ash, tall weeds, blackberry vines, and grapevines	Uncommon breeder in California; in Napa nests in a few locations with appropriate habitat, such as along the Napa River near St. Helena	Possibly extirpated from County; historically known as a summer resident from Napa Valley near Calistoga, St Helena and Yountville
<i>Lanius ludovicianus</i> Loggerhead shrike	—/SSC/LR	Prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches	Resident and winter visitor in lowlands and foothills throughout California. Rare winter visitor on coastal slope north of Mendocino County	Year-round resident; more common during winter; traditional breeding sites in Jamieson Canyon, Lake Berryessa, Pope Valley, Napa airport (possibly extirpated) and near Coombsville
<i>Laterallus jamaicensis coturniculus</i> California black rail	—/T	Tidal salt marshes associated with heavy growth of pickleweed; also occurs in brackish marshes or freshwater marshes at low elevations	Permanent resident in the San Francisco Bay and east-ward through the Delta into Sacramento and San Joaquin Counties; small populations in Marin, Santa Cruz, San Luis Obispo, Orange, Riverside, and Imperial Counties	Year-round resident; confined to County's southern tidal marsh; 4 CNDDDB occurrences, all extant
<i>Limnodromus griseus</i> Short-billed Dowitcher	FSCC/—	Tidal mudflats, salt marsh, irrigated pastures, salt ponds	Migrates and winters along the coast and migrates through the Central Valley as well as the Salton Sea, the deserts and Great Basin regions in California.	Found in migration and winter, primarily in the tidal marshes and salt ponds of southern Napa County.

Scientific and Common Name	Status	Habitats	California Distribution	Known Napa County Locations
<i>Limosa fedoa</i> Marbled Godwit	FSCC/—	Tidal mudflats, salt marsh, irrigated pastures, irrigated row crops, salt ponds	Migrates and winters along the coast and the Salton Sea and occasionally in the Central Valley as well as the deserts and Great Basin regions in California.	Found in migration, primarily in the tidal marshes and salt ponds of southern Napa County.
<i>Melanerpes lewis</i> Lewis's Woodpecker	FSCC/—	Oak savanna, open Jeffrey and Ponderosa pine forest.	Breeds in the Modoc Plateau region and the foothills on the northern Sacramento Valley.	Annual winter resident in Pope Valley with smaller numbers along eastern foothills of Napa Valley and in oak savanna elsewhere in the county. Very sporadic in occurrence with great annual variation in winter population size.
<i>Melospiza melodia samuelis</i> San Pablo song sparrow	—/SSC	Uses tidal sloughs within pickleweed marshes; requires tall bushes (usually grindelia) along sloughs for cover, nesting, and songposts; forages over mudbanks and in the pickleweed	Found in San Pablo Bay	Year-round resident; found in salt marsh habitats in southern Napa County
<i>Numenius americanus</i> Long-billed Curlew	FSCC/—	Tidal mudflats, salt marsh, pastures, row crops, annual grasslands	Migrates and winters along coast, Central Valley, the Salton Sea and occasionally in valleys in the southern and central coast range and in the deserts and Great Basin regions in California.	Found primarily in migration, but also occurs in smaller numbers during winter. Most occurrences in the tidal marshes of southern Napa County, but has occurred sporadically in upper Napa Valley.
<i>Numenius phaeopus</i> Whimbrel	FSCC/—	Tidal mudflats, salt marsh, salt ponds, irrigated pastures, irrigated row crops, annual grasslands	Migrates along coast, Central Valley, the Salton Sea and occasionally in valleys in the southern and central coast range and in the deserts and Great Basin regions in California.	Found primarily in spring migration, but also occurs in smaller numbers during fall migration. Most occurrences in the tidal marshes of southern Napa County, but has occurred sporadically in upper Napa Valley.
<i>Pandion haliaetus</i> Osprey	—/SSC	Nests in snags, trees, or utility poles near the ocean, large lakes, or rivers with abundant fish populations	Nests along the north coast from Marin County to Del Norte County, east through the Klamath and Cascade Ranges, and in the upper Sacramento Valley. Winters along the coast from San Mateo County to San Diego County	Year-round resident; Nesting documented from Lake Hennessey, Lake Berryessa, and Napa Valley.
<i>Phalacrocorax auritus</i> Double-Crested Cormorant (rookery)	—/SSC	Rocky coastlines, beaches, inland ponds, and lakes; needs open water for foraging, and nests in riparian forests or on protected islands, usually in snags	Winters along the entire California coast and inland over the Coast Ranges into the Central Valley from Tehama County to Fresno County; a permanent resident along the coast from Monterey County to San Diego County, along the Colorado River, Imperial, Riverside, Kern and King counties and the islands off San Francisco; breeds in Siskiyou, Modoc, Lassen, Shasta, Plumas, and Mono counties; also breeds in the San Francisco Bay Area and in Yolo and Sacramento counties	Year-round resident; Nesting suspected but not confirmed at Lake Hennessey, nesting observed at Huichica Creek Wildlife Area in early 1990s
<i>Progne subis</i> Purple martin	—/SSC/LR	Nests in abandoned woodpecker holes in oaks, cottonwoods, and other deciduous trees in a variety of wooded and riparian habitats including mixed chaparral and conifer slopes at high elevations. Also nests in vertical drainage holes under elevated freeways and highway bridges	Coastal mountains south to San Luis Obispo County, west slope of the Sierra Nevada, and northern Sierra and Cascade ranges. Absent from the Central Valley except in Sacramento. Isolated, local populations in southern California	Summer resident; breeding known from Table Rock, Pope Valley and other possible areas; 4 CNDDDB occurrences, all presumed extant but 3 are > 20 yrs old; breeding population probably < 30 pairs
<i>Rallus longirostris obsoletus</i> California clapper rail	E/E	Restricted to salt marshes and tidal sloughs; usually associated with heavy growth of pickle-weed; feeds on mollusks removed from the mud in sloughs	Marshes around the San Francisco Bay and east through the Delta to Suisun Marsh	Year-round resident; confined to County's southern tidal marsh; 8 CNDDDB occurrences, all presumed extant
<i>Spizella atrogularis</i> Black-chinned Sparrow	FSCC/—/LR	Low-growing chaparral	Breeds in desert mountain ranges in the Mojave, throughout higher elevation chaparral in southern California, but irregularly and locally north in interior coast ranges to Yreka, Siskiyou County, and along western slope of Sierra Nevada to Placer County. Also rarely found on the Modoc Plateau and elsewhere in the Great Basin region of California.	Last confirmed nest in 1984 in SE Palisades; requires young regenerating montane chaparral
<i>Sterna elegans</i> Elegant Tern	FSCC/—	Near shore ocean, bays, salt ponds, coastal estuaries	Breeds along the coast in southern California and post-breeding dispersal along coast and bays to Humboldt County and rarely to Del Norte County and Oregon.	Birds that have dispersed after breeding are found in July-October in the tidal marshes and salt ponds of southern Napa County.
<i>Strix occidentalis caurina</i> Northern spotted owl	T/SSC	Dense old-growth or mature forests dominated by conifers with topped trees or oaks available for nesting crevices	A permanent resident throughout its range; found in the north Coast, Klamath, and western Cascade Range from Del Norte County to Marin County	Year-round resident; ~25 breeding territories in western County, and Angwin (unoccupied in 2002)
<i>Xanthocephalus xanthocephalus</i> Yellow-headed blackbird	—/—/LR	Nests in fresh emergent wetland with dense vegetation and deep water, often along borders of lakes or ponds. Forages in emergent wetland and moist, open areas, especially cropland and muddy shores of lacustrine habitat. Has bred, at least irregularly, as high as 2000 m (6600 ft) in San Bernardino Mts.	Breeds commonly, but locally, east of Cascade Range and Sierra Nevada, in Imperial and Colorado River valleys, and fairly commonly in Central Valley. Uncommon in Central Valley in winter, occurring mainly in southern portion. Fairly common in winter in the Central and Imperial valleys; rare and irregular elsewhere, including coastal areas. Occurs as a migrant and local breeder in deserts and along coast of southern California.	Rare summer resident at Huichica Creek Wildlife Area

4.5 BIOLOGICAL RESOURCES

Scientific and Common Name	Status	Habitats	California Distribution	Known Napa County Locations
Mammals				
<i>Antrozous pallidus</i> Pallid bat	—/SSC	Occurs in a variety of habitats from desert to coniferous forest. Most closely associated with oak, yellow pine, redwood, and giant sequoia habitats in northern California and oak woodland, grassland, and desert scrub in southern California. Relies heavily on trees for roosts	Occurs throughout California except the high Sierra from Shasta to Kern County and the northwest coast, primarily at lower and mid elevations	Found in suitable habitat throughout the county. 6 CNDDDB occurrences, 5 extant and 1 extirpated;
<i>Bassariscus astutus</i> Ringtail Cat	—/FP	Inhabit brushy and wooded areas along watercourses in foothill and lower montane canyons; den sites in rocky areas or in hollows in trees; occur from sea level to 8,800 feet in elevation	Widely distributed throughout California except portions of the Sacramento and San Joaquin valleys, Modoc Plateau, eastern Sierra Nevada, and Mojave desert.	Likely to be uncommon in foothills and mountains of Napa County, with known occurrence in the Sulphur Springs region west of St. Helena
<i>Corynorhinus townsendii pallescens</i> Pale Townsend's (= western) big-eared bat	—/SSC	Mesic habitats; gleans insects from brush or trees and feeds along habitat edges	Klamath Mountains, Cascades, Sierra Nevada, Central Valley, Transverse and Peninsular Ranges, Great Basin, and the Mojave and Sonora Deserts	No published records but within known species range and likely to be found in suitable habitat
<i>Corynorhinus townsendii townsendii</i> Pacific Townsend's (= western) big-eared bat	—/SSC	Roosts in caves, tunnels, mines, and dark attics of abandoned buildings. Very sensitive to disturbances and may abandon a roost after one onsite visit	Coastal regions from Del Norte County south to Santa Barbara County	Found in suitable habitat throughout the county; 5 CNDDDB occurrences, all presumed extant
<i>Eumops perotis californicus</i> Greater western mastiff bat	—/SSC	Found in a wide variety of habitats from desert scrub to montane conifer. Roosts and breeds in deep, narrow rock crevices, but may also use crevices in trees, buildings, and tunnels	Occurs along the western Sierra primarily at low to mid elevations and widely distributed throughout the southern coast ranges. Recent surveys have detected the species north to the Oregon border	Unknown
<i>Myotis evotis</i> Long-eared myotis	—/—	Occurs primarily in high elevation coniferous forests, but also found in mixed hardwood/conifer, high desert, and humid coastal conifer habitats	Occurs throughout California except the southeastern deserts and the Central Valley	No published records but within known species range and likely to be found in suitable habitat
<i>Myotis thysanodes</i> Fringed myotis	—/—	Found in a wide variety of habitats from low desert scrub to high elevation coniferous forests. Day and night roosts in caves, mines, trees, buildings, and rock crevices	Occurs throughout California except the southeastern deserts and the Central Valley	No published records but within known species range and likely to be found in suitable habitat
<i>Myotis volans</i> Long-legged myotis	—/—	Most common in woodlands and forests above 4,000 feet, but occurs from sea level to 11,000 feet	Mountains throughout California, including ranges in the Mojave desert	No published records but within known species range and likely to be found in suitable habitat
<i>Myotis yumanensis</i> Yuma myotis	—/—	Found in a wide variety of habitats from sea level to 11,000 ft., but uncommon above 8,000 ft. Optimal habitat is open forests and woodlands near water bodies	Common and widespread throughout most of California except the Colorado and Mojave deserts	No published records but within known species range and likely to be found in suitable habitat
<i>Reithrodontomys raviventris</i> Salt marsh harvest mouse	E/E, FP	Salt marshes with a dense plant cover of pickle-weed and fat hen; adjacent to an upland site	San Francisco, San Pablo, and Suisun Bays; the Delta	Found in suitable habitat (tidal marsh) in southern Napa Co.; 5 CNDDDB occurrences all extant and all from Cuttings Wharf quad
<i>Sorex ornatus sinuosus</i> Suisun ornate shrew	—/SSC	Tidal, salt, and brackish marshes containing pickleweed, grindelia, bulrushes, or cattails; requires driftwood or other objects for nesting cover	Restricted to San Pablo Bay and Suisun Bay	Found in suitable habitat; 2 CNDDDB occurrences both presumed extant but are over 20 years old.
<i>Branchinecta lynchi</i> Vernal pool fairy shrimp	T/—	Common in vernal pools; also found in sandstone rock outcrop pools	Central Valley, central and south Coast Ranges from Tehama County to Santa Barbara County. Isolated populations also in Riverside County; known from Napa County	1 CNDDDB occurrence observed in 2003 south end of Napa airport; Critical habitat designation NW of the city of Napa in a relic vernal pool;
<i>Desmocerus californicus dimorphus</i> Valley elderberry longhorn beetle	T/—	Stream side habitats below 3,000 feet throughout the Central Valley	Riparian and oak savanna habitats with elderberry shrubs; elderberries are the host plant	1 extant CNDDDB occurrence from Suisun Creek in the Fairfield North quad. Other occurrence close to Napa border with Yolo and Solano quads.
<i>Nothochrysa californica</i> San Francisco lacewing	—/—/	Oak woodlands	Vicinity of San Francisco Bay	Historical record from Angwin area
<i>Speyeria callippe callippe</i> Callippe silverspot	E/—	Open hillsides where wild pansy (<i>Viola pendunculata</i>) grows; larvae feed on Johnny jump-up plants, whereas adults feed on native mints and non-native thistles.	San Bruno Mountain, San Mateo County, and a single location in Alameda County. Historically known from southern portions of Napa County (Arnold pers comm.).	Known from American Canyon

Scientific and Common Name	Status	Habitats	California Distribution	Known Napa County Locations
<i>Syncaris pacifica</i> California freshwater shrimp	E/E	In pool areas of low-elevation, low gradient, permanent streams; among live tree roots of undercut banks, under overhanging woody debris or vegetation	Endemic to Marin, Napa, and Sonoma Counties; extant populations in Lagunitas Creek in Marin Co., Huichica Creek in Napa Co., and Franz, East Austin, Sonoma, and Salmon Creeks in Sonoma Co.	Known from Huichica Creek; 2 CNDDDB occurrences 1 from Huichica Creek and 1 from Napa River/Garnett Creek
Amphibians and Reptiles				
<i>Clemmys marmorata</i> Northwestern pond turtle	—/SSC	Occupies ponds, marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms and with watercress, cattails, water lilies, or other aquatic vegetation in woodlands, grasslands, and open forests. Can use upland habitat up to 0.25 mile from a water body for nesting.	Occurs from the Oregon border of Del Norte and Siskiyou Counties south along the coast to San Francisco Bay, inland through the Sacramento Valley, and on the western slope of Sierra Nevada	Could occur in suitable habitat throughout the County. 15 CNDDDB occurrences, all extant
<i>Phrynosoma coronatum frontale</i> California horned lizard	—/SSC	Sacramento Valley, including foothills, south to southern California; Coast Ranges south of Sonoma County; below 4,000 feet in northern California	Grasslands, brushlands, woodlands, riparian, pine-cypress, juniper and open coniferous forest with sandy or loose soil; requires abundant ant colonies for foraging.	No CNDDDB occurrences. Unlikely
<i>Rana aurora draytoni</i> California red-legged frog	T/SSC	Permanent and semi permanent aquatic habitats, such as creeks and ponds, usually, but not always, with submerged and emergent vegetation. May estivate in rodent burrows or cracks during dry periods.	Found along the coast and coastal mountain ranges of California from Marin County to San Diego County and in the Sierra Nevada from Tehama County to Fresno County	Found in suitable habitat; 2 CNDDDB occurrences, presumed extant (Wragg Creek and in a tributary to American Creek)
<i>Rana boylei</i> Foothill yellow-legged frog	—/SSC	Creeks or rivers in woodland, riparian, ponderosa pine, mixed conifer, coastal scrub, mixed chaparral, and wet meadow habitats with rock and gravel substrate and low overhanging vegetation along the edge. Usually found near riffles with rocks and sunny banks nearby.	Occurs in the Klamath, Cascade, north Coast, south Coast, Transverse, and Sierra Nevada Ranges up to approximately 6,000 feet	Found in suitable habitat throughout the County. 10 CNDDDB occurrences, all presumed extant.
<i>Scaphiopus hammondi</i> Western spadefoot	—/SSC	Shallow streams with riffles and seasonal wetlands, such as vernal pools and stock ponds in annual grasslands and oak savannas. .	Sierra Nevada foothills, Central Valley, Coast Ranges, coastal counties in southern California	Would only occur in the eastern edge of the county. No CNDDDB occurrences. Unlikely.

T = listed as threatened under the California Endangered Species Act.

R = listed as rare under the California Native Plant Protection Act. This category is no longer used for newly listed plants, but some plants listed before the California Native Plant Protection Act was enacted retain this designation.

CE = candidate species for listing as endangered under the California Endangered Species Act.

SSC = species of special concern in California.

– = no listing.

Other

LR = considered by local experts to be rare in the Napa County portion of its range, although it may be more common elsewhere.

2 Affinity to a particular soil type provided only when known or applicable.

3 General occurrence information is based on incomplete survey data for Napa County. Species may occur in other areas where surveys are lacking.

4 Source: Special Status Species Occurrences Layer developed for this report. See Methodology section for sources. Data are based on voluntary reporting of incomplete surveys and likely underestimate actual numbers in the field. Occurrences do not necessarily equal populations.

4.5 BIOLOGICAL RESOURCES

Other rare species in the County tend to occur on sites that have historically been attractive for either agricultural or urban development, such as level or gently sloping grasslands. These species were probably once more common. Examples of such species include Tiburon buckwheat (*Eriogonum luteolum* var. *caninum*), round-leaved filaree (*Erodium macrophyllum*), and adobe lily.

Special-status plant species, like most native plant species in the County, are adapted to particular wildfire regimes. Until the beginning of the nineteenth century, frequent fires were common in much of Napa County; fire was a land management tool used by Native Americans and early European settlers. Fire suppression during the last century poses a current threat to special status species that are adapted to colonize recently burned sites or that depend on fire for regeneration (fire followers or fire-dependent species). Fire suppression activities over time can result in accumulations of forest litter, increases in understory, and creation of greater ladder fuels. Fire suppression has led to less frequent, more intense, and larger fires in some biotic communities, such as Douglas-fir forests. Special-status species in these communities that can not tolerate high-intensity fires are threatened by the increased likelihood of such fires.

Special-Status Wildlife

Sixty special-status wildlife species are likely to be found in the County (see **Table 4.5-2**): 39 birds, 11 mammals, five invertebrates, three amphibians, and two reptiles. Only 22 of these 60 species have documented occurrences in the County. However, habitat for all 60 species is present in the County, and they are considered by experts to likely occur in the County. The documented occurrences of these species throughout the County are shown in **Figure 4.5-5** (Napa County, BDR 2005).

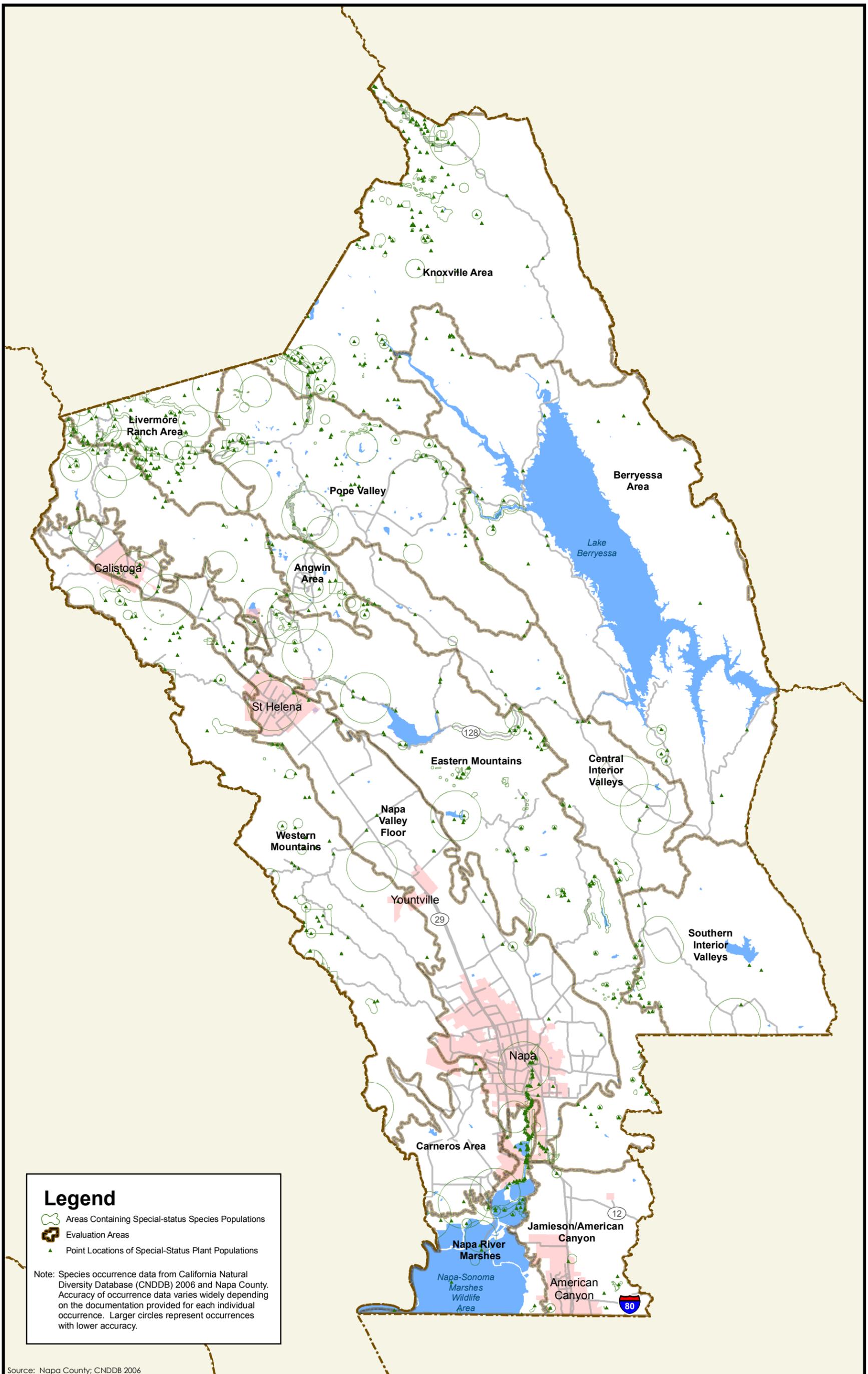
Twenty-four of the 796 rare animal species tracked by the California Natural Diversity Database (CNDDDB 2006, CDFG 2003b) have been documented in Napa County. This represents 3% of the state's identified rare animal species on less than 0.5% of the state's area, indicating that the density of documented rare animal species in Napa County is six times the average for California overall.

Five special-status wildlife species found in the County are federally endangered (FE), and seven are federally threatened (FT). Two other species are state listed as endangered (SE) or threatened (ST). Species that are federally listed and also state species of special concern (SSC) are so identified.

Special-status bird species represent a much higher proportion of all special-status animal species in the County than they do in the state as a whole (CDFG 2003b). One explanation for this phenomenon is the large number of rare bird species that inhabit the Napa River marshes.

Although wildlife species commonly require use of multiple biotic communities for different ecological needs and life-stage functions, some wildlife species have a strong association with specific biotic communities, such as salt marsh or mature coniferous forests. Communities with relatively small acreage in the County that are strongly associated with many special-status wildlife species, such as salt marsh and riparian woodlands, are therefore especially important. Unique features, such as rock outcrops that occur in a variety of communities and support unique species groups such as bats or special-status raptors are also important for conservation of these species.

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Legend

- Areas Containing Special-status Species Populations
- Evaluation Areas
- Point Locations of Special-Status Plant Populations

Note: Species occurrence data from California Natural Diversity Database (CNDDDB) 2006 and Napa County. Accuracy of occurrence data varies widely depending on the documentation provided for each individual occurrence. Larger circles represent occurrences with lower accuracy.

Source: Napa County; CNDDDB 2006



FIGURE 4.5-4
SPECIAL-STATUS PLANT SPECIES OCCURRENCES

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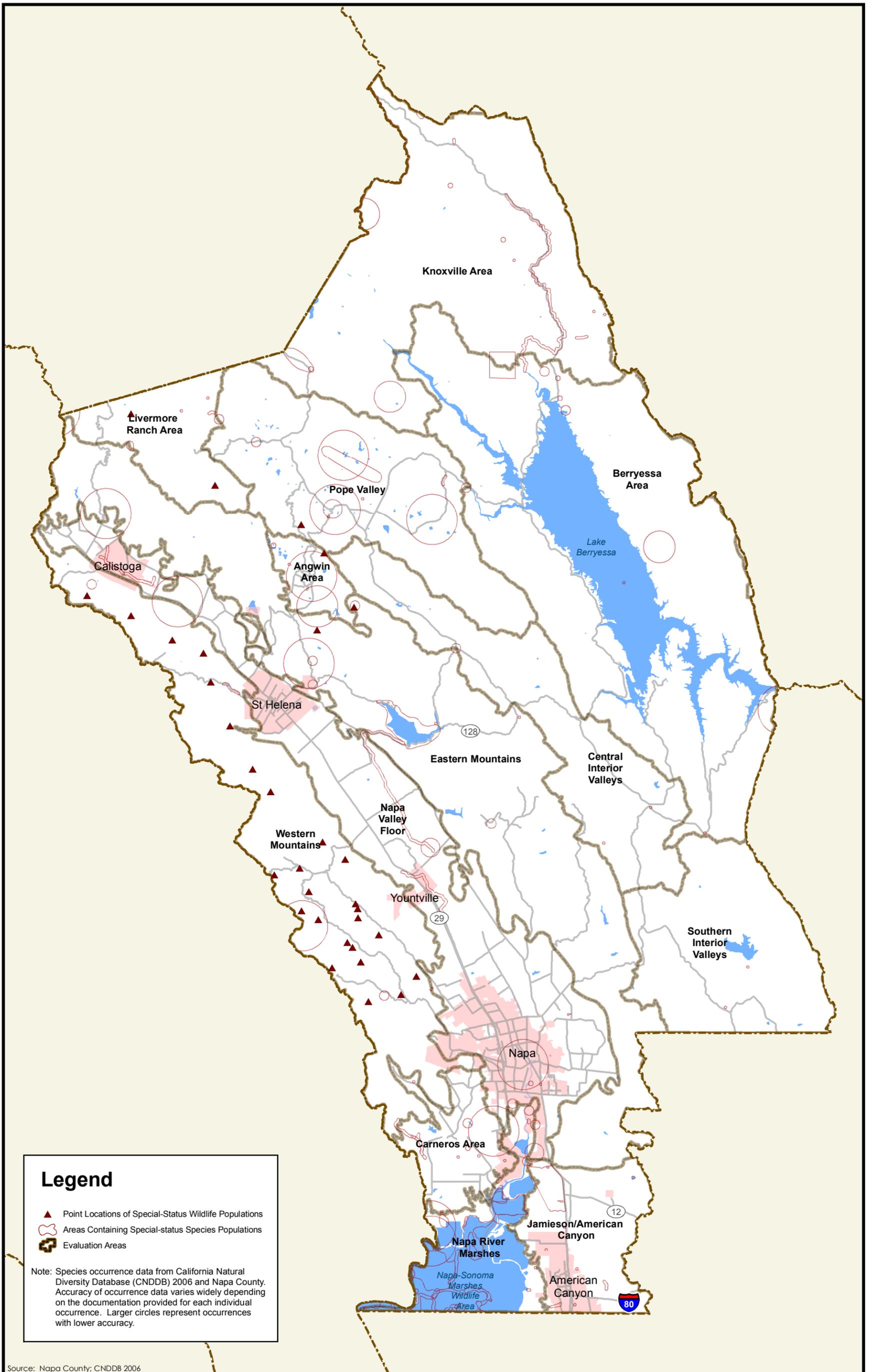


FIGURE 4.5-5
SPECIAL-STATUS ANIMAL SPECIES OCCURRENCES

Special-status wildlife species utilize virtually every biotic community in the County. None of these species are strictly endemic to the County, but a number of them occur in localized areas that would be particularly sensitive to disturbance. These include the roosting areas of bats (pallid bats [*Antrozous pallidus*]); nesting sites of the snowy plover, tricolor blackbirds and tree-nesting raptors; streams supporting amphibians; salt marsh harvest mouse habitat; and vernal pools.

Other Important Ecologic Features

Wildlife Movement Areas

This section describes the importance of wildlife movement areas to species success, species requirements for movement areas, areas that have potential to be used for wildlife movement, and a generalized analysis of movement corridors in the County. The analytical method can be used to identify wildlife movement corridors based on the ease within which various wildlife species can traverse particular land cover types.

Importance of Wildlife Movement Areas

Wildlife movement areas, or habitat linkages, are areas that provide habitat connections (i.e., corridors) for wildlife between two distinct points. Habitat connections are important to enable periodic migrations, to assure access to food and water and breeding areas, to maintain genetic diversity, to allow re-colonization of habitat where populations have declined or been extirpated, to provide for dispersal of seeds, and to allow for long-term distribution changes that may be necessary as a result of climate change.

Sometimes habitat is fragmented by topography, changes in vegetation, or other natural or human disturbances; hence creating isolated "islands" of habitat that may not provide sufficient area or resources to accommodate sustainable populations for a number of species, thus adversely affecting both genetic and species diversity. This process and the resulting patchwork on the landscape are both termed habitat fragmentation.

In timberland and oak woodland conversion, impacts can arise from the creation of forest edges, or places where the forest ends. Such places might include a natural meadow, a road, or an area cleared for a home site or a vineyard. Researchers have studied the "edge effect" and found that in the adjacent forest there are changes in available sunlight, temperature, and windspeed. Apart from these impacts, there are also changes in the level of noise and general activity that occur when people and their household animals move into or next to a forest. While some of these changes might seem slight, they may be significant for wildlife or botanical species. Different species have different tolerances for changes of various kinds to their habitat, changes that can come from either the loss of forestland or the creation of relatively more forest edges.

Types of Movement Areas

For the purposes of this document, wildlife movement areas are defined as contiguous areas of habitat that allow the unimpeded movement of wildlife from one area to another. Movement areas can be any size and shape from a narrow strip of land that function as a tunnel or conduit (i.e., habitat that permits movement but not breeding or foraging) to a large area of intact habitat that is conducive for movement and other life functions.

4.5 BIOLOGICAL RESOURCES

Potential Wildlife Movement Areas

Except for the recent study by Hilty and Merenlender (2004) of riparian corridors along the western foothills of the Mayacamas Mountains (also known as the Western Mountains) in Sonoma County, wildlife movement has not been well studied in Napa County or in other analogous landscapes. Despite this, several general conclusions can be drawn based on inferences from regional analyses of wildlife movement and the generalized land cover types identified within the County.

Through a regional analysis of land cover types and paths of least cost for various species, three major wildlife movement corridors, or areas, have been identified in the County (Napa County, BDR 2005): 1) the Napa River, 2) the Blue Ridge-Berryessa Natural Area West, and 3) the Blue Ridge-Berryessa Natural Area East (see **Figure 4.5-6**).

The Napa River Corridor is characterized by open water, freshwater, brackish and salt marsh and riparian forest. It serves as an important north-south corridor for many riparian-associated birds, mammals, amphibians, and reptiles. The Blue Ridge-Berryessa Natural Area West Corridor is characterized by oak woodlands and chaparral, and includes riparian areas along Putah Creek and its tributaries. This corridor provides connectivity between the Knoxville, Berryessa and Central Interior Valley Evaluation Areas. In addition, it connects with wildlife movement areas in southern Lake County.

The Blue Ridge-Berryessa Natural Areas East Corridor is the least impacted by human disturbance. Like the Blue Ridge-Berryessa Natural Areas West Corridor, it is characterized by oak woodlands and chaparral, as well as riparian areas along Elicuera Creek and lower Putah Creek. This corridor provides migration and dispersal areas along the Blue Ridge-Berryessa Range. The Blue Ridge-Berryessa Natural Areas West and East Corridors are utilized by large mammals, such as mountain lions and bear, as well as by numerous other wildlife species.

4.5.2 REGULATORY FRAMEWORK

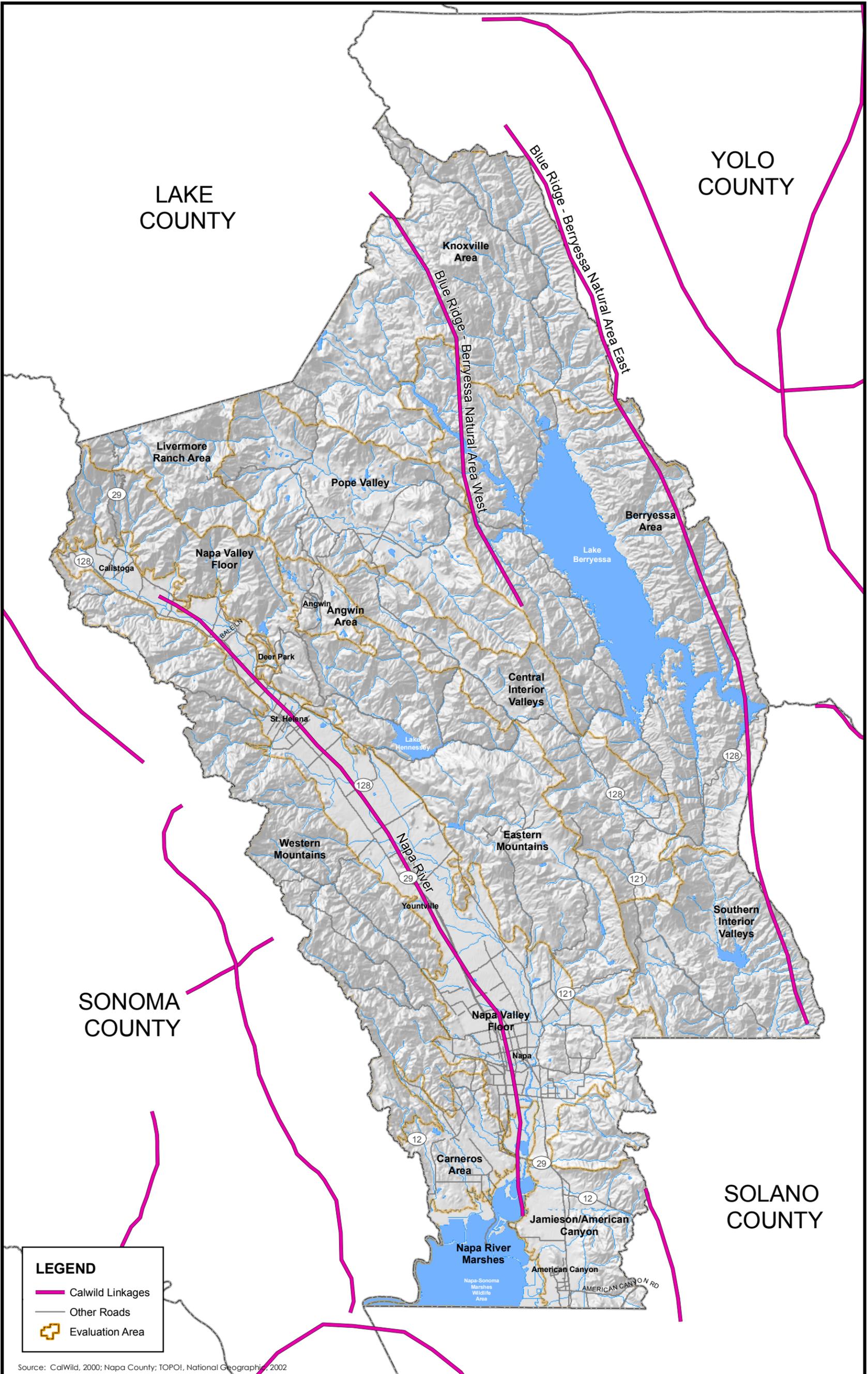
This section discusses the federal, state, and local policies and regulations that are relevant to the analysis of biological resources in the County.

FEDERAL

Endangered Species Act

The federal Endangered Species Act (ESA) protects fish and wildlife species that have been identified by the U.S. Fish and Wildlife Service (USFWS) and/or the National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries) as endangered or threatened. It also protects the habitats in which they live. *Endangered* refers to species, subspecies, or distinct population segments that are in danger of extinction throughout all or a significant portion of their range while *threatened* applies to species, subspecies, or distinct population segments that are likely to become endangered in the near future.

USFWS and NOAA Fisheries administer the ESA. In general, NOAA Fisheries is responsible for protection of ESA-listed marine species and anadromous fish while other listed species come under USFWS jurisdiction. Key provisions of the ESA are summarized below under the section that implements them.



LAKE COUNTY

YOLO COUNTY

SONOMA COUNTY

SOLANO COUNTY



FIGURE 4.5-6
MAJOR WILDLIFE MOVEMENT
CORRIDORS IN NAPA COUNTY

Section 10

Section 10 of the ESA provides a means for nonfederal entities (states, local agencies, and private parties) that are not permitted or funded by a federal agency to receive authorization to disturb, displace, or kill (i.e., take) threatened and endangered species. It allows USFWS and/or NOAA Fisheries to issue an incidental take permit authorizing take resulting from otherwise legal activities, as long as the take would not jeopardize the continued existence of the species. Section 10 requires the applicant to prepare a Habitat Conservation Plan (HCP) addressing project impacts and proposing mitigation measures to compensate for those impacts. The HCP is subject to USFWS and/or NOAA Fisheries review and must be approved by the reviewing agency or agencies before the proposed project can be initiated. Because the issuance of the incidental take permit is a federal action, USFWS and/or NOAA Fisheries must also comply with the requirements of ESA Section 7 and the National Environmental Policy Act (NEPA).

Section 7

Section 7 of the ESA applies to the management of federal lands as well as other federal actions, such as federal approval of private activities through the issuance of federal permits, licenses, funding, or other actions that may affect listed species. Section 7 directs all federal agencies to use their existing authorities to conserve threatened and endangered species and, in consultation with USFWS, to ensure that their actions do not jeopardize listed species or destroy or adversely modify critical habitat. Critical habitat is defined as specific areas that are essential to the conservation of federally listed species.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) enacts the provisions of treaties between the United States, Great Britain, Mexico, Japan, and the Soviet Union and authorizes the U.S. Secretary of the Interior to protect and regulate the taking of migratory birds. It establishes seasons and bag limits for hunted species and protects migratory birds, their occupied nests, and their eggs. Most actions that result in a taking or in permanent or temporary possession of a protected species constitute violations of the MBTA. Examples of permitted actions that do not violate the MBTA are the possession of a hunting license to pursue specific game birds, legitimate research activities, display in zoological gardens, bird banding, and other similar activities. USFWS is responsible for overseeing compliance with the MBTA, and the U.S. Department of Agriculture's Animal Damage Control Officer makes recommendations on related animal protection issues.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act of 1940 imposes criminal and civil penalties for persons in the U.S. or within U.S. jurisdiction lands who take, possess, sell, purchase, barter, offer to sell or purchase or barter, transport, export or import a bald or golden eagle, alive or dead, or any part, nest, or egg of these eagles; or violates any permit or regulations issued under the Act, without the permission of the Secretary of the Interior. Bald eagles (*Haliaeetus leucocephalus*) may not be taken for any purpose unless the Secretary issues a permit prior to the taking.

Clean Water Act

The federal Clean Water Act (CWA) was enacted as an amendment to the federal Water Pollution Control Act of 1972, which outlined the basic structure for regulating discharges of pollutants to waters of the United States. The CWA serves as the primary federal law protecting the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. The following discussion gives background information as relevant to biological resources.

4.5 BIOLOGICAL RESOURCES

Section 404

CWA Section 404 regulates the discharge of dredged and fill materials into waters of the United States. Waters of the United States refers to oceans, bays, rivers, streams, lakes, ponds, and wetlands. Applicants must obtain a permit from the U.S. Army Corps of Engineers (Corps) for all discharges of dredged or fill material into waters of the United States, including wetlands, before proceeding with a proposed activity. Waters of the United States in Napa County are under the jurisdiction of the Corps.

Compliance with CWA Section 404 requires compliance with several other environmental laws and regulations. The Corps cannot issue an individual permit or verify the use of a general nationwide permit until the requirements of NEPA, ESA, and the National Historic Preservation Act (NHPA) have been met. In addition, the Corps cannot issue or verify any permit until a water quality certification or a waiver of certification has been issued pursuant to CWA Section 401.

Section 401

Under CWA Section 401, applicants for a federal license or permit to conduct activities which may result in the discharge of a pollutant into waters of the United States must obtain certification from the state in which the discharge would originate or, if appropriate, from the interstate water pollution control agency with jurisdiction over affected waters at the point where the discharge would originate. Therefore, all projects that have a federal component and may affect state water quality (including projects that require federal agency approval, such as issuance of a Section 404 permit) must also comply with CWA Section 401.

Rivers and Harbors Act of 1899

The Rivers and Harbors Act regulates projects and activities in navigable waters and harbor and river improvements. Section 10 prohibits the unauthorized obstruction or alteration of any navigable water of the United States. The construction of any structure in or over any navigable water of the United States and any work affecting the course, location, condition, or physical capacity of such waters is unlawful unless the work has been recommended by the Chief of Engineers and authorized by the Secretary of the Army. Section 10 waters in the County include tidally influenced reaches of the Napa River.

STATE

Z'berg-Nejedly Forest Practice Act of 1973

The California Department of Forestry and Fire Protection (CDF) implement the laws that regulate timber harvesting on privately-owned lands. These laws are contained in the Z'berg-Nejedly Forest Practice Act of 1973 which established a set of rules known as the Forest Practice Rules (FPRs) to be applied to forest management related activities (i.e. timber harvests, timberland conversions, fire hazard removal, etc.). They are intended to ensure that timber harvesting is conducted in a manner that will preserve and protect fish, wildlife, forests and streams. Under the Forest Practices Act, a Timber Harvesting Plan (THP) is submitted to CDF by the landowner outlining what timber is proposed to be harvested, harvesting method, and the steps that will be taken to prevent damage to the environment. If the landowner intends to convert timberland to non-timberland uses, such as a winery or vineyard, a Timberland Conversion Permit (TCP) is required in addition to the THP. It is CDF's intent that a THP shall not be approved which fails to adopt feasible mitigation measures or alternatives from the range of measures set out or provided for in the Forest Practice Rules, which would substantially lessen or

avoid significant adverse environmental impacts resulting from timber harvest activities. THPs are required to be prepared by Registered Professional Foresters (RPFs) who are licensed to prepare these plans (CDF, 2006). For projects involving TCPs, CDF acts as lead agency under CEQA, and the County acts as a responsible agency.

Under the FPRs, the County can request that CDF adopt special rules for timber operations applicable solely to Napa County. In 2003, the Napa County Board of Supervisors unanimously adopted a resolution that sought amendments to the FPRs to provide additional protections to water quality resources in the County's domestic water supply watersheds, and to ensure that timber operations conducted under a TCP complied with the County's Conservation Regulations (i.e. stream setbacks, adequate erosion control measures, vegetation retention standards, etc). The amendments were not adopted by the State Board of Forestry, and have effectively become unnecessary due to improved communication between the County, the State Department of Forestry, and the registered professional foresters working in Napa County. THPs/TCPs approved and issued by the State include an erosion control plan that has been prepared to the requirements of the Conservation Regulations. It is the County's position that projects for which a TCP is required must comply with the County's Conservation Regulations.

Oak Woodlands Conservation Act

California State Senate Bill 1334, the Oak Woodlands Conservation Act, became law on January 1, 2005 and was added to the CEQA statutes as 21083.4. This statute requires that a county must determine whether or not a project will result in a significant impact on oak woodlands and, if it is determined that a project may result in a significant impact on oak woodlands then the County shall require one or more of the following mitigation measures:

- Conserve oak woodlands through the use of conservation easements;
- Plant an appropriate number of trees, including maintenance of plantings and replacement of failed plantings;
- Contribute funds to the Oak Woodlands Conservation Fund for the purpose of purchasing oak woodlands conservation easements;
- Other mitigation measures developed by the county.

This law protects oak woodlands that are not protected under the State Forest Practice Act. Agricultural projects are exempt from the Act given they involve 'agricultural land that includes land that is used to produce or process plant or animal products for commercial purposes'.

California Endangered Species Act

The California Endangered Species Act (CESA) protects wildlife and plants listed as endangered or threatened under the act by the California Fish and Game Commission. The California Department of Fish and Game (DFG) administers the CESA. The CESA prohibits all persons from taking species that are state listed as threatened or endangered except under certain circumstances. The CESA definition of 'take' is any action or attempt to "hunt, pursue, catch, capture, or kill." Section 2081 of the Fish and Game Code provides a means by which agencies or individuals may obtain authorization for incidental take of state-listed species, except for certain species designated as "fully protected" under the California Fish and Game Code (see *California Fish and Game Code* below). Take must be incidental to, not the purpose of, an otherwise lawful activity. Requirements for a Section 2081 permit are similar to those used in the

4.5 BIOLOGICAL RESOURCES

ESA Section 7 process, including identification of impacts on listed species, development of mitigation measures that minimize and fully mitigate impacts, development of a monitoring plan, and assurance of funding to implement mitigation and monitoring.

California Fish and Game Code

Fully Protected Species

Certain species are considered fully *protected*, meaning that the code explicitly prohibits all take of individuals of these species except for take permitted for scientific research. Section 5050 lists fully protected amphibians and reptiles, Section 5515 lists fully protected fish, Section 3511 lists fully protected birds, and Section 4700 lists fully protected mammals.

It is possible for a species to be protected under the California Fish and Game Code, but not fully protected. For instance, mountain lion (*Puma concolor*) is protected under Section 4800 et seq., but is not a fully protected species.

Protection of Birds and their Nests

Eggs and nests of all birds are protected under Section 3503 of the California Fish and Game Code, nesting birds (including raptors and passerines) under Sections 3503.5 and 3513, and birds of prey under Section 3503.5. Migratory non-game birds are protected under Section 3800, and other specified birds under Section 3505.

Stream and Lake Protection

DFG has jurisdictional authority over streams and lakes and the wetland resources associated with these aquatic systems under California Fish and Game Code Sections 1600 et seq. through administration of lake or streambed alteration agreements. Such agreements are not a permit, but rather a mutual accord between DFG and the project proponent. California Fish and Game Code Section 1600 et seq. was repealed and replaced in October of 2003 with the new Section 1600–1616 that took effect on January 1, 2004 (Senate Bill No. 418 Sher). Under the new code, DFG has the authority to regulate work that will “substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river lake or stream.” DFG enters into a streambed alteration agreement with the project proponent and can impose conditions in the agreement to minimize and mitigate impacts to fish and wildlife resources. Because DFG includes under its jurisdiction streamside habitats that may not qualify as wetlands under the federal CWA definition, DFG jurisdiction may be broader than Corps jurisdiction.

A project proponent must submit a notification of streambed alteration to DFG before construction. The notification requires an application fee for streambed alteration agreements, with a specific fee schedule to be determined by DFG. DFG can enter into programmatic agreements that cover recurring operation and maintenance activities and regional plans. These agreements are sometimes referred to as Master Streambed Alteration Agreements (MSAAs).

San Francisco Bay Conservation and Development Commission

The San Francisco Bay Conservation and Development Commission's (BCDC's) primary mission is to analyze, plan, and regulate the San Francisco Bay as an ecological unit. BCDC has permit jurisdiction over San Francisco Bay, San Pablo Bay, and the Suisun Marsh—including levees, waterways, marshes, and grasslands—below the 10-foot contour line (as measured off a USGS quadrangle map from mean high water). Any person or public agency other than a federal agency that proposes certain activities in or around these areas must obtain a development permit from the BCDC.

In Napa County, the BCDC's jurisdiction covers the areas listed below:

- Napa River from the southern boundary of the County to the northernmost point of Bull Island.
- Tidal marshes adjacent to the Napa River.
- Salt ponds adjacent to the Napa River.
- Major sloughs.
- Wetlands managed by duck clubs in the vicinity of Skaggs Island.

LOCAL POLICIES

Napa County Code

The following pertains to stream setbacks and tree and riparian vegetation protection provisions excerpted from Napa County Zoning Code, namely the Conservation Regulations, Chapter 18.108.

Section 18.108.100 – Erosion Hazard Areas; Vegetation Preservation and Management

Discretionary permits, and in some cases administrative permits, for projects in the County's jurisdiction on slopes greater than 5 percent are subject to a number of conditions, requiring the preservation of existing vegetation wherever feasible and where necessary for the preservation of threatened plant or animal species; and in some cases, no removal of trees 6 inches or more in diameter at breast height without authorization and replacement; and re-vegetation of graded/disturbed areas.

Napa County Code 18.108.100 may require the following conditions when granting a discretionary permit for activities on slopes greater than 5 percent:

- Existing vegetation shall be preserved to the maximum extent feasible. Vegetation shall not be removed if necessary for erosion control or preservation of habitat for threatened or endangered species.
- An approved erosion control plan (ECPA) permit or grading permit is required for the grading associated with the removal of trees or tree stands measuring six inches in diameter (dbh) or larger. Replacement of removed protected trees located outside of the approved project boundary may be required. Trees to be avoided by project activities shall be protected through fencing or other methods during construction.

4.5 BIOLOGICAL RESOURCES

Section 18.108.025 – General Provisions, Intermittent/Perennial Streams

This section of the County code establishes stream setbacks for earthmoving activities and grading for all new developments, including agricultural and residential developments, and for replanting of existing vineyards when replanting occurs outside of the existing vineyard footprint and when the project would require a grading permit pursuant to the California Building Code.

Under Section 18.108.030 a stream means any of the following:

- A watercourse designated by a solid line or dash and three dots symbol on the largest scale of the United States Geological Survey maps most recently published, or any replacement to that symbol.
- Any watercourse which has a well-defined channel with a depth greater than 4 feet and banks steeper than 3:1 (horizontal to vertical bank ratio) and contains hydrophilic (i.e. water adapted) vegetation, riparian vegetation or woody vegetation including tree species.
- Those watercourses listed in Resolution No. 94-16 and incorporated herein by reference.

Setbacks included in the Code range from 35 to 150 feet and are dependent on the slope of the terrain parallel to the top of bank of the stream, with wider setbacks required on steeper slopes. Where the outboard dripline of upper canopy vegetation is located outside the setback required by the slope steepness, the setback will extend to the outboard dripline. Re-vegetation of portions of the streamside setbacks may be required as a part of an erosion control plan.

Section 18.108.027 – Sensitive Domestic Water Supply Drainages

This section of the County code requires the maintenance/preservation of 60% tree canopy cover and 40% of shrubby and herbaceous cover present as of 1993 as part of land uses involving ground disturbance in sensitive domestic water supply drainages.

Ground-disturbing activities in the County's Domestic Water Supply Drainages are only allowed to take place during the dry season, between April 1 and September 1 of each year. Installation of winterization measures may take place during other times of the year, but must be in place by September 15 of any given year.

Napa County's Domestic Water Supply Drainages include the entire watershed areas associated with the following reservoirs (not sure where these acreages came from, revised acreages are from most recent GIS drainage layer):

- Kimball Reservoir Drainage
- Rector Reservoir Drainage
- Milliken Reservoir Drainage
- Bell Canyon Reservoir Drainage
- Lake Hennessey Drainage including Friesen Lakes
- Lake Curry Drainage
- Lake Madigan Drainage

In these Sensitive Domestic Water Supply Drainages concentration of runoff will, wherever feasible, be avoided. Those drainage facilities and outfalls that unavoidably must be installed are required to be sized and designed to handle the runoff from a one-hundred-year storm

event without failure or unintentional bypassing. If a project will increase delivery of sediment or other pollutants from a drainage into a public water supply (reservoir) by more than 1% on an individual project basis or by more than 10% on a cumulative basis, the project will not be approved until a public hearing on the matter has been held and a use permit has been issued. A geotechnical report specifying the depth and nature of the soils and bedrock present and the stability of the area potentially affected by the project or project runoff is required for any project located in a Sensitive Domestic Water Supply Drainage.

Section 18.108.070 – Erosion Hazard Areas–Use Requirements

This section of the code stipulates that uses permitted within erosion hazard areas, those portions of land having slopes over five percent (5%), must include temporary and/or permanent erosion control measures in conformance with the County's National Pollution Discharge Elimination System (NPDES) General Permit on file with the state (i.e., a suite of Best Management Practices to eliminate, control and or minimize sediment/soil particle detachment and transport). The section further requires erosion control plan approval for agricultural earthmoving activity on lands having slopes greater than 5%, and establishes grading deadlines (i.e., a winter shutdown period).

Additionally, this section, together with Chapter 18.108.100, limits the removal of vegetation in erosion hazard areas to only that necessary to accommodate the proposed project, sets conditions for the preservation and/or replacement of trees in excess of six inches in diameter, and requires projects to have no adverse affect on sensitive, rare, threatened or endangered plants or animal or their habitats as designated by state or federal agencies with jurisdiction, and mapped on the County's environmental sensitivity maps.

Section 18.108.075 – Requirements for Structural Erosion Control Measures

This section establishes erosion control requirements for structural developments (anything built or constructed on, above, or below the surface of the land), and requires the submission of Evidence of Erosion Control Measures, and the incorporation of such measures in all applicable building, grading, septic, or other required plans or plot plans submitted for County approval.

Section 18.108.135 – Oversight and Operation Requirements

Maintenance and monitoring is a requirement of any erosion control plan and is the ultimate responsibility of the property owner. Section 18.108.135 requires that maintenance and monitoring be implemented for any erosion control plan and includes the following components:

- Implementation of the ECP measures must be overseen by the preparer of the ECP.
- The property owner must provide weekly inspections of the control measures between October 1st and April 1st of each year, as well as during rainfall events, to assure the measures are installed properly and are effective in controlling offsite sediment transport, and to implement whatever actions are needed to keep them functioning properly.
- The property owner must implement a permanent, on-going self-monitoring program of the groundcover conditions and erosion control facility operations. The groundcover
- monitoring shall conform to the NRCS standards for determining rangeland conditions.

4.5 BIOLOGICAL RESOURCES

- The property owner must submit to the County an Annual Erosion Control Plan Operation Status Report that specifies the groundcover conditions and how the erosion control measures are operating. The report shall specify the proposed management and cultural measures to be used the following year to return or maintain the ground cover in optimal condition and any other remedial actions necessary to restore the disturbed areas in such a manner to minimize erosion and resultant sedimentation.

Specific actions are required under Napa County Code Section 18.108.135 in the event of existing or pending erosion control measure failures. These actions include:

- Issuance of notification to the County;
- Implementation of temporary measures to stabilize the situation;
- Modification of the temporary measures, if necessary, within 24-hours of receipt of County comment on the adequacy of temporary measures;
- Submit an engineered plan for measures needed to permanently correct the problem within 96 hours of the discovery;
- Submit a plan for clean-up of the damage done with and engineer's estimate of the cost of cleanup;
- Submit, if necessary, a modified plan and cost estimate for the problem within 48 hours of receipt of County comments on the adequacy of the plan;
- Pay the County the cost of review within 48 hours of request;
- Post a security in the amount of 100 percent of the total cost to correct the problem and cleanup the damage; and,
- Insure the final correction and cleanup plans are implemented within 96 hours of its approval.

Finally, to assure the erosion control measures are adequately in place, the County may perform annual inspections of the project site, after the first major storm event of each winter and until the project has been completed and stable for three years. During these inspections, County staff may require that remedial actions be implemented where non-functioning or ineffective measures are identified. Additionally, once the project has been deemed complete, random site inspections by County staff may also occur with the same consequences.

Chapter 16.04 – Floodplain Management

Floodplain management provisions regulate a variety of activities, including the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel floodwaters. Floodplain management provisions seek to preserve riparian vegetation to preserve fish and wildlife habitat; prevent or reduce stream-bank erosion; maintain cool water temperatures for fish; prevent or reduce siltation; and promote wise uses and conservation of woodland and wildlife resources of the county. All development activities within riparian zones (50 feet beyond the top of streambanks, or 100 feet beyond the top of the Napa River banks

downstream of Zinfandel Lane) must be permitted. Development activities include substantial improvements to a structure. Section 16.04.750 sets restrictions on the type and amount of riparian vegetation that may be removed within the riparian zone, and prohibits locating structures within 10 feet of the top of the bank, as well as leaving slopes unprotected.

4.5.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

A biological resource impact is considered significant if implementation of the General Plan Update would:

- a) Have a substantial adverse effect, either directly or indirectly through habitat modifications, on any special-status plant or animal species identified, tracked or listed in local or regional plans, policies, or regulations, or by CDFG, USFWS or NOAA Fisheries;
- b) Have a substantial adverse effect on any wetlands, riparian, or other sensitive biotic community or native habitat, such as the Napa River, identified in local or regional plans, policies, or regulations, or by CDFG or USFWS;
- c) Interfere substantially with the movement of any native resident or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- d) Conflict with any adopted Habitat Conservation Plan (HCP), recovery plan, natural community conservation plan, local ordinance or other approved local, regional, or state plans, policies, intended to protect biological resources;
- e) Reduce the number or restrict the range of an endangered, rare, or threatened plant or animal species or biotic community, thereby causing the species or community to drop below self-sustaining levels.

The reader is referred to Section 4.6 (Fisheries) for a discussion of impacts on fisheries.

The varied topography and geology of Napa County creates a great variety of microclimates and soil conditions resulting in a wide diversity of habitats and plant and animal species that comprise these habitats. An evaluation of whether or not an impact on biological resources would be substantial must consider both the resource itself and how that resource fits into a regional or local context.

Substantial impacts would be those that would diminish, or result in the loss of, an important biological resource, or those that would obviously conflict with local, state, or federal resource conservation plans, goals, or regulations. Impacts are sometimes locally important, but not significant according to CEQA. The reason being, although the local impacts would result in an adverse alteration of existing conditions, they would not substantially diminish, or result in the permanent loss of, an important resource on a population-wide or region-wide basis.

METHODOLOGY

The biological resource analysis is based on field review of the County; review of existing natural community conditions; review of the BDR (Napa County, BDR 2005); review of the potential new development associated with each alternative; and modeling of potential vineyard

4.5 BIOLOGICAL RESOURCES

development scenarios by the year 2030 to characterize potential county-wide effects of expanded agriculture.

This impact analysis is organized by the significance criteria noted above: special-status plant and wildlife species; sensitive vegetation communities including wetlands; wildlife movement; and compliance with existing HCPs or other plans and policies. Each impact category includes a description of the specific potential impacts, as well as avoidance and mitigation measures that can potentially reduce and mitigate potentially significant impacts.

Features of the Alternatives and the vineyard development scenarios are briefly reviewed below to set the context for the impact analysis below. The reader is referred to Section 3.0 (Project Description) for further details on the project alternatives.

Alternative A

Development associated with this alternative that could affect biological resources includes the following:

- New Urban/Rural Land Uses and Development - This alternative is projected to result in a housing increase of 2,235 housing units and 16,014,000 square feet of non-residential uses between year 2005 and 2030. In addition to the vineyard development described below, additional agricultural operations (e.g. wineries, other agricultural processing, farm management) could occur in the County by the year 2030. Alternative A would not alter the current General Plan Land Use Map.
- Transportation and Infrastructure - The County roadway and highway system would generally remain in its current (2005) design for year 2030, with the exception of some minor improvements (e.g., safety improvements, intersection improvements, construction of new driveway accesses to County roadways).
- Vineyard Development - Continued vineyard development (projected at 10,000 to 12,500 additional acres by 2030) would occur in areas designated for agricultural use by the year 2030. No changes to the Winery Definition Ordinance or the Conservation Regulations would be made.

Alternative B

Development associated with this alternative that could affect biological resources includes:

- New Urban/Rural Land Uses and Development - this alternative would generally retain the existing land use designations under the current General Plan Land Use Map. However, this alternative would provide for additional growth within areas currently designated "urban" or non-agricultural (such as within the unincorporated community of Angwin) as well as re-use of the Pacific Coast/Boca site and Napa Pipe site. Between the year 2005 and 2030, it is projected that there would be an additional 3,885 dwelling units and 14,636,000 square feet of non-residential uses in the unincorporated portion of the County. In addition to the vineyard development described below, additional agricultural operations (e.g. wineries, other agricultural processing, farm management) could occur in the County by the year 2030.
- Transportation and Infrastructure - Infrastructure improvements would include widening of Jamieson Canyon (SR 12), extension of Flosden/Newell Road to Green Island Road, improvements (e.g., widening and interchange improvements) to SR 29 between the

City of American Canyon and the City of Napa and provision of recycled water to the Coombsville and Carneros areas. Potential increases in trails and public open space associated with policy provisions in the proposed Recreation and Open Space Element of the General Plan Update.

- Vineyard Development – Continued vineyard development (projected at 10,000 to 12,500 additional acres by 2030) would occur under Alternative B, similar to Alternative A, although environmentally superior vineyards would be provided with a “stream lined” approval process as an incentive for projects designed to exceed all regulatory standards. (See Impact 4.11.4 in Section 4.11 [Hydrology and Water Quality] for a complete impact discussion of this proposed policy and the mitigation measure that would establish required performance standards). Other new vineyards would be reviewed through existing approval processes.

Alternative C

Development associated with this alternative that could affect biological resources includes:

- New Urban/Rural Land Uses and Development - Between the year 2005 and 2030, it is projected that there would be an additional 7,635 dwelling units and 12,990,000 square feet of non-residential uses in the unincorporated portion of the County under this alternative. Alternative C would involve some additional land use changes beyond Alternative B that would allow for additional development/redevelopment (e.g., redesignation of Napa Pipe and Pacific Coast/Boca sites, potential expansion of the rural and urban uses in Angwin and establishment of a new RUL for the City of American Canyon). In addition to the vineyard development described below, additional agricultural operations (e.g. wineries, other agricultural processing, farm management) could occur in the County by the year 2030.
- Transportation and Infrastructure – Same as that described above for Alternative B.
- Vineyard Development – Same as that described for Alternative B.

Vineyard Development Land Use Scenarios (All Alternatives)

To analyze potential future vineyard development under the General Plan Update, three potential vineyard development scenarios were developed for this DEIR that could occur under Alternatives A, B and C. A fourth scenario was included to assess the potential impacts associated with Alternative E (see Section 6.0, Alternatives). It should be noted that these vineyard development scenarios were developed to evaluate potential County-wide (i.e. regional) resource impacts from vineyard development by the year 2030 and are not intended as predictions of precisely where vineyard development will occur under the proposed General Plan Update Alternatives. The scenarios described below were developed to test general land use development patterns and thus to consider potential landscape level impacts to the natural environment, including biological resources. Once again, it must be stressed, that these four hypothetical vineyard development scenarios represent possible future conditions that could occur by the year 2030 and allow an assessment of the type and degree of potential impacts; they are not specific proposals and do not designate preferred or predicted areas for vineyard development under the General Plan Update.

- Scenario 1 - This scenario evaluates the effects of development of 10,000 new vineyard acres, with 75% designated within Napa River Basin and 25% in Berryessa and Suisun

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Basins (see Figure 1 of **Appendix H**). The distribution of vineyard development under this scenario is specifically based on future vineyard development assumed in the 2050 Napa Valley Water Resources Study (West Yost and Associates, 2005).

- Scenario 2: This scenario evaluates the effects of concentrating development of 10,000 new vineyard acres within the County's municipal water supply watersheds. Napa River Basin municipal watersheds include: Hennessy, Rector, Milliken, Kimball and Bell Canyon. This has the effect of concentrating the majority of new vineyard development in the Eastern Hills watersheds (see Figure 2 of **Appendix H**).
- Scenario 3: This scenario evaluates the effects of development of 12,500 new vineyard acres with a concentration on timberlands (on slopes up to 30%) for conversion to vineyards. Timberlands are lands that include specific timber tree species or soils that can support timber tree species. This has the effect of concentrating the vineyards in the East and West Hills, as well as the Berryessa areas (see Figure 3 of **Appendix H**).
- Scenario 4: 2030 This scenario evaluates the effects of development of 15,000 new vineyard acres and included an increased slope limit of 35% for both prime soils and timberlands availability, although neither General Plan Update Alternative A, B or C would relax requirements on slopes of greater than 30%. (This feature is included in Alternative E, described later in this EIR.) It is important to note that additional developable land was assigned adjacent to new vineyard acres designated in Scenario 3 (see Figure 4 of **Appendix H**).

All four vineyard development scenarios were created by first assuming development of parcels with pending vineyard Erosion Control Plans on file with Napa County in 2006. The remaining acreage distribution was selected to a large degree randomly, but included locations thought to be most likely to be developed, such as acreages adjacent to existing vineyards and acreages located in close proximity to existing roads. Obviously, the vineyard locations used for the modeling scenarios are not intended or designed to describe site-specific impacts or conditions, but to provide a cumulative analysis of aggregated (County-wide and watershed-wide) impacts.

Biotic Community Impacts

The potential loss of biotic communities associated with land use and development (other than vineyard expansion) Alternatives A, B, and C were identified using the GIS data layers from the BDR and overlaying new development areas. For Alternatives A and B, this meant overlaying the GIS data layers on undeveloped portions of the so called "urban bubbles" where non-agricultural uses would be allowed without a Measure J vote. For Alternative C, the GIS data layer was compared to the proposed land use map, which includes expansion of the Angwin "bubble" (to include an already developed area), a new "bubble" in Pope Valley, and an RUL for American Canyon. The results are listed in **Table 4.5-3**.

TABLE 4.5-3
BIOTIC COMMUNITIES THAT COULD BE CONVERTED TO URBAN OR RURAL LAND USE UNDER ALTERNATIVES A, B, OR C
LAND USE MAPS

Biotic Community	Alternative A (Acres)	Alternative B (Acres)	Alternative C (Acres)
Deciduous Oak woodland	6	6	3
Douglas-fir/Redwood Forest	199	199	406
Evergreen Oak Woodland	105	105	81
Freshwater Wetlands	10	10	13
Mixed Willow Woodland	34	34	35
Pine Forest	3	3	9
Salt Marsh	141	141	141
Serpentine Grassland	7	7	7
Serpentine Shrubland	320	320	292
Total	825	825	987

Note: These biotic communities are not considered sensitive but may contain sensitive biotic communities.

It should be noted that under all alternatives, development of single family homes could continue to occur on parcels throughout the County (generally one per parcel), and that this development, combined with other non-discretionary approvals, could increase the totals shown above. Minimum parcel sizes in the unincorporated County would remain so large (40-160 acres) under all alternatives, however, that the contribution from these developments would not only be geographically diffuse, they would be extremely small. In addition, it should also be noted that the totals identified in **Table 4.5-3** are associated with full build out of areas designated non-agricultural under the alternative land use maps, which would not occur by year 2030.

The potential loss of vegetation communities associated with vineyard expansion was identified using the GIS data layers from the BDR and overlaying the hypothetical vineyard development scenarios. As noted above, the scenarios were developed to assess a range of potential effects of continued vineyard expansion. The results are listed in **Table 4.5-4**.

TABLE 4.5-4
BIOTIC COMMUNITIES FOUND IN THE AREA ENCOMPASSED BY VINEYARD EXPANSION SCENARIOS

Biotic Community	Scenario 1 (Acres)	Scenario 2 (Acres)	Scenario 3 (Acres)	Scenario 4 (Acres)
Agriculture	3,103	1,794	1,438	1,597
Annual grassland and Native grassland	2,591	2,322	1,147	2,056
Chaparral	254	614	472	554
Deciduous Oak woodland	710	938	1,224	1,398
Developed	627	196	285	310
Douglas-fir/Redwood Forest	266	836	5,044	4,578

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Biotic Community	Scenario 1 (Acres)	Scenario 2 (Acres)	Scenario 3 (Acres)	Scenario 4 (Acres)
Evergreen Oak Woodland	965	1,500	963	2,017
Evergreen Oak Woodland, Deciduous Oak Woodland	305	825	701	1,054
Freshwater wetlands	74	65	29	64
Mixed Willow woodland	15	17	12	11
Non-native woodland	103	77	62	64
Pine forest	60	108	688	574
Rock Outcrop	1	0	2	4
Salt Marsh	1	0	0	0
Serpentine grassland	24	38	29	30
Serpentine shrubland	41	119	82	111
Shrubland	55	123	30	62
Streams and reservoirs	69	66	46	52
Streams and salt marsh	36	36	36	36
Unclassified	120	43	56	69
Unknown	1	8	1	23
Valley Oak woodland	578	325	87	282
White alder woodland	6	27	16	18
<i>Total</i>	<i>10,005</i>	<i>10,077</i>	<i>12,450</i>	<i>14,964</i>

Note: These biotic communities are not considered sensitive but may contain sensitive biotic communities.

Sensitive Biotic Community Impacts

As identified previously in the section, several biotic communities (or components of biotic communities) in Napa County are considered sensitive. These communities are:

- designated by DFG as sensitive;
- considered by local experts to be biotic communities of limited distribution in Napa County; and/ or
- considered to waters of the US or of the State.

The loss of sensitive biotic communities associated with urban/rural land uses and development (i.e. land use changes other than vineyard expansion) for Alternatives A, B, and C were identified using the GIS data layers from the BDR and overlaying non-agricultural areas shown on the land use map associated with each alternative (plus the RUL for American Canyon proposed in Alternative C). The results are listed in **Table 4.5-5**.

The loss of vegetation communities associated with vineyard expansion was identified using the GIS data layers from the BDR and overlaying the potential vineyard development scenarios. As noted above, the scenarios were developed to assess a range of potential effects of continued vineyard expansion on a regional and cumulative, rather than site-specific scale. The results are listed in **Table 4.5-6**.

**TABLE 4.5-5
LAND COVER TYPES CONTAINING SENSITIVE BIOTIC COMMUNITIES THAT COULD BE CONVERTED TO URBAN OR RURAL LAND USE UNDER ALTERNATIVES A, B, OR C LAND USE MAPS**

Land Cover Type	Source	Major Community Association	Alternative A (Acres)		Alternative B (Acres)		Alternative C (Acres)		Total of Land Cover Type in County (Acres)
			Acres	% of County Total for Community Type	Acres	% of County Total for Community Type	Acres	% of County Total for Community Type	Acres
California Annual Grasslands Alliance	CNDDDB Sensitive Natural Communities	Grassland Communities	604	1%	604	1%	909	2%	39,175
California Bay - Leather Oak - (Rhamnus spp.) Mesic Serpentine NFD Super Alliance	CNDDDB Sensitive Natural Communities	Chaparral / Scrub Communities	64	1%	64	1%	61	1%	7,176
California Bay - Madrone - Coast Live Oak NFD Super Alliance	CNDDDB Sensitive Natural Communities	Oak Woodland Communities	105	<1%	105	<1%	81	<1%	18,253
Mixed Willow Super Alliance	CNDDDB Sensitive Natural Communities	Wetland Communities	29	5%	29	5%	31	6%	542
Oregon White Oak Alliance	CNDDDB Sensitive Natural Communities	Oak Woodland Communities	6	<1%	6	<1%	3	<1%	1,125
Saltgrass - Pickleweed NFD Super Alliance	CNDDDB Sensitive Natural Communities	Wetland Communities	141	4%	141	4%	141	4%	3,550
Upland Annual Grasslands & Forbs Formation	CNDDDB Sensitive Natural Communities	Grassland Communities	1,291	11%	1,291	11%	1350	11%	12,153

Note: Not all land cover types above are not sensitive biotic communities but may contain unmapped sensitive biotic communities (see pages 4.5-9 and -13).

**TABLE 4.5-6
LAND COVER TYPES THAT CONTAIN SENSITIVE BIOTIC COMMUNITIES FOUND IN THE AREAS ENCOMPASSES BY VINEYARD EXPANSION SCENARIOS**

Land Cover Type	Source	Major Community Association	Scenario One		Scenario Two		Scenario Three		Scenario Four		Total In County
			Acres	% of County Total for Community Type	Acres	% of County Total for Community Type	Acres	% of County Total for Community Type	Acres	% of County Total for Community Type	Total for Community Type in County
Coast Redwood Alliance	CNDDDB Sensitive Natural Communities	Conifer Forest Communities	0	0%	0	0%	22	7%	22	7%	324
Douglas-fir - Ponderosa Pine Alliance	CNDDDB Sensitive Natural Communities	Conifer Forest Communities	70	1%	702	8%	2,013	22%	1,634	18%	9,197
California Bay - Leather Oak - (Rhamnus spp.) Mesic Serpentine NFD Super Alliance	CNDDDB Sensitive Natural Communities	Chaparral / Scrub Communities	0	0%	13	<1%	19	<1%	23	<1%	7,176
Leather Oak - California Bay - Rhamnus spp. Mesic Serpentine NFD Alliance	CNDDDB Sensitive Natural Communities	Chaparral / Scrub Communities	3	<1%	18	<1%	7	<1%	17	<1%	4,399
Leather Oak - White Leaf Manzanita - Chamise Xeric Serpentine NFD Super Alliance	CNDDDB Sensitive Natural Communities	Chaparral / Scrub Communities	26	<1%	65	<1%	33	<1%	54	<1%	26,987
White Leaf Manzanita - Leather Oak - (Chamise - Ceanothus spp.) Xeric Serpentine NFD Super Alliance	CNDDDB Sensitive Natural Communities	Chaparral / Scrub Communities	13	<1%	23	<1%	24	<1%	17	<1%	8,005
California Annual Grasslands Alliance	CNDDDB Sensitive Natural Communities	Grassland Communities	1,523	4%	1,637	4%	826	2%	1,430	4%	39,175
Upland Annual Grasslands & Forbs Formation	CNDDDB Sensitive Natural Communities	Grassland Communities	1,068	9%	685	6%	321	3%	627	5%	12,153
(Carex spp. - Juncus spp. - Wet Meadow Grasses) NFD Super Alliance	Biotic Communities of Limited Distribution	Wetland Communities	68	24%	61	22%	29	10%	64	23%	282
California Bay - Madrone - Coast Live Oak - (Black Oak Big - Leaf Maple) NFD Super Alliance	CNDDDB Sensitive Natural Communities	Oak Woodland Communities	135	1%	132	1%	312	2%	629	3%	18,253
Oregon White Oak Alliance	CNDDDB Sensitive Natural Communities	Oak Woodland Communities	37	3%	16	1%	396	35%	369	33%	1,125
Mixed Willow Super Alliance	CNDDDB Sensitive Natural Communities	Wetland Communities	15	3%	17	3%	12	2%	11	2%	542
(Bulrush - Cattail) Fresh Water Marsh NFD Super Alliance	CNDDDB Sensitive Natural Communities	Wetland Communities	6	2%	4	2%	0	0%	0	0%	271

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Land Cover Type	Source	Major Community Association	Scenario One		Scenario Two		Scenario Three		Scenario Four		Total In County
			Acres	% of County Total for Community Type	Acres	% of County Total for Community Type	Acres	% of County Total for Community Type	Acres	% of County Total for Community Type	Total for Community Type in County
Saltgrass - Pickleweed NFD Super Alliance	CNDDDB Sensitive Natural Communities	Wetland Communities	1	<1%	0	0%	0	0%	0	0%	3,550
Brewer Willow Alliance	Biotic Communities of Limited Distribution	Wetland Communities	0	0%	0	0%	0	0%	0	0%	272
Ponderosa Pine Alliance	Biotic Communities of Limited Distribution	Conifer Forest Communities	14	8%	58	35%	51	30%	49	29%	168
Riverine, Lacustrine and Tidal Mudflats	Biotic Communities of Limited Distribution	Wetland Communities	36	9%	36	9%	36	9%	36	9%	389
Tanbark Oak Alliance	Biotic Communities of Limited Distribution	Oak Woodland Communities	14	6%	52	21%	85	35%	81	33%	245

Note: Not all land cover types above are not sensitive biotic communities but may contain unmapped sensitive biotic communities (see pages 4.5-9 and -13).

The GIS overlay results were used to support the analysis of impacts below.

Potential Impacts

The following generic potential impacts were considered in the project-specific analysis of impacts (by alternative) included below.

Urban/Rural Land Use and Development

- Vegetation removal, grading, and construction of new residential, industrial, and commercial uses could result in the direct loss of terrestrial special status species and their habitats and loss of sensitive natural communities.
- Construction in streams and adjacent riparian habitats could result in direct loss of special-status species and their habitat and loss and/or degradation of aquatic and riparian habitat and wetlands.
- Construction in habitats adjacent to streams could disturb hibernacula of special status amphibians and reptiles.
- Discharge of construction and other potential sources of polluted stormwater, increased urban stormwater runoff, and increase in wastewater generations could result in indirect impacts to special status aquatic species and sensitive natural communities. Water quality impacts are discussed in more detail in Section 4.11 (Hydrology and Water Quality).
- Loss of natural ground cover and increase in impervious areas could result in hydrologic changes that could affect special status species and riparian habitat through alteration of stream flows, timing, and velocities. Hydrology impacts are discussed in more detail in Section 4.11 (Hydrology and Water Quality).
- Increased urban development particularly on the edge of existing development could result in further fragmentation of wildlife habitats and disruption of movement corridors.

Transportation and Infrastructure

- Vegetation removal, grading, and construction of new residential, industrial, and commercial uses could result in the direct loss of terrestrial special status species and their habitats, and loss of sensitive natural communities, but the amount of conversion would be limited to the immediate infrastructure area.
- Construction in streams and adjacent riparian habitats could result in direct loss of individuals and loss/degradation of aquatic habitat and construction in habitats adjacent to streams could disturb hibernacula of special status amphibians and reptiles.
- Discharge of construction stormwater and road runoff could result in indirect impacts to special status aquatic species and their habitat and to riparian areas. In general use of recycled water, provided it complies with Title 22 standards for such water would not be expected to result in significant impacts to biological resources. Water quality impacts are discussed in more detail in Section 4.11 (Hydrology and Water Quality).

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- Loss of natural ground cover and increase in impervious areas could result in hydrologic changes that could affect special status species habitat and riparian habitat through alteration of stream flows, timing, and velocities. Hydrology impacts are discussed in more detail in Section 4.11 (Hydrology and Water Quality).
- New roads, particularly the expansion of SR 12 in Jamieson Canyon and other roads, could result in fragmentation of habitats and disruption of movement corridors.

Vineyard and Winery Processing/ Operations

- Vegetation removal, grading, and ripping of the soil could result in the direct loss of individuals of terrestrial species populations and their associated habitat and sensitive natural communities.
- Construction in streams and adjacent riparian habitats could result in direct loss of individuals and loss/degradation of aquatic habitat and construction in habitats adjacent to streams could disturb hibernacula of special status amphibians and reptiles.
- Vegetation removal, grading, and ripping of the soil and new vineyard roads could result in increased sedimentation inputs into on-site and downstream wetlands and drainages that could affect special status species. Pesticide and fertilizers use could also result in impacts to water quality, thus affecting aquatic organisms. Removal of riparian vegetation could result in temperature impacts to associated aquatic environments. Water quality impacts are discussed in more detail in Section 4.6 (Fisheries) and Section 4.11 (Hydrology and Water Quality).
- Vegetation removal, grading, and ripping of the soil could result in hydrologic changes that could affect special status species habitat and riparian areas through alteration of stream flows, timing, and velocities. Hydrology impacts are discussed in more detail in Section 4.11 (Hydrology and Water Quality).
- Vegetation removal and conversion could also result in fragmentation of habitats and disruption of movement corridors.

PROJECT IMPACTS AND MITIGATION MEASURES

Disturbance or Loss of Special Status Plant and Animal Species

Impact 4.5.1 Land uses and development under the proposed General Plan Update could result in the loss of special-status plant and animal species. (Significant and Mitigable - All Alternatives)

As described above in sub-section 4.5.1 (Existing Setting), the County contains habitat conditions that support several special-status plant and animal species that occur throughout the County. **Tables 4.5-3 through 4.5-6** identify potential ranges of habitat disturbance that could occur under the General Plan Update due to urban/rural development and anticipated vineyard development. Habitat disturbance could result in the loss of special-status plant and animal species. **Table 4.5-7** identifies potential special-status plant and animal species that could be impacted. Loss of individuals or occupied habitat for these resources would be considered significant. Though not associated with Alternatives A, B, and C, potential impacts associated with Vineyard Scenario 4 is presented below and applies only to Alternative E (see Section 6.0).

As previously described, the County currently implements its Conservation Regulations (Chapter 18.108) in a manner that provides the following protection measures for existing vegetation/habitat conditions that would reduce the maximum extent of habitat impacts identified in **Tables 4.5-3 through 4.5-6**):

- Section 18.108.025 - Setback requirements that prohibit vegetation removal along intermittent and perennial streams as well as provisions for potential revegetation of areas within setbacks under certain circumstances.
- Section 18.108.027 – Requirements for the retention of existing vegetation in domestic water supply drainages (Kimball Reservoir, Rector Reservoir, Milliken Reservoir, Bell Canyon Reservoir, Lake Hennessey [including Friesen Lakes], Lake Curry and Lake Madigan) that requires retention of at least 60% of the existing tree canopy and at least 40% of the existing shrub, brush and associated annual and perennial herbaceous vegetation.
- Section 18.108.100 – This section includes vegetation preservation requirements that prohibits removal of vegetation if it is identified as being necessary for erosion control or for preservation of threatened or endangered plant or animal habitats. This section also requires the protection of trees to be retained during construction activities and provisions of the planting of replacement vegetation of equivalent kind, quality and quantity (if determined necessary).

**TABLE 4.5-7
SPECIAL-STATUS SPECIES RECORDED OCCURRENCES IN GENERAL PLAN ALTERNATIVE PLAN AREAS AND MODELED VINEYARD SCENARIO AREAS**

Scientific and Common Names	Status: Federal/State/ CNPS or Other ¹	Non-Ag areas of Alt A, B, C in Which the Species is Associated	Vineyard Scenario (s) in Which the Species is Associated 1,2,3,4	Known Napa County Locations ²
<i>Plants</i>				
<i>Amorpha californica</i> , var. <i>napensis</i> Napa false indigo	SC/-1B	Non-Ag Areas of All Alternatives	Vineyard Scenarios 1,2,3,4	Western Napa County; Rutherford, Kenwood, Sonoma, Detert Reservoir, and St. Helena quads
<i>Astragalus clarianus</i> Clara Hunt's milk-vetch	E/T/1B		Vineyard Scenario 1	Central-Western Napa County (Rutherford and St. Helena quads)
<i>Atriplex joaquiniana</i> San Joaquin spearscale	SC/-1B	Non-Ag Areas of All Alternatives		Southern Napa County, in Cuttings Wharf and Napa quads
<i>Calochortus uniflorus</i> Large-flowered pink star tulip	-/-LR		Vineyard Scenario 1	Calistoga, St. Helena, Conn Valley
<i>Calystegia collina</i> ssp. <i>oxyphylla</i> Mt. Saint Helena morning-glory	SLC/-4		Vineyard Scenarios 3,4	Northwestern Napa County

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Scientific and Common Names	Status: Federal/State/ CNPS or Other ¹	Non-Ag areas of Alt A, B, C in Which the Species is Associated	Vineyard Scenario (s) in Which the Species is Associated 1,2,3,4	Known Napa County Locations ²
<i>Ceanothus confusus</i> Rincon Ridge ceanothus	SC/-/1B		Vineyard Scenarios 3,4	Western Napa County; Rutherford, Aetna Springs, Detert Reservoir, and St. Helena quads
<i>Ceanothus divergens</i> Calistoga ceanothus	SC/-/1B		Vineyard Scenarios 1,3,4	Western Napa County, in St. Helena, Calistoga, Detert Reservoir, Mt. St. Helena and Rutherford quads
<i>Ceanothus purpureus</i> Holly-leaf ceanothus	SLC/-/1B	Non-Ag Areas of All Alternatives	Vineyard Scenarios 1,2,3,4	Central and Eastern Napa County, in Capell Valley, Mt. George, St. Helena, and Yountville quads
<i>Ceanothus sonomensis</i> Sonoma ceanothus	SC/-/1B		Vineyard Scenarios 3,4	Western Napa County, in Sonoma, Rutherford, and Detert Reservoir quads
<i>Downingia pusilla</i> Dwarf downingia	-/-/2	Non-Ag Areas of All Alternatives	Vineyard Scenarios 1,2,3,4	Southeastern Napa County, in Capell Valley, Yountville, Mt. George and Cuttings Wharf quads
<i>Hesperolinon serpentinum</i> Napa western flax	SC/-/1B		Vineyard Scenarios 3,4	Northern and Central Napa County, in Detert Reservoir, Aetna Springs, Walter Springs, Chiles Valley, Yountville, Capell Valley, and St. Helena quads
<i>Juglans californica</i> var. <i>hindsii</i> a.k.a. <i>Juglans hindsii</i> Northern California black walnut	SC/-/1B	Non-Ag Areas of All Alternatives	Vineyard Scenarios 1,3,4	Southern and Central Napa County, in Capell Valley and Napa quads
<i>Lathyrus jepsonii</i> var. <i>jepsonii</i> Delta tule pea	SC/-/1B	Non-Ag Areas of All Alternatives		Southern Napa County, in Cuttings Wharf and Napa quads
<i>Lilaeopsis masonii</i> Mason's lilaeopsis	SC/R/1B	Non-Ag Areas of All Alternatives		Southern Napa County, in Cuttings Wharf and Napa quads
<i>Lilium rubescens</i> Chaparral lily	-/-/4, LR		Vineyard Scenarios 1,3,4	Mt. St. Helena to Hogback Mtn, Mt. George Area
<i>Limnanthes vinculans</i> Sebastopol meadowfoam	E/E/1B		Vineyard Scenarios 1,2	Central Napa County, in Yountville quad
<i>Lupinus sericatus</i> Cobb Mtn. lupine	SLC/-/1B	Non-Ag Areas of All Alternatives		Western Napa County, in Detert Reservoir, Rutherford, Aetna Springs, Calistoga, Sonoma, and St. Helena

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Scientific and Common Names	Status: Federal/State/ CNPS or Other ¹	Non-Ag areas of Alt A, B, C in Which the Species is Associated	Vineyard Scenario (s) in Which the Species is Associated 1,2,3,4	Known Napa County Locations ²
				quads
<i>Navarretia leucocephala</i> ssp. <i>pauciflora</i> Few-flowered navarretia	E/T/1B		Vineyard Scenarios 1,2,3,4	Central and Eastern Napa County, in Capell Valley and Yountville quads
<i>Perideridia gairdneri</i> ssp. <i>gairdneri</i> Gairdner's yampah	SC/-/4		Vineyard Scenarios 1,2,3,4	Unknown
<i>Plagiobothrys strictus</i> Calistoga popcorn-flower	E/T/1B		Vineyard Scenarios 1,2	Western Napa County, in Calistoga quad
<i>Poa napensis</i> Napa blue grass	E/E/1B		Vineyard Scenarios 1,2	Western Napa County, in Calistoga quad
<i>Pogogyne douglasii</i> ssp. <i>parviflora</i> Small-flowered pogogyne	-/-/3, LR		Vineyard Scenario 1	Central and western Napa County
<i>Ranunculus lobbii</i> Lobb's aquatic buttercup	-/-/4, LR		Vineyard Scenario 2	Throughout Napa County
<i>Sidalcea hickmanii</i> ssp. <i>viridis</i> Marin checkerbloom	SLC/-/1B		Vineyard Scenario 2	In Mt. George and Calistoga quads
<i>Sidalcea oregana</i> ssp. <i>hydrophila</i> Marsh checkerbloom	SC/-/1B	Non-Ag Areas of All Alternatives	Vineyard Scenarios 1,2,3,4	Northwestern Napa County, in Detert Reservoir quad
<i>Streptanthus brewerii</i> var. <i>hesperides</i> Green jewel-flower	SC/-/1B	Non-Ag Areas of All Alternatives		Northern, Central and Western Napa County, in Yountville, Chiles Valley, Detert Reservoir, Rutherford, Aetna Springs, Walter Springs, Knoxville, Jericho Valley, Mt. St. Helena, and St. Helena quads
<i>Streptanthus morrisonii</i> ssp. <i>elatus</i> Three peaks jewel-flower	SC/-/1B		Vineyard Scenarios 3,4	Northern Napa County, in Detert Reservoir, Aetna Springs, Knoxville, and Jericho Valley quads
<i>Streptanthus morrisonii</i> ssp. <i>kruckebergii</i> Kruckeberg's jewel-flower	SC/-/1B		Vineyard Scenarios 3,4	Northern Napa County, in Detert Reservoir, Aetna Springs, Knoxville, and Jericho Valley quads
<i>Trichostema</i> spp. (was <i>rubisepalum</i> , may be renamed <i>napaensis</i>)	-/-/4, LR		Vineyard Scenarios 1,2,3,4	Central Napa County

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Scientific and Common Names	Status: Federal/State/CNPS or Other ¹	Non-Ag areas of Alt A, B, C in Which the Species is Associated	Vineyard Scenario (s) in Which the Species is Associated 1,2,3,4	Known Napa County Locations ²
Hernandez turpentine weed				
<i>Wildlife</i>				
<i>Accipiter cooperii</i> Cooper's hawk	—/SSC		Vineyard Scenarios 3,4	Year-round resident; widespread during the winter - uncommon breeder
<i>Agelaius tricolor</i> Tricolored blackbird	—/SSC	Non-Ag Areas of All Alternatives		Summer resident; breeding known from Pope Valley, Huichica Creek and Buchli Station; 4 CNDDDB occurrences, all extant
<i>Strix occidentalis caurina</i> Northern spotted owl	T/SSC		Vineyard Scenarios 2,3,4	Year-round resident; ~25 breeding territories in western County, and Angwin (unoccupied in 2002)
<i>Xanthocephalus xanthocephalus</i> Yellow-headed blackbird	—/—/LR		Vineyard Scenarios 1,2,3,4	Rare summer resident at Huichica Creek Wildlife Area
<i>Antrozous pallidus</i> Pallid bat	—/SSC	Non-Ag Areas of All Alternatives		Found in suitable habitat throughout the county. 6 CNDDDB occurrences, 5 extant and 1 extirpated;
<i>Reithrodontomys raviventris</i> Salt marsh harvest mouse	E/E, FP	Non-Ag Areas of All Alternatives		Found in suitable habitat (tidal marsh) in southern Napa Co.; 5 CNDDDB occurrences all extant and all from Cuttings Wharf quad
<i>Branchinecta lynchi</i> Vernal pool fairy shrimp	T/—	All		1 CNDDDB occurrence observed in 2003 south end of Napa airport; Critical habitat designation NW of the city of Napa in a relic vernal pool;
<i>Clemmys marmorata marmorata</i> Northwestern pond turtle	—/SSC	Non-Ag Areas of All Alternatives		Could occur in suitable habitat throughout the County. 15 CNDDDB occurrences, all extant
<i>Rana aurora draytoni</i> California red-legged frog	T/SSC	Non-Ag Areas of Alternative C Only	Vineyard Scenarios 1,3,4	Found in suitable habitat; 2 CNDDDB occurrences, presumed extant (Wragg Creek and in a tributary to American Creek)

Notes: ¹ Status explanations:

Federal

E = listed as endangered under the federal Endangered Species Act.

T = listed as threatened under the federal Endangered Species Act.

PE = proposed for federal listing as endangered under the federal Endangered Species Act.

PT = proposed for federal listing as threatened under the federal Endangered Species Act.

C = candidate species (species for which USFWS has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposed rule to list).

SLC = species of local concern; species whose status is being monitored by the local USFWS district office, but which has no formal protected status under the federal Endangered Species Act.

SC = species of concern; species for which existing information indicates it may warrant listing but for which substantial biological information to support a proposed rule is lacking.

– = no listing.

State

E = listed as endangered under the California Endangered Species Act.

T = listed as threatened under the California Endangered Species Act.

R = listed as rare under the California Native Plant Protection Act. This category is no longer used for newly listed plants, but some plants listed before the California Native Plant Protection Act was enacted retain this designation.

CE = candidate species for listing as endangered under the California Endangered Species Act.

SSC = species of special concern in California.

– = no listing.

California Native Plant Society

1A = List 1A species: presumed extinct in California.

1B = List 1B species: rare, threatened, or endangered in California and elsewhere.

2 = List 2 species: rare, threatened, or endangered in California but more common elsewhere.

3 = List 3 species: plants about which more information is needed to determine their status.

4 = List 4 species: plants of limited distribution. A watch list.

– = no listing.

* = known populations believed extirpated from Napa County.

? = population location within Napa County uncertain.

Other

LR = considered by local experts to be rare in the Napa County portion of its range, although it may be more common elsewhere.

² General occurrence information is based on incomplete survey data for Napa County. Species may occur in other areas where surveys are lacking.

Potential impacts specific to each of the three alternatives are further described below:

Alternative A

This alternative would result in the least extent of potential impact to special-status species and their associated habitats based on the analysis of potential urban/rural development provided in **Table 4.5-3** (825 acres) and the fact that this alternative would not include roadway improvements identified for Alternatives B and C. However, Alternative A would experience continued vineyard development, as represented by hypothetical vineyard development scenarios 1 through 3 described above. Land use changes, including vineyard development could result in direct and indirect impacts to special status plant and animal species due to disturbance or conversion of natural habitats, as shown in Table 4.5-3 through Table 4.5-6 and Table 4.5-7. This impact would be **significant and mitigable** with the implementation of the mitigation measures identified below.

Alternative B

Alternative B would result in similar impacts to special-status species and their habitats based on proposed urban/rural development allowed with its land use map. However, this alternative would also include roadway improvements (associated with the proposed General Plan Update Circulation Element), extension of recycled water to Coombsville and Carneros, as well as policy provisions for trails and public open space (proposed Recreation and Open Space Element in the General Plan Update). Since the specific alignments, siting and design of these improvements have not been identified, it is not possible at this DEIR to quantify potential habitat loss. At minimum, these alternative features would result in additional impacts to grassland and wetland habitats (associated with habitat in areas of proposed roadway improvements and recycled water facilities). This development in addition to potential vineyard development under

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scenarios 1 through 3 described above would contribute to direct and indirect impacts to special status plant and animal species due to disturbance or conversion of natural habitats, as shown in Table 4.5-3 through Table 4.5-6 and Table 4.5-7. Impacts associated with roadway improvements and potential recreation development would increase the potential for habitat disturbance/loss by an unknown amount. Nonetheless, this combined impact would be **significant and mitigable** with the implementation of the mitigation measures identified below.

Alternative C

As identified in **Table 4.5-3**, potential urban/rural development under this alternative would have the largest impact on habitat of the three alternatives evaluated. In addition, Alternative C would have the same potential impacts as Alternative B associated with roadway improvements, recycled water, trails and public open space. The urban/rural development in addition to potential vineyard development under scenarios 1 through 3 described above would contribute to direct and indirect impacts to special status plant and animal species due to disturbance or conversion of natural habitats, as shown in Table 4.5-3 through Table 4.5-6 and Table 4.5-7. Impacts associated with roadway improvements and potential recreation development would increase the potential for habitat disturbance/loss by an unknown amount. Nonetheless, this combined impact would be **significant and mitigable** with the implementation of the mitigation measures identified below.

Mitigation Measures

The following mitigation measures would apply to all three alternatives.

- MM 4.5.1a** The County shall provide a policy in the General Plan that requires a biological resources evaluation for discretionary projects in areas identified to contain or possibly contain listed plant and/or wildlife species based upon data provided in the Baseline Data Report (BDR) or other technical materials. This evaluation shall be conducted prior to the authorization of any earthmoving activities.
- MM 4.5.1b** The County shall provide a policy in the General Plan that requires all discretionary residential, commercial, industrial and recreational projects, wineries and new vineyards, and water development projects that identify special-status species in a biological resources evaluation to avoid impacts to special-status species and their habitat to the maximum extent feasible. Where impacts cannot be avoided, projects shall include the implementation of site-specific or project-specific effective mitigation strategies developed by a qualified professional in consultation with state or federal resource agencies with jurisdiction (if applicable) including, but not limited to, the following strategies:
- Preservation of habitat and connectivity of adequate size, quality and configuration to support the special-status species identified in a manner generally consistent with the provisions of County Code Chapter 18.108. Connectivity shall be determined based on the specifics of the species needs.
 - Provision of supplemental planting and maintenance of grasses, shrubs and trees of similar quality and quantity to provide adequate vegetation

cover to enhance water quality, minimize sedimentation and soil transport, and provide adequate shelter and food for wildlife.

- Provide protection for habitat and the known locations of special-status species through adequate buffering or other means.
- Provide replacement habitat of like quantity and quality on- or off-site for special-status species.
- Enhance existing special-status species habitat values through restoration and replanting of native plant species.
- Provision of temporary or permanent buffers of adequate size (based on the specifics of the special-status species) to avoid nest abandonment by nesting migratory birds and raptors associated with construction and site development activities.
- Incorporation of the provisions or demonstration of compliance with applicable recovery plans for federally listed species.

MM 4.5.1c The County shall provide a policy in the General Plan that requires the development of a Noxious Weed Ordinance. The Noxious Weed Ordinance shall include regulatory standards for construction activities that occur adjacent to natural areas to inhibit the establishment of noxious weeds through accidental seed import.

Implementation of the above mitigation measures, mitigation measures MM 4.5.2a through c, MM 4.6.1b and MM 4.6.5a through c and MM 4.11.4 as well as implementation of the Napa County Conservation Regulations and provisions of state and federal law associated with special status species would avoid impacts and take of special-status species. Thus this impact would be mitigated to **less than significant** for all alternatives.

Loss of Sensitive Biotic Communities

Impact 4.5.2 Land uses and development under the proposed General Plan Update could result in the loss of sensitive biotic communities and oak woodlands within the County (Significant and Unavoidable - All Alternatives)

Tables 4.5-5 and **4.5-6** identify the potential acreage of land cover types that could contain sensitive biotic communities that could be affected by each alternative and vineyard development scenario. Though not associated with Alternatives A, B, and C, potential impacts associated with Vineyard Scenario 4 is presented below and applies only to Alternative E (see Section 6.0). Numerous sensitive natural communities are known from Napa County. There are likely to be additional areas with these unique communities since existing mapping represents only the known occurrences of these communities. Future land use activities including land development, expanded transportation corridors and vineyard conversion could affect both mapped and unmapped sites. Site-specific habitat analysis may be necessary to determine the presence of additional sensitive biotic communities on undeveloped lands proposed for development. Of specific concern are vineyard development scenarios 2 through 4 that could result in the conversion generally ranging from 8% to 35% of the total County acreage of several sensitive biotic communities (e.g., Tanbark Oak Alliance, Ponderosa Pine Alliance, Douglas Fir - Ponderosa Pine Alliance and Oregon White Oak Alliance) (see **Table 4.5-6**).

As noted under Impact 4.5.1, the County's Conservation Regulations (Chapter 18.108) provides protection measures for existing vegetation/habitat conditions under Sections 18.108.025,

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18.108.027 and 18.108.100 that would reduce the extent of impact identified under **Tables 4.5-5** and **4.5-6**.

Potential impacts specific to each of the three alternatives are further described below:

Alternative A

This alternative would result in the least extent of potential impact to land cover types that could contain sensitive biotic communities and their associated habitats based on the analysis provided in **Table 4.5-5** and the fact that this alternative would not include roadway improvements, recycled water, trails or public open space identified for Alternatives B and C. However, this Alternative would permit continued vineyard development, as represented by vineyard development scenarios 1 through 3 described above (see **Table 4.5-6**). Urban/rural development and continued vineyard expansion under this alternative would contribute to direct and indirect impacts to sensitive biotic communities. While mitigation measures are identified below to reduce this impact, this impact would be **significant and unavoidable**, since avoidance of sensitive communities during future development activities cannot be assured in all instances.

Alternative B

Alternative would result in similar impacts to land cover types that could contain sensitive biotic communities associated with urban/rural development allowed by its land use map. However, this alternative also includes roadway improvements (associated with the proposed General Plan Update Circulation Element), extension of recycled water to Coombsville and Carneros, as well as policy provisions for trails and public open space (proposed Recreation and Open Space Element in the General Plan Update). Since the specific alignments, siting and design of these improvements have not been identified, it is not possible at this DEIR to quantify potential habitat loss. At minimum, these alternative features would result in additional impacts to wetland habitats (associated with habitat in areas of proposed roadway improvements and recycled water facilities). This development in addition to potential vineyard development under scenarios 1 through 3 described above (see **Table 4.5-6**) would contribute to direct and indirect impacts to sensitive biotic communities. While mitigation measures are identified below to reduce this impact, this impact would be **significant and unavoidable**, since avoidance of sensitive communities during future development activities cannot be assured in all instances.

Alternative C

As identified in **Table 4.5-5**, this alternative would have the largest impact on land cover types that could contain sensitive biotic communities due to potential urban/rural development of the three alternatives evaluated. In addition, Alternative C would also result in the same impacts as Alternative B associated with roadway improvements, recycled water, trails and public open space. This development in addition to potential vineyard development under scenarios 1 through 3 described above (see **Table 4.5-6**) would contribute to direct and indirect impacts to sensitive biotic communities. While mitigation measures are identified below to reduce this impact, this impact would be **significant and unavoidable**, since avoidance of sensitive communities during future development activities cannot be assured in all instances.

Mitigation Measures

The following mitigation measures would apply to all three alternatives.

MM 4.5.2a The County shall provide a policy in the General Plan that requires the development of CEQA standards that require disclosure of impacts to all sensitive biotic communities and oak woodlands during review of discretionary projects. The County, in its discretion, shall require mitigation that results in the following standards:

SENSITIVE BIOTIC COMMUNITIES – For all sensitive biotic communities that are listed on DEIR page 4.5-9 and -13 or designated by the County where it is determined that restoration or creation are ecologically feasible; or preserve at a 2:1 ratio for habitat loss.

OAK WOODLAND - Maintain and improve oak woodland habitat to provide for slope stabilization, soil protection, species diversity and wildlife habitat through the following measures:

- Preserve, to the maximum extent possible, oak trees and other significant vegetation that occur near the heads of drainages or depressions on north facing slopes to maintain diversity of vegetation type and wildlife habitat as part of agricultural projects.
- Comply with the Oak Woodlands Preservation Act (PRC Section 21083.4) regarding oak woodland preservation to conserve the integrity and diversity of oak woodlands, and retain to the maximum extent feasible existing oak woodland and chaparral communities and other significant vegetation as part of residential, commercial and industrial approvals.
- Provide appropriate replacement of lost oak woodlands or preservation at a 2:1 ratio for habitat loss.

MM 4.5.2b The County shall provide a policy in the General Plan that requires all public and private projects shall be required to avoid impacts to wetlands if feasible. If avoidance is not feasible, projects shall achieve no net loss of wetlands, consistent with state and federal regulations.

MM 4.5.2c The County shall provide a policy in the General Plan that requires: (1) continued implementation of the intermittent and perennial stream setback requirements set forth in the Napa County Conservation Regulations (County Code Chapter 18.108); (2) provides education and information regarding the importance of stream setbacks; and the active management of native vegetation within setbacks; and development of incentives to encourage greater stream setbacks where appropriate.

Implementation of above mitigation measures and mitigation measures MM 4.5.1b and c and MM 4.6.5a through c and MM 4.11.4 as well as implementation of the Napa County Conservation Regulations would lessen impacts by providing preservation and replacement of impacted sensitive biotic communities on a project by project basis. However, overall sensitive biotic habitat and oak woodland loss and fragmentation that anticipated by the year 2030 as a result of urban, rural and vineyard development is expected to be substantial, and cannot be fully mitigated. Thus this impact is considered **significant and unavoidable** for all alternatives.

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Loss of Wildlife Movement and Plant Dispersal Opportunities

Impact 4.5.3 Land uses and development under the proposed General Plan Update could result in the loss of wildlife movement and plant dispersal opportunities (Significant and Mitigable - All Alternatives)

North-south movement in the Western Mountains and Eastern Mountains areas is already somewhat constrained by roads, development and fencing. Further development under the proposed General Plan Update could result in disruption of wildlife movement in these areas as well as local wildlife movement. Pope Valley currently provides a linkage for wildlife between the northwest corner of the County and the eastern portion of the County. Additional agricultural development in the Pope Valley area could isolate areas in the northwest corner of the County and adjacent areas in Lake County from the Cedar Roughs Conservation Area and other areas in Eastern Napa County. Even if intact corridors between these natural areas remain, adjacent development could narrow the corridor's east-west dimension, causing constrictions that would reduce corridor quality. Narrow corridors may not provide the habitat attributes necessary for many species. In addition, a narrow corridor may provide only edge habitat. Some predators are more active in edge habitat, resulting in higher predation rates within narrow corridors as well as increased stress resulting in displacement and/or mortality. As previously noted, the County anticipates 10,000 to 12,500 acres of new vineyard development by the year 2030. Portions of this anticipated vineyard development would occur in the vicinity of the corridors identified in **Figure 4.5-6** (see **Appendix H** Figures 1 through 4 for vineyard development scenarios).

As noted under Impact 4.5.1, the County's Conservation Regulations (Chapter 18.108) provides protection measures for existing vegetation/habitat conditions that allow for the retention of wildlife movement as well as provides protection of movement along waterways through required setbacks under Sections 18.108.025.

Potential impacts specific to each of the three alternatives are further described below:

Alternative A

This alternative would retain the existing land use designations under the current General Plan Land Use Map as well as the policy guidance set forth under the existing General Plan. Between the year 2005 and 2030, it is projected that there would be an additional 2,235 dwelling units and 16,014,000 square feet of non-residential uses as well as between 10,000 and 12,500 acres of new vineyard development under scenarios 1 through 3 described above. This development could contribute to direct and indirect impacts to wildlife movement and plant dispersal opportunities. This impact would be **significant and mitigable** with the implementation of the mitigation measures identified below.

Alternative B

This alternative would generally retain the existing land use pattern under the current General Plan Land Use Map, similar to Alternative A (as noted above, vineyard development would be the same as Alternative A). In addition to the proposed land use map, Alternative B would include roadway improvements (associated with the proposed General Plan Update Circulation Element), extension of recycled water to Coombsville and Carneros, as well as policy provisions for trails and public open space associated with the proposed Recreation and Open Space Element of the General Plan Update, that could further impact movement corridors from human interaction and deaths from collisions with vehicles. This development could contribute to direct

and indirect impacts to wildlife movement and plant dispersal opportunities. This impact would be **significant and mitigable** with the implementation of the mitigation measures identified below.

Alternative C

Alternative C would generally result in similar movement corridor impacts as Alternative B. This development could contribute to direct and indirect impacts to wildlife movement and plant dispersal opportunities. This impact would be **significant and mitigable** with the implementation of the mitigation measures identified below.

Mitigation Measures

The following mitigation measures would apply to all three alternatives.

MM 4.5.3a The County shall provide a policy in the General Plan that requires individual projects retain movement corridor(s) adequate (both in size and in habitat quality) to allow for continued wildlife use based on the species anticipated to use the corridor. This may be accomplished through continued implementation of the Napa County Conservation Regulations associated with vegetation retention (Sections 18.108.027 and 18.108.0100) setbacks from waterways (Section 18.108.025).

MM 4.5.3b All new vineyards shall only be allowed to fence individual vineyard blocks. All existing vineyards shall be required to reduce their existing fencing to just vineyard blocks at any point in which they obtain a discretionary permit for any activity (vineyard, winery, other use) on a parcel which has vineyard fencing.

Implementation of the above mitigation measures and mitigation measures MM 4.5.1a and b and MM 4.11.4 as well as continued implementation of the Napa County Conservation Regulations (County Code Chapter 18.108) would ensure the retention of wildlife movement corridors. Thus, this impact would be mitigated to **less than significant**.

Conflict with Biological Resource Plans, Ordinances, or Policies

Impact 4.5.4 Land uses and development under the proposed General Plan Update could conflict with existing recovery plans that cover portions of Napa County (Significant and Mitigable - All Alternatives)

There are no existing landscape-level Habitat Conservation Plans (HCPs) or Natural Community Conservation Plans (NCCPs) within Napa County. Thus, implementation of the General Plan Update would not conflict with any such plans.

Section 4.11 (Hydrology and Water Quality) discusses the Total Maximum Daily Load (TMDL) under consideration by the San Francisco Regional Water Quality Control Board for sediment in the Napa River and its tributaries and assesses the impacts of the General Plan Update on sediment and water quality. A TMDL has been adopted for the Napa River for sediment by the RWQCB. Section 4.6 (Fisheries) assesses the impact of the General Plan Update on fisheries in the Napa River watershed and the rest of Napa County.

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The USFWS has adopted a number of Recovery Plans for certain federally listed species that are found within Napa County

- Recovery Plan for the California Freshwater Shrimp
- Recovery Plan for the California Red-Legged Frog
- Recovery Plan for the Northern Spotted Owl
- Recovery Plan for Serpentine Soil Species of the San Francisco Bay Area
- Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon

The BLM in 2006 adopted the following

- Management Plan for Ukiah Region Public Lands

As previously noted, the County anticipates 10,000 to 12,500 acres of new vineyard development by the year 2030 that would occur under all three alternatives. Portions of this anticipated vineyard development would occur within designated core areas identified in the recovery plans identified above.

As noted under Impact 4.5.1, the County's Conservation Regulations (Chapter 18.108) provides protection measures for existing vegetation/habitat conditions. These provisions would assist in compiling with the recovery plans above (especially in regards to California freshwater shrimp and California red-legged frog).

Potential impacts specific to each of the three alternatives are further described below:

Alternative A

This alternative would retain the existing land use designations under the current General Plan Land Use Map as well as the policy guidance set forth under the existing General Plan. Between the year 2005 and 2030, it is projected that there would be an additional 2,235 dwelling units and 16,014,000 square feet of non-residential uses as well as between 10,000 and 12,500 acres of new vineyard development in the unincorporated portion of the County. As noted above, new vineyard development anticipated by the County would likely occur within designated core areas of the recovery plans identified above. This impact would be **significant and mitigable** with implementation of the mitigation measures identified below.

Alternative B

This alternative would generally retain the existing land use pattern under the current General Plan Land Use Map, similar to Alternative A (as noted above, vineyard development would be the same as Alternative A). In addition to the proposed land use map, Alternative B would include roadway improvements (associated with the proposed General Plan Update Circulation Element), extension of recycled water to Coombsville and Carneros, as well as policy provisions for trails and public open space associated with the proposed Recreation and Open Space Element of the General Plan Update. As noted above, new vineyard development anticipated by the County as well as roadway improvements, trails and public open space usage would occur within designated core areas of the recovery plans identified above. This impact would be **significant and mitigable** with implementation of the mitigation measures identified below.

Alternative C

Alternative C would generally result in similar movement corridor impacts as Alternative B. However, this alternative would include the establishment of a new RUL for the City of American Canyon would include land areas within core areas associated with the California red-legged frog and the Tiburon paintbrush. This impact would be **significant and mitigable** with implementation of the mitigation measures identified below.

Mitigation Measures

Implementation of mitigation measures MM 4.5.1a through c, MM 4.5.2a through c, MM 4.6.5a through c, MM 4.11.2a and b, MM 4.11.3a and b, MM 4.11.4 and MM 4.11.5e would require preservation and mitigation of special-status plant and animal species and their associated habitat in a manner generally consistent with these recovery plans as well as protection water quality and flows. Thus, this impact would be mitigated to **less than significant** for all three alternatives.

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