

## **4.6 *BIOLOGICAL RESOURCES***

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### **Biological Resources – Environmental Setting**

The Biological Resources section provides background information on sensitive biological resources within the county, the regulations and programs which provide for their protection, and an assessment of the potential impacts of implementing the *Draft GP 2020*. The topics discussed in this section overlap with other sections of this EIR, including the Visual Resources and Agricultural and Timber Resources sections. Biological resource impacts are most closely related to *Land Use, Open Space and Resource Conservation, Water Resources, and Public Safety* elements of the *Draft GP 2020*.

#### **INTRODUCTION**

Sonoma County encompasses over one million acres of diverse landscape, ranging from the marine environments of the coastal zone, to the forests, woodlands, and grasslands of the coast range foothills and mountains, the vernal pools, seasonal wetlands, and freshwater marshes of the Santa Rosa Plain and Laguna de Santa Rosa, and the extensive marshlands along San Pablo Bay. Urban development occupies much of the valley floors through the central portion of the county along US 101 and Highways 116 and 12, with cities separated and generally surrounded by grazing lands and agricultural uses, primarily vineyards, dryland crops, and irrigated pasture.

The remaining natural communities in Sonoma County support a wide diversity of plant and animal species, including a high number of special-status species and sensitive natural communities. Natural community types in the county include mixed evergreen forests, oak woodlands and savanna, native and non-native grasslands, coastal beach dune, coastal bluff, northern coastal scrub, chaparral, coastal salt marsh, brackish marsh, freshwater marsh, and riparian scrub and woodland. **Exhibit 4.6-1** shows the distribution of vegetative cover in the county, modified from the 2000 CalVeg mapping program of the U.S. Forest Service.<sup>1</sup> The area along the fringe of San Pablo Bay in the lower Sonoma Valley and along the Petaluma River is based on more generalized information developed in 2002 as part of the wildlife habitat mapping for the Fire and Resource Assessment Program (FRAP) of the California Department of Forestry and Fire Protection.<sup>2</sup> Major distinguishable characteristics in **Exhibit 4.6-1** include: the mosaic of forest, woodland, grassland, and chaparral in the northwest and in the Mayacamas and Sonoma Mountains to the northeast and east, the extensive agricultural and urban development on the valley floors, and the grasslands across the southwestern portion of the county.

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<sup>1</sup> Large format versions of **Exhibits 4.6-1, 4.6-2, and 4.6-3** are available for viewing at Sonoma County PRMD, 2550 Ventura Avenue, Santa Rosa, CA 95403.

<sup>2</sup> *Fire and Resource Assessment Program*, California Department of Forestry and Fire Protection, 2002.

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Historic land use has altered much of the landscape in the county, including the plant communities and wildlife dependent upon them. Beginning in the mid-nineteenth century and continuing into the present, activities such as livestock grazing, timber operations, clearing and disking for agricultural production, road building, and urban and suburban development have markedly altered the remaining natural communities. Native perennial grasslands have been largely replaced by non-native annual grasslands, and a number of highly invasive species now threaten the remaining grasslands. Most of the conifer forests have been logged extensively in the past, with only a few scattered stands of old growth redwood remaining in the Russian River and Gualala River watersheds. Fire suppression, livestock grazing, timber harvest, vineyard conversion, and more recently the effects of Sudden Oak Death (SOD) have greatly altered the extent of woodland and forest cover. Grazing and clearing for firewood and agricultural production have reduced the extent of oak woodland and savanna and continue to affect oak regeneration, particularly on the valley floors and lower foothills where development pressures continue today as croplands are converted to urban and suburban uses. The past effects of poorly managed timber harvesting, gravel mining, and livestock overgrazing continue to influence the aquatic habitat of the rivers and streams in the county, and limit the viability of the anadromous fisheries. Urban and suburban development, freeway and highway widening projects, vineyard expansion, and use of exclusionary fencing to protect crops have all contributed to considerable fragmentation of the remaining natural areas in the county.

Although past influences have greatly altered the natural landscape, Sonoma County contains considerable land area which remains undeveloped or is used for grazing and timber production and continues to provide important habitat for native plants and animals. These remaining undeveloped lands serve as core areas for habitat biodiversity, and maintenance of connectivity between these areas is essential for their sustainability. The scattered permanently protected open space, the remaining undeveloped, agricultural, and timber production lands, and network of riparian corridors throughout the county serve as a foundation for protecting and restoring the values and functions of the natural environment.

### **SPECIAL-STATUS SPECIES**

The primary information source on the distribution of special-status species in California is the California Natural Diversity Database (CNDDDB) inventory, which is maintained by the Wildlife and Habitat Data Analysis Branch of the California Department of Fish and Game (CDFG).<sup>3</sup> The CNDDDB inventory provides the most comprehensive state-wide information on the location and distribution of special-status species and sensitive natural communities. Occurrence data is obtained from a variety of scientific, academic, and professional organizations, private consulting firms, and

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<sup>3</sup> Special-status species include:

Designated (rare, threatened, or endangered) and candidate species for listing by the CDFG.

Designated (threatened or endangered) and candidate species for listing by the USFWS.

Species considered to be rare or endangered under the conditions of Section 15380 of the California Environmental Quality Act Guidelines, such as those identified on lists 1A, 1B, and 2 in the 2001 *Inventory of Rare and Endangered Plants of California* by the California Native Plant Society (CNPS).

And possibly other species which are considered sensitive or of special concern due to limited distribution or lack of adequate information to permit listing or rejection for state or federal status, such as those included on list 3 in the CNPS Inventory or identified as animal "California Special Concern" (CSC) species by the CDFG. Species designated as CSC have no legal protective status under the California Endangered Species Act but are of concern to the CDFG because of severe decline in breeding populations and other factors.

knowledgeable individuals, and is entered into the inventory as expeditiously as possible. The occurrence of a species of concern in a particular region is an indication that an additional population may occur at another location if habitat conditions are suitable. However, the absence of an occurrence in a particular location does not necessarily mean that special-status species are absent from the area in question, only that no data has been entered into the CNDDDB inventory. Detailed field surveys are generally required to provide a conclusive determination on presence or absence of sensitive resources from a particular location where there is evidence of potential occurrence.

The records of the CNDDDB indicate that special-status plant and animal species occur in a wide range of habitat types throughout Sonoma County. **Exhibit 4.6-2** shows the distribution of the CNDDDB occurrence records for special-status species in the county, together with stream segments known to support coho salmon, steelhead trout, and chinook salmon based on data from the CDFG. **Exhibit 4.6-3** shows the extent of major wetland, river, and stream systems. The CNDDDB information has been simplified to distinguish the occurrence record as either a plant or animal, rather than identifying each species by name. **Exhibit 4.6-4** provides a list of the 42 animal species and 86 plant species reported from Sonoma County which are monitored by the CNDDDB.

It should be noted that the occurrence records of the CNDDDB tend to focus on listed species or those with a high inventory priority. Occurrence information for numerous special-status species which are known to occur in Sonoma County is either not monitored at all, or is recorded on only a sporadic basis by the CNDDDB. This includes the possible seasonal occurrence of some bird species, the limited status of some animal species as a California Special Concern (CSC) species by the CDFG, and the limited status of many plant species on Lists 2, 3, or 4 of the California Native Plant Society Inventory (CNPS). Some of these species are identified in **Exhibit 4.6-4**, but the number of occurrences from the CNDDDB records does not accurately reflect their generally greater abundance and distribution than species that are actually listed under the State or federal Endangered Species Acts (ESAs).

The U.S. Fish and Wildlife Service (USFWS) also maintains information on special-status species as part of their project review and consultation responsibilities, and will prepare lists of known or suspected species from a particular county or US Geological Survey USGS quadrangle. A request for special-status species known or suspected to occur in Sonoma County generated a list of 212 species which are listed, candidate, or Species of Concern (generally former candidate species in previous classification system of USFWS). The much greater number of species in the USFWS list compared to the CNDDDB records is due in part to the inclusion of numerous candidate species, Species of Concern, and species considered to be of local or regional concern due to conservation significance. A number of marine wildlife species not in the CNDDDB inventory are also included in the USFWS list. Discrepancies between the two lists provide an indication of the limitations in collecting and monitoring data on special-status species, and need for detailed assessments when proposed development could affect sensitive habitat.

For many of the special-status species known to occur in Sonoma County, habitat suitability is severely limited by the direct and indirect effects of development. These include the direct loss of habitat as a result of conversion to urban uses, effects of on-going habitat modifications due to vegetation management and agricultural practices, and indirect effects such as non-point discharge into aquatic habitat and recreational activities on open space lands. Habitat fragmentation is an important consideration in evaluating the recovery of listed species and the viability of natural communities as a whole. Identification and protection of essential habitat for special-status species must be recognized during the environmental review of proposed development applications and in planning future open space acquisitions. Detailed surveys may be needed for sites where there is a potential for occurrence of special-status plant and animal species.

A number of special-status species reported from Sonoma County are wide-ranging and are the focus of management efforts by trustee agencies. Species of particular concern include: California tiger salamander, California red-legged frog, coho salmon, steelhead trout, chinook salmon, northern spotted owl, and numerous plant species associated with vernal pool habitat. The following provides a summary of relevant management issues for each of these species.

### ***Coho Salmon, Steelhead Trout, and Chinook Salmon***

Coho salmon, steelhead trout, and chinook salmon are all listed as threatened under the federal ESA, and all are anadromous, spawning in coastal streams and rivers and then migrating to and maturing in the ocean. Timber harvest activities, overgrazing, gravel mining operations, channel modifications and removal of riparian vegetation, flood control facilities, hydroelectric facilities, and secondary water quality degradation have all contributed to a decline of these species. Coho and steelhead are native species of the county, which is part of the Central California Coast Evolutionarily Significant Unit (ESU) defined as part of species listings. It is uncertain whether chinook salmon is a native species of the county, although the Russian River is part of the California Coastal ESU for the species listing. Streams and river corridors with established or historic records of these species are indicated in **Exhibit 4.6-2**. Where a record of coho or steelhead has been reported from a stream, the entire drainage has been indicated as supporting the species, although habitat conditions have sometimes not been confirmed in the field.

Sonoma County is currently participating in the FishNet 4C program, which is a county-based, regional salmonid protection and restoration program created under a Memorandum of Agreement between six central California coastal counties: Marin, Mendocino, Monterey, San Mateo, Santa Cruz, and Sonoma. FishNet 4C recognizes the need for these counties to meet the requirements of the ESA in protecting anadromous salmonids and their habitats. Given these requirements, a prime objective of the FishNet 4C program has been to evaluate the land management practices of each county and any written policies related to protecting salmonid populations, and to make recommendations for improving these practices and policies.

### ***California Tiger Salamander***

The Sonoma County population of California tiger salamander is listed as threatened by the USFWS. California tiger salamander is recognized as a protected species and a CSC by the CDFG. The USFWS has mapped the potential range of California tiger salamander.<sup>4</sup> California tiger salamander occurs in grassland and savanna habitat, breeding in vernal pools and swales, seasonal drainages, and man-made ponds, and spending most of the year in subterranean refugia such as rodent burrows, cracks, and under rocks and logs. Adults migrate to suitable breeding locations with the onset of sustained rainfall, and have been reported to move considerable distances. Most of the occurrences of this subspecies in Sonoma County are from the complex of vernal pools and drainages of the Santa Rosa Plain along the Laguna de Santa Rosa watershed, generally between Sebastopol, Santa Rosa, and Cotati. Extensive habitat conversion and fragmentation of breeding habitat has eliminated this species from much of its former range, and is considered a serious threat to the Sonoma County population. Recently, the USFWS has joined with other responsible agencies, the County, cities and interest groups in developing a California tiger salamander strategy aimed at resolving conflicts between species preservation and development in the urban areas of the Santa Rosa Plain.

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<sup>4</sup> The potential range of the California tiger salamander is shown in Figure OSRC-2 of the *Draft GP 2020*.

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### ***California Red-Legged Frog***

This species is listed as threatened by the USFWS and is recognized as a CSC by the CDFG. It typically occurs in aquatic habitat of streams and ponds, but can disperse considerable distances in search of breeding and aestivation sites. Scattered occurrences of California red-legged frog are known from the west Petaluma and south Cotati vicinity, the Salmon Creek watershed, and the Sonoma Valley. Three areas were identified as part of the critical habitat for this species as mapped by the USFWS. In Sonoma County, the previously mapped critical habitat consisted of the areas surrounding Laguna Lake west of Petaluma, the grasslands east of Petaluma Marsh, and part of the Sonoma Mountains. This mapped critical habitat did not correspond with all known occurrences of this species in Sonoma County. Court rulings made in response to lawsuits over the designated critical habitat have rescinded the mapped critical habitat designations in Sonoma County and other northern California locations. Continued loss of upland dispersal habitat, fragmentation of remaining breeding locations, competition and predation by bullfrog, and degradation of aquatic habitat are primary concerns regarding protection and recovery of this species.

### ***Northern Spotted Owl***

The USFWS listed the northern spotted owl as a threatened species in 1990. The southern limit of their range extends across the coastal and inland forests and woodlands of Sonoma County southward into Marin County. Occurrences of this species extend along the entire coast of the county, the Mayacamas Mountains, and Sonoma Mountain. On-going studies have been conducted to monitor population health and further define essential habitat. The southern population of spotted owl is subject to several threats, including habitat loss and disturbance due to timber harvest, agricultural conversion, development at the fringe of existing forest and woodland habitat, hazardous fuel management, potentially catastrophic wildfires along the urban / wildland interface, and continued range expansion of the barred owl. Of particular concern is the continuing die-off of tanbark and coast live oaks throughout spotted owl habitat due to Sudden Oak Death, and the long-term impacts this may have on prey populations and owl nesting and foraging habitat.

### ***Vernal Pool Plant Species***

Several plant species with special-status are known to occur in the seasonal wetland habitats of the Santa Rosa Plain. Four of them, Sonoma sunshine, Burke's goldfields, Sebastopol meadowfoam, and many-flowered navarretia, are federally and state-listed as endangered. Several others are believed to have been extirpated from the Santa Rosa Plain or have no legal protective status under the ESA but are CNPS list species associated with seasonal wetlands and uplands. These include dwarf downingia, Baker's navarretia, Gairdner's yampah, hayfield tarplant, the state-listed rare North Coast semaphore grass, the state and federally-listed endangered white sedge, the federally-listed endangered Sonoma alopecurus, and the federally listed showy Indian clover.

**Exhibit 4.6-4**  
**Special-Status Plant and Animal Species Known to Occur in Sonoma County**

<b>Common Name (Scientific Name)</b>	<b>Federal Status<sup>a</sup></b>	<b>State Status<sup>b</sup></b>	<b>Habitat Characteristics</b>	<b>Number of CNDDB Records</b>
<b>ANIMALS</b>				
<b>Invertebrates</b>				
Behren's silverspot butterfly ( <i>Speyeria zerene behrensii</i> )	FE	None	Coastal terrace prairie with suitable violet host plant.	2
Bumblebee scarab beetle ( <i>Lichmanthe ursina</i> )	FSC	None	Sand dunes and in sand dunes, observed from April to August.	2
California freshwater shrimp ( <i>Syncaris pacifica</i> )	FE	SE	Riparian scrub and woodland in perennial drainages with undercut banks and overhanging vegetation.	10
California linderiella ( <i>Linderiella occidentalis</i> )	None	None	Vernal pools and swales in grassland and oak savanna.	5
Callippe silverspot butterfly ( <i>Speyeria callippe calliope</i> )	FE	None	Grassland and scrub with suitable violet host plant.	1
Mimic tryonia ( <i>Tryonia imitator</i> )	None	None	Brackish water marsh.	1
Monarch butterfly ( <i>Danaus plexippus</i> )	None	None	Coniferous forest, planted cypress/eucalyptus, generally along coast. Overwintering sites of concern.	18
Myrtles silverspot ( <i>Speyeria zerene myrtleae</i> )	FE	None	Grasslands, pasture, sand dunes along coast with suitable violet host plant species.	9
Opler's longhorn moth ( <i>Adela oplerella</i> )	FSC	None	Serpentine grassland.	1
Ricksecker's water scavenger beetle ( <i>Hydrochara rickseckeri</i> )	FSC	None	Freshwater ponds, stockponds, and larger pools.	1
Sonoma arctic skipper ( <i>Carterocephalus palaemon magnus</i> )	FSC	CSC	Redwood and evergreen forest.	1
Tomales isopod ( <i>Caecidotea tomalensis</i> )	FSC	None	Freshwater pond and seasonal wetlands.	2
<b>Fish</b>				
Coho salmon - Central California ESU ( <i>Oncorhynchus kisutch</i> )	FT	SE	Anadromous species migrates to rivers and streams with suitable substrate and temperatures for egg laying.	1
Navarro roach ( <i>Lavinia symmetricus navarroensis</i> )	None	CSC	Freshwater streams.	2
Gualala roach ( <i>Lavinia symmetricus parvipinnis</i> )	FSC	CSC	Freshwater streams.	3
Russian river tule perch ( <i>Hysterocarpus traski pomo</i> )	FSC	CSC	Streams with overhanging riparian vegetation.	4
Sacramento splittail ( <i>Pogonichthys macrolepidotus</i> )	FT	CSC	Brackish water habitat found along Petaluma River.	1
Steelhead-Central California Coast ESU ( <i>Oncorhynchus mykiss irideus</i> )	FT	None	Anadromous species migrates to rivers and streams with suitable substrate and temperatures for egg laying.	2
Tidewater goby ( <i>Eucyclogobius newberryi</i> )	FE	CSC	Salt and brackish water lagoons and rivers.	3

Common Name (Scientific Name)	Federal Status <sup>a</sup>	State Status <sup>b</sup>	Habitat Characteristics	Number of CNDDB Records
<b>Amphibians/Reptiles</b>				
California red-legged frog ( <i>Rana aurora draytonii</i> )	FT	None	Typically found in riparian and freshwater marsh, but known to disperse considerable distances through grassland and other habitats.	9
California tiger salamander ( <i>Ambystoma californiense</i> )	FT	CSC, P	Breeds in vernal pools, swales, drainages, and ponds, and aestivates in burrows and other moist retreats in grassland, savanna, and fields.	24
Foothill yellow-legged frog ( <i>Rana boylei</i> )	FSC	CSC, P	Riparian dependent species typically in second order streams, with mature trees and bed of gravel, cobble, and boulders.	26
Western pond turtle ( <i>Clemmys marmorata</i> )	FSC	CSC, P	Freshwater streams, pools, and ponds with secure haulout along banks and adjacent uplands for egg laying.	26
<b>Birds</b>				
Bank swallow ( <i>Riparia riparia</i> )	None	ST	Nests in stream banks and cliffs with friable soils.	1
Black swift ( <i>Cypseloides niger</i> )	None	CSC	Rare, local summer resident of mountain canyons. Nests on cliffs behind or adjacent to waterfalls.	1
Burrowing owl ( <i>Athene cunicularia</i> )	None	CSC	Agricultural fields and grasslands, nesting in burrows, pipes and debris.	2
California black rail ( <i>Laterallus jamaicensis coturniculus</i> )	None	ST, P	Salt and brackish water marsh.	4
California clapper rail ( <i>Rallus longirostris obsoletus</i> )	FE	SE, P	Salt and brackish water marsh.	9
Double-crested cormorant ( <i>Phalacrocorax auritus</i> )	None	CSC	Forages in open water habitats, colonial roosting/sunning in secure locations. Roosting locations of concern to CDFG.	1
Great blue heron ( <i>Ardea herodias</i> )	None	None	Forages in fresh, brackish, salt marsh habitats, nests in trees. Roosting locations of concern to CDFG.	1
Saltmarsh common yellowthroat ( <i>Geothlypis trichas sinuosa</i> )	FSC	None	Brackish and salt marsh dominated by bulrush.	16
Tricolored blackbird ( <i>Agelaius tricolor</i> )	FSC	CSC	Colonial nester in thickets along riparian corridors.	3
Western yellow-billed cuckoo ( <i>Coccyzus americanus occidentalis</i> )	None	SE	Historical occurrences along riparian woodland and scrub.	2
Western snowy plover ( <i>Charadrius alexandrinus nivosus</i> )	FT	CSC	Nests along exposed beaches, forages along ocean shoreline.	2
White-tailed kite ( <i>Elanus leucurus</i> )	None	P	Nests in trees and shrubs, forages in grassland, savanna, open habitats.	1
Purple martin ( <i>Progne subis</i> )	None	CSC	Nests in snags in a variety of forest and woodland types.	1
Northern spotted owl ( <i>Strix occidentalis caurina</i> )	FT	None	Evergreen forest and woodland with suitable prey, typically wood rat.	48
<b>Mammals</b>				
Pallid bat ( <i>Antrozous pallidus</i> )	None	CSC	Varied foraging habitat with abandoned structures, mines, caves used for roosting where disturbance is minimal.	12
Red tree vole ( <i>Arborimus pomo</i> )	None	None	Mixed evergreen woodland and forest.	27
Salt-marsh harvest mouse ( <i>Reithrodontomys raviventris</i> )	FE	SE	Salt marsh and brackish marsh dominated by pickleweed.	3
Suisun shrew ( <i>Sorex ornatus sinuous</i> )	None	None	Salt marsh and brackish marsh.	1
Yuma myotis ( <i>Myotis yumanensis</i> )	None	None	Varied foraging habitat with abandoned structures, mines, caves used for roosting where disturbance is minimal.	1

<b>Common Name (Scientific Name)</b>	<b>Federal Status<sup>a</sup></b>	<b>State Status<sup>b</sup></b>	<b>CNPS Status<sup>c</sup></b>	<b>Habitat Characteristics</b>	<b>Number of CNDDB Records</b>
<b>PLANTS</b>					
Pink sand-verbena ( <i>Abronia umbellata</i> ssp <i>breviflora</i> )	None	None	1B	Coastal dunes.	3
Blasdale's bent grass ( <i>Agrostis blasdalei</i> )	None	None	1B	Exposed coastal dunes, bluffs, and prairie.	4
Pt Reyes bent grass ( <i>Agrostis clivicola</i> var <i>punta-reyesensis</i> )	None	None	None	Grassland in sandy loam along coast. Considered but rejected for listing by CNPS.	2
Franciscan onion ( <i>Allium peninsulare</i> var <i>franciscanum</i> )	None	None	1B	Woodland, grassland, often on serpentine substrate.	3
Sonoma alopecurus ( <i>Alopecurus aequalis</i> var <i>sonomensis</i> )	FE	None	1B	Freshwater marsh, mesic grasslands, seasonal pools, riparian scrub.	12
Napa false indigo ( <i>Amorpha californica</i> var <i>napensis</i> )	None	None	1B	Mixed evergreen forest, open woodland, chaparral often in volcanic substrate.	20
Baker's manzanita ( <i>Arctostaphylos bakeri</i> ssp <i>bakeri</i> )	None	SR	1B	Forest, chaparral, often on serpentine substrate.	8
The Cedars manzanita ( <i>Arctostaphylos bakeri</i> ssp <i>sublaevis</i> )	None	SR	1B	Serpentine chaparral/ <i>Cupressus sargentii</i> woodland.	4
Sonoma manzanita ( <i>Arctostaphylos canescens</i> ssp <i>sonomensis</i> )	None	None	1B	Chaparral, coniferous forest, sometimes on serpentine or silty loam.	2
Vine Hill manzanita ( <i>Arctostaphylos densiflora</i> )	None	SE	1B	Dwarf chaparral 'barren' on sandy acidic soil, known from the Sonoma Barren near Forestville.	4
Konocti manzanita ( <i>Arctostaphylos manzanita</i> ssp <i>elegans</i> )	None	None	1B	Volcanic substrate in chaparral, woodland, and forest openings often on serpentine substrate.	3
Rincon manzanita ( <i>Arctostaphylos stanfordiana</i> ssp <i>raichei</i> )	None	None	1B	Chaparral, forest openings on rocky substrate.	11
Clara Hunt's milk-vetch ( <i>Astragalus clarianus</i> )	FE	ST	1B	Grassy areas on rocky, wooded slope in volcanic substrate.	1
Alkali milk-vetch ( <i>Astragalus tener</i> var <i>tener</i> )	None	None	1B	Grassland, alkaline vernal pools.	1
Big-scale balsamroot ( <i>Balsamorhiza macrolepis</i> var <i>macrolepis</i> )	None	None	1B	Chaparral, woodland, and grassland, sometimes on serpentine substrate.	2
Sonoma sunshine ( <i>Blennosperma bakeri</i> )	FE	SE	1B	Vernal pools, swales, ditches, and mesic grasslands. Known only from Santa Rosa Plain and Sonoma area.	26
Thurber's reed grass ( <i>Calamagrostis crassiglumis</i> )	None	None	2	Coastal scrub and freshwater marsh.	1
The Cedars fairy-lantern ( <i>Calochortus raichei</i> )	None	None	1B	Serpentine barrens in chaparral/forest. Known only from The Cedars.	8
Swamp harebell ( <i>Campanula californica</i> )	None	None	1B	Mesic openings and pools in mixed evergreen forest, coastal prairie.	19
White sedge ( <i>Carex albida</i> )	FE	SE	1B	Wet meadow, bogs, freshwater marsh. Known only from Pitkin Marsh and extirpated occurrences.	3
Bristly sedge ( <i>Carex comosa</i> )	None	None	2	Seeps, marsh, bogs, in forest and coastal prairie.	2

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Deceiving sedge ( <i>Carex saliniformis</i> )	None	None	1B	Coastal prairie, coastal scrub, meadows and seeps.	3
Mendocino Coast Indian paintbrush ( <i>Castilleja mendocinensis</i> )	None	None	1B	Coastal bluff scrub, scrub, dunes and prairie, coniferous forest.	1
Pitkin Marsh Indian paintbrush ( <i>Castilleja uliginosa</i> )	None	SE	1A	Freshwater marsh and mesic grassland. Known from two occurrences from Pitkin Marsh and Trembley's Marsh.	2
Calistoga ceanothus ( <i>Ceanothus divergens</i> )	None	None	1B	Chaparral and mixed woodland on serpentine and volcanic substrate.	12
Rincon Ridge ceanothus ( <i>Ceanothus confuses</i> )	None	None	1B	Chaparral, forest, and woodlands on serpentine and volcanic substrate.	13
Sonoma ceanothus ( <i>Ceanothus sonomensis</i> )	None	None	1B	Chaparral in sandy, serpentine, and volcanic substrate.	17
Dwarf soaproot ( <i>Chlorogalum pomeridianum var minus</i> )	None	None	1B	Chaparral on serpentine.	1
San Francisco Bay spineflower ( <i>Chorizanthe cuspidata var cuspidata</i> )	None	None	1B	Coastal bluff scrub, dunes, scrub, and prairie.	1
Woolly-headed spineflower ( <i>Chorizanthe cuspidata var villosa</i> )	None	None	1B	Coastal dunes, prairie, scrub.	1
Sonoma spineflower ( <i>Chorizanthe valida</i> )	FE	SE	1B	Coastal prairie.	3
Vine Hill clarkia ( <i>Clarkia imbricata</i> )	FE	SE	1B	Grassland with sandy soil.	3
Point Reyes bird's-beak ( <i>Cordylanthus maritimus ssp palustris</i> )	None	None	1B	Coastal salt marsh.	4
Soft bird's-beak ( <i>Cordylanthus mollis ssp mollis</i> )	FE	SR	1B	Coastal salt marsh.	2
Pennell's bird's-beak ( <i>Cordylanthus tenuis ssp capillaries</i> )	FE	SR	1B	Serpentine barren in open chaparral and forest.	3
Pygmy cypress ( <i>Cupressus goveniana ssp pigmaea</i> )	None	None	1B	Coniferous forest. Southernmost stand of pygmy cypress	1
Baker's larkspur ( <i>Delphinium bakeri</i> )	FE	SR	1B	Coastal shrub. Known from only one occurrence along Salmon Creek.	1
Yellow larkspur ( <i>Delphinium luteum</i> )	FE	SR	1B	Coastal prairie, scrub, and openings in woodland and chaparral.	5
Geysers dichanthelium ( <i>Dichanthelium lanuginosum var thermale</i> )	None	SE	1B	Coniferous forest, riparian scrub, mesic grassland along edge of streams in geothermal substrate.	8
Western leatherwood ( <i>Dirca occidentalis</i> )	None	None	1B	Mixed evergreen forest, woodland, chaparral, and riparian.	2
Dwarf downingia ( <i>Downingia pusilla</i> )	None	None	2	Vernal pools and swales, mesic grassland..	14
Narrow-leaved daisy ( <i>Erigeron angustatus</i> )	None	None	1B	Serpentine grassland and open chaparral.	4
Serpentine daisy ( <i>Erigeron serpentinus</i> )	None	None	1B	Chaparral and serpentine seeps in cypress forest. Known only from The Cedars and along Porter Creek.	1
Supple daisy ( <i>Erigeron supplex</i> )	None	None	1B	Coastal bluff scrub and prairie.	4
Snow Mountain buckwheat ( <i>Eriogonum nervulosum</i> )	None	None	1B	Serpentine barrens and rocky slopes in chaparral.	5
Round-leaved filaree ( <i>Erodium macrophyllum</i> )	None	None	2	Woodland and grassland.	1
Loch lomond button-celery ( <i>Eryngium constancei</i> )	FE	SE	1B	Vernal pools. Known from only three occurrences.	1

<b>Common Name (Scientific Name)</b>	<b>Federal Status<sup>a</sup></b>	<b>State Status<sup>b</sup></b>	<b>CNPS Status<sup>c</sup></b>	<b>Habitat Characteristics</b>	<b>Number of CNDDB Records</b>
Fragrant fritillary ( <i>Fritillaria liliacea</i> )	None	None	1B	Grassland, coastal prairie and scrub, openings in woodland, sometimes in serpentine or volcanic substrate substrate.	5
Roderick's fritillary ( <i>Fritillaria roderickii</i> )	None	SE	1B	Coastal bluff scrub and prairie, grasslands.	1
Two-carpellate western flax ( <i>Hesperolinon bicarpellatum</i> )	None	None	1B	Chaparral in serpentine substrate.	1
Thin-lobed horkelia ( <i>Horkelia tenuiloba</i> )	None	None	1B	Chaparral and openings in coniferous forest.	4
Burke's goldfields ( <i>Lasthenia burkei</i> )	FE	SE	1B	Vernal pools, swales, ditches, and surrounding grassland.	25
Delta tule pea ( <i>Lathyrus jepsonii</i> var <i>jepsonii</i> )	None	None	1B	Fresh and brackish water marsh.	1
Colusa layia ( <i>Layia septentrionalis</i> )	None	None	1B	Chaparral, woodland, grassland on sandy and serpentine substrate.	3
Legenere ( <i>Legenere limosa</i> )	None	None	1B	Vernal pools.	2
Crystal Springs lessingia ( <i>Lessingia arachnoidea</i> )	None	None	1B	Woodland, coastal scrub, grassland in serpentine substrate.	12
Coast lily ( <i>Lilium maritimum</i> )	None	None	1B	Meadows, coastal prairie in open scrub and forest.	6
Pitkin marsh lily ( <i>Lilium pardalinum</i> ssp <i>pitkinense</i> )	FE	SE	1B	Meadow and mesic grassland with shrubs. Known from occurrences near Sebastopol.	3
Sebastopol meadowfoam ( <i>Limnanthes vinculans</i> )	FE	SE	1B	Vernal pools, swales, and ditches, and mesic grasslands.	40
Jepson's linanthus ( <i>Linanthus jepsonii</i> )	None	None	1B	Chaparral, woodland usually in volcanic substrate.	6
Rose linanthus ( <i>Linanthus rosaceus</i> )	None	None	1B	Coastal bluff scrub.	1
Cobb Mountain lupine ( <i>Lupinus sericatus</i> )	None	None	1B	Open chaparral and forest.	11
Tidestrom's lupine ( <i>Lupinus tidestromii</i> )	FE	SE	1B	Coastal dunes with fine sand. Known from fewer than 20 occurrences.	1
Robust monardella ( <i>Monardella villosa</i> ssp <i>globosa</i> )	None	None	1B	Openings in chaparral, woodland, and coastal scrub. Known from approximately 10 occurrences..	3
Baker's navarretia ( <i>Navarretia leucocephala</i> ssp <i>bakeri</i> )	None	None	1B	Vernal pools and swales, woodlands, forest, and grassland.	11
Many-flowered navarretia ( <i>Navarretia leucocephala</i> ssp <i>plieantha</i> )	FE	SE	1B	Vernal pools and swales.	4
Sonoma beardtongue ( <i>Penstemon newberryi</i> var <i>sonomensis</i> )	None	None	1B	Chaparral in rock outcrops and talus slopes.	2
North Coast semaphore grass ( <i>Pleuropogon hooverianus</i> )	None	Candidate	1B	Forest, meadows, seeps, vernal pools, and mesic grasslands.	2
Petaluma popcorn-flower ( <i>Plagiobothrys mollis</i> var <i>vestitus</i> )	None	None	1A	Coastal saltmarsh and mesic grassland. Known from type locality in Petaluma from 1880.	1
Marin knotweed ( <i>Polygonum marinense</i> )	None	None	3	Salt and brackish marsh. Known from fewer than 15 occurrences.	2
Hickman's cinquefoil ( <i>Potentilla hickmanii</i> )	FE	SE	1B	Coastal bluff scrub, forest, seeps, meadows, and marshes.	1
California beaked-rush ( <i>Rhynchospora californica</i> )	None	None	1B	Bogs, seeps, meadows in coniferous forest. Known from fewer than 10 occurrences.	3
Round-headed beaked-rush ( <i>Rhynchospora globularis</i> var <i>globularis</i> )	None	None	2	Freshwater marsh.	2

<b>Common Name (Scientific Name)</b>	<b>Federal Status<sup>a</sup></b>	<b>State Status<sup>b</sup></b>	<b>CNPS Status<sup>c</sup></b>	<b>Habitat Characteristics</b>	<b>Number of CNDDB Records</b>
Point Reyes checkerbloom ( <i>Sidalcea calycosa ssp rhizomata</i> )	None	None	1B	Freshwater marsh.	5
Marin checkerbloom ( <i>Sidalcea hickmanii ssp viridis</i> )	None	None	1B	Chaparral in serpentine substrate.	2
Maple-leaved checkerbloom ( <i>Sidalcea malachroides</i> )	None	None	1B	Coastal scrub, coastal bluff, open coniferous forest.	7
Marsh checkerbloom ( <i>Sidalcea oregana ssp hydrophila</i> )	None	None	1B	Meadows, riparian scrub.	1
Kenwood Marsh checkerbloom ( <i>Sidalcea oregana ssp valida</i> )	FE	SE	1B	Freshwater marsh and mesic grassland. Known from only three occurrences, including two in Kenwood Marsh.	2
Freed's jewel-flower ( <i>Streptanthus brachiatus ssp hoffmanni</i> )	None	None	1B	Chaparral, woodland in serpentine substrate. Known from approximately 10 occurrences.	4
Socrates Mine jewel-flower ( <i>Streptanthus brachiatus ssp brachiates</i> )	None	None	1B	Forest and chaparral in serpentine substrate.	7
Secund jewel-flower ( <i>Streptanthus glandulosus var hoffmanni</i> )	None	None	1B	Chaparral, woodland, grassland often on serpentine substrate.	2
Dorr's Cabin jewel-flower ( <i>Streptanthus morrisonii</i> )	None	None	1B	Chaparral, coniferous forest, on serpentine substrate. Known from only two small occurrences in The Cedars.	6
Beaked tracyina ( <i>Tracyina rostrata</i> )	None	None	1B	Woodland and grassland. Known from fewer than 15 occurrences.	1
Showy Indian clover ( <i>Trifolium amoenum</i> )	FE	None	1B	Coastal bluff scrub and grasslands. Presumed extinct until rediscovered in 1993 and in 1996.	11
Santa Cruz clover ( <i>Trifolium buckwestiorum</i> )	None	None	1B	Forest, woodland, coastal prairie. Known from about 10 small occurrences.	1
Long-beard lichen ( <i>Usnea longissima</i> )	None	None	-	Coniferous forest. Non-vascular species of concern.	7

<sup>a</sup> Federal Status Designation:

- FE = Listed as “endangered” under the federal Endangered Species Act.
- FT = Listed as “threatened” under the federal Endangered Species Act.
- PE = Proposed for federal listing as “endangered”.
- C = A candidate species under review for federal listing.
- FSC= Federal Species of Concern; formerly considered a candidate species for listing by the USFWS.

<sup>b</sup> State Status Designation:

- SE = Listed as “endangered” under the California Endangered Species Act.
- SR = Listed as “rare” under the California Endangered Species Act.
- ST = Listed as “threatened” under the California Endangered Species Act.
- P = California protected and fully protected species; individual may not be possessed or taken.
- CSC=Considered a California Special Concern species by the CDFG.

<sup>c</sup> CNPS Status Designation:

- 1A = Plants presumed extinct in California.
- 1B = Plants rare and endangered in California and elsewhere.
- 2 = Plants rare and endangered in California, more common elsewhere.
- 3 = Need more information; a watch list.

## **SENSITIVE NATURAL COMMUNITIES**

The CNDDDB maintains up-to-date records of sensitive natural communities, those considered rare or threatened in the state. Until recently, the classification of natural communities used by the CNDDDB was generally a habitat-based approach defined by dominant or characteristic plant species as described in the *Preliminary Descriptions of the Terrestrial Natural Communities of California*.<sup>5</sup> The classification of natural communities now used by the CNDDDB is based on the system described in the *Manual of California Vegetation*.<sup>6</sup> It is a floristically based system which uses two units of classification called the alliance and the association in the National Vegetation Classification.<sup>7</sup> Although it is just now being used on a broad scale, this quantitative vegetation classification and systematic mapping method will allow conservationists and resource managers a greater understanding of natural ecosystems, their abundance, and their relative security. This new system is now in use by the CDFG, CNPS, State Parks, National Park Service, USGS, and some local agencies, and has been or is currently in use to map the Golden Gate National Recreation Area, Point Reyes National Seashore, Suisun Marsh, Yosemite, Sequoia, and Kings Canyon National Parks, and Napa County.

The purpose of the CNDDDB natural community inventory was originally to identify and determine the significance and rarity of the various vegetation types in the state. While identifying and mapping sensitive natural communities continues to be a primary focus of the inventory, a more thorough understanding of all natural communities is essential to accurately define rarity, identify monitoring trends and threats, and broaden the approach to ecosystem-level conservation of biological diversity. This will presumably lead to mapping of vegetation throughout the state using the newer classification system. In the interim, sensitive natural community types recorded in the CNDDDB are still generally mapped according to the older Holland classification system. Considerable work is necessary in updating and refining existing mapping records, identifying new occurrences of sensitive natural communities, and expanding the data base to include the identification of high-quality stands of all natural communities.

Several of the natural communities in the county are considered to have a high priority for mapping and protection with the CNDDDB. These communities have been designated as sensitive due to rarity and continuing loss as a result of human presence and other factors. No comprehensive mapping of sensitive natural community types in the county has been done: currently there are only 34 occurrence records contained in the CNDDDB inventory. As indicated in **Exhibit 4.6-2**, only eight different sensitive natural community types have been mapped by the CNDDDB: coastal and valley freshwater marsh, coastal brackish marsh, coastal terrace prairie, central dune scrub, northern coastal salt marsh, northern vernal pool, and valley needlegrass grassland. Each of these natural community types has been greatly reduced in extent due to a number of human-induced activities such as the filling of

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<sup>5</sup> *Preliminary Descriptions of the Terrestrial Natural Communities of California*, R. F. Holland, State of California, Department of Fish and Game 1986.

<sup>6</sup> *Manual of California Vegetation*, Sawyer and Keeler-Wolf, CNPS Press, 1995.

<sup>7</sup> *International Classification of Ecological Communities: Terrestrial Vegetation of the United States*, Grossman et al., The Nature Conservancy, 1998.

marshlands, leveling and conversion of vernal pools for agricultural crops and development, and historical overgrazing and replacement of native grasslands with non-native species.

Recent changes to Public Resources Code Section 21083.4 were added to CEQA in 2004 requiring that project applications be evaluated for potential impacts resulting from conversions of oak woodlands. A range of mitigation measures are available to the decision making body in cases where a project would have a significant effect on oak woodlands.

## **WETLANDS**

Although definitions vary to some degree, wetlands are generally considered to be areas that are periodically or permanently inundated by surface or ground water, and support vegetation adapted to life in saturated soil. Wetlands are recognized as important features on a regional and national level due to their high inherent value to fish and wildlife, use as storage areas for storm and flood waters, and water recharge, filtration, and purification functions. Technical standards for delineating wetlands have been developed by the Corps and the USFWS which generally define wetlands through consideration of three criteria: hydrology, soils, and vegetation.

Wetlands in the county include areas of salt and brackish water marsh along the shoreline of the coast and bay, riparian habitat along creeks and streams, the vernal pools and swales of the Santa Rosa Plain, and freshwater seeps and springs. **Exhibit 4.6-3** shows the extent of major wetland systems mapped as part of the Sonoma County Agricultural Preservation and Open Space District (SCAPOSD) *Acquisition Plan 2000* based on the National Wetlands Inventory (NWI) of the USFWS and other sources, together with County streams and rivers data. These include the marine and estuarine system of the ocean, bays, and lagoons; the riverine and lacustrine systems of major creeks and channels; and the palustine system comprising freshwater marsh, riparian scrub and woodland, and scattered stock ponds. Some wetland features, such as freshwater seeps, springs, and many of the vernal pools and swales, were generally not identified as part of the NWI because of the large scale of the mapping effort, localized and seasonal nature of these features, and the lack of field verification.

The wetlands associated with the Santa Rosa Plain are of particular significance because of the complexity of the habitat and the presence of a high number of special-status plant and animal species. The wetlands consist of perennial, intermittent, and seasonal features including: the Laguna de Santa Rosa, Mark West Creek, Santa Rosa Creek, tributary drainages, marshes, permanent ponds, vernal pools, and vernal swales. An estimated 90 percent of the original acreage of the vernal pool ecosystem within a 28,000-acre area defined in the Laguna de Santa Rosa Characterization Study has been lost.<sup>8</sup> Attempts to implement the *Santa Rosa Plain Vernal Pool Ecosystem Preservation Plan* stalled in the mid-1990s, with no coordinated efforts to protect and restore this complex ecosystem other than the complex regulatory authority of the U.S. Army Corps of Engineers (Corps), USFWS, CDFG, and Regional Water Quality Control Board (RWQCB).<sup>9</sup>

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<sup>8</sup> D.W. Smith Consulting, 1990.

<sup>9</sup> CH2M Hill, *Santa Rosa Plain Vernal Pool Ecosystem Preservation Plan*, 1995.

## **HABITAT CONNECTIVITY**

Sonoma County contains a diverse assemblage of both natural and human-influenced environments: the Mendocino Highlands and Mayacamas Range in the north, bisected by the immensely varied Russian River watershed; the cities and agricultural uses on the valley floors juxtaposed with the highly sensitive Laguna de Santa Rosa and the remaining vernal pool complex of the Santa Rosa Plain; the Sonoma Creek watershed to the southeast; and the extensive grasslands to the south bordered by the marshlands of San Pablo Bay. The natural areas that remain are increasingly threatened by continued land conversion, declining water quality, habitat destruction and fragmentation.

Protecting and enhancing habitat connectivity and functional movement corridors between the remaining natural areas is essential to sustaining populations and allowing for the continued dispersal of native plant and animal species. Natural linkages include riparian corridors and drainages, canyons, ridgelines, and corridors across valley floors where impermeable barriers such as dense urban development, exclusionary fencing, and heavily traveled roadways have not yet eliminated options for wildlife movement and plant dispersal. While narrow corridors may be the only option in some locations due to the extent of existing development, habitat linkages are most effective through maintenance of a permeable landscape (i.e., one that allows for uninhibited movement of species across large areas).

Very little study or mapping of opportunities for maintaining and enhancing biodiversity and habitat connectivity have been prepared addressing resources in Sonoma County or the state as a whole. The Missing Linkages conference in November 2000, cosponsored by the California Wilderness Coalition, The Nature Conservancy, the Biological Resource Division of the USGS, the Center for Reproduction of Endangered Species, and California State Parks, provided the first coordinated statewide effort in California to systematically identify, study, and protect wildlife corridors. The resulting report, *Missing Linkages: Restoring Connectivity to the California Landscape*, describes the methodology in identifying large scale landscape linkages, connectivity choke-points, and missing links, and prioritizes these features based on conservation opportunities, presence of target species, overall threat, and existing documentation.<sup>10 11</sup> While the Missing Linkages conference focused primarily on wildlife movement, it does provide a starting point in considering the importance of linking core wildlands for both wildlife connectivity and plant dispersal.

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<sup>10</sup> California Wilderness Coalition et al, 2001.

<sup>11</sup> Linkage types defined during the Missing Linkages conference consist of the following:

*Landscape linkage* = large, regional connections between habitat blocks (“core areas”) meant to facilitate animal movement and other essential functions between different sections of the landscape. These linkages are not necessarily constricted, but are essential to connectivity function in the ecoregion. They may include habitat linkages, riparian corridors, etc.

*Connectivity choke-point* = A narrow, impacted, or otherwise tenuous habitat linkage connecting two or more core areas. Choke-points are essential to maintain landscape-level connectivity, but are particularly in danger of losing connectivity function. An example of a connectivity choke-point is a narrow peninsula of habitat, surrounded by human-dominated matrix, that connects larger core areas. Another example would be an underpass under a major roadway that is critical to allow animal movement between core areas.

*Missing link* = highly impacts area currently providing limited to no connectivity function (due to intervening development, roadways, etc.), but based on location one that is critical to restore connectivity function. For example, a missing link might be a critical section of a major highway that bisects two large core areas but that is currently impermeable to animal movement.

The Missing Linkages conference report identified nine habitat linkages for the North Coast and Bay Area Ecoregions encompassing the Sonoma County vicinity.<sup>12</sup> Linkages extending into and across Sonoma County include Coastal Wetlands for the Pacific Flyway, Russian River Riparian Corridor, Lake Sonoma-Cooley Ranch, North Sonoma Coast-Lake Sonoma, Mayacamas-Mark West, Sonoma Mountain-Mayacamas Mountains, Sonoma Creek, Sonoma Mountain-Burdell Mountain, and the Bay Wetlands. Identification of these regional linkages is an important first step in identifying opportunities for habitat connectivity in the county. However, these regional linkages do not address fragmentation on the local level, nor do they address the need to protect habitat connectivity and provide for movement corridors between core areas and important natural communities in the county.

The Sonoma Ecology Center has been working for the past six years in an effort to establish a habitat corridor across the north end of the Sonoma Valley to provide a critical link between the undeveloped lands of Sonoma Mountain to the west and across the valley floor to the Mayacamas Mountains to the east. The proposed “Sonoma Valley Corridor” is about five miles long and up to three-quarters of a mile wide. It passes across the Sonoma Developmental Center, Sonoma Valley Regional Park, Bouverie Preserve, Oak Hill Farm, Jack London State Park, and private agricultural property. Considerable work remains to provide formal recognition for the proposed corridor, identify necessary land management and access improvements, and secure the land as protected open space. However, this proposed corridor serves as an example of other opportunities which may be available to protect habitat connectivity between core areas in the county.

Protection of priority habitat and areas that provide connectivity to other protected lands was addressed to some degree in the SCAPOSD *Acquisition Plan 2000*. The Natural Resources Acquisition Category of the *Acquisition Plan* is intended to focus land conservation efforts within areas of high natural resource value based on ecological boundaries, large blocks of highly productive habitat, habitat linkages, and essential habitat for special-status species. These include priority oak woodlands, priority forestlands, and priority riparian corridors. Although one of the objectives of the Natural Resources Acquisition Category is to preserve areas and provide connectivity to other protected lands, key habitat linkages have not been identified

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## ***Biological Resources – Regulatory Setting***

Local, State, and federal regulations have been enacted to provide for the protection and management of sensitive biological and wetland resources. Sonoma County PRMD currently regulates land use and development proposals that may affect sensitive biological resources. The Open Space Element of the existing *General Plan* and the Sonoma County Zoning Code designate certain Streamside Conservation Areas along 54 major rivers and perennial streams and designate Critical Habitat Areas encompassing some of the known sensitive natural communities and wetlands in the county. The Stream Conservation Areas extend outward from the top of the higher bank on each side of a designated stream, and the width varying from 200 feet along the Russian River, to 100 feet along Flatland Riparian Corridors, to 50 feet along Urban Riparian Corridors and Upland Riparian Corridors. Designated Critical Habitat Areas include tidal marshes and estuaries near the Sonoma Creek, Petaluma River, San Antonio Creek, Estero Americano and the mouth of the Russian River; freshwater marshes such as Pitkin, Petaluma and Kenwood marshes; some locations supporting vernal pools, native grassland and oak savanna, special coastal areas (e.g., dunes, pygmy forest and cypress

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<sup>12</sup> California Wilderness Coalition et al, 2001.

forest); and preserves owned by the Sonoma County Land Trust, Audubon Society, Academy of Sciences, and Nature Conservancy. The relevant policies of the existing *General Plan* and Zoning Code provide some degree of habitat protection for various species of concern and their habitat through land use regulation and restrictions. Additional protection of sensitive biological resources is provided through the discretionary permit process and its concurrent CEQA review and parallel State and federal permit requirements. Detailed information on the State and federal regulations related to biological resource protection is summarized below, addressing special-status species, sensitive natural communities, wetlands, and habitat connectivity.

Sonoma County PRMD currently regulates land uses and development that may affect biological Resources. The existing *General Plan* and Zoning Code designate certain streamside conservation areas along many rivers and streams and designate critical habitats encompassing many of the rare and endangered plant communities and wetlands in the County. These codes provide habitat protection various species of concern and their habitat. Additional protection of biological resources is provided through the discretionary permit process and its concurrent CEQA review and parallel state and federal permit requirements.

At the State level, the California Department of Fish and Game (CDFG) is responsible for administration of the California Endangered Species Act (CESA), and for protection of streams and waterbodies through the Streambed Alteration Agreement process under Section 1601-1606 of the California Fish and Game Code. Certification from the California Regional Water Quality Control Board (RWQCB) is also required when a proposed activity may result in discharge into navigable waters, pursuant to Section 401 of the Clean Water Act and Environmental Protection Agency (EPA) Section 404(b)(1) Guidelines.

On the federal level, the US Fish and Wildlife Service (USFWS) is responsible for protection of terrestrial and freshwater organisms through implementation of the federal Endangered Species Act (ESA) and the Migratory Bird Treaty Act.<sup>13</sup> The National Oceanic and Atmospheric Administration (NOAA Fisheries) is responsible for protection of anadromous fish and marine wildlife. The US Army Corps of Engineers (Corps) has primary responsibility for protecting wetlands under Section 404 of the Clean Water Act.

### **SPECIAL-STATUS SPECIES**

Special-status species are plants and animals that are legally protected under the State and/or federal ESAs or other regulations as well as other species that are considered rare enough by the scientific community and trustee agencies to warrant special consideration, particularly with regard to protection of isolated populations, nesting or denning locations, communal roosts, and other essential habitat. Species with legal protection under the federal and State ESAs often represent major constraints to development, particularly when they are wide ranging or highly sensitive to habitat disturbance and where proposed development would result in a *take* of these species. *Take*, as defined by the federal ESA, means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect a threatened or endangered species. *Harm* is further defined by the USFWS to include the killing or harming of

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<sup>13</sup> The federal Endangered Species Act (ESA) of 1973 declares that all federal departments and agencies shall utilize their authority to concern endangered and threatened plant and animal species. The California Endangered Species Act (CESA) of 1984 parallels the policies of the ESA and pertains to California species.

wildlife due to significant obstruction of essential behavior patterns (i.e., breeding, feeding, or sheltering) through significant habitat modifications or degradation.

### **State Regulations**

The CDFG has jurisdiction over threatened or endangered species that are formally listed under the CESA. The CESA is similar to the federal ESA both in process and substance, providing additional protection to listed species in California. The CESA does not supersede the federal ESA, but operates in conjunction, with some species having different listing status. The CESA is intended to conserve, protect, restore, and enhance listed species and their habitat. Compliance with the CESA is required when a take is considered likely by the CDFG.

The CDFG also maintains informal lists of California Special Concern (CSC) species. These species are broadly defined as animals that are of concern to the CDFG because of population declines and restricted distribution, and/or because they are associated with habitats that are declining in California. These species are inventoried in the CNDDDB, focusing on nesting, roosting, and congregation sites for non-listed species. In addition, wildlife species designated as *Fully Protected* or *Protected* may not be taken or possessed without a permit from the Fish and Game Commission and / or the CDFG.

The CESA prohibits the take of any plant listed as endangered, threatened, or rare. A *rare* plant species is one not presently threatened with extinction but may become endangered if its present environment worsens. State listing of plants began in 1977 with the passage of the Native Plant Protection Act (NPPA). The CESA expanded upon the NPPA and enhanced legal protection for plants. To align with federal regulations, CESA created the categories of threatened and endangered species. It grandfathered all rare animals into the CESA as threatened species, but did not do so for rare plants.

The California Native Plant Society (CNPS) is a non-profit conservation organization dedicated to the preservation of native flora in California. The CNPS has been involved in assembling, evaluating, and distributing information on special-status plant species in the state, as listed in the *Inventory of Rare and Endangered Plants of California* (CNPS *Inventory*). A *List 1A* plant is a species, subspecies, or variety that is considered to be extinct. A *List 1B* plant is considered rare, threatened, or endangered in California and elsewhere. A *List 2* plant is considered rare, threatened, or endangered in California but is more common elsewhere. A *List 3* plant is a species for which the CNPS lacks necessary information to determine whether or not it should be assigned to a list. A *List 4* plant has a limited distribution in California and is considered a *watch list* by the CNPS.

All of the plant species on List 1 and List 2 meet the requirements of the NPPA (Section 1901, Chapter 10) or Section 2062 and 2067 of CESA, and are eligible for state listing. Species maintained by CNPS on Lists 1 and 2 should be considered special-status species under the California Environmental Quality Act (CEQA). Some List 3 plant species also meet the requirements for state listing. Very few List 4 plants are eligible for listing but may be locally important and their listing status could be elevated if conditions change.

The CEQA requires government agencies to consider environmental impacts of discretionary projects and to avoid or mitigate them where possible. Under Section 15380, CEQA provides protection for both State-listed species and for any other species which can be shown to meet the criteria for State listing. The CDFG recognizes that Lists 1A, 1B, and 2 of the CNPS *Inventory* consist of plants that, in a majority of cases, would qualify for listing and these species should be addressed under CEQA review. In addition, the CDFG recommends, and local governments may require, protection of species

which are regionally significant, such as locally rare species, disjunct populations, essential nesting and roosting habitat for more common wildlife species, or plants on the CNPS Lists 3 and 4.

### **Federal Regulations**

The USFWS and NMFS have jurisdiction over species that are formally listed as threatened or endangered under the federal ESA. The federal ESA is a complex law enacted in 1973 to protect and recover plant and animal species in danger of becoming extinct and to conserve their ecosystems, with an ultimate goal being the recovery of a species to the point where it is no longer in need of protection. An *endangered* plant or animal species is one that is considered in danger of becoming extinct throughout all or a significant portion of its range. A *threatened* species is one that is likely to become endangered within the foreseeable future. The USFWS also maintains a list of species proposed for listing as endangered or threatened, and a list of candidate species for which sufficient information is available to support issuance of a proposed listing rule.

It is illegal to take any listed species without specific authorization. Any activity that could result in take of a federally-listed species requires a Section 10 take permit authorization from the USFWS or NMFS. Should another federal agency be involved with permitting the project, such as the Corps under jurisdiction of the Clean Water Act, Section 7 of the ESA requires the federal lead agency to consult with the USFWS and / or NMFS before permitting any activity that may result in take of a listed species. Section 9 of the ESA and its applicable regulations restrict certain activities with respect to endangered and threatened plants. However, these restrictions are less stringent than those applicable to fish and wildlife species. The provisions prohibit the removal of, malicious damage to, or destruction of any listed plant species from areas under federal jurisdiction.

In addition to the protection offered under the ESA, the federal Migratory Bird Treaty Act (MBTA) provides for protection of migratory bird species, birds in danger of extinction, and their active nests. It is illegal to possess or take any bird protected under the act without a depredation permit from the USFWS, which includes protection of eggs, young, and nests in active use. Although the MBTA technically provides for protection of most bird species, it is typically applied as a mechanism to protect active nests of raptors and colonial nesting species through the breeding and nesting season.

### **SENSITIVE NATURAL COMMUNITIES**

In addition to species-oriented management, protecting habitat on an ecosystem-level is increasingly recognized as vital to the protection of natural diversity in the state. This is considered the most effective means of providing long-term protection of ecologically viable habitat, and can include whole watersheds, ecosystems, and sensitive natural communities. Providing functional habitat connectivity between natural areas is essential to sustaining healthy wildlife populations and allowing for the continued dispersal of native plant and animal species.

### **State and Federal Regulations**

Although sensitive natural communities have no legal protective status under the State or federal ESAs, they are provided some level of protection under CEQA. The *State CEQA Guidelines* identify potential impacts on a sensitive natural community as one of six significance criteria. As an example, a discretionary project that has a substantial adverse effect on any riparian habitat, native grassland, valley oak woodland, or other sensitive natural community would normally be considered to have a significant effect on the environment. Further loss of a sensitive natural community could be interpreted as substantially diminishing habitat, depending on its relative abundance, quality and

degree of past disturbance, and the anticipated impacts to the specific community type. Where determined to be a significant under CEQA, the potential impact would require mitigation through avoidance, minimization of disturbance or loss, or some type of compensatory mitigation when unavoidable.

## **WETLANDS**

In recognition of the importance of wetlands, in 1977 the USFWS began a systematic effort to classify and map remaining wetlands in the country, now known as the National Wetlands Inventory Program (NWI). Using the USGS topographic maps as a base, the wetlands mapping effort provides a generalized inventory of wetlands according to the *Classification of Wetlands and Deepwater Habitats of the United States* used by the USFWS.<sup>14</sup> Mapping under the NWI has been prepared through interpretation of aerial photographs, with only limited ground confirmation, which means that a more thorough ground and historical analysis may result in a revision to wetland boundaries in a specific location. The inventory is not an attempt to define the limits of proprietary jurisdiction of any governmental agency.

### **State Regulations**

Jurisdictional authority of the CDFG over freshwater streams, lakes, and associated wetland areas is established under Section 1601 - 1606 of the Fish and Game Code, which pertains to activities that would disrupt the natural flow or alter the channel, bed, or bank of any lake, river, or stream. The Fish and Game Code stipulates that it is unlawful to substantially divert or obstruct the natural flow or substantially change the bed, channel or bank of any river, stream or lake without notifying the CDFG, incorporating necessary mitigation, and obtaining a Streambed Alteration agreement. The Wetlands Resources Policy of the CDFG states that the Fish and Game Commission will strongly discourage development in or conversion of wetlands ... unless, at a minimum, project mitigation assures there will be no net loss of either wetland habitat values or acreage. The Department is also responsible for commenting on projects requiring Corps permits under the Fish and Wildlife Coordination Act of 1958.

In addition, the California RWQCB is responsible for upholding state water quality standards. Pursuant to Section 401 of the Clean Water Act, projects that apply for a Corps permit for discharge of dredge or fill material, and projects that qualify for a Nationwide Permit must obtain water quality certification. The RWQCB has taken an increasing role over regulating wetlands that are hydrologically isolated following the U.S. Supreme Court decision in 2001 regarding the case *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (SWANCC), which limits the jurisdictional authority of the Corps under Section 404. These hydrologically isolated features are now regulated by the RWQCB under authority of Section 401 of the Clean Water Act and the Porter-Cologne Water Quality Control Act.

### **Federal Regulations**

The Clean Water Act was enacted to address water pollution, establish regulations and permit requirements regarding construction activities that affect storm water, dredge and fill material operations, and water quality standards. This regulatory program requires that discharges to surface

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<sup>14</sup> Cowardin et al, U.S. Department of the Interior, Fish and Wildlife Service, 1979.

waters be controlled under the National Pollutant Discharge Elimination System (NPDES) permit program, which applies to sources of water runoff, private developments, and public facilities.

Under Section 404 of the Clean Water Act, the Corps is responsible for regulating the discharge of fill material into waters of the United States. The term *waters* include wetlands and non-wetland bodies of water that meet specific criteria as defined in the Code of Federal Regulations. All three of the identified technical criteria must be met for an area to be identified as a wetland under Corps jurisdiction, unless the area has been modified by human activity. In general, a permit must be obtained before fill can be placed in wetlands or other waters of the U.S. The type of permit depends on the amount of acreage and the purpose of the proposed fill, subject to Corps discretion.

Certain activities in wetlands or unvegetated *other waters* are automatically authorized, or granted a nationwide permit that allows filling where impacts are considered minor. Eligibility for a nationwide permit simplifies the permit review process. Nationwide permits cover construction and fill of waters for a variety of routine activities such as minor road crossings, utility line crossings, streambank protection, recreational facilities, and outfall structures. To qualify for a nationwide permit, a project must demonstrate that it has no more than a minimal adverse effect on the aquatic ecosystem, including species listed under the ESA. This typically means that there will be no net loss of either habitat acreage or habitat value, resulting in appropriate mitigation where fill activities are proposed.

The Corps assumes discretionary approval over proposed projects where impacts are considered significant, requiring adequate mitigation and permit approval. To provide compliance with the EPA's Section 404(b)(1) Guidelines, an applicant must demonstrate that the proposed discharge is unavoidable and is the least environmentally damaging practicable alternative that will achieve the overall project purpose. The 1990 Memorandum of Agreement between the EPA and Corps concerning the Determination of Mitigation under the Guidelines prioritizes mitigation, with the first priority to avoid impacts, the second to minimize impacts, and the third to provide compensatory mitigation for unavoidable impacts.

As noted above, the U.S. Supreme Court SWANCC decision in 2001 has resulted in changes to the regulatory authority of the Corps. The Court determined the Corps' position that its permit authority extended to waters and wetlands that were neither physically navigable nor connected in any way to navigable waters so long as they provided habitat for migratory birds was incorrect. As a result, the Corps no longer hold jurisdiction over hydrologically isolated wetlands.

## **HABITAT CONNECTIVITY**

As noted previously, protecting habitat on an ecosystem-level is essential to sustaining native plant and animal populations. Viability is a function of numerous factors, including the size and health of local plant and animal populations, habitat quality and diversity, habitat connectivity, and ecosystem dynamics such as fire, flooding, seasonal changes, and other natural disturbances, predation, and plant-herbivore pressures. Human-induced changes to the landscape have significant effects on the health and productivity of the natural environment, resulting in habitat loss and fragmentation due to urban, suburban, and even rural development, conversion to agricultural crops, and the network of roadways, flood control modifications to drainages, and other infrastructure that supports our existence.

### **State and Federal Regulations**

Although there are no State or federal laws directly addressing habitat connectivity and preserving biodiversity, the Endangered Species Acts provide for protection of essential habitat for listed species.

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## **Biological Resources – Significance Criteria**

According to the *State CEQA Guidelines*, the project would have a significant impact on biological resources if it would:

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

According to CEQA, if the following condition occurs the lead agency (in this case the County) shall find that the project may have a significant effect on the environment: <sup>15</sup>

- The project has the potential to substantially degrade the quality of the environment, substantially reduce the habitat of fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of an endangered, rare or threatened species.

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## **Biological Resources – Impacts and Mitigation Measures**

### **Impact 4.6-1 Special Status Species**

*Land uses and development consistent with the Draft GP 2020 could result in loss of populations or essential habitat for special-status species. This would be a significant impact. (S)*

Land use and development consistent with the *Draft GP 2020* could result in adverse impacts on special-status species in Sonoma County. As indicated by the distribution of special-status plant and

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<sup>15</sup> Under *CEQA Guidelines* Section 15065.

animal species shown in **Exhibit 4.6-2**, numerous occurrences are known to occur within or at the periphery of urbanized areas. These include occurrences within the Urban Service Boundaries of Cotati, Petaluma, Santa Rosa, and Rohnert Park in the Santa Rosa, Sebastopol, and Rohnert Park – Cotati Planning Areas. Numerous other known occurrences occur at the periphery of Urban Service Boundaries in the Cloverdale / N.E. County, Healdsburg, Petaluma and Sonoma Valley Planning Areas. Other occurrences are known from outside urbanized areas, in the vicinity of rural communities, or grazing, timber production, and watershed lands. The existing mapping in **Exhibit 4.6-2** only represents the known occurrences of special-status species, generally as a result of either chance encounters or as part of past detailed surveys. This mapping does not represent all populations of special-status species in the County, and future land use activities and development could also affect unknown occurrences where present within the limits of grading and development. Site-specific habitat suitability assessments and possibly detailed surveys would likely be necessary to determine the extent of any special-status species on undeveloped lands proposed for development.

Impacts on special-status species could include direct loss of individuals or localized populations, elimination or degradation of essential habitat, and isolation of subpopulations due to habitat fragmentation. Conversion of existing natural habitat to urban development, roadways and other infrastructure improvements could result in the elimination of populations of special-status species where present within the limits of proposed grading and development. The installation of vineyards, row crops, and other actively managed agricultural uses, timber harvesting, mining extraction, and other activities could also result in the elimination of essential habitat for special-status species. Even if the population is deliberately avoided, new development and intensively managed land practices could result in fragmentation of the existing habitat and leave the special-status species population at risk to *extirpation* (local extinction). Isolated subpopulations may be particularly vulnerable to extirpation due to natural or man-made influences such as fire and vegetation management practices, intensive grazing or agricultural production, invasion by highly aggressive non-native species which can out-compete or deplete the native flora or fauna, and other factors. Indirect impacts could include disruption of critical functions affecting reproductive success, degradation of habitat quality to such an extent that occupied habitat is no longer suitable for individual survival, and other influences.

Local, State, and federal regulations provide varying levels of protection for special-status species, depending on a number of factors including legal protective status, rarity and distribution, and magnitude of the potential impact on essential habitat, specific occurrence and overall population levels, and take of individual plants or animals. Activities requiring discretionary approvals by the County, State, and federal agencies provide for the greatest oversight because proposed activities must be evaluated for their potential impact on special-status species and other sensitive biological resources. These include most development applications, which are reviewed under CEQA and NEPA when federal funds or authorization is required, timber applications which must be reviewed for compliance with the Forest Practice Act, and mining activities which must comply with the Surface Mining and Reclamation Act.

However, some land use activities permitted under the *Draft GP 2020* which require only a ministerial permit application may receive little or no review by local, State or federal authorities.<sup>16</sup> These include most agricultural uses and ministerial permits for construction of a single family home, garage

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<sup>16</sup> *Ministerial* describes a governmental decision involving little or no personal judgment by the public official as to the wisdom or manner of carrying out the project. The public official merely applies the law to the facts as presented but uses no special discretion or judgment in reaching a decision. Typical ministerial actions include agriculture activities and residential development on existing lots including building permits, grading permits, and well and septic system permits.

and other associated buildings, or grading for a new driveway on a parcel where residential use is allowed. There remains a concern over the potential for adverse impacts on sensitive resources such as special-status species for land use activities and ministerial permits for which the County has no discretionary authority. It is important to note, however, that federal and State regulations also provide for the protection and management of special-status species. Such laws against taking of listed species and related permit requirements for some land use activities proposed within essential habitat for these species also contribute to reducing potential impacts on special-status species.

The Open Space and Resource Conservation Element of the *Draft GP 2020* contains policies which would provide for the identification and protection of special-status species as part of development review. The degree to which populations and essential habitat for special-status species is adequately protected depends in part on how stringently the policies are applied and enforced, together with regulatory oversight and resource management by State and federal agencies. Figures OSRC-5a through OSRC-5i in the Open Space and Resource Conservation Element designate Biotic Habitat Areas for each planning area, shown in composite form for the entire county in **Exhibit 4.6-2**. Biotic Habitat Areas form the known extent of sensitive biological resources in the county, and include marshes and wetlands, sensitive natural communities, habitat connectivity corridors, and mapped occurrences of special-status species.

Policy **OSRC-7b(1)(a)** would require a site assessment and adequate mitigation for ministerial permit applications proposed within locations mapped as Special-Status Species Habitat. Priorities for adequate mitigation are also specified in the policy, together with a recommendation that mitigation required by the County should be consistent with permit requirements of federal and State regulatory agencies, to the extent feasible. Policy **OSRC-7b(2)** would call for a referral to appropriate regulatory agencies for discretionary projects proposed in areas mapped as Biotic Habitat Areas, and would require a site assessment, compliance with agency requirements and adequate mitigation pursuant to the priorities in Policy **OSRC-7b(1)(a)**. Policy **OSRC-7c** pertains to discretionary projects and larger ministerial permits outside of designated Biotic Habitat Areas and would call for referral to appropriate regulatory agencies, and where warranted, would require a site assessment and adequate mitigation pursuant to priorities in **OSRC-7b(1)(a)**. In addition, Policy **OSRC-7d** would provide notification to permit applicants of possible requirements of regulatory agencies.

Mitigation priorities outlined in Policy **OSRC-7b(1)(a)** would range from preferred avoidance to creating replacement habitat off-site to achieve no net loss. This range of mitigation options would generally be consistent with that used by regulatory agencies. It should be noted that the significance of the potential impact on special-status species and corresponding need for mitigation can vary depending on a number of factors. These factors include the actual status of the affected species, magnitude of disturbance, vulnerability of the population to extirpation, and other considerations. Those special-status species which are actually listed species under the Endangered Species Acts (i.e., rare, threatened, or endangered) generally represent the highest potential constraint to proposed development, are much more stringently regulated, and typically are considered to have a higher need for habitat avoidance. The feasibility of mitigation options must also be considered in developing appropriate mitigation for special-status species. Habitat creation may not be feasible, or may be of questionable success and may only be allowed by regulatory agencies as part of a combined mitigation plan that includes permanent protection of other off-site locations known to support the species of concern. The policies related to special-status species provide for the appropriate review process utilized by qualified professionals and regulatory agencies.

Habitat Conservation Plans or Natural Community Conservation Plans are often times used to provide a coordinated approach to protecting listed special-status species while still recognizing the rights of private property owners. No conservation plans have been adopted for all or parts of Sonoma County,

but a draft *Santa Rosa Plain Vernal Pool Ecosystem Preservation Plan* was prepared in the 1990s and continues to be acknowledged in the *Draft GP 2020*. Policy **OSRC-7r** would continue to recommend implementation of the plan and the need to protect the associated special-status species. Policy **OSRC-7j** would also encourage the consideration of developing Habitat Conservation Plans for specific areas or the entire county to address protection of special-status species.

Sonoma County is participating in the FishNet4C program, which is intended to meet the requirements of the Federal ESA in protecting anadromous salmonids and their habitats. Current activities are focused upon development of improved road and channel construction and maintenance by County and SCWA staff. Policy **OSRC-8c(10)(b)** would specify that stream crossings for roads and utility lines be built and maintained to meet FishNet4C and County standards. However, there is no other reference to continued participation in the FishNet4C program which is essential to improving habitat conditions for listed anadromous fish and other aquatic species.

In summary, the above regulations and proposed policies of the *Draft GP 2020* governing special-status species would reduce the impacts of habitat changes and new development on these species. However, because there remains a potential for continued loss of unknown populations of special-status species or loss of essential habitat for listed species as a result of activities which are not subject to County permit requirements, this would be considered a significant impact. Since the option of requiring detailed biotic surveys to determine project impacts requires a discretionary permit review, the County would have to subject all land use activities from building permits to growing crops and raising animals to costly studies and public hearings. To do so could jeopardize the County goal of agricultural protection and economic viability.

**Mitigation Measure 4.6-1** Add a new policy to Section 3.1 of the Open Space and Resource Conservation Element to encourage continued participation in the FishNet4C program:

**Policy OSRC-7v:** Continue to actively participate in the FishNet4C program and work cooperatively with participating agencies to implement recommendations to improve and restore aquatic habitat for listed anadromous fish species and other fishery resources.

**Significance After Mitigation** Adoption of the relevant policies in the Open Space and Resource Conservation Element, the new policy in Mitigation Measure 4.6-1, and oversight by regulatory agencies entrusted with enforcement of State and federal regulations addressing the protection and management of special-status species, would serve to reduce potential adverse impacts on special-status species associated with the *Draft GP 2020*. To the extent that the location of special-status species occurrences are known or discovered through the permit review process, this would be a less than significant impact. However, since not all occurrences of special-status species are known and some land uses are not regulated, this would be a significant unavoidable impact. (SU)

**Responsibility and Monitoring** The Board of Supervisors would be responsible for adopting the policy proposed in Mitigation Measure 4.6-1 as part of the *GP 2020*. The PRMD would be responsible for monitoring implementation.

**Impact 4.6-2 Sensitive Natural Communities**

*Land uses and development consistent with the Draft GP 2020 could result in loss of sensitive natural communities. This would be a significant impact. (S)*

Land uses and development consistent with the *Draft GP 2020* could result in adverse impacts to sensitive natural communities. **Exhibit 4.6-2** shows the mapped extent of sensitive natural

communities known in Sonoma County, which includes areas of native grasslands, marshlands, coastal terrace prairie, central dune scrub, and northern vernal pool. Designated Streams, which encompass perennial and intermittent streams, are also generally considered to support riparian habitat, a sensitive natural community type. However, some segments of stream channels supporting riparian habitat may not be included in the USGS mapping of intermittent and perennial streams used as a basis for the designations, and other occurrences of sensitive natural communities are not known at this time. **Exhibit 4.6-2** represents the known occurrences of sensitive natural communities, generally described as a result of past detailed surveys or conventional mapping. Site-specific assessments and possibly detailed surveys may be necessary to determine the extent of any sensitive natural communities on undeveloped lands.

As indicated by the distribution of sensitive natural communities shown in **Exhibit 4.6-2**, numerous occurrences are located within or at the periphery of urbanized areas, particularly the riparian scrub and woodland habitat along designated streams. These include designated streams within the Urban Service Boundaries of Cloverdale, Cotati, Healdsburg, Petaluma, Rohnert Park, Santa Rosa, Sebastopol, Sonoma, and Windsor. Other known occurrences are located outside urbanized areas, in the vicinity of rural communities, or grazing, timber production, and watershed lands. Potential impacts on mapped and unknown occurrences of sensitive natural communities include all or partial conversion to developed uses, vineyards and other agricultural activities, and fragmentation or modification to such an extent that the resource no longer functions as a natural community. Other human-generated influences such as fire suppression, intensive grazing or agricultural production, invasion by highly aggressive non-native species which can out-compete or deplete the native flora, and other factors may also adversely affect sensitive natural communities.

The Open Space and Resource Conservation Element of the *Draft GP 2020* contains policies that would provide for the identification and protection of sensitive natural communities as part of development review. Figures OSRC-5a through OSRC-5i in the Open Space and Resource Conservation Element designate Biotic Habitat Areas for each planning area, shown in composite form for the entire county in **Exhibit 4.6-2**. Policy **OSRC-7b(1)(c)** would call for a referral to CDFG, for ministerial permit applications proposed within locations mapped as Sensitive Natural Communities, and would require a site assessment and adequate mitigation where agency information indicates sensitive resources could be affected. Priorities for mitigation follow those specified for special-status species listed in Policy **OSRC-7b(1)(a)**. Policy **OSRC-7b(2)** would call for a referral to the appropriate regulatory agencies for discretionary projects proposed in areas mapped as Biotic Habitat Areas, which should include Designated Streams and mapped sensitive natural communities, and would require a site assessment, compliance with agency requirements and adequate mitigation pursuant to the priorities in Policy **OSRC-7b(1)(a)**. Policy **OSRC-7c** would address discretionary projects and larger ministerial permits outside of designated Biotic Habitat Areas. The policy would call for referral to appropriate regulatory agencies, and, where warranted, would require a site assessment and adequate mitigation pursuant to priorities in **OSRC-7b(1)(a)**. However, Policy **OSRC-7b(1)(a)** would pertain specifically to Special-Status Species Habitat, and does not include the review process outlined in **OSRC-7b(1)(c)**.

As discussed under *Impact 4.6-1 Special Status Species*, mitigation priorities outlined in Policy **OSRC-7b(1)(a)** would range from preferred avoidance to creating replacement habitat off-site to achieve no net loss. While this range of mitigation options is again would generally be consistent with that used by regulatory agencies, the significance of the potential impact on sensitive natural communities and corresponding need for mitigation is appropriately less rigorous than that used for special-status species. Appropriate mitigation also depends on feasibility of creating replacement habitat or restoring areas of sensitive natural communities affected by proposed development. These various considerations are not specifically acknowledged in the policies related to sensitive natural

communities, but the policies would provide for the appropriate review process to be utilized by qualified professionals and regulatory agencies.

Section 3.2 of the Open Space and Resource Conservation Element includes detailed policies related to the protection of riparian corridors, a sensitive natural community type of particular concern in Sonoma County. Policy **OSRC-8c** would serve to protect riparian corridors by requiring that land use and development comply with defined principles until an ordinance is adopted by the County. These principles would include restricting removal of riparian vegetation, limiting construction of new structures and roads, prohibiting installation of new fencing designed to exclude wildlife, and controls on agricultural cultivation. Stream conservation areas would be established along Designated Streams with a setback distance of 200 feet from the top of the higher bank along the Russian River and 100 feet from other designated riparian corridors. Under Policy **OSRC-8f**, permit applicants would be notified of possible federal and state permit requirements. Policy **OSRC-8e** specifies referral of discretionary permit applications to CDFG, with site assessment and appropriate mitigation required if riparian corridors may be adversely affected. Policy **OSRC-8h** would provide for review of riparian corridor designations, evaluation of policy effectiveness, assessment of the degree to which setback reductions are approved, and consideration of need for additional protective policies at least every five years.

**Exhibit 4.6-5** provides a comparison of currently protected and proposed Riparian Corridors under the *Draft GP 2020* for the unincorporated areas of Sonoma County. As indicated in **Exhibit 4.6-5**, currently protected Riparian Corridors extend over an estimated 473 miles and approximately 11,396 acres, based on standard setbacks from the Russian River and other perennial streams. This represents less than 14 percent of the intermittent and perennial streams in Sonoma County, providing limited protection for riparian habitat and the associated aquatic habitat, water quality purification, and groundwater recharge functions. By comparison, proposed Riparian Corridors in the *Draft GP 2020* would extend over an estimated 3,280 miles and approximately 81,947 acres, based on proposed standard setbacks. Inside the proposed Urban Service Areas, the additional Riparian Corridors include an estimated 50 miles of intermittent streams, with no change in the designations along the Russian River and only about one-half mile and 100 acres of additional designated area along perennial streams. This change within the proposed Urban Service Areas collectively would represent two percent of the total proposed Riparian Corridors. The vast majority of the additional designated streams would occur outside of proposed Urban Service Areas in locations with Agricultural and Resources and Rural Development land use designations, representing 87 percent of the total proposed Riparian Corridors. The remaining 11 percent increase in designated streams would occur outside of proposed Urban Service Areas in locations with Rural / Urban Residential, Commercial / Industrial, and Public / Quasi Public land use designations.

**Exhibit 4.6-5**  
**Land Use Analysis of Current/Proposed Riparian Corridors in Unincorporated Areas** <sup>17</sup>

<b>Currently Protected Riparian Corridors</b>			
<b>General Plan Land Use Designation</b>	<b>Russian River <sup>18</sup> (miles/acres)</b>	<b>Other Perennial Streams <sup>19</sup> (miles/acres)</b>	<b>Total (miles/acres)</b>
Inside Proposed Urban Service Areas	6.28 / 460	15.55 / 283	21.83 / 743
Outside Proposed Urban Service Areas	54.57 / 3,437	396.91 / 7,216	451.48 / 10,653
<b>Proposed Land Use Designations</b>			
Agricultural	28.65 / 1,807	132.21 / 2,404	160.86 / 4,211
Resources & Rural Development	18.22 / 1,077	216.49 / 3,936	234.71 / 5,013
Rural & Urban Residential	3.19 / 281	36.36 / 661	39.55 / 942
Commercial-Industrial	1.37 / 40	3.05 / 55	4.42 / 95
Public & Quasi-Public	3.14 / 232	8.80 / 160	11.94 / 392
<b>Totals</b>	<b>60.85 / 3,897</b>	<b>412.46 / 7,499</b>	<b>473.31 / 11,396</b>

Source: PRMD and Environmental Collaborative

<sup>17</sup> Uses 2002 Open Space Plan Maps.

<sup>18</sup> Acreage estimates for Russian River corridor include the channel where shown on maps and 200 feet from channel banks on both sides. All acreage analysis is based on land use designations and Urban Service Areas shown on *Draft GP 2020* Land Use Plan maps. All acreage estimates include overlap where streams intersect.

<sup>19</sup> No intermittent streams are currently designated as protected Riparian Corridors. Current corridor setback distances are 50 feet from top of bank for Urban and Upland corridors, and 100 feet from top of bank for Flatland corridors. An assumed average corridor width of 75 feet (on each side of stream center-line) was used as detailed data separating Flatland Corridors from Urban/Upland Corridors is not available. Acreage estimates do not include area contained within top of banks of stream channel as this data is not available.

**Exhibit 4.6-5 (continued)**  
**Land Use Analysis of Current/Proposed Riparian Corridors**

<i>Proposed Designated Streams in the Draft GP 2020<sup>20</sup></i>				
<b>General Plan Land Use</b>	<b>Russian River (miles / acres)</b>	<b>Other Perennial Streams<sup>21</sup> (miles / acres)</b>	<b>Intermittent Streams (miles / acres)</b>	<b>Totals (miles / acres)</b>
Inside Proposed Urban Service Area	6.28 / 460	16.08 / 390	49.94 / 1,211	72.30 / 2,061
Outside Proposed Urban Service Areas	54.57 / 3,437	1,134.32 / 27,495	2,019.54 / 48,954	3,208.43 / 79,886
<b>Proposed Land Use Designations</b>				
Agricultural	28.65 / 1,807	430.75 / 10,441	765.55 / 18,557	1,224.95 / 30,805
Resources & Rural Development	18.22 / 1,077	586.48 / 14,216	1,027.79 / 24,914	1,632.49 / 40,207
Rural & Urban Residential	3.19 / 281	50.59 / 1,226	122.78 / 2,976	176.56 / 4,483
Commercial-Industrial	1.37 / 40	4.00 / 97	6.35 / 154	11.72 / 291
Public & Quasi-Public	3.14 / 232	62.50 / 1,515	97.07 / 2,353	162.71 / 4,100
<b>Totals</b>	<b>60.85 / 3,897</b>	<b>1,150.40 / 27,885</b>	<b>2,069.73 / 50,165</b>	<b>3,280.73 / 81,947</b>

Source: PRMD and Environmental Collaborative

<sup>20</sup> Uses stream data from USGS topo maps.

<sup>21</sup> Proposed corridor setback distances are 100 feet from top of bank for Designated Streams. Acreage estimates do not include area contained within top of banks of stream channel as this data is not available. Acreage estimates also do not consider any existing developed condition within general streamside conservation area setbacks, which would typically be an allowed use (see provisions in proposed Policy OSRC-8c for specific allowances), and do not consider possible reduction to proposed setback distance which may be allowed under Policy OSRC-8c13. These exceptions would collectively reduce the total acreage estimates contained within streamside conservation areas for protected streams, but this data is not available.

Overall, the additional Riparian Corridors and related policies would expand protection of important riparian corridors in Sonoma County. The riparian-related policies would not affect existing crop or timber production, with only limited changes for replanting, and future assessment for grazing. As specified under Policy **OSRC-8c(3)**, new agricultural cultivation would be allowed within the outer half of the streamside conservation area along designated intermittent streams, but not within the streamside conservation area along perennial streams and not where slopes are 20 percent or greater. Policy **OSRC-8c(4)** would allow for replanting of crops where legally established, but no closer than 25 feet from the top of higher bank on each side of a riparian corridor. This policy would also encourage the development of incentives which may serve to increase setback distances where crops currently occur within stream conservation areas. Policy **OSRC-8c(6)** would allow for continued livestock grazing but would prohibit confined animal operations and mechanical removal of vegetation within stream conservation areas, and would encourage use of best management practices to improve riparian habitat values. Policy **OSRC-8g** would call for conducting a comprehensive study of the effects of grazing in riparian corridors, involving resource agencies, landowners and interested public, and developing recommendations for additional policies that may be needed to ensure appropriate protection, if warranted. Timber operations conducted in accordance with an approved timber harvest plan would be allowed as specified under Policy **OSRC-8c(8)**, but not within 25 feet of the top of the higher bank. In addition, with the exception of new crop planting and replanting, Policy **OSRC-8c(13)** would allow for a reduction of up to 50 percent, of any setback where no net loss of sensitive riparian habitat and an overall improvement of riparian functions can be achieved.

Policy **OSRC-7n** would address valley oak habitat, one of several tree-dominated sensitive natural community types in Sonoma County, and the need to reevaluate current designations and adequacy of mitigation requirements. Other tree-dominant sensitive natural community types not specifically addressed by policies in the *Draft GP 2020* are the few remaining stands of old growth redwood and Douglas fir forest in Sonoma County. Some of these stands are protected in designated open space such as Armstrong Redwoods State Park and The Grove of the Old Trees in West Occidental. Accurate mapping of the few remaining old growth stands on private lands is not available, but stands along the South Fork Gualala River, Haupt Creek, Willow Creek, and Austin Creek watersheds could be affected. These stands may be subject to increasing pressure for timber harvest because of their high economic value, but any proposed harvest plans are subject only to State Forest Practice Act regulations. Policy **OSRC-12e** would serve to prohibit the conversion of timberlands to non-timber uses unless they qualify for a timber conversion exemption, they provide an overriding benefit, or they result in no net loss of timberland.

While the above regulations and the *Draft GP 2020* policies and programs would reduce impacts to Sensitive Natural Communities, they would not be sufficient to reduce them to a less-than-significant level for two reasons. First, the location of all potentially sensitive natural communities are not known, making the regulation of ministerial permits ineffective in assessing project impacts. Second, since the option of requiring detailed biotic surveys to determine project impacts requires a discretionary permit review, the County would have to subject all land use activities from building permits to growing crops and raising animals to costly studies and public hearings. To do so would seriously jeopardize the County goal of agricultural protection and economic viability. Therefore, this would be a significant impact.

**Mitigation Measure 4.6-2** Policies pertaining to sensitive natural communities in the *Draft GP 2020* could be revised to include new language encouraging protection of the remaining old growth forests in Sonoma County, and to improve protection of riparian corridors. This consists of the following amendments to the Open Space and Resource Conservation Element:

**Mitigation Measure 4.6-2(a)** Add a new policy to Section 3.1 of the Open Space and Resource Conservation Element as follows:

**Policy OSRC-7v:** Identify and consider designation of old growth redwood and Douglas fir forest as sensitive natural communities. Encourage preservation and public acquisition of any remaining old growth redwood and Douglas fir forests in private ownership in the county. Because of their rarity and biological importance, these sensitive natural community types should be made priorities for protection through conservation easements, fee title, or other mechanisms.

**Mitigation Measure 4.6-2(b)** Revise Policy **OSRC-8c(10)(a)** to ensure restrictions do not result in additional adverse impacts on biological resources as follows:

**Policy OSRC-8c:** Rezone to the Biotic Resources combining zoning district all lands within the streamside conservation areas. Adopt an ordinance which provides for their protection in conformance with the following principles. Until the ordinance is adopted, require that land use and development comply with these principles:

(Policy items 1-9 do not change)

(10) Allow stream crossings for roads and utility lines subject to the following design requirements:

- (a) Be at 75 to 90 degrees to the channel, except when biological impacts to accommodate this approach would be greater.

(Policy items (b) through (e) do not change.)

(Policy items 11 through 13 do not change.)

**Significance After Mitigation** Adoption of the policies as outlined in Mitigation Measures 4.6-2(a) and 4.6-2(b), together with information programs, and oversight by regulatory agencies entrusted with enforcement of State and federal regulations addressing the protection and management of sensitive natural communities, would reduce potential adverse impacts on sensitive natural communities, but not to a less-than-significant level. Therefore, this would remain a significant unavoidable impact. (SU)

**Responsibility and Monitoring** The Board of Supervisors would be responsible for adopting the policies proposed in Mitigation Measures 4.6-2(a) through 4.6-2(b) as part of the *GP 2020*. The PRMD would be responsible for monitoring implementation.

**Impact 4.6-3 Wetlands**

*Land uses and development consistent with the Draft GP 2020 could result in direct or indirect impacts on jurisdictional wetlands and unvegetated other waters. This would be a less-than-significant impact. (LTS)*

Land uses and development consistent with the *Draft GP 2020* could result in the direct loss or modification to existing wetlands. Affected wetlands could include both the wetland-related sensitive natural community types described above, as well as areas of open water, degraded and modified streams and channels, unvegetated waters, and isolated seasonal wetlands now dominated by non-native species.

**Exhibit 4.6-3** shows the general extent of known wetlands in the county, many of which occur within or near Urban Service Areas. In addition to the designated streams, known wetlands include the complex of vernal pools in the Santa Rosa Plain and freshwater marsh along the Laguna de Santa Rosa in the Santa Rosa, Sebastopol, and Rohnert Park – Cotati Planning Areas; the Petaluma Marsh and Estero Americano in the Petaluma Planning Area; brackish water and coastal salt marsh along the fringe of San Pablo Bay in the Petaluma and Sonoma Valley Planning Areas; and the smaller but important known freshwater marshes such as Pitkin Marsh and Kenwood Marsh in the Santa Rosa and Sebastopol Planning Area.

These mapped wetlands would be most vulnerable to potential direct impacts as a result of future development. However, mapping of all jurisdictional wetlands in the county is not available at this time. Future development or other land use activities outside Urban Service Areas could also affect wetlands. A site-specific wetland delineation would be necessary to determine the extent of possible jurisdictional waters where wetlands may be present.

Indirect impacts to wetlands could include an increase in sedimentation due to construction grading and ground disturbance, an increase in erosion due to increased runoff volumes generated by impervious surfaces, and an increase in water quality degradation due to increased levels of non-point pollutants. Water quality degradation may occur even when wetlands and unvegetated channels are avoided by proposed development if setbacks are inadequate to provide critical vegetation filtration functions.

The Open Space and Resource Conservation Element of the *Draft GP 2020* contains policies which would provide for the identification and protection of jurisdictional wetlands and other waters. Figures OSRC-5a through OSRC-5i in the Open Space and Resource Conservation Element designate Biotic Habitat Areas for each planning area, shown in composite form for the entire county in **Exhibit 4.6-2**. Policy **OSRC-7b(1)(b)** would require a site assessment and adequate mitigation for ministerial permit applications proposed within designated Marshes and Wetlands. This policy would use the same mitigation policies identified for Special-Status Species Habitat, but would also specify a 100 foot setback from the edge of the delineated wetland. The setback may be reduced to a minimum of 50 feet based upon site assessment and appropriate mitigation, but may be reduced further if there is no other feasible location to accommodate proposed improvements and adequate mitigation is provided. This approach, with an incentive of providing a 100 foot setback from wetlands and an allowance for a reduced setback with appropriate mitigation should serve to effectively protect known wetlands.

Policy **OSRC-7b(2)** would call for a referral to the appropriate regulatory agencies for discretionary projects proposed in areas containing designated Marshes and Wetlands, and would require a site assessment, compliance with agency requirements and adequate mitigation pursuant to the priorities in Policy **OSRC-7b(1)(a)**. However, Policy **OSRC-7b(1)(a)** would pertain specifically to Special-Status Species Habitat, and would not include the wetland setback standards called for in **OSRC-7b(1)(b)**.

Policy **OSRC-7c** pertains to discretionary projects and larger ministerial permits outside of designated Biotic Habitat Areas. This policy would call for a referral to the appropriate regulatory agencies, and where warranted, would require a site assessment and adequate mitigation pursuant to priorities in **OSRC-7b(1)(a)**.

In addition to policies intended to protect existing wetlands, several policies of the *Draft GP 2020* focus on programs to restore and enhance important wetland resources in the county. Policy **OSRC-7s** would call for the development of comprehensive programs to preserve and restore marshlands associated with the Laguna de Santa Rosa and the Petaluma River, as well as freshwater

marshes such as Pitkin, Kenwood, Cunningham, and Atascadero Marshes. Policy **OSRC-7u** would focus on developing comprehensive programs for preservation and restoration of the San Pablo Bay area, which contain important tidal wetlands and diked historical baylands.

As discussed in *Impact 4.6-2 Sensitive Natural Communities*, the *Draft GP 2020* includes additional Riparian Corridors and expanded policies which would serve to protect wetlands and other waters associated with riparian corridors along perennial and intermittent streams in Sonoma County. Ephemeral drainages provide important filtration functions and often support wetlands and riparian vegetation as well, but this varies considerably based on a number of factors. Ephemeral drainages were not included in the additional designated streams because their locations are unknown and undefined at this time. Policy **OSRC-8e** would provide for consideration of both Riparian Corridors and ephemeral streams during environmental review of discretionary permits, and Policy **OSRC-8h** would include consideration of ephemeral streams as part of the review of riparian corridor designations at least every five years. It should also be noted that federal and State regulations require authorization and adequate mitigation for potential impacts on jurisdictional wetlands.

In summary, the above regulations and proposed policies of the *Draft GP 2020*, combined with federal and State wetland regulations, would reduce the impacts of land uses and development on jurisdictional wetlands and other waters. While there is a possibility that future land uses that do not require permits could affect some unknown occurrences of wetlands, this likelihood is lower than for special-status species and sensitive natural communities. Most of the valley floors and lower elevations where these uses have historically been concentrated have already been extensively modified over the past 150 years, eliminating most occurrences of sensitive natural communities. Areas which continue to support wetlands, riparian corridors, and vernal pools on valley floors tend to be constrained by physical limitations such as seasonal flooding or permanent inundation. These limitations continue to minimize the potential for use in these areas, reducing the likelihood that they would be eliminated. State and federal regulations would continue to protect wetlands in Sonoma County, including stream and associated riparian habitat, marshlands, and vernal pools. Therefore, this would be a less-than-significant impact.

**Mitigation Measure 4.6-3** None Required.

**Impact 4.6-4 Wildlife Habitat and Movement Opportunities**

*Land uses and development consistent with the Draft GP 2020 would result in a reduction of existing wildlife or fish habitat, contribute to habitat fragmentation, and result in obstruction of movement opportunities. Aspects of the applicable policies contained in the Draft GP 2020 would serve to partially address these impacts, but the conversion, fragmentation, and obstruction would be a significant impact. (S)*

Land uses and development and land use activities consistent with the *Draft GP 2020* would result in a substantial reduction in existing wildlife and fish habitat, and could interfere with the movement of native fish and wildlife species. As discussed under *Impacts 4.6-1, 4.6-2, and 4.6-3*, numerous policies in the Open Space and Conservation Element would serve to avoid or minimize adverse impacts on sensitive biological and wetland resources, and would require adequate mitigation during review of individual development applications. Many policies also would support public acquisition of designated Biotic Habitat Areas, as well as the restoration and enhancement of features of regional biological significance such as the Laguna de Santa Rosa, Petaluma Marsh, and baylands of San Pablo Bay.

A large portion of the estimated 162,822 acres (see **Exhibit 4.1-1**) designated for Land Intensive Agriculture (74,255 acres), Residential (81,895 acres), Commercial (3,960 acres), and Industrial

(2,712 acres) land uses under the *Draft GP 2020* remain undeveloped today, and the existing habitat could be eventually affected by designated uses over the next 15 years. An additional 561,503 acres (see **Exhibit 4.1-1**) are designated for Diverse Agriculture (68,845 acres) and Resources & Rural Development (492,658 acres), where implementation of allowed uses could also result in degradation of existing habitat, such as forest, woodland, chaparral, and grassland. While comparison of land use designations for the existing *General Plan* and the *Draft GP 2020* shows a net reduction of about 90 acres of lands proposed for urban uses (i.e., Residential, Commercial, and Industrial land uses), the cumulative effect of land use and development could result in degradation and loss or fragmentation of wildlife habitat.

Policy **OSRC 7f** would call for the review of Biotic Habitat Area designations and related policy issues at least every five years, and the development of recommendations for additional policies if warranted, including methods to identify and monitor cumulative habitat loss and establishment of thresholds to protect sensitive resources. Some policies would call for the County to support voluntary programs for habitat restoration, removal and control of invasive exotics, and providing information to the public on habitat protection and management. Still other policies would encourage landowners to voluntarily participate in protecting tree resources, utilize native species in landscaping, and install wildlife friendly fencing. All of these policies and programs would serve to identify and protect important habitat, define necessary restrictions and standards to conserve designated Biotic Habitat Areas, and improve public understanding of sensitive resources in Sonoma County. However, they collectively would not fully address or mitigate the potential impacts of land uses and development consistent with the *Draft GP 2020* on existing wildlife habitat.

In addition to the direct loss of existing habitat, the fragmentation and obstruction of opportunities for native species movement and dispersal is of critical importance as these changes may lead to isolation of localized populations or even large areas maintained as open space. Several aspects of the *Draft GP 2020* serve to partially address the issues of habitat fragmentation and connectivity. The expanded Riparian Corridors in the *Draft GP 2020* would provide greater oversight of streams and their critical function as movement corridors for aquatic and terrestrial wildlife. Two proposed Habitat Connectivity Corridors have been designated as Biotic Habitat Areas in the *Draft GP 2020*, consisting of the “Sonoma Valley Corridor” at the north end of the Sonoma Valley and “Laguna West Corridor” along Blucher Creek between Cotati and Sebastopol. Based on work by the Sonoma Ecology Center, the Sonoma Valley Corridor is intended to provide a critical link between the undeveloped lands of Sonoma Mountain to the west and across the valley floor to the Mayacamas Mountains to the east. The second corridor along Blucher Creek was identified during preparation of the *Draft GP 2020* in response to the increasing isolation of the Laguna de Santa Rosa from the remaining undeveloped lands of the upper watershed.

Several policies in the *Draft GP 2020* address habitat connectivity and wildlife movement opportunities. Policy **OSRC-7b(1)(d)** would provide limited direction for ministerial permit applications within the designated corridors, attempting to minimize new fencing designed to exclude wildlife and use of roadway undercrossings and oversized culverts to allow for movement of terrestrial wildlife. Policy **OSRC-7e** would encourage property owners to consult with CDFG and install wildlife friendly fencing in all areas outside urban land use designations. Policy **OSRC-8c(5)** would prohibit new fencing which is designed to exclude wildlife within stream conservation areas of Designated Streams, which is critical to maintaining the function of riparian corridors for terrestrial wildlife movement. Policy **OSRC-7i** would also call for a comprehensive study of habitat fragmentation, connectivity loss, and the effects of exclusionary fencing on wildlife movement. Recommendations for additional policies to protect essential habitat corridors and to improve opportunities for native plant and animal dispersal would be developed as part of Policy **OSRC-7i**, if warranted.

No policies in the *Draft GP 2020* or relevant County ordinances directly address the collective loss of existing natural habitat as a result of future land uses and development. Continued vineyard expansion may result in the loss or conversion of forest, woodland, and riparian habitat. The conversion of timberlands, woodlands, and other habitat to non-timber uses may also take place.

The Vineyard Erosion and Sediment Control Ordinance (VESCO) restricts cultivation on steep slopes and it may have the effect of avoiding some habitat loss. Policy **OSRC-7n** would address the loss of valley oak habitat, typically as a result of proposed urban development, and points out the need to reevaluate current designations and adequacy of mitigation requirements specified by County ordinance. Several County ordinances partially address protection of valley oak and other native or designated trees, but these are limited in their effectiveness.<sup>22</sup> Policy **OSRC-7m** would call for expanding protections for oak woodlands, but would address only one part of the habitat conversion issue. Policy **OSRC-12e** would prohibit the conversion of timberlands for non-timber uses unless they qualify for a timber conversion exemption; they provide an overriding benefit; or they result in no net loss of timberland. The scope of the comprehensive study called for in Policy **OSRC-7i** would eventually identify habitat connectivity needs and measure that would protect corridors for wildlife movement.

In conclusion, proposed policies of the *Draft GP2020* mentioned above pertaining to wildlife habitat and movement opportunities would reduce the impacts of land uses and development on wildlife movement over time. In particular, the study of habitat fragmentation and connectivity loss would provide much information about affected wildlife species and their needs for movement corridors. From this study, potential mechanisms for protection or restoration of corridors could be evaluated.

Until this occurs, these impacts would be significant as rural homes and driveways, urban development, agricultural production, and other uses continue to occur.

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<sup>22</sup> Several County ordinances regulate tree removal. These consist of the following:

(a) Sonoma County Tree Protection Ordinance No. 4044 regulates the removal of certain designated trees, including oaks, madrone, redwood, and California bay. "Protected trees" are defined as trees having a minimum trunk diameter of nine inches measured at 4.5 feet above grade. According to the ordinance, protected trees are to be replaced at a 1:1 ratio or proposed removal is not to exceed 50 percent of the protected trees on a site. Douglas fir is not considered a protected tree species under this ordinance.

(b) Sonoma County Heritage Tree Ordinance No. 3651 provides for the identification and protection of designated heritage trees.

(c) In 1997, regulations also went into effect regarding the protection of valley oaks. These consisted of a General Plan amendment to include new policies to identify and protect valley oaks, a zoning ordinance text amendment establishing the Valley Oak Habitat (VOH) combining district zoning and requiring mitigation where tree removal is proposed, a zoning ordinance map change designating areas with soils which tend to support valley oak, and establishment of general guidelines required in the VOH zoning district. Ordinance No. 4991 provides a definition of "large valley oak" (diameter at breast height greater than 20 inches) and "small valley oak" (diameter at breast height of 20 inches or less), and identifies mitigation options. Mitigation depends on tree size or the cumulative diameter for smaller oaks, and must be implemented within one year of tree removal. Mitigation options include retention of existing trees, replacement plantings, a combination of retention and replacement, or payment of in-lieu fees. The mitigation requirements are not rigorous, ranging from a requirement to retain one or more trees for every one removed, to a 50 dollar in-lieu fee to be used for replacement plants of valley oak by the County. No permit is issued by the County, but a written notice must be filed at least five days prior to tree removal. The Stewardship Guidelines defined in County Resolution No. 96-1624 emphasize the importance of retaining valley oaks to the extent possible and providing valley oak plants as part of landscaping for development projects.

**Mitigation Measure 4.6-4** No mitigation available beyond the *Draft GP 2020* policies discussed in the impact analysis above.

**Significance After Mitigation** Implementation of the *Draft GP 2020* would reduce impacts on wildlife habitat and movement opportunities. However, the cumulative loss and degradation of habitat, fragmentation, and obstruction of movement opportunities would remain a significant unavoidable impact. (SU)

**Impact 4.6-5 Conflict with Local Policies or Ordinances**

*Proposed policies in the Draft GP 2020 that affect biological resources may differ from local policies and ordinances currently in effect. However, potential conflicts would be addressed by the revisions of the implementing ordinances to ensure that they conform to the proposed policies. This would be a less-than-significant impact. (LTS)*

The *Draft GP 2020* would update policies regarding biological resources, particularly those related to riparian corridors, wetlands, special-status species, sensitive natural communities, and wildlife movement corridors. Upon adoption of the new policies contained within the *Draft GP 2020*, applicable County ordinances would be updated to conform to the policies so that these conflicts would no longer exist. As a result, this impact would be less-than-significant.

**Mitigation Measure 4.6-5** None required.

**Impact 4.6-6 Conflict With Adopted Habitat or Natural Community Conservation Plans**

*Land uses and development consistent with the Draft GP 2020 would not conflict with any adopted Habitat or Natural Community Conservation Plans. This would be a less-than-significant impact. (LTS)*

Land uses and development consistent with the *Draft GP 2020* would not conflict with any adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved conservation plan. No such conservation plans have been adopted encompassing all or portions of Sonoma County, and no impact is therefore anticipated.

**Mitigation Measure 4.6-6** None Required.