

# **MOODY FLATS QUARRY PROJECT**

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## **Biological Resources Assessment**

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## Section 1 Introduction

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This Biological Resources Assessment report describes the biological resources present in the 3-M Company Redding Property. This report includes study methodology, a description of the natural environment, and a list of the special-status species potentially occurring in the study area.

Botanical surveys for special-status plant species were conducted during the spring and early summer of 2010. Results from these surveys are presented in a separate report.

A Shasta salamander (*Hydromantes shastae*) habitat assessment and survey was conducted in the study area between December 2009 and April 2010. The results from these surveys are reported in separate letter reports.

## Section 2 Study Area

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The 3-M Company Redding property is located near Mountain Gate approximately five miles north of Redding, Shasta County, California. The property is located west of Interstate 5, south of Lake Shasta, and north of the City of Shasta Lake.

The 3-M Company Redding property encompasses approximately 1,900 acres. The proposed Moody Flats Quarry project area encompasses approximately 430 acres; which includes proposed quarry pits, aggregate plants, an overburden storage area, a processing plant, a stockpiling and load out area, and associated infrastructure. The biological resources assessment encompasses the entire 3-M Company Redding property including the proposed Moody Flats Quarry project area (study area). A map of the study area is presented as Figure 1.

The study area is situated north of the City of Shasta Lake and south of Shasta Lake. The study area includes the headwaters of the Moody and Rancheria Creek watersheds, which flow southwesterly to West Fork Stillwater Creek. The watershed of an unnamed tributary in the western portion of the study area flows southwesterly to Churn Creek. The headwaters of Salt Creek also originate in the study area. The elevations range between 820 feet and 2,500 feet above mean sea level. Precipitation primarily occurs as rain and annual rainfall is approximately 63 inches (Western Regional Climate Center 2010). Air temperatures range between an average January high of 52 degrees Fahrenheit (°F), and an average July high of 95 °F. The year-round average high is approximately 72 °F (Western Regional Climate Center 2010).

The site is undeveloped with many two-track roads and off-highway vehicle trails throughout the study area. Fire-lines were built along the ridgetops in the western portion of the study area due to a wildfire that occurred in 2007. Many of these areas are recovering and vegetation is beginning to re-colonize.

## Section 3 Study Methodology

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### 3.1 Existing Information

For the purpose of this evaluation, special-status plant species include plants that are (1) listed as threatened or endangered under the California Endangered Species Act (CESA) or the federal Endangered Species Act (ESA); (2) proposed endangered or threatened by the U.S. Fish and Wildlife Service (USFWS); (3) designated as rare by the California Department of Fish and Game (CDFG); (4) state or federal candidate species for listing as threatened or endangered; and/or (5) have a California Rare Plant Rank (CRPR) of 1B, 2, 3, or 4 (CDFG 2010a).

Special-status animal species include species that are (1) listed as threatened or endangered under the CESA or ESA; (2) proposed for federal listing as threatened or endangered; (3) state or federal candidates for listing as threatened or endangered; and/or (4) identified by the CDFG as Species of Special Concern or California Fully Protected Species.

Special-status species potentially occurring in the project area were determined through database searches using California Natural Diversity Database (CNDDDB), California Wildlife Habitat Relationships (CWHR) (CDFG 2008), the USFWS database of federally protected species, and the CNPS' Electronic Inventory (CNPS 2010), reconnaissance surveys of floral and faunal resources, and review of pertinent environmental documents and technical studies.

Using the CNDDDB, a search of recorded accounts of special-status species was conducted for the *Project City, California*, and *Shasta Dam, California*, 7.5-minute USGS topographic quadrangles (CDFG 2010b) (Appendix A). The CNDDDB is a database consisting of historical observations of special-status plant species, wildlife species, and natural plant communities. Because the CNDDDB is limited to reported sightings, it is not a comprehensive list of species that may occur in a particular area. However, it is useful in refining the list of special-status species that have the potential to occur in the study area.

The CWHR system (version 8.2) was used to aid in determining wildlife species that potentially occur in the vegetation habitats within the project area. The CWHR is a predictive database based on scientific information concerning wildlife species and their habitat relationships. Fish and invertebrates are not included in the CWHR system. Applications of CWHR include characterization of wildlife vegetation habitats and special habitat elements occurring within a particular area by using the CWHR vegetation habitat classification system. The CWHR model output is a list of wildlife species that potentially occur in the area, based on wildlife habitats, habitat elements, and geographic location. Mayer and Laudenslayer (1988) describe the various wildlife habitats that constitute the CWHR classification system. The goal of the classification system is to identify and classify vegetation types important to wildlife, and to recognize and logically categorize major vegetative complexes at a scale sufficient to predict wildlife-habitat relationships.

Based on the vegetation habitat mapping performed by NSR (described below), annual grassland, barren, blue oak woodland, blue oak-gray pine, fresh emergent wetland, mixed chaparral, montane hardwood-conifer, montane hardwood, ponderosa pine, valley oak woodland, and valley-foothill riparian CWHR habitats occur within the project area. The criteria used for the CWHR query included all species potentially occurring in Shasta County in these habitats. All habitat stages were included, and no habitat elements were excluded for the purposes of the CWHR query.

The USFWS maintains a database that lists federally protected species for each USGS quadrangle in the jurisdiction of the Sacramento USFWS office. The current USFWS list of endangered and threatened species that may occur, or be affected by projects in the *Project City, California*, and *Shasta Dam, California*, 7.5-minute USGS topographic quadrangles and in Shasta County were reviewed (Appendix B).

A database search was also performed for the study area using the CNPS *Electronic Inventory*, which allows users to query the *Inventory of Rare and Endangered Plants of California* (California Native Plant Society 2010) using a set of search criteria (e.g., quad name, habitat type). The criteria used for the CNPS query included all CNPS List 1A, 1B, 2, 3, and 4 (which coincides with the CRPR list) plants occurring in Shasta County in annual grasslands, chaparral, cismontane woodland, lower montane coniferous forest, marshes and swamps, meadows and seeps, valley and foothill grasslands, riparian woodland, and riparian scrub habitats between elevations of approximately 800 and 2,500 feet.

## 3.2 Field Investigation

Wildlife habitat mapping and a reconnaissance-level survey for special-status species habitat in the study area was conducted on April 19, 22, and 29, 2010.

NSR mapped existing vegetation habitats in the study area to characterize the wildlife habitats mapped using Mayer and Laudenslayer (1988). CWHR vegetation habitats mapped using 1:2400-scale rectified color aerial photography of the study area. All vegetation mapping was performed in the field by ground truthing the entire study area. CWHR vegetation habitats were identified within the project area and then delineated on aerial photographs. The delineated boundaries were then digitized and generated in ArcGIS software for display and data query purposes.

Focused surveys for special-status wildlife species were not conducted as a part of this biological resources assessment. Incidental observations of special-status plant and wildlife species were recorded. A list of all wildlife species observed during the reconnaissance surveys is presented in Appendix C.

## Section 4 Natural Environment

### 4.1 Biological Communities

Eleven CWHR habitats were mapped during the reconnaissance-level surveys in the study area: annual grassland, barren, blue oak woodland, blue oak-gray pine, fresh emergent wetland, mixed chaparral, montane hardwood-conifer, montane hardwood, ponderosa pine, valley oak woodland, and valley-foothill riparian. A summary of CWHR habitats occurring in the study area is presented in Table 1 and the boundaries of these habitats are presented in Figure 2. Detailed descriptions for each habitat are provided below.

**Table 1. Summary of CWHR vegetation habitats. Moody Flats Quarry Project, Shasta County, California.**

Vegetation Habitats	Approximate Acreage
Annual grassland	48
Barren	21
Blue oak-gray pine	196
Blue oak woodland	3
Fresh emergent wetland	0.05
Mixed chaparral	148
Montane hardwood-conifer	905
Montane hardwood	504
Ponderosa pine	87
Valley foothill riparian	4
Valley foothill riparian/Fresh emergent woodland	1
Valley oak woodland	16
Total	1933

### 4.2 Annual Grassland

Annual grassland occurs in the eastern portion of the study area and in the Moody Flats area west of the railroad tracks. It is generally characterized by a dense herbaceous layer of annual grasses and forbs dominated by yellow star-thistle (*Centaurea solstitialis*), slender wild oat (*Avena barbata*), rose clover (*Trifolium hirtum*), storksbill (*Erodium botrys*), winter vetch (*Vicia villosa*), medusahead (*Taeniatherum caput-medusae*), ripgut brome (*Bromus diandrus*), and soft chess (*B. hordeaceus*).

Seasonal wetlands including seep-springs, vernal swales, and intermittent pools occur in the annual grassland habitat. These features are inundated for long duration during the growing season supporting vegetation adapted to living in moist or wet conditions. These wetlands are dominated by a variety of grasses and forbs based on the length of saturation or inundation. Dominant species occurring in these features include Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), Italian ryegrass (*Lolium multiflorum*), iris leaved juncus (*Juncus xiphioides*), brown fox sedge (*Carex vulpinoidea*), dallis grass (*Paspalum dilatatum*), and sweet vernal grass (*Anthoxanthum aristata*).

## **Barren**

Barren habitat occurs as barren areas created by significant roads and fire lines, the railroad corridor, and rock outcrops. Roads and firelines mapped as barren predominantly occur in the western portion of the study area. The railroad corridor bisects the mid- to eastern portion of the study area and rock outcrops occur along the ridgelines in the west and northern portions of the study area. Barren habitat exhibits sparse to no vegetation. Re-colonization of vegetation in firelines is beginning to occur.

## **Blue Oak Woodland**

Blue oak woodland occurs in the eastern most corner of the study area. It is characterized by a moderate overstory of blue oak (*Quercus douglasii*) with a dense herbaceous understory. Species occurring in the adjacent annual grassland also occur in blue oak woodland and include slender wild oat, rose clover, storks bill, winter vetch, ripgut brome, and soft chess.

## **Blue Oak-Gray Pine**

Blue oak-gray pine occurs mainly in the lower, moderately sloped portions of the study area. It occurs in the western portion of the study area in valleys generally along stream corridors and over a ridge in the north-central portion of the study area. A dense to moderately dense overstory with a dense to moderately dense understory characterizes the blue oak-gray pine habitat. Several oak species are present in this habitat type and herbaceous cover varies from dense to sparse depending on the canopy closure. Dominant overstory species include blue oak, California black oak (*Q. kelloggii*), valley oak (*Q. lobata*), interior live oak (*Q. wislizenii*), and gray pine (*Pinus sabiniana*). Oracle oak (*Quercus x morehus*), a hybrid of California black and interior live oak is also common in the overstory. Common shrubs observed in this habitat include white leaf manzanita (*Arctostaphylos viscida*), buck brush (*Ceanothus cuneatus*), poison oak (*Toxicodendron diversilobum*), coffee berry (*Rhamnus californica*), snowdrop bush (*Styrax officinalis*), wild mock orange (*Philadelphus lewisii*), deer brush (*Ceanothus integerrimus*), and California buckeye (*Aesculus californica*). Common grasses and forbs observed in this vegetation habitat include pussy ears (*Calochortus tolmiei*), Pacific hounds tongue (*Cynoglossum grande*), slender wild oat, and soaproot (*Chlorogalum pomeridianum*). Lianas of Dutchman's pipe (*Aristolochia californica*) and chaparral clematis (*Clematis lasiantha*) shroud shrubs and often grow into the tree canopy.

## **Fresh Emergent Wetland**

Fresh emergent wetlands are uncommon in the study area, but occur in the pond in the southern portion of the study area and in a small, excavated channel along the railroad tracks in the southeastern portion of the study area. Small intermittent pools in the annual grassland habitat also contain fresh emergent vegetation. Emergent wetland vegetation dominates these wetlands due to

perennial or nearly perennial inundation. Common species include pale spike rush (*Eleocharis macrostachya*), broad-leaf cattail (*Typha latifolia*), and pondweed (*Potamogeton* sp.).

### **Mixed Chaparral**

Mixed chaparral occurs on exposed slopes throughout the study area. This habitat is typically characterized by dense shrub stands. Dominant species include whiteleaf manzanita, buckbrush, toyon (*Heteromeles arbutifolia*), California buckeye, Brewer's oak (*Quercus garryana* var. *breweri*), California bay (*Umbellularia californica*), interior live oak, Lemmon's ceanothus (*Ceanothus lemmonii*), birchleaf mountain mahogany (*Cercocarpus betuloides*), holly-leaf redberry (*Rhamnus ilicifolia*), yerba santa (*Eriodictyon californicum*), and poison oak. Few herbaceous plants occur in this habitat and include soaproot, goosegrass (*Gallium aparine*), and hedgehog dogtail (*Cynosurus echinatus*).

### **Montane Hardwood-Conifer**

Montane hardwood-conifer occurs on the slopes throughout the main portion of the study area and is characterized by a dense hardwood canopy interspersed with conifers. The dominant hardwood is California black oak with interior and canyon live oak (*Q. chrysolepis*) associates. Individuals or stands of gray pine or ponderosa pine (*Pinus ponderosa*) occur in this habitat type. Understory species are generally dense and include whiteleaf manzanita, buck brush, interior live oak, canyon live oak, California buckeye, western redbud (*Cercis occidentalis*), and California bay. Forbs and grasses occur in a sparse to moderate herbaceous layer dominated by pussy ears, soaproot, hound's tongue, and slender wild oat.

### **Montane Hardwood**

Montane hardwood occurs on the slopes in the northern and western portions of the study area and is characterized by a dense overstory of California black oak. The understory is often sparse due to a typically dense canopy. Associated species include canyon live oak, poison oak, soaproot, California buckeye, and California bay.

### **Ponderosa Pine**

Ponderosa pine occurs primarily in the northwestern portion of the study area, although there are also small stands occurring toward the southern portion. Ponderosa pine stands are sparsely to moderately dispersed throughout, with California black oak as a common hardwood associate. Dense stands of whiteleaf manzanita, buck brush, and Brewer's oak are also present in the understory. Understory plants are sparse and include soap root, poison oak, and narrow-leaved sword fern (*Polystichum imbricans*).

### **Valley Oak Woodland**

Valley oak woodland is located in the level, lower elevation areas in the eastern portion of the study area. It occurs between Moody and Rancheria Creeks east and west of the railroad tracks. This habitat is characterized by a dense overstory dominated by valley oak. Blue, California black, and interior live oaks also occur intermittently. Moderate to dense patches of shrubs occur in the understory and include California buckeye, coffee berry, snowdrop bush and western redbud. Lianas of California grape (*Vitis californica*) grow into the upper canopy. Forbs and herbs occur in dense

patches where openings in the canopy occur. Dominant herbaceous species include hedgehog dogtail, torilis (*Torilis arvensis*), and European hairgrass (*Aira caryophylla*).

### Valley Foothill Riparian

Valley foothill riparian occurs as thin stringers and large patches along most stream corridors in the study area. It also occurs around the southern edge of the pond in the southern portion of the study area. In valley foothill riparian associated with streams, it is characterized as a sparse overstory of Fremont cottonwood (*Populus fremontii*), big leaf maple (*Acer macrophyllum*), or white alder (*Alnus rhombifolia*), and a fairly dense mid-story and herbaceous layer. The mid-story is dominated by willows including arroyo willow (*Salix lasiolepis*), narrow-leafed willow (*S. exigua*), red willow (*S. laevigata*) western choke cherry (*Prunus virginiana*), and spice bush (*Calycanthus occidentalis*). Brambles of Himalayan blackberry (*Rubus discolor*) and California blackberry (*R. ursinus*) often engulf broader, low-gradient riparian areas. Lianas of California grape grow into the canopy. Other species include California buttonwillow (*Cephalanthus occidentalis*), American dogwood (*Cornus sericea*), California ash (*Fraxinus dipetala*), and mugwort (*Artemisia douglasiana*).

### 4.3 Special-Status Species

Tables 2 and 3 list the special-status plants, fish and wildlife species known to occur in the region and their potential to occur in the project area. The potential for special-status species to occur in the project area was assessed based on (1) the habitat requirements and distribution of special-status species known to occur in the region and (2) the habitats present in the project area. Each potentially occurring species was rated using a low-medium-high designation based on the likelihood to occur in the study area. Specific habitat attributes, geographic setting, nearest known habitats/occurrence and other factors (e.g., observation) were used to derive the likelihood designation.

**Table 2. Special-Status Plant Species Potentially Occurring in the Project Area.**

Common Name Scientific Name	Current Status <sup>1</sup> (Fed/State/CRPR)	General Habitat Description	Comments	Potential Occurrence Rank
<b>Federal or State Listed</b>				
Boggs lake hedge- hyssop <i>Gratiola heterosepala</i>	—/E/1B.2	Vernal pools and lake margins; elevation 10- 2,375 meters	Potentially occurring in annual grassland and seasonal wetlands occurring in the study area.	Low
Greene's tuctoria <i>Tuctoria greenei</i>	E/R/1B.1	Vernal pools; elevation 30-1,070 meters	Potentially occurring in annual grassland and seasonal wetlands occurring in the study area.	Low

**Table 2. Special-Status Plant Species Potentially Occurring in the Project Area.**

<b>Common Name Scientific Name</b>	<b>Current Status<sup>1</sup> (Fed/State/CRPR)</b>	<b>General Habitat Description</b>	<b>Comments</b>	<b>Potential Occurrence Rank</b>
Slender Orcutt grass <i>Orcuttia tenuis</i>	T/E/1B.1	Vernal pools; elevation 35-1,760 meters	Potentially occurring in annual grassland and seasonal wetlands occurring in the study area.	Low
<b><i>Other Special-Status Species</i></b>				
Shasta eupatory <i>Ageratina shastensis</i>	—/—/1B.2	Chaparral and lower montane coniferous forest, rocky, often carbonate; elevation 400-1,800 meters	Potentially occurring in chaparral, montane hardwood-conifer, and ponderosa pine habitats in the study area. Known from Shasta Lake.	Medium
Henderson's bent grass <i>Agrostis hendersonii</i>	—/—/3.2	Valley and foothill grassland, vernal pools/ vernal mesic; elevation 70-305 meters	Potentially occurring in annual grassland and seasonal wetlands occurring in the study area. Known from occurrences in the Redding area, and Ingot.	Low
Sanborn's onion <i>Allium sanbornii</i> var. <i>sanbornii</i>	—/—/4.2	Chaparral, cismontane woodland, and lower coniferous forest (usually serpentinite, gravelly soils); elevation 260-1,510 meters	Potentially occurring in mixed chaparral, montane hardwood-conifer, ponderosa pine, blue oak-gray pine, and montane hardwood habitat types with serpentine, gravelly soils occurring in the study area. Known from Oasis Road.	Medium
Slender silver moss <i>Anomobryum julaceum</i>	—/—/2.2	Broadleaved upland forest, lower montane coniferous forest, north coast coniferous forest/damp rock and soil outcrops; elevation 100-1000 meters	Potentially occurring in montane hardwood-conifer, ponderosa pine, and montane hardwood habitats present in the study area. Known from Whiskeytown environmental camp.	Low

**Table 2. Special-Status Plant Species Potentially Occurring in the Project Area.**

<b>Common Name Scientific Name</b>	<b>Current Status<sup>1</sup> (Fed/State/CRPR)</b>	<b>General Habitat Description</b>	<b>Comments</b>	<b>Potential Occurrence Rank</b>
Shasta County arnica <i>Arnica venosa</i>	—/—/4.2	Cismontane woodland and lower coniferous forest; elevation 400- 1,490 meters	Potentially occurring in montane hardwood- conifer, ponderosa pine, blue oak-gray pine, and montane hardwood habitats occurring in the study area.	High
Marbled wild- ginger <i>Asarum marmoratum</i>	—/—/2.3	Lower montane coniferous forest; elevation 200-1,800 meters	Potentially occurring in montane hardwood- conifer and ponderosa pine habitats occurring in the study area. Known from the Sacramento River Canyon.	Medium
Depauperate milk- vetch <i>Astragalus pauperculus</i>	—/—/4.3	Chaparral, cismontane woodland and valley and foothill grassland; vernally mesic, volcanic elevation 60- 1,120 meters	Potentially occurring in mixed chaparral, montane hardwood, montane hardwood- conifer, blue oak-gray pine, and annual grassland habitats with seasonally mesic environments occurring in the study area. Known from Oasis Road.	Medium
Thread-leaved beakseed <i>Bulbostylis capillaries</i>	—/—/4.2	Lower montane coniferous forest, meadows and seeps, upper montane coniferous forest; elevation 395-2,075 meters	Potentially occurring in meadows and seeps occurring in ponderosa pine and montane hardwood-conifer habitats occurring in the study area.	Low
Callahan's mariposa lily <i>Calochortus syntrophus</i>	—/—/1B.1	Cismontane woodland and valley and foothill grassland; vernally mesic; elevation 525- 855 meters	Potentially occurring in montane hardwood- conifer, montane hardwood, blue oak- gray pine, blue oak woodland, and annual grassland occurring in the study area. Known from Whitmore near the Buckhorn CDF station.	Low

**Table 2. Special-Status Plant Species Potentially Occurring in the Project Area.**

<b>Common Name Scientific Name</b>	<b>Current Status<sup>1</sup> (Fed/State/CRPR)</b>	<b>General Habitat Description</b>	<b>Comments</b>	<b>Potential Occurrence Rank</b>
Butte County morning-glory <i>Calystegia atriplicifolia</i> ssp. <i>buttensis</i>	—/—/4.2	Chaparral, lower montane coniferous forest, rocky, roadside; elevation 600-1,524 meters	Potentially occurring in montane hardwood-conifer, ponderosa pine, and mixed chaparral habitats occurring in the study area. Known from the Roaring Creek area.	Low
Buxbaum's sedge <i>Carex buxbaumii</i>	—/—/4.2	Bogs and fens; meadows and seeps; marshes and swamps; elevation 3-3,300 meters	Potentially occurring in perennial and seasonal wetlands occurring in annual grassland, fresh emergent wetlands, and valley foothill riparian habitats occurring in the study area.	Low
Bristly sedge <i>Carex comosa</i>	—/—/2.1	Coastal prairie, marshes and swamps, valley and foothill grasslands; elevation 0-625 meters	Potentially occurring in perennial and seasonal wetlands occurring in annual grassland, fresh emergent wetlands, and valley foothill riparian habitats occurring in the study area. Known from Big Bend and Fall River Mills.	Low
Brown fox sedge <i>Carex vulpinoidea</i>	—/—/2.2	Marshes and swamps (freshwater), riparian woodland; elevation 30-1,200 meters	Potentially occurring in vernal swales and seasonal wetlands in the study area.	Medium
Pink creamsacs <i>Castilleja rubicundula</i> ssp. <i>rubicundula</i>	—/—/1B.2	Chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland; elevation 20-900 meters	Potentially occurring in mixed chaparral, montane hardwood-conifer, montane hardwood, blue oak-gray pine, blue oak woodland and annual grasslands occurring in the study area. Known from Gas Point Road in Cottonwood.	Low

**Table 2. Special-Status Plant Species Potentially Occurring in the Project Area.**

Common Name <i>Scientific Name</i>	Current Status <sup>1</sup> (Fed/State/CRPR)	General Habitat Description	Comments	Potential Occurrence Rank
Shasta clarkia <i>Clarkia borealis</i> <i>ssp. arida</i>	—/—/1B.1	Cismontane woodland and lower coniferous forest; elevation 490-595 meters.	Potentially occurring in montane hardwood-conifer, montane hardwood, ponderosa pine, and blue oak-gray pine habitats occurring in the study area. Known from Ingot.	High
Northern clarkia <i>Clarkia borealis</i> <i>ssp. borealis</i>	—/—/1B.3	Chaparral, cismontane woodland, and lower coniferous forest; elevation 400-1,340 meters.	<b>Present on site.</b> Potentially occurring in mixed chaparral, montane hardwood-conifer, montane hardwood, ponderosa pine, and blue oak-gray pine habitats occurring in the study area. Known from Gray Rocks, 2.5 miles northeast of the study area.	High
Serpentine collomia <i>Collomia diversifolia</i>	—/—/4.3	Chaparral, cismontane woodland, serpentinite, rocky or gravelly; elevation 300-600 meters	Potentially occurring in mixed chaparral, montane hardwood-conifer, montane hardwood, ponderosa pine, and blue oak-gray pine habitats occurring in the study area.	Low
Castlegar hawthorn <i>Crataegus castlegarensis</i>	—/—/3	Riparian woodland, moist rocky loam; elevation 0-975 meters	Potentially occurring in valley foothill riparian habitat and along streams throughout the study area. Known from northeastern Shasta County.	Low
Silky cryptantha <i>Cryptantha crinita</i>	—/—/1B.2	Cismontane woodland, lower montane coniferous forest, riparian scrub, riparian woodland, valley and foothill grassland/gravelly streambeds; elevation 85-300 meters	Potentially occurring in gravelly streambeds within all habitats in the study area. Known to occur 2.7 miles southeast of the study area.	High

**Table 2. Special-Status Plant Species Potentially Occurring in the Project Area.**

<b>Common Name Scientific Name</b>	<b>Current Status<sup>1</sup> (Fed/State/CRPR)</b>	<b>General Habitat Description</b>	<b>Comments</b>	<b>Potential Occurrence Rank</b>
California lady's slipper <i>Cypripedium californicum</i>	—/—/4.2	Bogs and fens, lower montane coniferous forest, seeps and streambanks, usually serpentinite; elevation 30-2,750 meters	Potentially occurring in valley foothill riparian and seeps and springs occurring throughout the site.	Low
Clustered lady's slipper <i>Cypripedium fasciculatum</i>	—/—/4.2	Lower montane coniferous forest and north coast coniferous forest, usually serpentinite seeps and streambanks; elevation 100-2,435 meters	Potentially occurring in valley foothill riparian and seeps and springs occurring throughout the site.	Low
mountain lady's slipper <i>Cypripedium montanum</i>	—/—/4.2	Broadleafed upland forest, cismontane woodland, lower montane coniferous forest, and north coast coniferous forest; elevation 185-2,225 meters	Potentially occurring in montane hardwood-conifer, montane, hardwood, ponderosa pine, and blue oak-gray pine habitats occurring in the study area.	Low
Norris' beard moss <i>Didymodon norrisii</i>	—/—/2.2	Cismontane woodland and lower montane coniferous forest; elevation 600-1,973 meters	Potentially occurring in montane hardwood-conifer, montane, hardwood, ponderosa pine, and blue oak-gray pine habitats occurring in the study area.	Low
Tripod buckwheat <i>Eriogonum tripodum</i>	—/—/4.2	Chaparral, cismontane woodland, often serpentinite; elevation 200-1,600 meters	Potentially occurring in mixed chaparral, montane hardwood-conifer, montane, hardwood, and ponderosa pine, blue oak-gray pine habitats occurring in the study area. Known nearby occurrence on Oasis Road, south of Shasta Lake.	Medium

**Table 2. Special-Status Plant Species Potentially Occurring in the Project Area.**

<b>Common Name Scientific Name</b>	<b>Current Status<sup>1</sup> (Fed/State/CRPR)</b>	<b>General Habitat Description</b>	<b>Comments</b>	<b>Potential Occurrence Rank</b>
Butte County fritillary <i>Fritillaria eastwoodiae</i>	—/—/3.2	Chaparral, cismontane woodland and lower montane coniferous forest, openings, sometimes serpentine; elevation 50-1,500 meters	Potentially occurring in mixed chaparral, montane hardwood- conifer, montane, hardwood, and ponderosa pine, blue oak-gray pine habitats occurring in the study area.	Medium
Red Bluff dwarf rush <i>Juncus leiospermus</i> var. <i>leiospermus</i>	—/—/1B.1	Chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, vernal pools/ vernal mesic; elevation 35- 1020 meters	Potentially occurring in seasonal wetlands in annual grassland habitats in the study area	Medium
Santa Lucia dwarf rush <i>Juncus luciensis</i>	—/—/1B.2	Chaparral, great basin scrub, lower montane coniferous forest, meadows and seeps, vernal pools; elevation 300-2,040 meters	Potentially occurring in seasonal wetlands in annual grassland habitat occurring in the study area. Known from 2 occurrence in southeastern Shasta County.	Low
Legenere <i>Legenere limosa</i>	—/—/1B.1	Vernal pools; elevation 1-880 meters	Potentially occurring in seasonal wetlands in annual grassland habitats in the study area	Low
Dubious pea Lathyrus sulphureus var. argillaceous	—/—/3	Cismontane woodland, lower montane coniferous forest, and upper montane coniferous forest; elevation 150-305 meters	Potentially occurring in montane hardwood- conifer, montane hardwood, ponderosa pine, and blue oak-gray pine habitats occurring in the study area.	Medium
Broad-lobed leptosiphon <i>Leptosiphon latisectus</i>	—/—/4.3	Broadleaved upland forest and cismontane woodland; elevation 170-1,500 meters	Potentially occurring in montane hardwood- conifer, montane hardwood, ponderosa pine, and blue oak-gray pine habitats occurring in the study area.	Low

**Table 2. Special-Status Plant Species Potentially Occurring in the Project Area.**

Common Name <i>Scientific Name</i>	Current Status <sup>1</sup> (Fed/State/CRPR)	General Habitat Description	Comments	Potential Occurrence Rank
Cantelow's lewisia <i>Lewisia cantelovii</i>	—/—/1B.2	Broadleaved upland forest, chaparral, cismontane woodland, lower montane coniferous forest, mesic, granitic, sometimes serpentinite seeps; elevation 330-1,370 meters	Potentially occurring in mixed chaparral, montane hardwood-conifer, montane hardwood, ponderosa pine, and blue oak-gray pine habitats occurring in the study area. Known from the Sacramento River.	Medium
Howell's lewisia <i>Lewisia cotyledon</i> var. <i>howellii</i>	—/—/3.2	Broadleaved upland forest, chaparral, cismontane woodland, lower montane coniferous forest; elevation 150-2,010 meters	Potentially occurring in mixed chaparral, montane hardwood-conifer, montane hardwood, ponderosa pine, and blue oak-gray pine habitats occurring in the study area.	Low
Redwood lily <i>Lilium rubescens</i>	—/—/4.2	Broadleaved upland forest, chaparral, cismontane woodland, lower montane coniferous forest, north coast coniferous forest, upper montane coniferous forest, sometimes serpentinite, sometimes roadsides; elevation 30-1,715 meters	Potentially occurring in mixed chaparral, montane hardwood-conifer, montane hardwood, ponderosa pine, and blue oak-gray pine habitats occurring in the study area.	Low
Bellinger's meadowfoam <i>Limnanthes floccosa</i> ssp. <i>bellingeriana</i>	—/—/1B.2	Cismontane woodland, meadows, and seeps, mesic; elevation 290-1,100 meters	Potentially occurring in seasonal wetlands in annual grassland and blue-oak gray pine habitats occurring in the study area. Known from Ingot area.	Low
Woolly meadowfoam <i>Limnanthes floccosa</i> ssp. <i>floccosa</i>	—/—/4.2	Chaparral, cismontane woodland, valley and foothill grassland, vernal pools; elevation 60-1,095 meters	Potentially occurring in seasonal wetlands in annual grassland and blue-oak gray pine habitats occurring in the study area. Known from eastern Shasta County.	Low

**Table 2. Special-Status Plant Species Potentially Occurring in the Project Area.**

Common Name <i>Scientific Name</i>	Current Status <sup>1</sup> (Fed/State/CRPR)	General Habitat Description	Comments	Potential Occurrence Rank
Tehama navarretia <i>Navarretia heterandra</i>	—/—/4.3	Valley and foothill grassland, vernal pools, mesic; elevation 30-1,010 meters	Potentially occurring in seasonal wetland in annual grassland and blue oak gray pine habitats in the study area.	Low
Awl-leaved navarretia <i>Navarretia subuligera</i>	—/—/4.3	Chaparral, cismontane woodland, lower montane coniferous forest, rocky, mesic; elevation 150-1,100 meters	Potentially occurring in seasonal wetlands and seeps and springs in chaparral, montane hardwood, montane hardwood-conifer, ponderosa pine, and blue-oak gray pine habitats occurring in the study area.	Low
Shasta snow-wreath <i>Neviusia cliffonii</i>	—/—/1B.2	Cismontane woodland, lower coniferous forest, and riparian woodland, often streamsides, sometimes carbonate, volcanic, or metavolcanic; elevation 300-560 meters.	Potentially occurring in montane hardwood-conifer, montane hardwood, ponderosa pine, blue oak-gray pine, and valley foothill riparian habitats occurring in the study area. Known to occur 1.7 miles northeast of the study area.	Medium
Thread-leaved beardtongue <i>Penstemon filiformis</i>	—/—/1B.3	Cismontane woodland, lower montane coniferous forest, rocky; elevation 450-1,830 meters	Potentially occurring in montane hardwood-conifer, montane hardwood, ponderosa pine, and blue oak-gray pine habitats occurring in the study area. Known from the Sacramento River.	Medium
Narrow-petaled rein orchid <i>Piperia leptopetala</i>	—/—/4.3	Cismontane woodland, lower coniferous forest, upper montane coniferous forest; elevation 380-2,225 meters	Potentially occurring in montane hardwood-conifer, montane hardwood, ponderosa pine, and blue oak-gray pine habitats occurring in the study area.	Low

**Table 2. Special-Status Plant Species Potentially Occurring in the Project Area.**

<b>Common Name Scientific Name</b>	<b>Current Status<sup>1</sup> (Fed/State/CRPR)</b>	<b>General Habitat Description</b>	<b>Comments</b>	<b>Potential Occurrence Rank</b>
Bidwell's knotweed <i>Polygonum bidwelliae</i>	—/—/4.3	Chaparral, cismontane woodland, valley and foothill grassland, volcanic; elevation 60-1,200 meters	Potentially occurring in mixed chaparral, montane hardwood-conifer, montane hardwood, ponderosa pine, blue oak-gray pine and annual grassland habitats occurring in the study area.	Low
Nuttall's ribbon-leaved pondweed <i>Potamogeton epihydus</i> ssp. <i>nuttalii</i>	—/—/2.2	Marshes and swamps, shallow freshwater; elevation 369-2,172 meters	Potentially occurring in fresh emergent wetlands in the study area.	Low
Eel-grass pondweed <i>Potamogeton zosteriformis</i>	—/—/2.2	Marshes and swamps, freshwater; elevation 0-1,860 meters	Potentially occurring in fresh emergent wetlands in the study area.	Low
Hoary gooseberry <i>Ribes roezlii</i> var. <i>amictum</i>	—/—/4.3	Broadleaved upland forest, cismontane woodland, lower montane coniferous forest, upper montane coniferous forest; elevation 120-2,300 meters	Potentially occurring in montane hardwood-conifer, montane hardwood, ponderosa pine, and blue oak-gray pine habitats occurring in the study area.	Low
Sanford's arrowhead <i>Sagittaria sanfordii</i>	—/—/1B.2	Marshes and swamps, shallow freshwater; elevation 0-650 meters	Potentially occurring in fresh emergent wetlands in the study area.	Low
Marsh skullcap <i>Scutellaria galericulata</i>	—/—/2.2	Lower montane coniferous forest, meadows and seeps, marshes and swamps, mesic; elevation 0-2,100 meters	Potentially occurring meadows and seeps in montane hardwood-conifer and ponderosa pine habitats in the study area.	Medium

**Table 2. Special-Status Plant Species Potentially Occurring in the Project Area.**

<b>Common Name Scientific Name</b>	<b>Current Status<sup>1</sup> (Fed/State/CRPR)</b>	<b>General Habitat Description</b>	<b>Comments</b>	<b>Potential Occurrence Rank</b>
Canyon Creek stonecrop <i>Sedum paradisum</i>	—/—/1B.3	Broadleaved upland forest, chaparral, lower montane coniferous forest, granitic, rocky; elevation 300-1,900 meters	Potentially occurring in rocky outcroppings in montane hardwood-conifer, montane hardwood, ponderosa pine, and chaparral habitats occurring in the study area.	Medium
English Peak greenbriar <i>Smilax jamesii</i>	—/—/1B.3	Broadleaved upland forest, lower montane coniferous forest, marshes and swamps, north coast coniferous forest, upper montane coniferous forest, streambanks and lake margins; elevation 580-2,500 meters	Potentially occurring in marshes and swamps and along stream margins in montane hardwood-conifer, montane hardwood, valley foothill riparian, and ponderosa pine habitats occurring in the study area. Known from Iron Canyon east of Shasta Lake.	Low
Obtuse starwort <i>Stellaria obtusa</i>	—/—/4.3	Lower montane coniferous forest, riparian woodland, upper montane coniferous forest, mesic, streambanks; elevation; 150-2,135	Potentially occurring along stream margins in valley foothill riparian, and ponderosa pine habitats occurring in the study area.	Low
Long-fruit jewel flower <i>Streptanthus longisiliqus</i>	—/—/4.3	Cismontane woodland and lower montane coniferous forest, openings; elevation 715-1500 meters	Potentially occurring in marshes and swamps and along stream margins in montane hardwood-conifer, montane hardwood, and ponderosa pine habitats occurring in the study area.	Low
Slender false lupine <i>Thermopsis gracilis</i> var. <i>gracilis</i>	—/—/4.3	Chaparral, cismontane woodland, lower montane coniferous forest, meadows and seeps, north coast coniferous forest, sometimes roadsides; elevation 100-1,615 meters	Potentially occurring in meadows and seeps in mixed chaparral, montane hardwood-conifer, montane hardwood, and ponderosa pine habitats occurring in the study area.	Medium

**Table 2. Special-Status Plant Species Potentially Occurring in the Project Area.**

Common Name <i>Scientific Name</i>	Current Status <sup>1</sup> (Fed/State/CRPR)	General Habitat Description	Comments	Potential Occurrence Rank
Cylindrical trichodon <i>Trichodon cylindrica</i>	—/—/2.2	Broadleaved upland forest, meadows and seeps, upper montane coniferous forest, sandy, exposed soil, road banks; elevation 50-2,002 meters	Potentially occurring on sandy exposed soil in meadows and seeps in montane hardwood-conifer, montane hardwood, and ponderosa pine habitats occurring in the study area.	Low
Siskiyou false-hellebore <i>Veratrum insolitum</i>	—/—/4.3	Chaparral and lower montane coniferous forest, clay; elevation 45-1,635 meters	Potentially occurring in montane hardwood-conifer, montane hardwood, and ponderosa pine habitats occurring in the study area.	Low
Oval-leaved viburnum <i>Viburnum ellipticum</i>	—/—/2.3	Chaparral, cismontane woodland, and lower montane coniferous forest; elevation 215-1400 meters	Potentially occurring in mixed chaparral, montane hardwood-conifer, montane hardwood, and ponderosa pine habitats occurring in the study area. Known from Jones Valley area.	High

<sup>1</sup>Status Codes: Federal and State: E = Endangered; T = Threatened.

California Rare Plant Rank:

- 1B Plants rare, threatened, or endangered in California and elsewhere.
- 2 Plants rare, threatened, or endangered in California but more common elsewhere.
- 3 Plants about which we need more information, review list.
- 4 Plants of limited distribution, a watch list.

Modifiers

- .1 Seriously endangered in California.
- .2 Fairly endangered in California.
- .3 Not very endangered in California.

**Table 3. Special-Status Fish and Wildlife Species Potentially Occurring in the Project Area.**

<b>Common Name Scientific Name</b>	<b>Current Status<sup>1</sup> (Fed/State)</b>	<b>General Habitat Description</b>	<b>Comments</b>	<b>Potential Occurrence Rank</b>
<b><i>Federal or State Listed</i></b>				
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	T/—	Live in vernal pools, swales, and ephemeral freshwater habitats.	Pool features that may provide habitat occur in the study area.	Low
Vernal pool tadpole shrimp <i>Lepidurus packardii</i>	E/—	Live in vernal pools, swales, and ephemeral freshwater habitats.	Pool features that may provide habitat occur in the study area.	Low
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	T/—	Elderberry shrubs associated with riparian forests that occur along rivers and streams.	One elderberry shrub was observed along Digger Bay Road. Other shrubs may be present in the study area.	Low
Central Valley steelhead Distinct Population Segment (DPS) <i>Oncorhynchus mykiss irideus</i>	T/—	Spawn and rear in Sacramento River and its tributaries. Require cool, swift, shallow water; clean, loose gravel for spawning; and runs and suitable large pools in which to rear and over-summer.	Within known anadromous fish migration reaches, but above critical habitat. Potential for Moody, Rancheria, and Salt Creeks to support non-natal rearing habitat. A fish barrier on Churn Creek downstream of the study area prevents upstream movement (NSR 2007).	Low
Central Valley spring-run ESU Chinook salmon <i>Oncorhynchus tshawytscha</i>	T/T	Spawn and rear in main-stem Sacramento River and suitable perennial tributaries. Require cool year-round water temperatures and deep pools for over-summering habitat. Spawn in riffles with gravel and cobble substrate.	Within known anadromous fish migration reaches, but above critical habitat. Potential for Moody, Rancheria, and Salt Creeks to support non-natal rearing habitat. A fish barrier on Churn Creek downstream of the study area prevents upstream movement (NSR 2007).	Low

**Table 3. Special-Status Fish and Wildlife Species Potentially Occurring in the Project Area.**

<b>Common Name Scientific Name</b>	<b>Current Status<sup>1</sup> (Fed/State)</b>	<b>General Habitat Description</b>	<b>Comments</b>	<b>Potential Occurrence Rank</b>
Sacramento River winter-run ESU Chinook salmon <i>Oncorhynchus tshawytscha</i>	E/E	Spawn and rear in main-stem Sacramento River. Require cool year-round water temperatures, since spawning occurs during the summer. Requires deep pools and riffles, and clean gravel and cobble substrate to spawn.	Within known anadromous fish migration reaches, but above critical habitat. Potential for Moody, Rancheria, and Salt Creeks to support non-natal rearing habitat. A fish barrier on Churn Creek downstream of the study area prevents upstream movement (NSR 2007).	Low
California red-legged frog <i>Rana draytonii</i>	T/SC	Requires aquatic habitat for breeding, also uses a variety of other habitat types including riparian and upland areas. Adults utilize dense, shrubby, or emergent vegetation associated with deep-water pools with fringes of cattails and dense stands of overhanging vegetation.	Potentially occurring at the pond in southern portion of study area.	Low
Shasta salamander <i>Hydromantes shastae</i>	—/T	Moist limestone fissures and caves, in volcanic and other rock outcroppings, and under woody debris in mixed pine-hardwood stands.	Potentially occurring in rock outcrops and adjacent slopes in the study area. Surveys to date have not located this species.	Medium
Bald eagle <i>Haliaeetus leucocephalus</i>	D/E, FP	Requires large bodies of water, or free-flowing rivers with abundant fish and adjacent snags and large trees for perching and nesting.	Potentially occurring in ponderosa pine habitat in the northern portion of the study. Known to occur 1 mile north of the study area at Shasta Lake.	Low
Northern spotted owl <i>Strix occidentalis caurina</i>	T/SC	In northern California, resides in large stands of old growth, multi-layered mixed conifer, redwood and Douglas-fir habitats	Potentially occurring in ponderosa pine and montane hardwood-conifer habitats in the study area.	Low

**Table 3. Special-Status Fish and Wildlife Species Potentially Occurring in the Project Area.**

<b>Common Name Scientific Name</b>	<b>Current Status<sup>1</sup> (Fed/State)</b>	<b>General Habitat Description</b>	<b>Comments</b>	<b>Potential Occurrence Rank</b>
Willow flycatcher <i>Empidonax traillii</i>	—/E	Rare summer resident in wet meadow and montane riparian habitats at 2,000 to 8,000 feet elevation. No longer known to nest in Sacramento Valley but migrates through the north state region in spring and fall.	Potentially occurring in valley foothill riparian along streams in the study area.	Low
Pacific fisher <i>Martes pennanti pacifica</i>	C/CT	Intermediate to large dense stages of coniferous forests and deciduous riparian habitats with greater than 50% canopy closure.	Potentially occurring in ponderosa pine, montane hardwood-conifer, and montane hardwood habitats in the study area. Known to occur 0.5 mile northwest of the study area.	High (in NW portion of site)
<b>Other Special-Status Species</b>				
Central Valley fall/late fall-run ESU Chinook salmon <i>Oncorhynchus tshawytscha</i>	SC/SC	Spawn and rear in main-stem Sacramento River and suitable perennial tributaries. Spawn and rear in main-stem Sacramento River and suitable perennial tributaries. Requires cool water temperatures for spawning, egg-incubation and juvenile rearing. Spawn in riffles with gravel and cobble. Spawn in riffles with gravel and cobble.	Within known anadromous fish migration reaches, but above critical habitat. Potential for Moody, Rancheria, and Salt Creeks to support non-natal rearing habitat. A fish barrier on Churn Creek downstream of the study area prevents upstream movement (NSR 2007).	Low
Foothill yellow-legged frog <i>Rana boylei</i>	—/SC	Rocky streams in a variety of habitats.	Rocky stream habitat is present within Moody and Rancheria Creeks in the study area.	Low

**Table 3. Special-Status Fish and Wildlife Species Potentially Occurring in the Project Area.**

Common Name <i>Scientific Name</i>	Current Status <sup>1</sup> (Fed/State)	General Habitat Description	Comments	Potential Occurrence Rank
Northwestern pond turtle <i>Actinemys marmorata</i>	—/SC	Slow water aquatic habitat with available basking sites. Requires an upland oviposition site near the aquatic site with good sun exposure, gentle slope, and sparse vegetation. Usually on south- or west-facing aspects.	Potentially occurring in pond in southern portion of study area. Known from adjacent properties.	High
Long-eared owl <i>Asio otus</i>	—/SC	Dense riparian and live oak thickets near meadow edges, and nearby woodland and forest habitats; also found in dense conifer stands at higher elevations.	Potentially occurring in riparian and dense oak thickets adjacent to meadow and grassland in the study area.	Low
Western burrowing owl <i>Athene cunicularia hypugaea</i>	—/SC	Grasslands and ruderal habitats.	Potentially occurring in annual grasslands present in the study area.	Low
Northern harrier <i>Circus cyaneus</i>	—/SC	Forages in marshes, grasslands, and ruderal habitats; nests in extensive marshes and wet fields.	Potentially occurring in annual grasslands present in the study area.	Medium
White-tailed kite <i>Elanus leucurus</i>	—/FP	Occurs in low elevation grassland, agricultural, wetland, oak- woodland, or savannah habitats. Riparian habitat adjacent to open areas also used.	<b>Present.</b> Observed foraging in annual grasslands in the study area. Breeding habitat is present in oak woodlands adjacent to annual grassland.	High
Vaux's swift <i>Chaetura vauxi</i>	—/SC	Prefers redwood and Douglas-fir habitats, nests in hollow trees and snags or, occasionally, in chimneys; forages aerially.	Potentially occurring in ponderosa pine habitat present in the study area.	Low

**Table 3. Special-Status Fish and Wildlife Species Potentially Occurring in the Project Area.**

Common Name <i>Scientific Name</i>	Current Status <sup>1</sup> (Fed/State)	General Habitat Description	Comments	Potential Occurrence Rank
Olive-sided flycatcher <i>Contopus borealis</i>	—/SC	Montane and northern coniferous forests, at mid-to high elevations. Associated with forest openings	Potentially occurring in ponderosa pine habitat in the study area.	Low
Yellow warbler <i>Dendroica petechia</i>	—/SC	Breeds in riparian woodlands, particularly those dominated by willows and cottonwoods.	<b>Present.</b> Observed in valley foothill riparian in the study area.	High
Yellow-breasted chat <i>Icteria virens</i>	—/SC	Breeds in riparian habitats having dense understory vegetation, such as willow and blackberry.	<b>Present.</b> Observed in valley foothill riparian in the study area.	High
Townsend's western big-eared bat <i>Corynorhinus townsendii</i>	—/SC	Roosts in colonies in caves, mines, bridges, buildings, and hollow trees in a variety of habitats. Habitat must include appropriate roosting, maternity, and hibernacula sites free from disturbance by humans.	Potentially occurring in hollow trees present in the study area.	Low
Pallid bat <i>Antrozous pallidus</i>	—/SC	Forages over many habitats; roosts in buildings, trees, rocky outcrops and rocky crevices in mines and caves.	Potentially occurring in hollow trees and rock outcrops present in the study area.	Low
Western mastiff bat <i>Eumops perotis</i>	—/SC	Many open habitats, including conifer and deciduous woodlands, grassland, and chaparral. Roosts in crevices in cliff faces and high buildings.	Potentially occurring in rock outcrops present in the study area.	Low
Western red bat <i>Lasiurus blossevillii</i>	—/SC	Prefers sites with a mosaic of habitats that includes trees for roosting and open areas for foraging. Strongly associated with riparian habitats.	Potentially occurring in valley foothill riparian and along stream corridors in the study area.	Low

**Table 3. Special-Status Fish and Wildlife Species Potentially Occurring in the Project Area.**

<b>Common Name Scientific Name</b>	<b>Current Status<sup>1</sup> (Fed/State)</b>	<b>General Habitat Description</b>	<b>Comments</b>	<b>Potential Occurrence Rank</b>
American badger <i>Taxidea taxus</i>	—/SC	Herbaceous, shrub, and open stages of most habitats with dry, friable soils.	Potentially occurring in annual grassland habitat in the study area.	Low
Ring-tailed cat <i>Bassariscus astutus</i>	—/FP	Riparian habitats and in brush stands of most forest and shrub habitats. Nests in rock recesses, hollow trees, logs, snags, abandoned burrows or woodrat nests.	Potentially occurring in valley foothill riparian and along stream corridors in the study area.	High

<sup>1</sup>Status Codes:

Federal and State Codes: E = Endangered; T = Threatened; C = Candidate; CT = Candidate for Threatened (State); SC = Species of Concern (Federal) and Species of Special Concern (State); PD = Proposed for Delisting; D = Delisted; FP = California Fully Protected species

#### **4.4 Jurisdictional Waters of the United States**

The objective of the Clean Water Act (CWA 1977, as amended) is to restore and maintain the chemical, physical, and biological integrity of the nation’s waters. Discharge of dredged or fill material into waters of the United States, including jurisdictional wetlands, is regulated by the United States Army Corps of Engineers (Corps) under Section 404 of the CWA (33 USC 1251-1376). Corps regulations implementing Section 404 define waters of the United States to include intrastate waters, including lakes, rivers, streams, wetlands, and natural ponds, the use, degradation, or destruction of which could affect interstate or foreign commerce. Wetlands are defined for regulatory purposes as “areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR 328.3; 40 CFR 230.3). To comply with the Section 404 policy that there be no net loss of wetlands; discharge into wetlands must be avoided and minimized to the extent practicable. For unavoidable impacts, compensatory mitigation is required to replace the loss of wetland functions in the watershed.

The Corps may regulate waters of the United States occurring throughout the study area. Waters of the United States observed during the assessment include ephemeral and intermittent streams, fresh emergent wetlands, seasonal wetlands, vernal swales, and seep-spring wetlands. A formal delineation will be required to determine the type, extent, and jurisdiction of these features.

#### **4.5 Other Sensitive Biological Resources**

Raptor species (birds of prey) and migratory birds may nest in trees and other vegetation located within or in the immediate vicinity of the study area. All raptors, including common species and their nests, are protected from “take” under California Fish and Game Code. All migratory birds and their

nests are protected from “take” under the federal Migratory Bird Treaty Act. Raptors observed include red-tailed hawk, white-tailed kite, and red-shouldered hawk.

Shasta chaparral (*Trilobopsis roperi*) is a terrestrial snail petitioned to be listed as endangered under the ESA. The USFWS has not issued a finding that would indicate a listing is warranted. Although currently there are no federal or state protections in place for this species occurring on private property, Shasta chaparral was found in several locations in the rock outcrops in the western and northern portions of the study area. Shasta Hesperian (*Vespericola shasta*) is another terrestrial snail included in that petition which may also occur within the study area.

## Section 5 References

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### 5.1 Literature Cited

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# **Appendix A**

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## **CNDDDB Query Results**



California Department of Fish and Game  
 Natural Diversity Database  
 CNDDB Wide Tabular Report  
 Moody Flats Quarry Project

Name (Scientific/Common)	CNDDB Ranks	Other Lists	Listing Status	Total EO's	Element Occ Ranks										Population Status		Presence	
					A	B	C	D	X	U	Historic >20 yr	Recent <=20 yr	Pres. Extant	Poss. Extirp.				
Actinemys marmorata western pond turtle	G3G4 S3	CDFG: SC	Fed: None Cal: None	1097 S:4	0	3	0	0	0	0	1	1	3	4	0	0		
Anthicus antiochensis Antioch Dunes anthicid beetle	G1 S1	CDFG:	Fed: None Cal: None	6 S:1	0	0	0	0	0	1	1	0	1	1	0	0		
Anthicus sacramento Sacramento anthicid beetle	G1 S1	CDFG:	Fed: None Cal: None	13 S:1	0	0	0	0	0	1	1	0	1	1	0	0		
Clarkia borealis ssp. borealis northern clarkia	G3T2 S2.3	CNPS: 1B.3	Fed: None Cal: None	49 S:1	0	0	0	0	0	1	1	0	1	1	0	0		
Cryptantha crinita silky cryptantha	G1 S1.1	CNPS: 1B.2	Fed: None Cal: None	46 S:2	1	0	0	0	0	1	1	1	2	0	0	0		
Haliaeetus leucocephalus bald eagle	G5 S2	CDFG:	Fed: Delisted Cal: Endangered	305 S:9	0	0	0	0	1	8	1	8	8	1	0	0		
Helminthoglypta hertleini Oregon shoulderband	G1 S1	CDFG:	Fed: None Cal: None	15 S:1	0	0	0	0	0	1	1	0	1	0	0	0		
Hydromantes shastae Shasta salamander	G1G2 S1S2	CDFG:	Fed: None Cal: Threatened	64 S:14	2	7	0	0	0	5	4	10	14	0	0	0		
Martes pennanti (pacific) DPS Pacific fisher	G5 S2S3	CDFG: SC	Fed: Candidate Cal: unknown	642 S:4	0	4	0	0	0	0	0	4	4	0	0	0		
Monadenia troglodytes troglodytes Shasta sideband	G1G2T1T2 S1S2	CDFG:	Fed: None Cal: None	15 S:2	0	0	0	0	0	2	1	1	2	0	0	0		
Neviusia cliffonii Shasta snow-wreath	G2 S2.2	CNPS: 1B.2	Fed: None Cal: None	20 S:2	0	1	0	0	0	1	0	2	2	0	0	0		
Rana boylei foothill yellow-legged frog	G3 S2S3	CDFG: SC	Fed: None Cal: None	783 S:5	0	4	1	0	0	0	0	5	5	0	0	0		



## **Appendix B**

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### **U.S. Fish and Wildlife Service Species List**





**United States Department of the Interior**  
**FISH AND WILDLIFE SERVICE**  
Sacramento Fish and Wildlife Office  
2800 Cottage Way, Room W-2605  
Sacramento, California 95825



April 5, 2010

Document Number: 100405054009

Heather L. Kelly  
North State Resources, Inc.  
5000 Bechelli Lane, Suite 203  
Redding, CA 96002

Subject: Species List for Moody Flats Quarry Project

Dear: Ms. Kelly

We are sending this official species list in response to your April 5, 2010 request for information about endangered and threatened species. The list covers the California counties and/or U.S. Geological Survey 7½ minute quad or quads you requested.

Our database was developed primarily to assist Federal agencies that are consulting with us. Therefore, our lists include all of the sensitive species that have been found in a certain area *and also ones that may be affected by projects in the area*. For example, a fish may be on the list for a quad if it lives somewhere downstream from that quad. Birds are included even if they only migrate through an area. In other words, we include all of the species we want people to consider when they do something that affects the environment.

Please read Important Information About Your Species List (below). It explains how we made the list and describes your responsibilities under the Endangered Species Act.

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be July 04, 2010.

Please contact us if your project may affect endangered or threatened species or if you have any questions about the attached list or your responsibilities under the Endangered Species Act. A list of Endangered Species Program contacts can be found at [www.fws.gov/sacramento/es/branches.htm](http://www.fws.gov/sacramento/es/branches.htm).

Endangered Species Division



**U.S. Fish & Wildlife Service  
Sacramento Fish & Wildlife Office**

**Federal Endangered and Threatened Species that Occur in  
or may be Affected by Projects in the Counties and/or  
U.S.G.S. 7 1/2 Minute Quads you requested**

Document Number: 100507095237

Database Last Updated: April 29, 2010

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**Quad Lists**

**Listed Species**

**Invertebrates**

*Branchinecta lynchi*

vernal pool fairy shrimp (T)

*Desmocerus californicus dimorphus*

valley elderberry longhorn beetle (T)

*Pacifastacus fortis*

Shasta crayfish (E)

**Fish**

*Hypomesus transpacificus*

delta smelt (T)

*Oncorhynchus mykiss*

Central Valley steelhead (T) (NMFS)

Critical habitat, Central Valley steelhead (X) (NMFS)

*Oncorhynchus tshawytscha*

Central Valley spring-run chinook salmon (T) (NMFS)

Critical habitat, winter-run chinook salmon (X) (NMFS)

winter-run chinook salmon, Sacramento River (E) (NMFS)

**Amphibians**

*Rana draytonii*

California red-legged frog (T)

**Birds**

*Strix occidentalis caurina*

northern spotted owl (T)

**Candidate Species**

**Birds**

*Coccyzus americanus occidentalis*

Western yellow-billed cuckoo (C)

**Quads Containing Listed, Proposed or Candidate Species:**

PROJECT CITY (647A)

SHASTA DAM (647B)

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**County Lists**

## Shasta County

### Listed Species

#### Invertebrates

*Branchinecta lynchi*

Critical habitat, vernal pool fairy shrimp (X)

vernal pool fairy shrimp (T)

*Desmocerus californicus dimorphus*

valley elderberry longhorn beetle (T)

*Lepidurus packardii*

Critical habitat, vernal pool tadpole shrimp (X)

vernal pool tadpole shrimp (E)

*Pacifastacus fortis*

Shasta crayfish (E)

#### Fish

*Hypomesus transpacificus*

delta smelt (T)

*Oncorhynchus mykiss*

Central Valley steelhead (T) (NMFS)

Critical habitat, Central Valley steelhead (X) (NMFS)

*Oncorhynchus tshawytscha*

Central Valley spring-run chinook salmon (T) (NMFS)

Critical Habitat, Central Valley spring-run chinook (X) (NMFS)

Critical habitat, winter-run chinook salmon (X) (NMFS)

winter-run chinook salmon, Sacramento River (E) (NMFS)

#### Amphibians

*Rana draytonii*

California red-legged frog (T)

#### Birds

*Strix occidentalis caurina*

Critical habitat, northern spotted owl (X)

northern spotted owl (T)

#### Plants

*Orcuttia tenuis*

Critical habitat, slender Orcutt grass (X)

slender Orcutt grass (T)

*Tuctoria greenei*

Critical habitat, Greene's tuctoria (=Orcutt grass) (X)

Greene's tuctoria (=Orcutt grass) (E)

## Candidate Species

## Birds

*Coccyzus americanus occidentalis*

Western yellow-billed cuckoo (C)

## Mammals

*Martes pennanti*

fisher (C)

**Key:**(E) *Endangered* - Listed as being in danger of extinction.(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.(P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.(NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.*Critical Habitat* - Area essential to the conservation of a species.(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.(C) *Candidate* - Candidate to become a proposed species.

(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.

(X) *Critical Habitat* designated for this species

## Important Information About Your Species List

## How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, **or may be affected by** projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

## Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online [Inventory of Rare and Endangered Plants](#).

## Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list. See our [Protocol](#) and [Recovery Permits](#) pages.

For plant surveys, we recommend using the [Guidelines for Conducting and Reporting Botanical Inventories](#). The results of your surveys should be published in any environmental documents prepared for your project.

## Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal [consultation](#) with the Service.

During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

## Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be

found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our [Map Room](#) page.

### Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

### Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. [More info](#)

### Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6580.

### Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be August 05, 2010.

## **Appendix C**

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### **Incidental Wildlife Species Observed**



**Incidental Wildlife Species Observed**  
**Moody Flats Quarry Project, Shasta County, California**  
**April 19, 22, and 29, 2010**

***Invertebrates (Terrestrial Mollusks)***

Shoulderband snail  
 Church's sideband snail  
 Shasta chaparral (snail)

Lewis's woodpecker  
 Acorn woodpecker  
 Hairy woodpecker  
 Northern flicker  
 Pacific-slope flycatcher

American robin  
 Wrentit  
 Orange-crowned warbler  
 Yellow warbler  
 Yellow-rumped warbler

***Herpetofauna***

Western fence lizard  
 Northern alligator lizard  
 Western skink  
 Gopher snake  
 California king snake

Black phoebe  
 Ash-throated flycatcher  
 Western kingbird  
 Cassin's (Solitary) vireo  
 Steller's jay  
 Western scrub jay

Yellow-breasted chat  
 Spotted towhee  
 California towhee  
 Lark sparrow  
 Savannah sparrow  
 Song sparrow

***Birds***

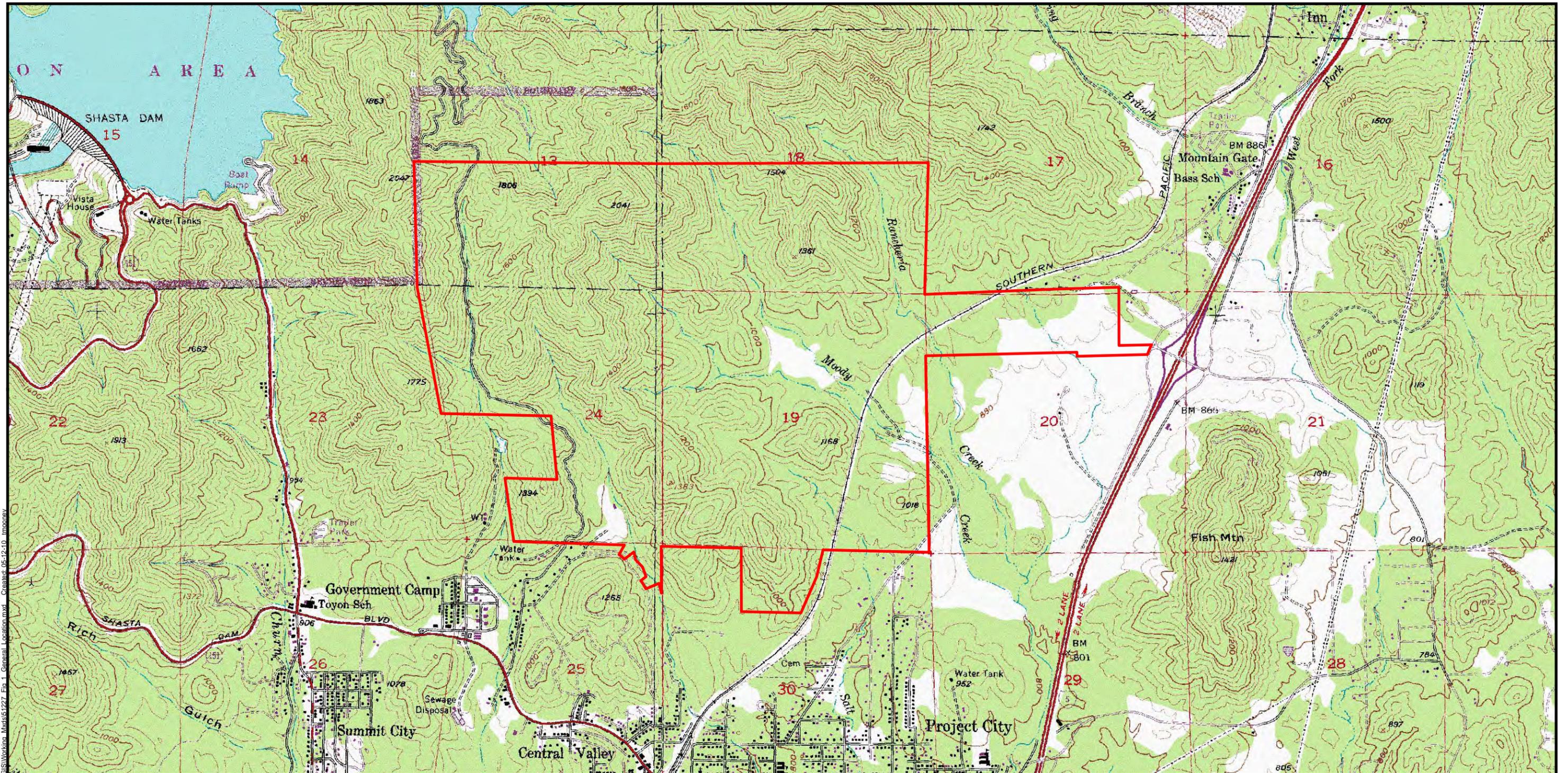
Wild turkey  
 California quail  
 Mountain quail  
 Turkey vulture  
 White-tailed kite  
 Red-shouldered hawk  
 Red-tailed hawk  
 Band-tailed pigeon  
 Mourning dove  
 Anna's hummingbird

Horned lark  
 Tree swallow  
 Oak titmouse  
 Bushtit  
 Rock wren  
 Bewick's wren  
 Ruby-crowned kinglet  
 Blue-gray gnatcatcher  
 Western bluebird  
 Hermit thrush

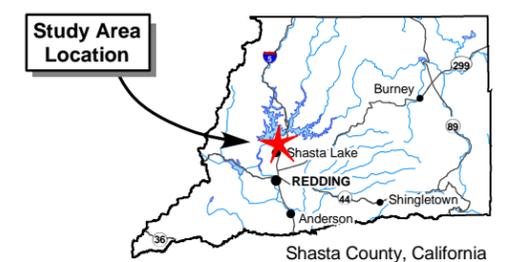
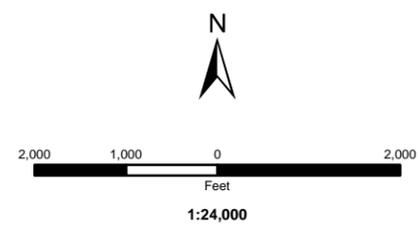
White-crowned sparrow  
 Dark-eyed junco  
 Western meadowlark  
 Purple finch  
 Lesser goldfinch

***Mammals***

Western gray squirrel  
 Black-tailed hare  
 Black bear  
 Black-tailed mule deer



 Study Area  
 Public Land Survey:  
 Township: 33N  
 Range: 04W  
 Sections: 17, 18, 19, 20, 30  
 Range: 05W  
 Sections: 13, 14, 23, 24, 25  
 USGS 7.5 Quads:  
 Project City - 1969  
 Shasta Dam - 1969



**Figure 1**  
Project Location Map

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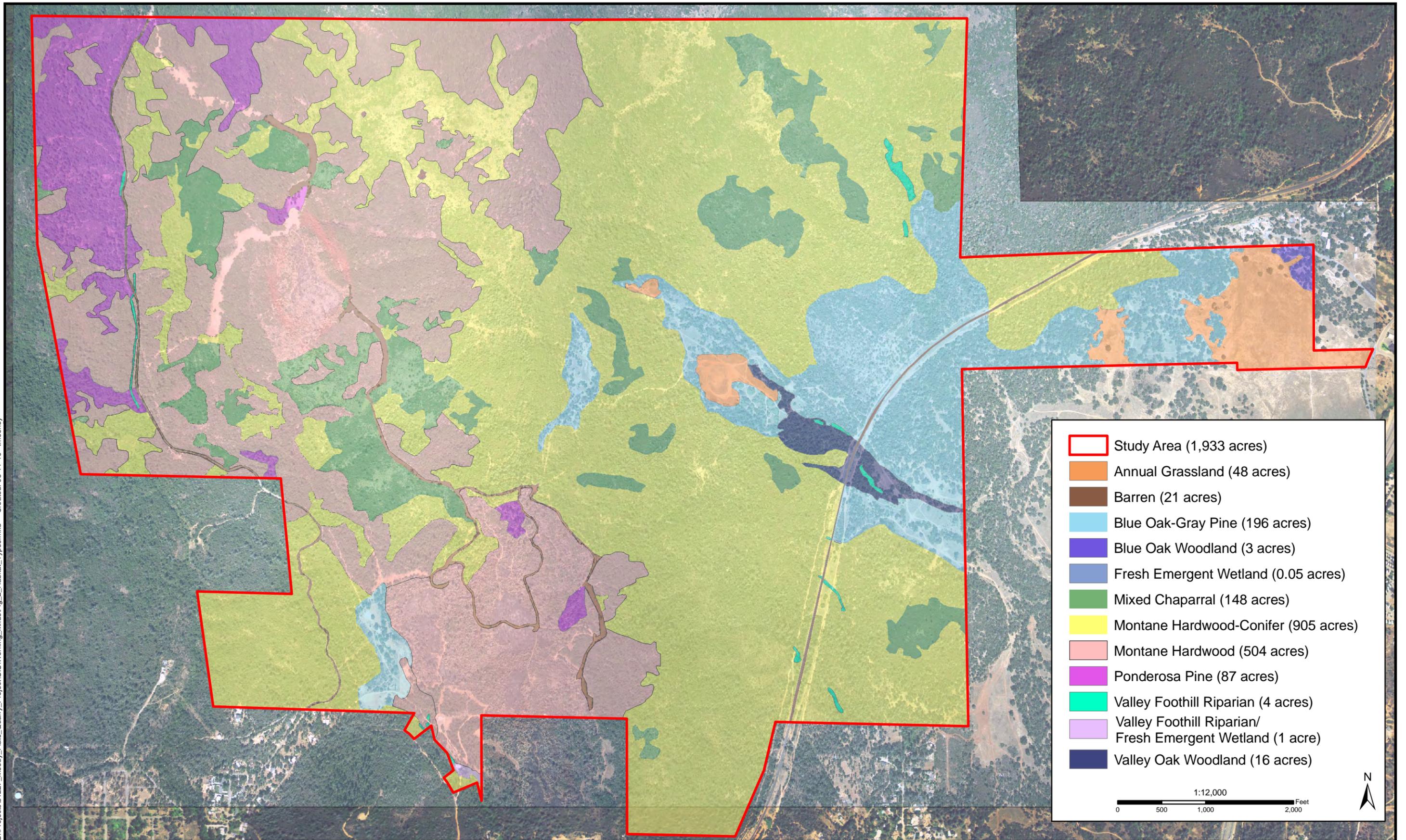


Figure 2  
CWHR Habitat Types

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