



## **Appendix B**

*Biological Resources:  
Wildlife Habitat Descriptions  
Species Tables*

## Wildlife Habitat Descriptions within Tuolumne County

### Tree Dominated Habitats

*Aspen Forest.* Mature stands of quaking aspen (*Populus tremuloides*) typify this habitat and usually have relatively open canopies, often shared with other deciduous trees and a few conifer species, typically pine. All stands spread by root suckering, resulting in stands comprised of clones of different age classes. Aspen stands in California occur primarily at higher elevations near seeps, streams, and meadows on the eastern slopes of the Sierra Nevada and Cascade Ranges. Aspen forest typically corresponds to the *Populus tremuloides* Forest Alliance as described by Sawyer et al. (2009).

*Blue Oak-foothill Pine Woodland.* This habitat is typically diverse in structure both vertically and horizontally and is composed primarily of a mix of hardwoods, conifers, and shrubs. Shrub distributions tend to be clumped, with interspersed patches of annual grassland. Woodlands of this type generally tend to only have small accumulations of dead and downed woody material, compared with other tree habitats in California. Blue oak (*Quercus douglassii*) and foothill pine (*Pinus sabiniana*) typically comprise the overstory of this habitat, with blue oak usually most abundant. In the foothills of the Sierra Nevada, other tree species typically associated with this habitat are interior live oak (*Quercus wislizeni*) and California buckeye (*Aesculus californica*). In the Coast Range, associated tree species include coast live oak (*Quercus agrifolia*), valley oak (*Quercus lobata*), and California buckeye. In rocky areas, interior live oak sometimes dominates the overstory especially on north-facing slopes at higher elevations. At lower elevations, where blue oaks make up most of the canopy, the understory tends to be primarily annual grasses and forbs. At higher elevations where foothill pines and even interior live oaks sometimes comprise the canopy, the understory usually includes patches of shrubs in addition to the annual grasses and forbs. Shrub species that can be associated with this habitat type include various buckbrush (*Ceanothus* spp.) species and manzanita (*Arctostaphylos* spp.). Other species found in this habitat type can include California coffeeberry (*Rhamnus californicus*), poison-oak (*Toxicodendron diversilobum*) and silver lupine (*Lupinus albifrons*). This habitat is generally located in the foothills of the Central Valley, between 500 and 3000 feet (ft) in elevation. Blue oak-foothill pine typically corresponds to the *Quercus douglasii* Woodland Alliance or *Pinus sabiniana* Woodland Alliance as described by Sawyer et al. (2009).

*Blue Oak Woodland.* Generally these woodlands have an over story of scattered trees, although the canopy can be nearly closed. The canopy is dominated by broad-leaved trees 16 ft to 50 ft tall, commonly forming open savanna-like stands on dry ridges and gentle slopes. Blue oak (*Quercus douglasii*) is typically the dominant tree species. Shrubs such as poison oak (*Toxicodendron diversilobum*), California coffee berry (*Frangula californica*), buckbrush (*Ceanothus cuneatus*), and redberry (*Rhamnus crocea*) are often present but rarely extensive and often occur on rock outcrops. Typical understory is composed of an extension of Annual Grassland vegetation described below. Blue oak woodland typically corresponds to the *Quercus douglasii* Woodland Alliance as described by Sawyer et al. (2009).

*Closed-Cone Pine-Cypress Forest.* This habitat type is typically dominated by a single species of closed-cone pines (*Pinus* sp.) or cypress (*Cupressus* sp.) and the height and canopy closure of these series are variable depending upon site characteristics including soil type, the

age of the stand and the floristic composition. Closed-cone pine-cypress forests are considered fire climax or fire-dependent vegetation types. This habitat type is typically found within rocky and infertile soils along the extreme coast or on very shallow infertile soils contain stunted, wind-pruned individuals.

*Douglas Fir Forest.* This habitat typically exhibits a spatial variation due to geologic, topographic, and successional variation typical within its range. Structure within this habitat types typically consists of a lower overstory of dense, sclerophyllous, broad-leaved evergreen trees such as tanoak (*Lithocarpus densiflorus*) and Pacific madrone (*Arbutus menziesii*), with an irregular, often open, higher overstory of tall needle-leaved evergreen trees such as Douglas fir (*Pseudotsuga menziesii*).

*Eastside Pine Forest.* This habitat type is typically dominated by Ponderosa pine (*Pinus ponderosa*). Other tree species that also occur alongside Ponderosa pine include Jeffrey pine (*Pinus jeffreyi*), lodgepole pine (*Pinus contorta*), white fir (*Abies concolor*), incense-cedar (*Calocedrus decurrens*), Douglas-fir (*Pseudotsuga menziesii*), California black oak (*Quercus kelloggii*) and western juniper (*Juniperus occidentalis*). Understory species vary depending on site conditions, but typically comprised of shrub species, such as big sagebrush (*Artemisia tridentata*), antelope bitterbrush (*Purshia tridentata*), manzanita (*Arctostaphylos* sp.), and Ceanothus (*Ceanothus* sp.). Typical structure consists of an open stand of low shrubs and grass herb layers are typical. Crowns of pines are open, allowing light, wind and rain to penetrate, whereas other associated trees provide more dense foliage. Due to variation that can be found, Eastside Pine Forest can correspond to a number of alliances as described by Sawyer et al. (2009) such as *Pinus ponderosa* Forest Alliance and *Pinus jeffreyi* Forest and Woodland Alliances.

*Jeffrey Pine Forest.* The structure of the Jeffrey pine forest varies over its distribution. A single tree layer is characteristic of Jeffrey pine stands on moderately dry sites. On moist and mesic sites a second tree layer exists which is composed of deciduous hardwood species. Jeffrey Pine habitats are dominant by Jeffrey pine. A sclerophyllous shrub layer is common to most Jeffrey pine stands except on serpentine soils and extremely xeric sites. Jeffrey pine forests occur in mountainous regions such as the Sierra Nevada and ranges in elevation from 500 to 9,500 ft. Jeffrey pine forest typically corresponds to the *Pinus jeffreyi* Forest Alliance as described by Sawyer et al. (2009).

*Juniper Woodland.* Juniper habitats are characterized as woodlands of open to dense aggregations of junipers (*Juniperus* sp.) in the form of arborescent shrubs or small trees. Juniper woodlands generally occur at middle elevations forming a transition between habitats at higher elevations. Juniper woodlands occur on virtually all exposures and slopes but are common on level to gently rolling topography. Junipers may be found on soils ranging from rocky and well drained. Slope aspect has a strong influence on the elevational distribution of junipers. On northfacing slopes, junipers range from 4,000 to 6,000 ft; whereas, on southfacing slopes, junipers range from 6,000 to 8,000 ft. Juniper woodland typically corresponds to the *Juniperus californicus* Woodland Alliance or *Juniperus grandis* Woodland Alliance as described by Sawyer et al. (2009).

*Lodgepole Pine Forest.* Lodgepole pine forests typically form open stands of similarly sized trees in association with few other species and with a sparse understory. Lodgepole pine

overwhelmingly dominates the habitat. Occasional associates include aspen and mountain hemlock (*Tsuga martensiana*). The understory may be virtually absent, consisting of scattered shrubs and herbs, or a rich herbaceous layer at meadow margins. Many lodgepole stands are associated with meadow edges and streams, where the understory consists of grasses, forbs, and sedges. Lodgepole pine forest typically corresponds to the *Pinus contorta* ssp. *murrayana* Forest Alliance as described by Sawyer et al. (2009).

*Montane Hardwood Forest.* A typical montane hardwood habitat is composed of a pronounced hardwood tree layer, with an infrequent and poorly developed shrub stratum, and a sparse herbaceous layer. In the Coast Range, canyon live oak (*Quercus chrysolepis*) often forms pure stands on steep canyon slopes and rocky ridge tops. It is replaced at higher elevations by scattered huckleberry oak (*Quercus vacciniifolia*) amongst an overstory of various conifers including ponderosa pine, Coulter pine (*Pinus coulteri*), California white fir, and Jeffrey pine. At mid elevations typical associates include Douglas-fir (*Pseudotsuga menziesii*), tanoak (*Notholithocarpus densiflorus*), Pacific madrone (*Arbutus menziesii*), California black oak, and bristlecone fir (*Abies bracteata*). At lower elevations knobcone pine (*Pinus attenuata*), foothill pine, Oregon white oak (*Quercus garryana*), and coast live oak are abundant. Understory vegetation is mostly scattered woody shrubs and a few forbs. Elevations range from 300 feet near the Pacific Ocean up to 9000 ft. Montane hardwood typically corresponds to the *Quercus chrysolepis* Forest Alliance, as described by Sawyer et al. (2009).

*Montane Riparian Forest.* The vegetation of montane riparian forest habitats is variable and often structurally diverse. Usually, these riparian areas occur as a narrow, often dense grove of broad-leaved, winter deciduous trees with a sparse understory. At high mountain elevations, more shrubs tend to occur in the understory. In the Coast Range, big leaf maple (*Acer macrophyllum*) and California bay laurel (*Umbellularia californica*) are typical dominants of montane riparian habitat. In the Sierra Nevada, characteristic species can include thinleaf alder (*Alnus incana*), black cottonwood (*Populus trichocarpa*), and dogwood (*Cornus* sp.). Montane riparian forest can correspond to the *Acer macrophyllum* Forest Alliance, *Umbellularia californica* Forest Alliance or *Populus trichocarpa* Forest Alliance as described by Sawyer et al. (2009).

*Valley Oak Woodland.* This habitat can range in structure from savanna-like to forest-like stands. The canopies tend to be partially closed and comprised mostly of winter-deciduous, broad-leaved species such as valley oak. Dense stands typically grow in valley soils along natural drainages and decrease with the transition from lowlands to uplands. Shrubs are also associated with this habitat in lowland areas, especially along drainages. Valley oak stands with little or no grazing tend to develop a partial shrub layer of bird disseminated species, such as poison oak (*Toxicodendron diversilobum*), toyon (*Heteromeles arbutifolia*), and California coffeeberry. Ground cover consists of a well-developed carpet of annual grasses and forbs such as species of wild oat (*Avena* sp.), bromes (*Bromus* sp.), and ryegrass (*Lolium* sp.). Valley oak woodland typically corresponds to the *Quercus lobata* Woodland Alliance as described by Sawyer et al. (2009).

*Montane Hardwood-Coniferous Forest.* These forests include both conifers and hardwoods, often as a closed forest. To be considered montane hardwood-coniferous forest, at least one-third of the trees must be conifer and at least one-third must be broad-leaved. Species composition varies by geographic region, but in the Central Coast region of California common

tree species include coast live oak (*Quercus agrifolia*), big leaf maple (*Acer macrophyllum*), Pacific madrone (*Arbutus menziesii*), tanoak (*Lithocarpus densiflorus*), canyon live oak (*Quercus chrysolepis*), Coulter pine (*Pinus coulteri*), and coastal redwood (*Sequoia sempervirens*). The habitat often occurs in a mosaic-like pattern with small pure stands of conifers interspersed with small stands of broad-leaved trees. Most of the broad-leaved trees are sclerophyllous evergreen, but winter-deciduous species also occur. Relatively little understory occurs under the dense, bilayered canopy. However, considerable ground and shrub cover can occur in ecotones or following disturbance. Montane hardwood-coniferous forest can correspond to multiple alliances as described by Sawyer et al. (2009) depending upon the species composition. These alliances can include, but are not limited to, *Arbutus menziesii* Forest Alliance, *Pinus coulteri* Forest Alliance, *Lithocarpus densiflorus* Forest Alliance, *Quercus chrysolepis* Forest Alliance, and *Sequoia sempervirens* Forest Alliance.

*Pinyon-Juniper Woodland.* Pinyon-juniper woodland typically is an open woodland of low, round crowned, bushy trees that are needle-leaved, evergreen, and depending on site suitability, range from less than 30 ft to 50 ft in height. Stand structure varies depending on site quality and elevation. On favorable sites with little disturbance, pinyon-juniper forms dense cover whereas on drier sites, spacing between trees increases. Overstory species composition at lower and mid-level elevations ranges from pure stands of pinyon (*Pinus monophylla*) to stands of pinyon mixed with juniper (*Juniperus*) and oaks (shrub live, California scrub, or canyon live). At higher elevations, ponderosa pine (*Pinus ponderosa*) and Jeffrey pine (*Pinus jeffreyi*) may be found in this habitat. Pinyon-juniper habitats generally are found on slopes that are steep, rocky, dry, and face east. Most pinyon-juniper habitats are found east of the Sierra Nevada from 6,000 to 9,000 ft. Pinyon-juniper woodland typically corresponds to the *Juniperus osteosperma* woodland alliance or *Pinus monophylla* Woodland Alliance as described by Sawyer et al. (2009).

*Ponderosa Pine Forest.* Tree spacing in ponderosa pine forests varies from open to dense. The ponderosa pine forest includes pure stands of ponderosa pine (*Pinus ponderosa*) as well as stands of mixed species in which at least 50% of the canopy area is ponderosa pine. Associated species vary depending on location in the state and site conditions. Typical tree associates include, but are not limited to white fir (*Abies concolor*), incense-cedar (*Calocedrus decurrens*), Coulter pine (*Pinus coulteri*), Jeffrey pine (*Pinus jeffreyi*), sugar pine (*Pinus lambertiana*), Douglas-fir (*Pseudotsuga menziesii*), bigcone Douglas-fir (*Pseudotsuga macrocarpa*). Associated shrubs include manzanita (*Arctostaphylos* sp.), buckbrush (*Ceanothus* sp.), and Pacific dogwood (*Cornus nuttallii*). This habitat type is found on all aspects, depending on soils and location within the local elevational range. Ponderosa pine forest is found on suitable mountain and foothill sites throughout California except in the immediate area of San Francisco Bay, in the north coast area, south of Kern County in the Sierra Nevada and east of the Sierra Nevada Crest. Ponderosa pine forest typically corresponds to the *Pinus ponderosa* Forest Alliance as described by Sawyer et al. (2009).

*Red Fir Forest.* Large expanses of nearly monotypic stands of red fir (*Abies magnifica*) are common throughout its range, with very few other plant species in any layer. Heavy shade and a thick layer of duff tend to inhibit understory vegetation, especially in dense stands. Red fir habitats are found on frigid soils over a wide range of topography exclusive of very wet sites. Red fir is distributed in an elevational band from about 6,000 to 9,000 ft. red fir forest extends from northern Lake County northward through the North Coast Ranges and from Kern County

northward through the Sierra Nevada into the Cascade Range of southwestern Oregon. Red fir forest typically corresponds to the *Abies magnifica* Forest Alliance as described by Sawyer et al. (2009).

*Sierran Mixed Conifer Forest.* The Sierran mixed conifer forest is an assemblage of conifer and hardwood species that forms a multilayered forest. Five conifers and one hardwood typify the mixed conifer forest white fir (*Abies concolor*), Douglas-fir (*Pseudotsuga menziesii*), ponderosa pine (*Pinus ponderosa*), sugar pine (*Pinus lambertiana*), incense-cedar (*Calocedrus decurrens*), and California black oak (*Quercus kelloggii*). Some species common to the understory of this habitat type include deerbrush (*Ceanothus integerrimus*), manzanita (*Arctostaphylos* sp.), and chinquapin (*Chrysolepis chrysophylla*). The Sierran mixed conifer forest generally forms a vegetation band ranging in elevation from 2,500 to 4,000 ft in the north and 4,000 to 10,000 ft in the southern Sierra Nevada. Sierran mixed conifer forest can correspond to multiple alliances as described by Sawyer et al. (2009) depending upon the species composition.

*Subalpine Conifer Forest.* Subalpine conifer forests are open forests with needle-leaved evergreen trees of low to medium stature such as Engelmann spruce (*Picea engelmannii*), subalpine fir (*Abies lasiocarpa*), and lodgepole pine (*Pinus contorta*). Stand density and tree height are typically greater at lower limits of its elevational range. These forests typically occupy extremely harsh environments. Stands on exposed sites and windy ridges near tree line are shaped into krummholz stunted, mat-like forms. Shrubby vegetation and herbaceous ground cover are generally sparse or lacking. Soils are generally thin and of low quality coarse sand, gravel, volcanic debris, and rocks derived from decomposing parent material. Subalpine coniferous forest is generally distributed at high elevations in all significant mountain ranges of the State. Subalpine conifer forest can correspond to multiple alliances as described by Sawyer et al. (2009) depending upon the species composition.

*White Fir Forest.* The white fir forest habitat is characterized by nearly monotypic even aged white fir (*Abies concolor*). This habitat type is found throughout California on a variety of soils developed from different parent material, including volcanic and igneous rocks, granitics, various metamorphics, and sedimentary material. Soils are coarse textured, well-drained, have poorly developed profiles, are often rocky. This habitat type occurs at about 5,500 ft in the Southern Sierra Nevada. White fir forest typically corresponds to the *Abies concolor* Forest Alliance as described by Sawyer et al. (2009).

### **Shrub Dominated Habitats**

*Alpine Dwarf-Shrub.* This habitat is comprised of primarily low graminoid and forb communities with an admixture of dwarf-shrubs including creambush oceanspray (*Holodiscus discolor*), Greene goldenweed (*Ericameria greenei*) and white mountain heather (*Cassiope mertensiana*). The perennial herbs or dwarf shrubs comprising these communities are usually less than 18 inches tall. Coverage may reach 100 percent at lower elevations but becomes increasingly open as elevation increases. On mesic sites, a continuous turf contrasts with patches of bunchgrasses and cushion plants on drier sites. This habitat type is typically found above the timberline in the Sierra Nevadas.

*Chamise-Redshank Chaparral.* This habitat type can range from nearly pure stands of chamise (*Adenostoma fasciculatum*) or redshank (*A. sparsifolium*) to a mixture of both. Mature Chamise-Redshank Chaparral is single layered, generally lacking well-developed herbaceous ground cover and over story trees. Shrub canopies frequently overlap, producing a nearly impenetrable canopy of interwoven branches. Redshank stands tend to be slightly taller and more open than chamise dominated stands. Fire occurs regularly in Chamise-Redshank Chaparral and influences habitat structure. Chamise-redshank chaparral typically corresponds to the *Adenostoma fasciculatum* Shrubland Alliance and *Adenostoma sparsifolium* Shrubland Alliance as described by Sawyer et al. (2009).

*Low Sage Shrubland.* This habitat is generally dominated by broad-leaved, evergreen shrubs ranging in height from about 4 to 19 inches, typically averaging about 15 percent cover but sometimes with crowns touching. The habitat may be dominated by low sagebrush (*Artemisia arbuscula*) or black sagebrush (*Artemisia nova*), often in association with antelope bitterbrush (*Purshia tridentata*), or big sagebrush (*Artemisia tridentata*); black sagebrush is also commonly associated with winterfat (*Krascheninnikovia lanata*) and Mormon-tea (*Ephedra viridis*). Low sagebrush communities are generally restricted to elevated arid plains along the eastern flanks of the Sierra Nevada, from Inyo County northward through Modoc and Siskiyou Counties.

*Mixed Chaparral.* Mixed Chaparral is a structurally homogeneous brushland type dominated by shrubs with thick, stiff, heavily cutinized evergreen leaves. Shrub height and crown cover vary with age since last burn, precipitation, aspect, and soil type. At maturity, cismontane Mixed Chaparral typically is a dense, nearly impenetrable thicket. On poor sites, serpentine soils or transmontane slopes, shrub cover may be considerably reduced and shrubs may be shorter. Leaf litter and standing dead material may accumulate in stands that have not burned for several decades. Mixed chaparral can correspond to multiple alliances as described by Sawyer et al. (2009) depending upon the species composition. These alliances can include, but are not limited to, *Ceanothus cuneatus* Shrubland Alliance and the *Arctostaphylos glauca* Shrubland Alliance.

*Montane Chaparral.* The growth form of montane chaparral species can vary from treelike (up to 10 ft) to prostrate. Montane chaparral varies markedly throughout California. Species composition changes with elevational and geographical range, soil type, and aspect. Species that usually characterize montane chaparral communities include, but are not limited to, whitethorn Ceanothus (*Ceanothus cordulatus*), snowbrush Ceanothus (*Ceanothus velutinus*), and greenleaf manzanita (*Arctostaphylos patula*). Montane chaparral can be found on shallow to deep soils, on all exposures, and from gentle to relatively steep slopes. Montane chaparral is associated with mountainous terrain from mid to high elevation at 3,000-10,000 ft. Montane chaparral can correspond to multiple alliances as described by Sawyer et al. (2009) depending upon the species composition. These alliances can include, but are not limited to, the *Ceanothus cordulatus* Shrubland Alliance.

*Sagebrush Shrubland.* Sagebrush stands are typically large, open, discontinuous stands of big sagebrush (*Artemisia tridentata*) of fairly uniform height. Often the habitat is composed of pure stands of big sagebrush, but many stands include other species of sagebrush (*Artemisia* sp.), rabbitbrush (*Ericameria nauseosa*), horsebrush (*Tetradymia canescens*), and gooseberry (*Ribes*

sp.). The Sagebrush habitat is a discontinuous strip along the east and northeast borders of California south to the 37th parallel. It occupies dry slopes and flats from about 1600 ft to 10,500 ft in elevation. Sagebrush shrubland can correspond to multiple alliances as described by Sawyer et al. (2009) depending upon the species composition. These alliances can include, but are not limited to, the *Artimisia tridentata* Shrubland Alliance.

### **Herbaceous Dominated Habitats**

*Annual Grasslands.* This habitat type is composed primarily of non-native annual herbs and forbs and typically lacks shrub or tree cover. The physiognomy and species composition of annual grasslands is highly variable and also varies considerably on a temporal scale. Grazing is a common land use within this habitat type. Common grass species include wild oats (*Avena* sp.), soft chess brome (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), and red brome (*Bromus madritensis*). Common forb species can include species of filaree (*Erodium* sp.), and bur clover (*Medicago* sp.). California poppy can also be quite common in this habitat type. Annual grassland can correspond to multiple alliances as described by Sawyer et al. (2009) depending upon the species composition. These alliances can include, but are not limited to, *Avena (barbata, fatua)* semi-natural stands and *Bromus (diandrus, hordeaceus) – Brachypodium distachyon* semi-natural stands.

*Perennial Grassland.* Perennial grassland habitats occur in two forms in California: coastal prairie, found in areas of northern California under maritime influence, and relics in habitats now dominated by annual grasses and forbs. Perennial grassland habitats are dominated by perennial grass species such as California oatgrass (*Danthonia californica*), Pacific hairgrass (*Deschampsia holciformis*), and sweet vernalgrass (*Anthoxanthum odoratum*). Perennial grassland habitat typically occurs on ridges and south-facing slopes, alternating with forest and scrub in the valleys and on north-facing slopes. Perennial grassland habitat of the coastal prairie form occurs along the California coast from Monterey County northward. It is found below 3,280 ft in elevation and seldom more than 62 miles from the coast. Relic perennial grasses within annual grassland habitat occur in patches throughout the state. Perennial grassland can correspond to multiple alliances as described by Sawyer et al. (2009) depending upon the species composition. These alliances can include, but are not limited to, the *Danthonia californica* Herbaceous Alliance.

*Wet Meadow.* Wet meadows at all elevations generally have a simple structure consisting of a layer of herbaceous plants. Shrub or tree layers are usually absent or very sparse; but may be found along the meadow edge. Within the herbaceous plant community a microstructure is frequently present. Species composition generally differs between sites includes a variety of members of the following Genera: *Agrostis*, *Carex*, *Danthonia*, *Juncus*, *Salix*, and *Scirpus*. Fewer species tend to occur as surface water depth increases during spring runoff. The single most important characteristic of a Wet Meadow is its hydrology. Seasonality and reliability of yearly water inflows and outflows largely determine the vegetational stability of Wet Meadows. In the Sierra Nevada and Cascade ranges, Wet Meadows usually occur above 3,940 feet in the north and above 5,900 feet in the south. Because of the high amount variation in composition, multiple alliances as described by Sawyer et al. (2009) can describe this habitat type.

### **Developed and Sparsely/Non-Vegetated Habitats**



*Cropland.* This habitat type is characterized by areas in active agriculture and is an entirely man-made habitat. The structure of vegetation can vary in size, shape, and growing pattern. The dominant cropland use is row crops. Typical crops consist of grasses and forbs species.

*Deciduous Orchard.* Deciduous orchards include trees, such as, almonds, apples, apricots, cherries, figs, nectarines, peaches, pears, pecans, pistachios, plums, pomegranates, prunes and walnuts. Trees range in height at maturity for many species from 15 to 30 ft, but may be 10 ft or less in pomegranates and some dwarf varieties, or 60 ft or more in pecans and walnuts. Crowns usually touch, and are usually in a linear pattern. Spacing between trees is uniform depending on desired spread of mature trees. In some orchards cover crops of resident species are present year round or are cultivated in the spring and summer. Many orchards are treated in strips down the tree rows with herbicides. The cover crop can be composed of either natural or planted domesticated herbaceous plants.

*Urban.* This habitat type is also a completely man-made habitat comprising residential, commercial, and industrial developed areas. Plant species within urban habitats are typically comprised of ornamental and other non-native invasive plant species, with large developed areas lacking vegetation.

*Barren.* This habitat type is defined by the absence of vegetation. Any habitat with less than 2 percent total vegetation cover and less than 10 percent cover by tree or shrub species is defined as barren. Structure and composition of the substrate is largely determined by the region of the state as well as surrounding environment. Examples of barren habitats include areas of exposed parent rock and talus slopes.

**Table 1. Special Status Animal Species Known to Occur or have Potential to Occur within Tuolumne County.**

Scientific Name Common Name	Status Federal/State Global Rank/State Rank CDFW	Habitat Requirements
<b>Amphibians</b>		
<i>Ambystoma californiense</i> California tiger salamander	FT/ST G2G3/S2S3 SSC	Vernal and seasonal pools and associated grasslands, oak savanna, woodland, and coastal scrub. Needs underground refuges (i.e., small mammal burrows, pipes) in upland areas such as grassland and scrub habitats.
<i>Anaxyrus canorus</i> Yosemite toad	FT/-- G2G3/S2S3 SSC	Vicinity of wet meadows in central High Sierra, 6,400 to 11,300 ft in elevation. Primarily montane wet meadows; also in seasonal ponds associated with lodgepole pine and subalpine conifer forest.
<i>Hydromantes platycephalus</i> Mount Lyell salamander	--/-- G4/S4 SSC	Massive rock areas in mixed conifer, red fir, lodgepole pine, and subalpine habitats, 4,000 to 11,600 ft in elevation. Active on the surface only when free water is available, in the form of seeps, drips, or spray. Rocky habitat, including cliff faces and cave walls. Occasionally found under woody debris.
<i>Rana boylei</i> Foothill yellow-legged frog	--/-- G3/S2S3 SSC	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Need at least some cobble-sized substrate for egg-laying. Need at least 15 weeks to attain metamorphosis.
<i>Rana draytonii</i> California red-legged frog	FT/-- G2G3/S2S3 SSC	Semi-permanent or permanent water at least 2 ft deep, bordered by emergent or riparian vegetation, and upland grassland, forest or scrub habitats for estivation and dispersal.
<i>Rana sierra</i> Sierra Nevada yellow-legged frog	FE/ST G1/S1 SSC	Always encountered within a few feet of water. Tadpoles may require 2 - 4 years to complete their aquatic development.
<b>Birds</b>		
<i>Accipiter cooperii</i> Cooper's hawk	--/-- G5/S4 WL	Woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.
<i>Accipiter gentilis</i> northern goshawk	--/-- G5/S3 SSC	Within, and in vicinity of, coniferous forest. Uses old nests, and maintains alternate sites. Usually nests on north slopes, near water. Red fir, lodgepole pine, Jeffrey pine, and aspens are typical nest trees.
<i>Accipiter striatus</i> sharp-shinned hawk	--/-- G5/S4 WL	Ponderosa pine, black oak, riparian deciduous, mixed conifer & Jeffrey pine habitats. Prefers riparian areas. North-facing slopes, with plucking perches are critical requirements. Nests usually within 275 ft of water.
<i>Agelaius tricolor</i> Tricolored blackbird	--/-- G2G3/S1S2 SSC	Requires open water, protected nesting substrate, and foraging area with insect prey within a few miles of the colony.
<i>Athene cunicularia</i> Burrowing owl	--/-- G4/S3 SSC	Burrow sites in open dry annual or perennial grasslands, deserts and scrublands characterized by low growing vegetation. Also inhabits anthropogenic habitats such as campuses, golf courses, cemeteries, airports, and grazed pastures.

**Table 1. Special Status Animal Species Known to Occur or have Potential to Occur within Tuolumne County.**

Scientific Name Common Name	Status Federal/State Global Rank/State Rank CDFW	Habitat Requirements
<i>Coccyzus americanus occidentalis</i> Western yellow-billed cuckoo	FT/SE G5T3Q/S1 --	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.
<i>Empidonax traillii</i> willow flycatcher	--/SE G5/S1S2 --	Inhabits extensive thickets of low, dense willows on edge of wet meadows, ponds, or backwaters; 2,000-8,000 ft elevation. Requires dense willow thickets for nesting/roosting. Low, exposed branches are used for singing posts/hunting perches.
<i>Falco mexicanus</i> prairie falcon	--/-- G5/S4 WL	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.
<i>Falco peregrinus anatum</i> American peregrine falcon	FD/CD G4T4/S3S4 FP	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open site.
<i>Haliaeetus leucocephalus</i> bald eagle	FD/SE G5/S2 FP	Ocean shore, lake margins, & rivers for both nesting and wintering. Most nests within 1 mile of water. Nests in large, old-growth, or dominant live tree w/open branches, especially ponderosa pine. Roosts communally in winter.
<i>Strix nebulosi</i> great gray owl	--/SE G5/S1 --	Resident of mixed conifer or red fir forest habitat, in or on edge of meadows. Requires large diameter snags in a forest with high canopy closure, which provide a cool sub-canopy microclimate.
<b>Fish</b>		
<i>Lavinia symmetricus</i> ssp. 1 San Joaquin roach	--/-- G4T3Q/S3 SSC	Tributaries to the San Joaquin River from the Cosumnes River south.
<i>Lavinia symmetricus</i> ssp. 3 Red Hills roach	--/-- G4T1/S1 SSC	Small streams near Sonora. Found in areas with serpentine soil.
<i>Oncorhynchus clarkii henshawi</i> Lahontan cutthroat trout	FT/-- G4T3/S2 --	Historically in all accessible cold waters of the Lahonton Basin in a wide variety of water temps & conditions. Cannot tolerate presence of other salmonids. Requires gravel riffles in streams for spawning.
<i>Oncorhynchus clarkii seleniris</i> Paiute cutthroat trout	FT/-- G4T1T2/S1S2 --	Cool, well-oxygenated waters Cannot tolerate presence of other salmonids, requires clean gravel for spawning.
<i>Oncorhynchus mykiss irideus</i> Steelhead – Central Valley DPS	FT/-- G5T2Q/S2 --	Fresh water, fast flowing, highly oxygenated, clear, cool stream where riffles tend to predominate pools; small streams with high elevation headwaters close to the ocean that have no impassible barriers; spawning: high elevation headwaters.
<b>Invertebrates</b>		

**Table 1. Special Status Animal Species Known to Occur or have Potential to Occur within Tuolumne County.**

Scientific Name Common Name	Status Federal/State Global Rank/State Rank CDFW	Habitat Requirements
<i>Branchinecta conservio</i> Conservancy fairy shrimp	FE/-- G1/S1 --	Endemic to the grasslands of the northern two-thirds of the Central Valley; found in large, turbid pools. Endemic to the grasslands of the northern two-thirds of the Central Valley; found in large, turbid pools. Inhabit astatic pools located in swales formed by old, braided alluvium; filled by winter/spring rains, last until June.
<i>Branchinecta lynchi</i> Vernal pool fairy shrimp	FT/-- G3/S2S3 --	Endemic to the grasslands of the Central Valley, Central Coast Mountains, and South Coast Mountains. Inhabits, small clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.
<i>Desmocerus californicus dimorphus</i> valley elderberry longhorn beetle	FT/-- G3T2/S2 --	Occurs only in the Central Valley of California, in association with blue elderberry ( <i>Sambucus mexicana</i> ). Prefers to lay eggs in elderberries 2-8 inches in diameter; some preference shown for "stressed" elderberries.
<i>Lepidurus packardii</i> Vernal pool tadpole shrimp	FE/-- G3/S2S3 --	Inhabits vernal pools and swales in the Sacramento Valley containing clear to highly turbid water. Pools commonly found in grass bottomed swales of unplowed grasslands. Some pools are mud-bottomed & highly turbid.
<b>Mammals</b>		
<i>Antrozous pallidus</i> Pallid bat	--/-- G5/S3 SSC	Deserts, grasslands, shrublands, woodlands, and forest. Most common in open, dry, habitats with rocky area for roosting. Roost must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.
<i>Aplodontia rufa californica</i> Sierra Nevada mountain beaver	--/-- G5T3T4/S2S3 SSC	Dense growth of small deciduous trees & shrubs, wet soil, & abundance of forbs in the Sierra Nevada and east slope. Needs dense understory for food & cover. Burrows into soft soil. Needs abundant supply of water.
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	--/CT G3G4/S2 SSC	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls & ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.
<i>Euderma maculatum</i> spotted bat	--/-- G4/S3 SSC	Occupies a wide variety of habitats from arid deserts and grasslands through mixed conifer forests. Feeds over water and along washes. Feeds almost entirely on moths. Needs rock crevices in cliffs or caves for roosting.
<i>Eumops perotis californicus</i> western mastiff bat	--/-- G5T4/S3S4 SSC	Many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral, etc. Roosts in crevices in cliff faces, high buildings, trees and tunnels.
<i>Gulo gulo</i> California wolverine	--/CT G4/S1 FP	Found in the north coast mountains and the Sierra Nevada. Found in a wide variety of high elevation habitats. Needs water source. Uses caves, logs, burrows for cover & den area. Hunts in more open areas. Can travel long distances.
<i>Lasiurus blossevillei</i> Western red bat	--/-- G5/S3 SSC	Roosts primarily in trees. Prefers habitat edges and mosaics with open areas for foraging and trees that are protected from above and open below.

**Table 1. Special Status Animal Species Known to Occur or have Potential to Occur within Tuolumne County.**

Scientific Name Common Name	Status Federal/State Global Rank/State Rank CDFW	Habitat Requirements
<i>Lepus americanus</i> <i>tahoensis</i> Sierra Nevada snowshoe hare	--/-- G5T3T4Q/S2? SSC	Boreal riparian areas in the Sierra Nevada. Thickets of deciduous trees in riparian areas and thickets of young conifers.
<i>Lepus townsendii</i> <i>townsendii</i> western white-tailed jackrabbit	--/-- G5T5/S3 SSC	Sagebrush, subalpine conifer, juniper, alpine dwarf shrub and perennial grassland. Open areas with scattered shrubs & exposed flat-topped hills with open stands of trees, brush and herbaceous understory.
<i>Pekania pennanti</i> fisher - West Coast DPS	CT/CT G5T2T3Q/S2S3 SSC	Intermediate to large-tree stages of coniferous forests & deciduous-riparian areas with high percent canopy closure. Uses cavities, snags, logs & rocky areas for cover & denning. Needs large areas of mature, dense forest.
<i>Reithrodontomys</i> <i>raviventris</i> Salt-marsh harvest mouse	FE/SE G1G2/S1S2 --	Only in the saline emergent wetlands of San Francisco bay and its tributaries. Pickleweed is primary habitat. Does not burrow, but builds loosely organized nests. Requires higher areas for flood escape.
<i>Taxidea taxus</i> American badger	--/-- G5/S3 SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats with friable soils. Needs sufficient food, friable soils, and open uncultivated ground. Cannot live in frequently plowed fields. Preys on burrowing rodents.
<i>Vulpes macrotis</i> <i>mutica</i> San Joaquin kit fox	FE/ST G4T2/S2 --	Occurs in annual grasslands or open stages with scattered shrubby vegetation. Requires loose sandy textured soils for burrowing.
<i>Vulpes vulpes</i> <i>necator</i> Sierra Nevada red fox	--/ST G5T1T2/S1 --	Historically found from the Cascades down to the Sierra Nevada. Found in a variety of habitats from wet meadows to forested areas. Use dense vegetation and rocky areas for cover & den sites. Prefer forests interspersed w/ meadows or alpine fell-fields.
<b>Reptiles</b>		
<i>Actinemys (=Emys)</i> <i>marmorata</i> Northern western pond turtle	--/-- G3G4/S3 SSC	Rivers, ponds, freshwater marshes; nests in upland areas (sandy banks or grassy open fields) up to 1,640 ft from water.
<i>Phrynosoma blainvillii</i> Blainvilles (=coast) horned lizard	--/-- G3G4/S3S4 SSC	Frequents a wide variety of habitats including grasslands and shrublands. Most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial and abundant supply of ants and other insects.

Sources: CNDDDB (CDFW, 2015); USFWS (2015), CDFW Special Animals List (2015).

FT = Federally Threatened

SE = State Endangered

FC = Federal Candidate Species

ST = State Threatened

FE = Federally Endangered

SR = State Rare

FS = Federally Sensitive

SS = State Sensitive

DL = Delisted

G-Rank/S-Rank = Global Rank and State Rank as per NatureServe and CDFW's CNDDDB RareFind5.

SSC = CDFW Species of Special Concern

FP = Fully Protected

WL = Watch List

**Table 2. Special Status Plant Species Known to Occur or have Potential to Occur within Tuolumne County.**

Scientific Name Common Name	Status Federal/State Global Rank/State Rank CRPR	Habitat Requirements
<b>Plants</b>		
<i>Agrostis hendersonii</i> Henderson's bent grass	--/-- G2Q/S2 3.2	Bloom Period: April – June; Occurs in valley and foothill grassland, vernal pools. Elevation: 230-1,000 feet.
<i>Agrostis humilis</i> Mountain Bent Grass	--/-- G4Q/S2 2B.3	Bloom Period: July-September; Occurs in alpine boulder and rock field, meadows and seeps, subalpine coniferous forest. Elevation: 8,760-10,500 feet.
<i>Allium jepsonii</i> Jepson's onion	--/-- G1/S1 1B.2	Bloom Period: April-August; Occurs in Cismontane woodland, lower montane coniferous forest. On serpentine soils in Sierra foothills, volcanic soil on Table Mountain on slopes and flats; usually in an open area. Elevation: 1,580—3,700 feet
<i>Allium sanbornii</i> var. <i>congdonii</i> Congdon's onion	--/-- G3T3/S3 4.3	Bloom Period: April-July; Occurs in serpentinite or volcanic soil and chaparral and cismontane woodland. Elevation: 985-2,953 feet
<i>Allium sanbornii</i> var. <i>sanbornii</i> Sanborn's onion	--/-- G3T4?/S4? 4.2	Bloom Period: May-September; Occurs in chaparral, cismontane woodland, lower montane coniferous forest. Usually occurs in serpentinite, gravelly soils. Elevation: 853-4,954 feet
<i>Allium tribracteatum</i> three-bracted onion	--/-- G2/S2 1B.2	Bloom Period: April-August; Occurs in volcanic soils within chaparral, lower montane coniferous forest, and upper montane coniferous forest. Elevation: 3,608-9,843 feet
<i>Allium tuolumnense</i> Rawhide Hill onion	--/-- G2/S2 1B.2	Bloom Period: March-May; Occurs in cismontane woodland (serpentinite soils). Elevation: 984-1,969 feet
<i>Allium yosemitense</i> Yosemite onion	--/CR G3/S3 1B.3	Bloom Period: April-July; Occurs in pockets of wet soil or in wet cracks of metamorphic rock; also on slopes and walls. Elevation: 1,755-7,218 feet.
<i>Antennaria pulchella</i> Beautiful pussy-toes	--/-- G3/S3.3 4.3	Bloom Period: June-September; Occurs in alpine boulder and rock field (stream margins) as well as meadows and seeps. Elevations: 1,986-12,139feet.
<i>Arctostaphylos nissenana</i> Nissenan manzanita	--/-- G1/S1 1B.2	Bloom Period: February-March; Occurs usually on metamorphics, associated with other chaparral species. Elevation: 1,476-3,909 feet.
<i>Astragalus hornii</i> var. <i>hornii</i> Horn's milk-vetch	--/-- G4G5T2T3/S1 1B.1	Bloom Period: May-October; Occurs at lake margins in alkaline soils within meadows and seeps and playas. Elevations: 196-2,788 feet.
<i>Astragalus kentrophyta</i> var. <i>danaus</i> Sweetwater Mountains milk-vetch	--/-- G5T3/S3 4.3	Bloom Period: July-Sept; Occurs in alpine boulder and rock field, subalpine coniferous forest (rocky, talus). Elevations: 9,843-12,008 feet.

**Table 2. Special Status Plant Species Known to Occur or have Potential to Occur within Tuolumne County.**

Scientific Name Common Name	Status Federal/State Global Rank/State Rank CRPR	Habitat Requirements
<i>Amsinckia grandiflora</i> Large-flowered fiddleneck	FE/CE G1/S1 1B.1	Bloom Period: April-May; Occurs in cismontane woodland as well as valley and foothill grassland. Elevations: 902-1,804 feet.
<i>Balsamorhiza macrolepis</i> big-scale balsamroot	--/-- G2/S2 1B.2	Bloom Period: March-June Chaparral, valley and foothill grassland, cismontane woodland. Sometimes on serpentine. Elevation: 295-5102 feet.
<i>Bolandra californica</i> Sierra bolandra	--/-- G3/S3.3 4.3	Bloom Period: June-July; Occurs in mesic, rocky soils within lower montane coniferous forest and upper montane coniferous forest. Elevations: 3,198-8,036 feet.
<i>Botrychium crenulatum</i> Scalloped moonwort	--/-- G3-S2.2 2.2	Bloom Period: June-September; Occurs in bogs and fens, lower montane coniferous forest, meadows and sweeps, marshes and swamps (freshwater), and upper montane coniferous forest. Elevations: 4,160-10,761feet.
<i>Botrychium lunaria</i> Common moonwort	--/-- G5/S2? 2.3	Bloom Period: August; Occurs in meadows and seeps, subalpine coniferous forest, and upper montane coniferous forest. Elevations: 6,496-11,154 feet.
<i>Botrychium minganense</i> Mingan moonwort	--/-- G4/S2 2.2	Bloom Period: July-September; Occurs in mesic areas within bogs and fens as well as lower and upper montane coniferous forest. Elevations: 4,773-6,906 feet.
<i>Botrychium paradoxum</i> paradox moonwort	--/-- G3G4/S1 2B.1	Bloom Period: August; Occurs in alpine boulder and rock field, upper montane coniferous forest. Found on limestone and marble in the alpine zone; found in moist sites associated with <i>Calocedrus decurrens</i> in upper montane coniferous forests. Elevations: 5,742-13,780 feet.
<i>Botrychium pedunculosum</i> stalked moonwort	--/-- G2G3/S1 2B.1	Bloom Period: August; Occurs in granitic, volcanic and and esitic substrates within upper montane coniferous forest as well as meadows and seeps. Elevation: 6,500-8,000 feet.
<i>Botrychium yaaxudakeit</i> giant moonwort	--/-- G3G4/S2 2B.1	Bloom Period: August; Occurs in alpine boulder and rock field (meadows). Limestone and marble. Elevation: 10,499 feet.
<i>Brasenia schreberi</i> Watershield	--/-- G5/S2 2.3	Bloom Period: June-September; Occurs in freshwater marshes and swamps. Elevations: 98-7,217feet.
<i>Brodiaea pallida</i> Chinese camp brodiaea	FT/SE G1/S1 1B.1	Bloom Period: May-June; Occurs in vernal streambeds, often serpentine within cismontane woodland as well as valley and foothill grassland. Elevations: No elevation data available.
<i>Bruchia bolanderi</i> Bolander's bruchia	--/-- G3/S3? 2.2	Bloom Period: N/A (Moss); Occurs in damp soil within lower and upper montane coniferous forest as well as meadows and seeps. Elevations: 5,577-9,186 feet.
<i>Bulbostylis capillaris</i> thread-leaved beakseed	--/-- G5/S3 4.2	Bloom Period: June-August; Occurs in lower montane coniferous forest, meadows and seeps, as well as upper montane coniferous forest. Elevation: 1,296-6,808 feet.

**Table 2. Special Status Plant Species Known to Occur or have Potential to Occur within Tuolumne County.**

Scientific Name Common Name	Status Federal/State Global Rank/State Rank CRPR	Habitat Requirements
<i>Camissonia sierrae</i> ssp. <i>sierra</i> Yosemite evening- primrose	--/-- G3T3/S3 4.2	Bloom Period: April-June; Occurs in cismontane woodland and lower montane coniferous forest. Elevation: 1,640-5,397 feet.
<i>Carex buxbaumii</i> Buxbaum's sedge	--/-- G5/S3.2 4.2	Bloom Period: March-August; Occurs in bogs and fens, meadows and seeps (mesic) as well as marshes and swamps. Elevations: 9-10,826 feet.
<i>Carex congdonii</i> Congdon's sedge	--/-- G3/S3.3 4.3	Bloom Period: July-August; Occurs in alpine boulder and rock field as well as subalpine coniferous forest (rocky). Elevations: 8,530-12,795feet.
<i>Carex davyi</i> Davy's sedge	--/-- G2/S2 1B.3	Bloom Period: May-August; Occurs in subalpine coniferous forest and upper montane coniferous forest. Elevation: 4,921-10,499 feet.
<i>Carex incurviformis</i> Mount Dana sedge	--/-- G3/S3.3 4.3	Bloom Period: July-August; Occurs in alpine boulder and rock field. Elevations: 12,139-13,320feet.
<i>Carex limosa</i> mud sedge	--/-- G5/S3 2B.2	Bloom Period: June-August; Occurs in bogs and fens, lower montane coniferous forest, meadows, marshes and swamps, and upper montane coniferous forest. Elevation: 3,937-9,104 feet.
<i>Carex praticola</i> northern meadow sedge	--/-- G5/S2 2B.2	Bloom Period: May-July; Occurs in moist to wet meadows and seeps. Elevations: 0-10,499 feet.
<i>Carex scirpoidea</i> ssp. <i>pseudoscirpoidea</i> western single-spiked sedge	--/-- G5T5/S2 2B.2	Bloom Period: July-September; Occurs in alpine boulder and rock field, meadows and seeps, as well as subalpine coniferous forest. Often on limestone; mesic sites. Elevation: 9,810-12,139 feet.
<i>Carex tahoensis</i> Tahoe sedge	--/-- G5/S4 2B.2	Bloom Period: May-June; Occurs in meadows and seeps. Elevation: 0-10,499 feet.
<i>Carex tompkinsii</i> Tompkins' sedge	--/CR G4/S4 4.3	Bloom Period: June-November; Occurs in Bogs and fens, marshes and swamps (freshwater), and north coast coniferous forest (mesic). Elevation: 0-4,250 feet.
<i>Carex viridula</i> ssp. <i>viridula</i> green yellow sedge	--/-- G5T5/S2 2B.3	Bloom Period: May-July; Occurs in bogs and fens, marshes and swamps (freshwater), as well as north coast coniferous forest. Mesic sites. Elevation: 0-4,250 feet
<i>Castilleja campestris</i> var. <i>succulent</i> Fleshy Owl's-clover	FT/CE G4?T2/S2 1B.2	Bloom Period: April-May; Occurs in vernal pools (often acidic). Elevation: 164-2,461 feet.
<i>Ceanothus fresnensis</i> Fresno ceanothus	--/-- G4/S4 4.3	Bloom Period: May-June; Occurs in cismontane woodland (openings) and lower montane coniferous forest. Elevation: 2,953-6,900 feet.



**Table 2. Special Status Plant Species Known to Occur or have Potential to Occur within Tuolumne County.**

Scientific Name Common Name	Status Federal/State Global Rank/State Rank CRPR	Habitat Requirements
<i>Chaenactis douglasii</i> var. <i>alpine</i> Alpine dusty maidens	--/-- G5T5/S2.3? 2.3	Bloom Period: July-September; Occurs in alpine boulder and rock field (granitic). Elevations: 9,842-11,154 feet.
<i>Chamaesyce hooveri</i> Hoover's spurge	FT/-- G2/S2 1B.2	Bloom Period: July-October; Occurs in vernal pools. Elevations: 82-820 feet.
<i>Chlorogalum grandiflorum</i> Red Hills soaproot	--/-- G2/S2 1B.2	Bloom Period: May-June; Occurs in cismontane woodland, chaparral, and lower montane coniferous forest. Occurs frequently on serpentine or gabbro, but also on non-ultramafic substrates; often on "historically disturbed" sites. Elevation: 787-2,493 feet.
<i>Clarkia australis</i> Small's southern clarkia	--/-- G2/S2 1B.2	Bloom Period: May-August; Occurs in cismontane woodland and lower montane coniferous forest in open, rocky sites in conifer forest or oak woodland. Elevation: 2,625-6,808 feet.
<i>Clarkia biloba</i> ssp. <i>australis</i> Mariposa clarkia	--/-- G2/S2 1B.2	Bloom Period: May-June; Occurs in chaparral and cismontane woodland on serpentine. Elevation: 984-4,790 feet
<i>Clarkia rostrata</i> beaked clarkia	--/-- G2/S2 1B.3	Bloom Period: April-May; Occurs in cismontane woodland, as well as valley and foothill grassland. Elevations: 196-1,640 feet.
<i>Clarkia virgata</i> Sierra clarkia	--/-- G3/S3 4.3	Bloom Period: May-August; Occurs in cismontane woodland and lower montane coniferous forest. Elevation: 1,312-5,299 feet.
<i>Claytonia megarhiza</i> fell-fields claytonia	--/-- G5/S2 2B.3	Bloom Period: July-Sept; Occurs in alpine boulder and rock field as well as subalpine coniferous forest in the crevices between rocks, rocky or gravelly soil. Elevation: 8,530-10,942 feet.
<i>Claytonia parviflora</i> ssp. <i>grandiflora</i> Streambank spring beauty	--/-- G5T3/S3.2 4.2	Bloom Period: February-May; Occurs in rocky soils within cismontane woodland. Elevation: 820-3,937 feet.
<i>Colusa Grass</i> Neostapfia colusana	FT/CE G2/S2 1B.1	Bloom Period: May-August; Occurs in vernal pools (adobe, large). Elevations: 17-656 feet.
<i>Cordylanthus eremicus</i> ssp. <i>kernensis</i> Kern Plateau bird's-beak	--/-- G3?T2/S2.3 1B.3	Bloom Period: May-September; Occurs within Great Basin scrub, Joshua tree woodland, pinyon and juniper woodland and upper montane coniferous forest. Elevations: 5,495-9,842 feet.
<i>Cordylanthus rigidus</i> ssp. <i>brevibracteatus</i> Short-bracted bird's-beak	--/-- G5T3/S3.3 4.3	Bloom Period: July-October; Occurs in granitic soils in openings within chaparral, lower montane coniferous forest, pinyon and juniper woodland, and upper montane coniferous forest. Elevations: 2,001-8,497 feet.

**Table 2. Special Status Plant Species Known to Occur or have Potential to Occur within Tuolumne County.**

Scientific Name Common Name	Status Federal/State Global Rank/State Rank CRPR	Habitat Requirements
<i>Coscinodon arctolimnius</i> ssp. <i>higuchi</i> Higuchi's sieve-tooth moss	--/-- GUTU/S1S3 4.2	Bloom Period: N/A (Moss); Occurs on rocky, usually dry and exposed alpine boulder and rock field. No elevation data available.
<i>Cryptantha crymophila</i> subalpine cryptantha	--/-- G3/S3 1B.3	Bloom Period: July-August; Occurs in subalpine coniferous forest on dry talus of volcanic formation. Elevation: 8,530-10,499 feet.
<i>Cryptantha glomeriflora</i> Clustered-flower cryptantha	--/-- G3Q/S3.3 4.3	Bloom Period: June-September; Occurs in granitic or volcanic sandy soils within Great Basin scrub, meadows and seeps, subalpine coniferous forest, and upper montane coniferous forest. Elevations: 5,905-12,303 feet.
<i>Cryptantha mariposae</i> Mariposa cryptantha	--/-- G2/S2.3 1B.3	Bloom Period: April-June; Occurs in serpentinite, rocky soils within chaparral. Elevations: 656-2,132 feet.
<i>Cryptantha spithamaea</i> Red Hills cryptantha	--/-- G2/S2 1B.3	Bloom Period: April-May; Occurs in chaparral and cismontane woodland. Usually occurs in serpentinite, sometimes streambeds and sometimes openings. Elevations: 902-1,509 feet.
<i>Cypripedium montanum</i> mountain lady's-slipper	--/-- G4/S4 4.2	Bloom Period: March-August; Occurs in broad-leaved upland forest, cismontane woodland, lower montane coniferous forest, and north coast coniferous forest. Elevations: 607- 7,300 feet.
<i>Draba asterophora</i> var. <i>asterophora</i> Tahoe draba	--/-- G2T2/S2 1B.2	Bloom Period: July-September; Occurs in alpine boulder and rock field and subalpine coniferous forest. Usually occurs on open talus slopes, rock outcrops and crevices. Elevations: 8,202-11,500 feet.
<i>Draba praealta</i> tall draba	--/-- G5/S3 1B.2	Bloom Period: July-August; Occurs in meadows and seeps on mesic sites. Elevations: 8,202-11,204 feet.
<i>Elymus scribneri</i> Scribner's wheat grass	--/-- G5/S1S3 2B.3	Bloom Period: July-August; Occurs in alpine boulder and rock fields. Elevations: 9,515-13,780 feet.
<i>Epilobium howellii</i> subalpine fireweed	--/-- G4/S4 4.3	Bloom Period: July-August; Occurs in meadows and seeps, as well as subalpine coniferous forest. Elevations: 6,562- 10,236 feet.
<i>Eriogonum luteolum</i> var. <i>saltuarium</i> Jack's wild buckwheat	--/-- G5T1/S1 1B.2	Bloom Period: July-September; Occurs in Great Basin scrub and upper montane coniferous forest on sandy, granitic substrates. Elevations: 5,577-7,874 feet.
<i>Eriogonum microthecum</i> var. <i>alpinum</i> northern limestone buckwheat	--/-- G5T4/S4 4.3	Bloom Period: July-September; Occurs in sometimes rocky or gravelly soils within alpine dwarf scrub and Great Basin scrub. Elevations: 8,202-10,827 feet.
<i>Eriogonum tripodum</i> tripod buckwheat	--/-- G4/S4 4.2	Blooming Period: May-July; Occurs often in serpentinite within chaparral, cismontane woodland. Elevations: 656-5,249 feet.

**Table 2. Special Status Plant Species Known to Occur or have Potential to Occur within Tuolumne County.**

Scientific Name Common Name	Status Federal/State Global Rank/State Rank CRPR	Habitat Requirements
<i>Eriophorum gracile</i> slender cottongrass	--/-- G5/S4 4.3	Bloom Period: May-September; Occurs in acidic soils within bogs and fens, meadows and seeps, as well as upper montane coniferous forest. Elevations: 4,200-9,514 feet.
<i>Eriophyllum nubigenum</i> Yosemite woolly sunflower	--/-- G2/S2 1B.3	Bloom Period: May-August; Occurs in chaparral, lower montane coniferous forest and upper montane coniferous forest. Occurs on south facing slopes on granitic slabs and domes; gravelly soils. Elevations: 5,003-9,022 feet.
<i>Eryngium pinnatisectum</i> Tuolumne button-celery	--/-- G2/S2 1B.2	Bloom Period: May-August; Occurs in vernal pools, cismontane woodland, and lower montane coniferous forest. Elevations: 230-3,002 feet.
<i>Eryngium spinosepalum</i> Spiny-sepaled button-celery	--/-- G2/S2.2 1B.2	Bloom Period: April-May; Occurs in valley and foothill grassland as well as in vernal pools. Elevations: 262-836 feet.
<i>Erythronium taylorii</i> Pilot Ridge fawn lily	--/-- G1/S1 1B.2	Bloom Period: April-May; Occurs on cliffs in lower montane coniferous forest (metamorphic, rocky soils). Elevation: 4,296-4,593 feet.
<i>Erythronium tuolumnense</i> Tuolumne fawn lily	--/-- G2G3/S2S3 1B.2	Bloom Period: March-June; Occurs in broadleaved upland forest, chaparral, cismontane woodland, lower montane coniferous forest. Elevation: 1,673-4,478 feet.
<i>Festuca minutiflora</i> small-flowered fescue	--/-- G5/S2 2B.3	Bloom Period: July; Occurs in alpine boulder and rock field. Elevation: 10,499-13,287 feet.
<i>Fritillaria agrestis</i> Stinkbells	--/-- G3/S3.2 4.2	Bloom Period: March-June; Occurs in clay and sometimes serpentine soils within chaparral, cismontane woodland, pinyon and juniper woodland, and valley and foothill grassland. Elevations: 32-5,101 feet.
<i>Githopsis pulchella</i> ssp. <i>serpentinicola</i> serpentine bluecup	--/-- G4T3/S3.3 4.3	Bloom Period: May-June; Occurs in cismontane woodland (serpentinite or lone soils). Elevations: 1,049-2,000 feet.
<i>Githopsis tenella</i> Delicate bluecup	--/-- G2/S2.3 1B.3	Bloom Period: May-June; Occurs in mesic areas within chaparral and cismontane woodland. Elevations: 3,608-6,233 feet.
<i>Helodium blandowii</i> Blandow's bog moss	--/-- G4/S2 2B.3	Bloom Period: N/A (Moss); Occurs in damp soil within meadows and seeps and subalpine coniferous forest. Elevation: 6,109-8,858 feet.
<i>Hulsea brevifolia</i> short-leaved hulsea	--/-- G4/S2 1B.2	Bloom Period: May-August; Occurs in granitic or volcanic soil of forest openings and road cuts within upper montane coniferous forest. Elevation: 4,921-8,858 feet.
<i>Iris hartwegii</i> ssp. <i>Columbiana</i> Tuolumne iris	--/-- G4T1/S1 1B.2	Bloom Period: May-June; Occurs in cismontane woodland and lower montane coniferous forest. Elevation: 1,394-4,593 feet.

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Scientific Name Common Name	Status Federal/State Global Rank/State Rank CRPR	Habitat Requirements
<i>Ivesia unguiculata</i> Yosemite ivesia	--/-- G3/S3 4.2	Bloom Period: June-September; Occurs in meadows and seeps, subalpine coniferous forest, and upper montane coniferous forest Elevation: 4,921-9,596 feet.
<i>Jensia yosemitana</i> Yosemite tarplant	--/-- G2G3/S2S3 3.2	Bloom Period: April-July; Occurs in lower montane coniferous forest as well as meadows and seeps. Elevations: 3,937-7,545feet.
<i>Jepsonia heterandra</i> foothill jepsonia	--/-- G3/S3.3 4.3	Bloom Period: August-December; Occurs in rocky, metamorphic soils within cismontane woodland and lower montane coniferous forest. Elevations: 164-1,640 feet.
<i>Juncus hemiendytus</i> var. <i>abjectus</i> Center Basin rush	--/-- G5T4/S3.3 4.3	Bloom Period: May-July; Occurs in mesic areas within meadows and seeps and subalpine coniferous forest. Elevations: 4,593-11,154 feet
<i>Lewisia disepala</i> Yosemite lewisia	--/-- G2/S2.2 1B.2	Bloom Period: March-June; Occurs in granitic, sandy soils within lower and upper montane coniferous forest as well as pinyon and juniper woodland. Elevations: 3,395-11,482feet.
<i>Lewisia kelloggii</i> ssp. <i>hutchisonii</i> Hutchison's lewisia	--/-- G3G4/S2S3 3.2	Bloom Period: April-August; Occurs in openings, ridgetops, often slate, sometimes rhyolite tuff within upper montane coniferous forest. Elevation: 2,510-7,759 feet.
<i>Lewisia kelloggii</i> ssp. <i>kelloggii</i> Kellogg's lewisia	--/-- G3G4/S2S3 3.2	Bloom Period: May-August; Occurs in openings, ridgetops, often slate, sometimes rhyolite tuff within upper montane coniferous forest. Elevation: 4,806-7,759 feet.
<i>Lilium humboldtii</i> Humboldt lily	--/-- G4T3/S3 4.2	Bloom Period: May-July; Occurs in openings within chaparral, cismontane woodland, and lower montane coniferous forest. Elevation: 295-4,200 feet.
<i>Lomatium congdoni</i> Congdon's lomatium	--/-- G2/S2 1B.2	Bloom Period: March-June; Occurs in serpentinite within chaparral and cismontane woodland. Elevation: 984-6,890 feet.
<i>Lomatium stebbinsii</i> Stebbins' lomatium	--/-- G2/S2 1B.1	Bloom Period: March-May; Occurs in thin, gravelly volcanic clay within lower montane coniferous forest and chaparral. Elevation: 4,085-6,677 feet.
<i>Lupinus gracilentus</i> slender lupine	--/-- G3/S3 1B.3	Bloom Period: July-August; Occurs in Subalpine coniferous forest. Elevation: 8,202-11,483 feet.
<i>Lupinus spectabilis</i> shaggyhair lupine	--/-- G2/S2 1B.2	Bloom Period: April-May; Occurs in serpentinite soils within chaparral and cismontane woodland. Elevation: 853-2,707 feet.
<i>Lycopus uniflorus</i> northern bugleweed	--/-- G5/S4 4.3	Bloom Period: July-September; Occurs in bogs and fens, as well as marshes and swamps. Elevation: 16-6,562 feet.
<i>Meesia longiseta</i> long seta hump moss	--/-- G5/S2 2B.3	Bloom Period: N/A (Moss); Occurs in moist soil along streams; often carbonate within bogs and fens, meadows and seeps, and upper montane coniferous forest. Elevation: 5,741-9,990 feet.

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Scientific Name Common Name	Status Federal/State Global Rank/State Rank CRPR	Habitat Requirements
<i>Microseris sylvatica</i> sylvan microseris	--/-- G3/S3.2 4.2	Bloom Period: March-June; Occurs in chaparral, cismontane woodland, Great Basin scrub, pinyon and juniper woodland, as well as valley and foothill woodland (serpentinite). Elevations: 147-4,920 feet.
<i>Mimulus filicaulis</i> slender-stemmed monkeyflower	--/-- G2/S2 1B.2	Bloom Period: April-August; Occurs in cismontane woodland, lower montane coniferous forest, meadows and seeps, and upper montane coniferous forest. Elevation: 2,953-5,742 feet.
<i>Mimulus grayi</i> Gray's monkeyflower	--/-- G3/S3.3 4.3	Bloom Period: May-July; Occurs in mesic areas within lower montane coniferous forest and upper montane coniferous forest. Elevations: 1,804-9,514 feet.
<i>Mimulus inconspicuus</i> small-flowered monkeyflower	--/-- G4/S4 4.3	Bloom Period: May-June; Occurs in mesic soils within chaparral, cismontane woodland, and lower montane coniferous forest. Elevation: 899-2,493 feet.
<i>Mimulus laciniatus</i> Cut-leaved monkeyflower	--/-- G3/S3.3 4.3	Bloom Period: April-July; Occurs in mesic, granitic soils within chaparral, lower montane coniferous forest and upper montane coniferous forest. Elevations: 1,607-8,694 feet.
<i>Minuartia stricta</i> Bog sandwort	--/-- G5/S2 2.3	Bloom Period: July-September; Occurs alpine and boulder rock fields, alpine dwarf scrub, and meadows and seeps. Elevations: 8,005-12,106feet.
<i>Monardella candicans</i> Sierra monardella	--/-- G3/S3.3 4.3	Bloom Period: April-July; Occurs in sandy or gravelly soil within chaparral, cismontane woodland, and lower montane coniferous forest. Elevations: 492-2,624 feet.
<i>Mimulus pulchellus</i> yellow-lip pansy monkeyflower	--/-- G2G3/S2S3 1B.2	Bloom Period: April-July; Occurs in sandy decomposed granite soils and moist meadows, vernal wet soils within lower montane coniferous forest, meadows and seeps. Elevation: 1,968-6,562 feet.
<i>Minuartia obtusiloba</i> alpine sandwort	--/-- G5/S4 4.3	Bloom Period: July-August; Occurs in granitic, metamorphic soils within alpine boulder and rock field, and alpine dwarf scrub. Elevation: 10,335-12,139 feet.
<i>Monardella venosa</i> veiny monardella	--/-- G4/S4 4.3	Bloom Period: May-July; Occurs in heavy clay within valley and foothill grassland and cismontane woodland. Elevation: 197-1,345 feet.
<i>Myrica hartwegii</i> Sierra sweet bay	--/-- G1/S1 1B.1	Blooming Period: May-June; Occurs in cismontane woodland, lower montane coniferous forest and riparian forest. Elevation: 492-4,742 feet.
<i>Ophioglossum californicum</i> California adder's- tongue	--/-- G4/S3.2 4.2	Bloom Period: December-June; Occurs in mesic soils within chaparral, valley and foothill grassland, and vernal pools (margins). Elevations: 196-1,722 feet.
<i>Orthotrichum holzingeri</i> Holzinger's orthotrichum moss	--/-- G3/S2 1B.3	Bloom Period: N/A (Moss); Occurs usually on rock in and along streams, rarely on tree limbs within cismontane woodland, lower montane coniferous forest, upper montane coniferous forest, and pinyon-juniper woodland. Elevation: 2345-5905 feet.

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Scientific Name Common Name	Status Federal/State Global Rank/State Rank CRPR	Habitat Requirements
<i>Orthotrichum spjutii</i> Spjut's bristle moss	--/-- G1/S1 1B.3	Bloom Period: N/A (Moss) Occurs in granitic, rock within lower montane coniferous forest, pinyon and juniper woodland, subalpine coniferous forest, and upper montane coniferous forest. Elevation: 6,890-7,874 feet.
<i>Packera layneae</i> Layne's ragwort	FT/SR G2/S2 1B.2	Bloom Period: April-August; Occurs in ultramafic soil (serpentine or gabbro) within chaparral and cismontane woodland. Elevation: 656-3,560 feet.
<i>Peltigera gowardii</i> western waterfan lichen	--/-- G3G4/S3 4.2	Bloom Period: N/A (Lichen); Occurs in riparian forest on rocks in cold water creeks with little or no sediment or disturbance. Elevation: 3,494-7,792 feet.
<i>Pentachaeta fragilis</i> fragile pentachaeta	--/-- G3/S3 4.3	Bloom Period: March-June; Occurs often in openings within chaparral, and lower montane coniferous forest (sandy). Elevation: 148-6,890 feet.
<i>Perideridia bacigalupii</i> Mother Lode yampah	--/-- G3/S3 4.2	Bloom Period: June-August; Occurs in serpentinite soils within chaparral and lower montane coniferous forest. Elevation: 1,476-3,396 feet.
<i>Pinus albicaulis</i> Whitebark Pine	FC/-- -- --	Bloom Period: N/A (Gymnosperm); Occurs in moderately to poorly developed and well drained, cryochrept soils within subalpine and timberline zones. Elevation: 6,000-12,100 feet.
<i>Piperia colemanii</i> Coleman's rein orchid	--/-- G3/S3.3 4.3	Bloom Period: June-August; Occurs often in sandy soils within chaparral and lower montane coniferous forest. Elevations: 3,937-7,545feet.
<i>Piperia michaelii</i> Michael's rein orchid	--/-- G3/S3.2 4.2	Bloom Period: April-August; Occurs in coastal bluff scrub, closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub, and lower montane coniferous forest. Elevations: 9-3,001 feet.
<i>Plagiobothrys torreyi</i> var. <i>torreyi</i> Yosemite popcornflower	--/-- G4T3Q/S3 1B.2	Bloom Period: April-June; Occurs in lower montane coniferous forest as well as in meadows and seeps. Elevation: 3,937-4,495 feet.
<i>Podistera nevadensis</i> Sierra podistera	--/-- G4/S4 4.3	Bloom Period: July-September; Occurs in alpine boulder and rock field. Elevation: 3,843-13,123 feet.
<i>Pohlia tundra</i> Tundra thread moss	--/-- G2G3/S2S3 2B.3	Bloom Period: N/A (Moss). Occurs in alpine boulder and rock field (gravelly, damp soils). Elevations: 8,858-9,842 feet.
<i>Polystichum kruckebergii</i> Kruckeberg's sword fern	--/-- G4/S4 4.3	Bloom Period: June-August; Occurs in rocky substrate within subalpine coniferous forest and upper montane coniferous forest. Elevation: 6,890-10,499 feet.
<i>Potamogeton epihydrus</i> Nuttall's ribbon-leaved pondweed	--/-- G5/S2S3 2B.2	Bloom Period: June-September; Occurs in marshes and swamps. Elevation: 1,214-7,119 feet.
<i>Potamogeton robbinsii</i> Robbins' pondweed	--/-- G5/S3 2B.3	Bloom Period: July-August; Occurs in marshes and swamps. Elevation: 5,020-10,827 feet.

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Scientific Name Common Name	Status Federal/State Global Rank/State Rank CRPR	Habitat Requirements
<i>Pseudobahia bahiifolia</i> Hartweg's golden sunburst	FE/SE G2/S2 1B.1	Bloom Period: March-April; Occurs in clay, often acidic soils within cismontane woodland as well as valley and foothill grassland. Elevations: 49-492 feet.
<i>Pseudostellaria sierra</i> Sierra starwort	--/-- G3G4/S3 4.2	Bloom Period: May-August; Occurs in chaparral, cismontane woodland, lower montane coniferous forest, and upper montane coniferous forest. Elevation: 4,019-7,198 feet.
<i>Salix nivalis</i> snow willow	--/-- G5/S2 2B.3	Bloom Period: July-August; Occurs in alpine dwarf scrub. Elevation: 10,171-11,483 feet.
<i>Schoenoplectus subterminalis</i> water bulrush	--/-- G4G5/S3 2B.3	Bloom Period: June-September; Occurs in marshes and swamps, as well as bogs and fens. Elevation: 2,461-7,382 feet.
<i>Senecio cleavelandii</i> var. <i>heterophyllus</i> Red Hills ragwort	--/-- G4?T2Q/S2 1B.2	Bloom Period: June-July; Occurs in drying serpentine soils; often along streams within cismontane woodland. Elevation: 853-1,263 feet.
<i>Senecio layneae</i> Layne's Butterweed	FT/CR G2/S2 1B.2	Bloom Period: April-August; Occurs in serpentinite or gabbroic, rocky soils within chaparral, and cismontane woodland. Elevation: 656-3,560 feet.
<i>Silene oregano</i> Oregon campion	--/-- G5/S2 2B.3	Bloom Period: July-September; Occurs in Great Basin scrub and subalpine coniferous forest. Elevation: 4,921-8,202 feet.
<i>Sparganium natans</i> small bur-reed	--/-- G5/S3S4 4.3	Bloom Period: June-September; Occurs in bogs and fens as well as marshes and swamps (lake margins). Elevation: 5,397-8,202 feet.
<i>Stellaria obtuse</i> obtuse starwort	--/-- G5/S4 4.3	Bloom Period: May-October; Occurs in upper montane coniferous forest, lower montane coniferous forest, and riparian woodland. Elevation: 492-7,005 feet.
<i>Streptanthus oliganthus</i> Masonic Mountain jewelflower	--/-- G2G3/S2 1B.2	Bloom Period: June-July; Occurs in volcanic or decomposed granite soils within pinyon and juniper woodland. Elevation: 6,201-10,007 feet.
<i>Subularia aquatica</i> ssp. <i>Americana</i> water awlwort	--/-- G5T5/S4 4.3	Bloom Period: July-September; Occurs in lake margins within upper montane coniferous forest. Elevation: 6,235-10,171 feet.
<i>Trichostema rubisepalum</i> Hernandez bluecurls	--/-- G4/S4 4.3	Bloom Period: June-August; Occurs in volcanic or serpentinite, gravelly soils within broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest and vernal pools. Elevation: 984-4,708 feet.
<i>Triglochin palustris</i> Marsh arrow-grass	--/-- G5/S2.3 2B.3	Bloom Period: July-August; Occurs in mesic areas within meadows and seeps and marshes and swamps (freshwater) and subalpine coniferous forest. Elevations: 7,496-12,139feet.
<i>Tuctoria greenei</i> Greene's tuctoria	FE/SR G1/S1 1B.1	Bloom Period: May-September; Occurs in vernal pools. Elevations: 98-3,509 feet.

**Table 2. Special Status Plant Species Known to Occur or have Potential to Occur within Tuolumne County.**

Scientific Name Common Name	Status Federal/State Global Rank/State Rank CRPR	Habitat Requirements
<i>Utricularia minor</i> Lesser bladderwort	--/-- G5/S3.2 4.2	Bloom Period: July; Occurs in calcium-rich water within bogs and fens as well as marshes and swamps (assorted shallow freshwater). Elevations: 2,624-9,514feet.
<i>Verbena californica</i> Red Hills vervain	FT/ST G2/S2 1B.1	Bloom Period: May-September; Occurs in mesic soils, usually serpentinite seeps or creeks within cismontane woodland as well as valley and foothill grassland. Elevations: 852-1,312 feet.
<i>Veronica cusickii</i> Cusick's speedwell	--/-- G5/S4 4.3	Bloom Period: July-August; Occurs in alpine boulder and rock field. Meadows and seeps, subalpine coniferous forest, and upper montane coniferous forest. Elevation: 7,004-9,843 feet.

Sources: CNDDDB (CDFW, 2015); USFWS IPaC (2015), CDFW Special Plants List (2013), and CNPS Rare Plant Inventory (2015).

FE = Federally Endangered      FT = Federally Threatened      DL = Delisted  
SE = State Endangered      ST = State Threatened      SR = State Rare

FC=Federal Candidate

G-Rank/S-Rank = Global Rank and State Rank as per NatureServe and CDFW's CNDDDB RareFind5.

CRPR (California Rare Plant Rank):

1A=Presumed Extinct in California

1B=Rare, Threatened, or Endangered in California and elsewhere

2=Rare, Threatened, or Endangered in California, but more common elsewhere

3=Need more information (a Review List)

4=Plants of Limited Distribution (a Watch List)

CRPR Threat Code Extension:

.1=Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)

.2=Fairly endangered in California (20-80% occurrences threatened)

.3=Not very endangered in California (<20% of occurrences threatened)



# CALIFORNIA ESSENTIAL HABITAT CONNECTIVITY PROJECT

**FIGURE 3.6.  
SIERRA NEVADA ECOREGION**





# California's Missing Linkages:

## *Restoring Connectivity to the California Landscape*

Figure 2-1

