

## **7.5 Botanical Resources**

### **7.5.1 Overview**

This section discusses botanical resources in the vicinity<sup>1</sup> of Yuba County Water Agency's (YCWA or Licensee) Yuba River Development Project (Project) with a focus on special-status<sup>2</sup> species. This section is divided into three subsections: Section 7.5.2 defines and list special-status plant species potentially present in the Project Area,<sup>3</sup> Section 7.5.3 provides information regarding noxious weeds in the Project Vicinity; and Section 7.5.4 describes existing, relevant, and reasonably available information regarding botanical resources in areas upstream of the Project (i.e., on the Middle Yuba River upstream of Our House Diversion Dam, on Oregon Creek upstream of Log Cabin Diversion Dam, and on the North Yuba River upstream of New Bullards Bar Reservoir); within the Project Area; and downstream of the Project (i.e., on the Yuba River downstream of the United States Army Corps of Engineers' (USACE) Daguerre Point Dam).

Wetland, riparian, and littoral habitats are discussed separately in Section 7.6.

### **7.5.2 Special-Status Plants**

For the purpose of this Pre-Application Document (PAD), a special-status botanical species is a species that 1) has a reasonable possibility of occurring in the Project Area and 2) meets one or more of the following criteria:

- Found on National Forest System (NFS) land managed by the United States Department of Agriculture Forest Service (Forest Service) and formally listed in the Forest Service's list of Forest Sensitive Species (FSS) or Watchlist Species (FWS) for the Plumas National Forest (PNF) or the Tahoe National Forest (TNF) (USFS-PNF 2010a, USFS TNF-2010a, b).
- Found on the California Department of Fish and Game's (CDFG) list of California Rare (SR) species listed under the Native Species Plant Protection Act of 1977 (CDFG 2009b).
- Found on the list of plants proposed for listing under the federal Endangered Species Act (ESA). Plants on this list that are considered special-status for the purpose of the Relicensing are 1) proposed for listing as endangered or threatened (FPE and FPT, respectively); 2) candidates for listing (FC); or 3) proposed for delisting (FPD).

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<sup>1</sup> For the purposes of this document, the Project Vicinity is defined as the area surrounding the Project on the order of a United States Geological Survey (USGS) 1:24,000 topographic quadrangle.

<sup>2</sup> The term "special-status botanical species" is defined below, in Section 7.5.2.

<sup>3</sup> For the purposes of this document, the Project Area is defined as the area within the Federal Energy Regulatory Commission (FERC) Project Boundary and the land immediately surrounding the FERC Project Boundary (i.e., within approximately 0.25 mile of the FERC Project Boundary) and includes Project-affected reaches between facilities and downstream to the next major water controlling feature or structure.

- Found on CDFG’s list of Proposed (SP) or Candidate (SC) species for listing as endangered or threatened under the California Endangered Species Act (CESA) (CDFG 2009b).<sup>4</sup>
- Found on the California Native Plant Society’s (CNPS) *Inventory of Rare and Endangered Plants* (CNPS 1A/1B-4) (CNPS 2010).

Fully protected botanical species listed as threatened or endangered under the federal ESA<sup>5</sup> or the CESA<sup>6</sup> are discussed separately in Section 7.7, Threatened, Endangered, and Fully Protected Species.

Both documented and potentially occurring special-status plants in the Project Vicinity are described below based on the results of queries to the California Natural Diversity Database (CNDDDB) (CDFG 2009a), the USDO’s Fish and Wildlife Service (USFWS) Endangered Species Program (USFWS 2009a), the CNPS Inventory of Rare and Endangered Plants database (CNPS 2010), as well as TNF and PNF records. Database queries included all United States Geological Survey (USGS) 1:24,000 topographic quadrangles that include the FERC Project Boundary and Vicinity. Quadrangles containing the Project Boundary include Camptonville, Challenge, Clipper Mills, French Corral, Oregon House, Pike, Smartville,<sup>7</sup> and Strawberry Valley. Quadrangles immediately adjacent to the Project Boundary quadrangles constitute the Project Vicinity, and include Alleghany, American House, Bangor, Bush Creek, Camp Far West, Cascade, Downieville, Forbestown, Goodyears Bar, Grass Valley, La Porte, Loma Rica, Nevada City, North Bloomfield, Rackerby, Rough and Ready, Washington, Wheatland, and Wolf.

Table 7.5.2-1 lists the 36 special-status plants known to occur or with the potential to occur in the Project Vicinity. Fourteen (39%) of these plant species are listed by multiple sources. Thirteen plants (36%) are listed as FSS-P, FFS-T, or both, and 12 (33%) are listed as FWS-P, FWS-T or both.

**Table 7.5.2-1. Special-status plants known or with the potential to occur in the Project Vicinity.**

Common Name/ Scientific Name	Status <sup>1</sup>	Flowering Period	Elevation Range (ft)	Habitat Requirements	Occurrence in Project Vicinity <sup>2</sup>
Henderson’s bent grass <i>Agrostis hendersonii</i>	FWS-P CNPS 3	Apr-Jun	200-1,000	Valley and foothill grasslands, vernal pools	Present in the Project Vicinity, including Brush Creek quadrangle
Webber’s milk-vetch <i>Astragalus webberi</i>	FSS	May-Jul	2,700-4,000	Lower montane coniferous forest	Potential to occur in the Project Boundary
Big-scale balsamroot <i>Balsamorhiza macrolepis</i> var. <i>macrolepis</i>	CNPS 1B	Mar-Jun	300-4,600	Chaparral, cismontane woodland, and valley and foothill grassland (sometimes serpentine)	Present in the Project Vicinity, including the Brush Creek quadrangle
Dissected-leaved toothwort <i>Cardamine pachystigma</i> var. <i>dissectifolia</i>	CNPS 3	Feb-May	800-6,900	Chaparral, lower montane coniferous forest	Present in the Project Vicinity, including Cascade, Brush Creek and Forbestown quadrangles

<sup>4</sup> Botanical species that are on the list as state threatened (ST) or endangered (SE) under the CESA are not considered special-status for the purpose of the Relicensing proceeding, but are discussed separately in the Threatened, Endangered and Fully Protected Species section of this PAD (Section 7.7).

<sup>5</sup> federal threatened (FT) or endangered (FE)

<sup>6</sup> state threatened (ST) or endangered (SE)

<sup>7</sup> In 2008, the people of this community petitioned to have the name changed to Smartsville, with an ‘s’ in the middle of the name. However, the USGS gage refers to the former spelling of the community name. Therefore in this document, the community is referred to as such.

**Table 7.5.2-1. (continued)**

Common Name/ Scientific Name	Status <sup>1</sup>	Flowering Period	Elevation Range (ft)	Habitat Requirements	Occurrence in Project Vicinity <sup>2</sup>
Red Hills soaproot <i>Chlorogalum grandiflorum</i>	FWS	May-Jun	800-3,800	Chaparral, cismontane woodland, lower montane coniferous forest, serpentine/gabbro	Potential to occur in Project Boundary
Brandegee's clarkia <i>Clarkia biloba</i> ssp. <i>brandegeae</i>	FSS-P FSS-T CNPS 1B	May-Jul	200-3,000	Chaparral, cismontane woodland, often roadcuts	Present in the Project Vicinity, including Pike, Camptonville, Challenge, French Corral, and Oregon House quadrangles
White-stemmed clarkia <i>Clarkia gracilis</i> ssp. <i>albicaulis</i>	FSS-P CNPS 1B	May-Jul	800-3,500	Chaparral, cismontane woodland/sometimes serpentine	Present in the Project Vicinity, including the Forbestown quadrangle
Mildred's clarkia <i>Clarkia mildrediae</i> ssp. <i>mildrediae</i>	FSS-P CNPS 1B	May-Aug	800-5,600	Cismontane woodland, lower montane coniferous forest/sandy, usually granitic	Present in the Project Vicinity, including the Brush Creek quadrangle
Mosquin's clarkia <i>Clarkia mosquinii</i>	FSS-P CNPS 1B	May-Jul	600-4,000	Cismontane woodland, lower montane coniferous forest/rocky, roadsides	Present in the Project Vicinity, including Clipper Mills, Strawberry Valley, Cascade, and Brush Creek quadrangles
Clustered lady's-slipper <i>Cypripedium fasciculatum</i>	FSS-P FSS-T	Mar-Aug	500-7,200	Lower montane coniferous forest, North Coast coniferous forest, mixed conifer	Potential to occur in Project Boundary
Mountain lady's-slipper <i>Cypripedium montanum</i>	FSS-T	Mar-Aug	600-7,500	Broadleafed upland forest, cismontane woodland, lower montane coniferous forest, North Coast coniferous forest, mixed conifer	Potential to occur in the Project Boundary
Northern yellow lady's-slipper <i>Cypripedium parviflorum</i> var. <i>makasin</i>	CNPS 3	May-Aug	0-4,900	Bogs and fens, meadows and seeps	Present in Project Vicinity, including the Strawberry Valley quadrangle
Norris' beard moss <i>Didymodon norrisii</i>	FWS-P CNPS 2	---	1,950-6,400	Cismontane woodland, lower montane coniferous forest	Potential to occur in Project Boundary
Dwarf downingia <i>Downingia pusilla</i>	CNPS 2	Mar-May	0-1,400	Valley and foothill grassland, vernal pools	Potential to occur in Project Boundary
Clifton's eremogone <i>Eremogone cliftonii</i>	FWS-P CNPS 1B	Apr-Sep	1,500-5,800	Chaparral, lower and upper montane coniferous forest/openings, usually granitic	Present in the Project Vicinity, including Cascade and Brush Creek quadrangles
Northern Sierra daisy <i>Erigeron petrophilus</i> var. <i>sierrensis</i>	FWS-P	Jun-Oct	900-5,700	Cismontane woodland, lower montane coniferous forest, upper montane coniferous forest, rocky soils	Potential to occur in the Project Boundary; present in the TNF
Minute pocket moss <i>Fissidens pauperculus</i>	FSS-P CNPS 1B	---	0-3,600	Not well known	Present in the Project Vicinity, including Cascade, Brush Creek, and Forbestown quadrangles
Butte County fritillary <i>Fritillaria eastwoodiae</i>	FSS-P FSS-T CNPS 3	Mar-Jun	150-4,900	Chaparral, cismontane woodland, lower montane coniferous forest, sometimes serpentine	Present in Project Vicinity, including Challenge, French Corral, Clipper Mills, North Bloomfield, Washington, Rackerby, Cascade, Brush Creek, Forbestown, and Nevada City quadrangles
Ahart's dwarf rush <i>Juncus leiospermus</i> var. <i>ahartii</i>	CNPS 1B	Mar-May	100-750	Valley and foothill grassland	Present in Project Vicinity, including the Loma Rica quadrangle
Dubious pea <i>Lathyrus sulphureus</i> var. <i>argillaceus</i>	CNPS 3	Apr-May	500-1,000	Cismontane woodland, upper and lower montane coniferous forest	Present in the Project Vicinity, including Rough and Ready and Wolf quadrangles
Legenere <i>Legenere limosa</i>	CNPS 1B	Apr-Jun	0-2,900	Vernal pools	Potential to occur in Project Boundary

**Table 7.5.2-1. (continued)**

Common Name/ Scientific Name	Status <sup>1</sup>	Flowering Period	Elevation Range (ft)	Habitat Requirements	Occurrence in Project Vicinity <sup>2</sup>
Cantelow's lewisia <i>Lewisia cantelovii</i>	FSS-P FSS-T CNPS 1B	May-Oct	1,000-4,500	Broadleaf upland forest, chaparral, cismontane woodland, lower montane coniferous forest/mesic, granitic, sometimes serpentinite seeps	Present in the Project Vicinity including Pike, French Corral, Strawberry Valley, Alleghany, North Bloomfield, Washington, Goodyears Bar, Downieville, and Brush Creek quadrangles
Humboldt lily <i>Lilium humboldtii</i> ssp. <i>humboldtii</i>	FWS-T	May-Jul	1,500-3,500	Chaparral, cismontane woodland, lower montane coniferous forest, openings	Present in the Project Vicinity, including the Washington quadrangle
Quincy lupine <i>Lupinus dalesiae</i>	FSS-P FSS-T	May-Aug	3,000-8,000	Chaparral, cismontane woodland, lower montane coniferous forest, upper montane coniferous forest	Present in the Project Vicinity, including La Port and Goodyears Bar quadrangles
Inundated bog club-moss <i>Lycopodiella inundata</i>	CNPS 2	Jun-Sept	0-3,300	Bogs and fens, lower montane coniferous forest, marshes and swamps	Present in the Project Vicinity, including the North Bloomfield quadrangle
Elongate copper moss <i>Mielichhoferia elongata</i>	FSS-T CNPS 2	---	1,600-4,300	Vernally wet rock in cismontane woodland (metamorphic rock, usually vernally mesic)	Present in the Project Vicinity, including Washington and Nevada City quadrangles
Cut-leaved monkeyflower <i>Mimulus laciniatus</i>	FWS-T	Apr-Jun	1,500-9,000	Chaparral, lower montane coniferous forest, upper montane coniferous forest, seeps in granite	Potential to occur in Project Boundary
Follett's monardella <i>Monardella follettii</i>	FSS-P FSS-T CNPS 1B	Jun-Sep	1,900-6,600	Lower montane coniferous forest (rocky, serpentinite)	Present in the Project Vicinity, including the Grass Valley quadrangle
Bacigalupi's yampah <i>Perideridia bacigalupii</i>	FWS-T	Jun-Aug	1,700-3,500	Chaparral, lower montane coniferous forest, serpentine	Potential to occur in Project Boundary; present in the TNF
Cedar Crest popcorn-flower <i>Plagiobothrys glyptocarpus</i> var. <i>modestus</i>	CNPS 3	Apr-Jun	2,850	Cismontane woodland, valley and foothill grassland	Present in the Project Vicinity, including Oregon House and Grass Valley quadrangles
Slender-leaved pondweed <i>Potamogeton filiformis</i>	FWS-T	May-Jul	950-7,050	Marshes and swamps, lakes and ponds	Potential to occur in Project Boundary
Green-flowered wintergreen <i>Pyrola chlorantha</i>	CNPS 1A	Jun-Jul	2,950	Lower montane coniferous forest	Present in the Project Vicinity, including the Downieville quadrangle
White beaked-rush <i>Rhynchospora alba</i>	FWS-T	Jul-Aug	200-6,700	Meadows and seeps, marshes and swamps, wet places	Potential to occur in Project Boundary; present in the TNF
Brownish beaked-rush <i>Rhynchospora capitellata</i>	FWS-P FWS-T CNPS 2	Jul-Aug	1,500-6,600	Upper and lower montane coniferous forest, meadows and seeps, marshes and swamps	Present in Project Vicinity, including Pike, Clipper Mills, Grass Valley, North Bloomfield, Cascade, Brush Creek, and Nevada City quadrangles
Tracy's sanicle <i>Sanicula tracyi</i>	CNPS 4	Apr-Jul	300-5,200	Cismontane woodland, lower montane coniferous forest, upper montane coniferous forest	Present in Project Vicinity, including the Clipper Mills quadrangle

**Table 7.5.2-1. (continued)**

Common Name/ Scientific Name	Status <sup>1</sup>	Flowering Period	Elevation Range (ft)	Habitat Requirements	Occurrence in Project Vicinity <sup>2</sup>
Cylindrical trichodon <i>Trichodon cylindricus</i>	FWS-P CNPS 2	---	150-6,600	Broadleaf upland forest, meadows and seeps, upper montane coniferous forest/sandy, exposed soil, roadbanks	Present in the Project Vicinity, including the La Porte quadrangle

Special-status:  
FE: Federal Endangered Species  
FT: Federal Threatened Species  
SE: California Endangered Species  
SR: California Rare Species  
ST: California Threatened Species  
CNPS: California Native Plant Society listed species  
1A: Species presumed extinct in California  
1B: Species considered rare or endangered in California and elsewhere (no legal protection)  
2: Species considered rare or endangered in California but more common elsewhere (no legal protection)  
3: More information needed about this species  
4: Limited distribution; watch list  
FSS: Forest Service Sensitive Species (FSS-P-Plumas National Forest; FSS-T-Tahoe National Forest) (USFS 2010a)  
FWS: Forest Service Watchlist Species (FWS-P-Plumas National Forest FWS-T-Tahoe National Forest) (USFS 2010a)  
<sup>2</sup> Occurrence in Project Vicinity results based on a CNPS quadrangle search.

### 7.5.3 Noxious Weeds and Other Invasive Plants

For the purpose of the PAD, noxious weeds are defined as those plant species listed as such by the California Department of Food and Agriculture (CDFA). State-designated noxious weeds are typically assigned one of three ratings: 1) A-list species are mandated for eradication or control; 2) B-list species are widespread plants that Agricultural Commissioners may designate for local control efforts; and 3) C-list species are considered too widespread to control (CDFA 2009). Other invasive species include species of concern to TNF and PNF that are not rated by the CDFA (USFS-PNF 2010b, USFS-TNF 2010c).

Known and potential noxious weed occurrences are listed in Table 7.5.3-1 (NRCS 2009, Cal-IPC 2006). A total of 33 noxious weeds are known to occur or have the potential to occur within the Project Vicinity.

**Table 7.5.3-1. Noxious weeds and other invasive species of concern to the Forest Service known to occur or potentially occurring in the Project Vicinity.**

Common Name/ Scientific Name	CDFA Status	Flowering Period	Elevation(ft)	Habitat
Russian knapweed <i>Acroptilon repens</i> [ <i>Centaurea repens</i> ]	B	May-Sept	Below 6,200	Fields, roadsides, cultivated ground, disturbed areas
Barb goatgrass <i>Aegilops triuncialis</i>	B	May-Aug	Below 3,300	Disturbed sites, cultivated fields, roadsides
Giant reed <i>Arundo donax</i>	B	March- November	Below 1,700	Riparian areas, floodplains, and ditches
Cheatgrass <i>Bromus tectorum</i>	Not rated	May-June	Below 6,000	Fields, roadsides, cultivated ground, disturbed areas
Plumeless thistle <i>Carduus acanthoides</i>	A	May-Aug	Below 4,300	Roadsides, pastures, waste areas
Musk thistle <i>Carduus nutans</i>	A	Jun-Jul	330-4,000	Roadsides, pastures, waste areas
Italian thistle <i>Carduus pycnocephalus</i>	C	May-Jul	Below 3,300	Roadsides, pastures, waste areas

**Table 7.5.3-1. Noxious weeds and other invasive species of concern to the Forest Service known to occur or potentially occurring in the Project Vicinity.**

Common Name/ Scientific Name	CDFA Status	Flowering Period	Elevation(ft)	Habitat
Woolly distaff thistle <i>Carthamus lanatus</i>	B	July-Aug	Below 3,600	Disturbed sites
Purple starthistle <i>Centaurea calcitrapa</i>	B	Jul-Oct	Below 3,300	Disturbed areas
Diffuse knapweed <i>Centaurea diffusa</i>	A	Jun-Sep	Below 7,600	Fields, roadsides
Spotted knapweed <i>Centaurea maculosa</i>	A	July-Aug	Below 8,500	Open disturbed sites, grasslands, forested areas, roadsides
Maltese starthistle <i>Centaurea melitensis</i>	C	Apr-July	Below 7,200	Open disturbed sites, grasslands, roadsides, waste places
Yellow starthistle <i>Centaurea solstitialis</i>	C	Jun-Dec	Below 4,300	Pastures, roadsides, disturbed grassland or woodland
Rush skeletonweed <i>Chondrilla juncea</i>	A	May-Dec	Below 2,000	Disturbed areas
Canada thistle <i>Cirsium arvense</i>	B	Jun-Sep	Below 5,900	Disturbed areas
Bermudagrass <i>Cynodon dactylon</i>	C	Jun-Aug	Below 3,000	Disturbed areas
Scotch broom <i>Cytisus scoparius</i>	C	Mar-Jun	Below 3,300	Disturbed areas
Oblong spurge <i>Euphorbia oblongata</i>	B	Apr-Aug	Below 3,300	Waste areas, disturbed sites, roadsides, fields
Japanese knotweed <i>Fallopia japonica</i>	B	Aug-Oct	Below 3,300	Disturbed areas
Sakhalin knotweed, giant knotweed <i>Fallopia sachalinensis</i>	B	Jul-Oct	Below 1,650	Disturbed areas
French broom <i>Genista monspessulana</i>	C	Mar-May	Below 1,600	Disturbed areas
Hydrilla <i>Hydrilla verticillata</i>	A	Jun-Aug	Below 650	Ditches, canals, ponds, reservoirs, lakes
Dyer's woad <i>Isatis tinctoria</i>	B	Apr-Jun	Below 3,300	Roadsides, fields, disturbed sites
Lens-podded white-top <i>Lepidium draba ssp. chalepense</i>	B	Apr-Aug	Below 5,000	Disturbed, generally saline soils, fields
Perennial pepperweed, tall whitetop <i>Lepidium latifolium</i>	B	Apr-Aug	Below 6,300	Beaches, tidal shores, saline soils, roadsides
Dalmation toadflax <i>Linaria genistifolia ssp. dalmatica</i>	A	May-Sep	Below 3,300	Disturbed places, pastures, fields
Purple loosestrife <i>Lythrum salicaria</i>	B	Jun-Sep	Below 5,300	Seasonal wetlands, ditches, cultivated fields
Eurasian water milfoil <i>Myriophyllum spicatum</i>	C	July-Sep	Below 6,300	Fresh to brackish water, slow-moving streams
Scotch thistle <i>Onopordum acanthium</i>	A	Jul-Sep	Below 5,300	Disturbed areas
Himalayan blackberry <i>Rubus discolor</i>	Not rated	May-Sep	Below 5,300	Disturbed moist sites, fields, roadsides, riparian areas
Spanish broom <i>Spartium junceum</i>	Not rated	Mar-Jun	Below 2,000	Open disturbed sites, grasslands, oak woodlands, riparian corridors, open forests
Medusahead <i>Taeniatherum caput-medusae</i>	C	Apr-Jul	Below 6,900	Disturbed sites, grassland, openings in oak woodlands and chaparral
Gorse <i>Ulex europaeus</i>	B	Nov-Jul	Below 1,300	Disturbed areas

Sources: NRCS (2009); Cal-IPC (2006); and DiTamaso and Healy (2007).

## **7.5.4 Botanical Resources in the Yuba River Area**

### **7.5.4.1 Upstream of the Project Area**

Licensee found one source document for botanical resources upstream of the Project Area.

#### **7.5.4.1.1 Upstream Relicensing Studies (NID and PG&E 2010n)**

Special-status plant and noxious weed surveys were conducted in the spring and summer of 2009 as part of Nevada Irrigation District's Yuba-Bear Hydroelectric Project as well as Pacific Gas and Electric Company's Drum-Spaulding Project and Rollins Transmission Line Project relicensings, upstream of the Project. Over 1,400 species of plants were identified during the floristic surveys surrounding the Yuba-Bear Hydroelectric, Drum-Spaulding, and Rollins Transmission Line projects and none of these were ESA- or CESA-listed plants (NID and PG&E 2010o, NID and PG&E 2009). Surveys did, however, locate 13 different special-status plant species and 15 weed species (NID and PG&E 2010n). The most common weeds identified were Klamath weed (*Hypericum perforatum*), Scotch broom (*Cytisus scoparius*), and yellow starthistle (*Centaurea solstitialis*).

### **7.5.4.2 In the Project Area**

Licensee found three source documents for botanical resources in the Project Area.

#### **7.5.4.2.1 CalVeg Mapping (USFS 2004)**

Licensee assessed upland vegetation with information from the Forest Service's CalVeg mapping system, which are publicly available data. The data were mapped using a Geographic Information System (GIS) database and overlaid in layers. The area depicted included a one-mile buffer around the existing Federal Energy Regulatory Commission (FERC) Project Boundary.<sup>7</sup> CalVeg classifications within this area were quantified using GIS.

The area within the FERC Project Boundary, plus a 1-mile buffer around the FERC Project Boundary, totals 52,303.42 acres, with the FERC Project Boundary itself encompassing 7,804.97 acres. The Project Area falls within two different CalVeg zones: North Sierran (45,087.26 acres or 86.2% of the total area) and Central Valley (7,216.16 acres or 13.8% of the total area). Three vegetation alliances, plus water, represent 71.5 percent of the area within the 1-mile buffer of the FERC Project Boundary: Douglas-Fir-Pine (41%); Mixed Conifer-Pine (13.8%); Water (8.5%); and Ponderosa pine (8.2%). None of the remaining CalVeg alliances represented more than 4.4 percent of the total area. The CalVeg classifications and acreages are summarized in Table 7.5.4-1, and the corresponding GIS maps are provided as Attachment 7.5A (USFS 2004).

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<sup>7</sup> The FERC Project Boundary is the area that Licensee uses for normal Project operation and maintenance, and is shown on Exhibits G, J, and K of the current license.

**Table 7.5.4-1. Acres of each CalVeg vegetation classification in the Project Area mapped.**

CalVeg Zone	Regional Dominance (by alliance)	Total Acres
Northern Sierran	<b>Tree-Dominated Alliances</b>	
	Douglas-Fir—Pine	21,572.03
	Mixed Conifer—Pine	7,222.92
	Ponderosa Pine	3,602.09
	Black Oak	2,088.36
	Canyon Live Oak	1,863.05
	Tanoak (Madrone)	463.63
	Pacific Douglas-Fir	447.02
	Interior Mixed Hardwoods	316.45
	Gray Pine	225.35
	Montane Mixed Hardwood	69.93
	Interior Live Oak	55.42
	White Alder	11.19
	Blue Oak	7.77
	Willow	7.11
	<b>Shrub-Dominated Alliances</b>	
	Deerbrush	467.84
	Lower Montane Mixed Chaparral	235.03
	Upper Montane Mixed Chaparral	37.5
	<b>Upland Herbaceous Alliances</b>	
	Annual Grass—Forbs	312.14
	Wet Meadows (Grass, Sedge, Rush)	7.21
	<b>Developed/Non-Herbaceous Alliances</b>	
	Water	4,165.26
	Barren	1,585.69
	Urban/Developed	128.48
	Reservoir	78.89
River/Stream/Canal	70.28	
Agricultural	46.63	
<i>Subtotal</i>	<b>45,087.26</b>	
Central Valley	<b>Tree-Dominated Alliances</b>	
	Interior Live Oak	1,491.51
	Gray Pine	1,240.28
	Blue Oak	1,191.07
	Ponderosa Pine	714.63
	Black Oak	214.82
	Valley Oak	86.63
	Canyon Live Oak	11.38
	Interior Mixed Hardwoods	6.89
	<b>Shrub-Dominated Alliances</b>	
	Lower Montane Mixed Chaparral	95.52
	Whiteleaf Manzanita	5.12
	<b>Developed/Non-Herbaceous Alliances</b>	
	Annual Grass—Forbs	1,835.10
	Water	283.66
	Barren	36.84
	Urban or Developed	5.71
<i>Subtotal</i>	<b>7,219.16</b>	
<b>Total</b>	<b>52,306.42</b>	



Based on the CalVeg mapping, the dominant vegetation alliances around New Bullards Bar Reservoir are Douglas–Fir–Pine, and Mixed Conifer–Pine, with a high percentage of Ponderosa Pine, California Black Oak, and Interior Mixed Hardwood. Log Cabin Diversion Dam and Our House Diversion Dam are predominantly surrounded by Canyon Live Oak, although the Log Cabin Diversion Dam has a high proportion of Douglas–Fir–Pine Alliance, as well. Moving down in elevation, New Colgate Powerhouse has a more diverse botanical assemblage, with a mixture of Ponderosa Pine, Interior Live Oak, Lower Montane Mixed Chaparral, Gray Pine, and Annual Grasses–Forbs alliances. At the lowest elevation, Narrows 2 Powerhouse has predominantly Blue Oak Alliance, with some areas of Gray Pine and Annual Grasses–Forbs alliances.

### **Tree-Dominated Alliances**

Overall, tree-dominated habitats cover 82 percent of the area (42,909.53 acres). The main CalVeg tree-dominated alliances mapped within the Project Area were Douglas–Fir–Pine, Mixed Conifer–Pine, Ponderosa Pine, and Black Oak. A discussion of each tree-dominated habitat is provided below.

- **Douglas-Fir–Pine Alliance (DP):** Douglas-Fir (*Pseudotsuga menziesii*) and ponderosa pine (*Pinus ponderosa*) are often found growing together below about 5,200 feet elevation in the North Sierran zone, generally occurring on moderately steep slopes. In these riparian areas, these stands may be associated with hardwoods such as willows (*Salix* spp.), bigleaf maple (*Acer macrophyllum*), and white alder (*Alnus rhombifolia*). On south, east, and west facing aspects at low elevations, tree associates are more likely to be gray pine (*Pinus sabiniana*), black oak (*Quercus kelloggii*), tanoak (*Lithocarpus densiflorus*), canyon live oak (*Quercus chrysolepis*), and interior live oak (*Quercus wislizenii*). On higher-elevation north aspects, a transition from this alliance to the Mixed Conifer Pine Alliance is may be indicated by sugar pine (*Pinus lambertiana*) and white fir (*Abies concolor*). The shrub type most commonly associated with this alliance is the Lower Montane Mixed Chaparral Alliance, which contains species such as wedgeleaf ceanothus (*Ceanothus cuneatus*), whiteleaf manzanita (*Arctostaphylos viscida*), and poison oak (*Toxicodendron diversilobum*). This alliance makes up 41.2 percent (21,572.03 acres) of the total area and occurs only in the Northern Sierran zone.
- **Mixed Conifer–Pine Alliance (MP):** The Mixed Conifer–Pine Alliance is defined by the presence of conifer species such as ponderosa pine, incense cedar (*Calocedrus decurrens*), Douglas-fir, white fir, and sugar pine, as well as the absence (or near-absence) of Jeffrey pine (*Pinus jeffreyi*). Knobcone pine (*Pinus attenuata*) may occur as a pioneer species on shallow, south facing slopes or lava flow areas as an additional associate in this alliance. Any one of these species may become locally dominant over small areas, but dominance over larger areas is shared by more than two species in this type. This alliance makes up 13.8 percent (7,222.92 acres) of the total area, and occurs in the Northern Sierran zone.
- **Ponderosa Pine Alliance (PP):** In the North Sierran zone, this alliance is defined by pure stands of ponderosa pine, which often exist where ponderosa pine is planted for revegetation

of areas consumed by fire and formerly logged areas. At lower elevations, such as the Central Valley zone, this alliance mixes with or is found adjacent to other common foothill conifers such as Douglas-fir and gray pine. On south, east, and west aspects, it is likely to be associated with hardwoods such as blue oak (*Quercus douglasii*), canyon live oak, and interior live oak. On open flats and riparian areas, it is likely to be associated with valley oaks (*Quercus lobata*); on north aspects, it is likely to be associated with black oaks; and in the Granitic and Metamorphic Foothills Subsection, with tanoaks. As elevation and site productivity increases, white fir and other conifers may become established on similar sites and become identified as the Mixed Conifer-Pine Alliance. Shrubs of lower montane areas such as whiteleaf manzanita, wedgeleaf ceanothus, and shrub oaks (*Quercus* spp.) are commonly found on sites within the Ponderosa Pine Alliance. This alliance makes up 8.3 percent (4,316.72 acres) of the total area with 3,602.09 acres in the Northern Sierran zone and 714.63 acres in the Central Valley zone.

- **Black Oak Alliance (OK):** Black oak forms one of the most common and wide-ranging hardwood alliances in the North Sierran zone. As a dominant hardwood, it is found on mesic soils up to an elevation of about 6,600 feet on both west and east slopes in the North Sierran zone, and in more well-drained soils in the Central Valley Zone. Black oak often intermixes at varying stand densities with canyon live oak, creating mixed stands in the Montane and Interior Mixed Hardwood Alliances. Generally speaking, black oak dominates sites with better growing conditions than does canyon live oak. In areas of topographic shading or along riparian corridors, bigleaf maple, dogwood (*Cornus* spp.), white alder, tanoak, and valley oak may become common but minor associates. This alliance makes up 4.4 percent (2,303.18 acres) of the total area with 2,088.36 acres in the Northern Sierran zone and 214.82 acres in the Central Valley zone.
- **Canyon Live Oak Alliance (QC):** Canyon live oak is a well-distributed hardwood that occurs in pure or mixed stands in proximity to various conifers and hardwoods such as ponderosa pine, gray pine, Jeffrey pine, Douglas-fir, black oak, and interior live oak, among others. As a dominant hardwood in this alliance, it is generally found on more xeric habitats or in steep canyons at elevations up to 6,200 feet. At low elevations, it may occur on north aspects in contrast to dominant stands of interior live oak, ponderosa pine, or gray pine, which are more likely to be found on other aspects. Knobcone pine may associate with it occasionally in mixed conifer-hardwood stands. A mixture of shrubs such as wedgeleaf ceanothus, chamise (*Adenostoma fasciculatum*), and whiteleaf manzanita often occur in the understory of this alliance. This alliance makes up 3.6 percent (1,874.43 acres) of the total area with 1,863.05 acres in the Northern Sierran zone and 11.38 acres in the Central Valley zone.
- **Interior Live Oak Alliance (QW):** Interior live oak is another shade-tolerant evergreen. In the North Sierran zone, as elevation increases, the associated hardwoods, black oak and canyon live oak, become more prevalent on cooler north and east aspects, and form their own alliances at these elevations. Ponderosa pine and, to a lesser extent, gray pine are typical conifer associates of this type. This alliance makes up 3.0 percent (1,546.63 acres) with 55.42 acres in the Northern Sierran zone and 1,491.51 acres in the Central Valley zone.

- Gray Pine Alliance (PD): The Gray Pine Alliance is dominated by gray pine, but is diverse in structure with a mixture of hardwoods such as black oak, blue oak, canyon live oak, and interior live oak, and low-elevation chaparral shrubs such as wedgeleaf ceanothus, whiteleaf manzanita, and common manzanita (*Arctostaphylos manzanita*). In addition to occasional sparse conifers on these sites, such as ponderosa pine and Douglas-fir, patches of annual grasses are often found within or adjacent to gray pine stands. This alliance makes up 2.8 percent (1,465.63 acres) of the total area with 225.35 acres in the Northern Sierran zone and 1,240.28 acres in the Central Valley zone.
- Blue Oak Alliance (QD): Blue oak occurs at the eastern edge of its range in pure or mixed stands in the northern Sierras and on the fringes of the Central Valley zone. It is often found adjacent to the Gray Pine, Ponderosa Pine and Douglas-Fir–Pine Alliances on gentle slopes below 3,300 feet. On steeper south aspects, interior live oak may become more abundant. In deeper soils or on more shaded sites, blue oak may be replaced with black oak. Wedgeleaf ceanothus, whiteleaf manzanita, and poison oak are scattered throughout this alliance. This alliance makes up 2.3 percent (1,198.84 acres) of the total area with 7.77 acres in the Northern Sierran zone and 1,191.07 acres in the Central Valley zone.
- Tanoak (Madrone) Alliance (QT): Tanoak, a very shade-tolerant evergreen, reaches its northeastern-most range limits in the northern Sierras at low elevations, as does its associate Pacific madrone (*Arbutus menziesii*). This alliance is defined by the dominance of tanoak alone or in combination with Pacific madrone in their areas of overlap in this zone. Common associates include Douglas-fir, ponderosa pine, black oak, canyon live oak, and California bay (*Umbellularia californica*). This alliance makes up 1.0 percent (463.63 acres) of the total area and is found in the Northern Sierran zone.
- Pacific Douglas-Fir Alliance (DF): The Pacific Douglas-Fir–Alliance describes young, dense stands of monotypic Douglas-fir in the North Sierran zone in moist or shaded areas at elevations below 4,600 feet. The Pacific Douglas-Fir Alliance occurs in mosaics, mainly in association with the hardwoods canyon live oak, black oak, and less frequently with tanoak. This alliance makes up 0.9 percent (447.02 acres) of the total area and occurs only in the Northern Sierran zone.
- Interior Mixed Hardwood Alliance (NX): This alliance's species mixture includes any combinations of non-dominant interior live oak, canyon live oak, valley oak, or blue oak. Shrubs commonly found in the Lower Montane Mixed Chaparral Alliance, such as wedgeleaf ceanothus, poison oak, and whiteleaf manzanita, may also occur on these sites. Trees in the Montane Mixed Hardwood Alliance, such as black oak, may be present, but do not form the majority elements in the mixture. Overstory conifers mainly include Douglas-fir, ponderosa pine, and gray pine. This alliance makes up 0.62 percent of the total area (323.34 acres), with 316.45 acres in the Northern Sierran zone and 6.89 acres in the Central Valley zone.
- Valley Oak Alliance (QL): This riparian alliance is dominated by valley oak. This declining species formerly occurred in pure stands of large trees with no woody understory. These

stands occurred in valley bottoms and on rolling slopes, generally below 2,000 ft in the north. The present distribution pattern of valley oak is along major stream courses and on the deep, rich loamy soils of alluvial deposits in the Central Valley Ecological Province and surrounding foothills. This alliance makes up 0.17 percent (86.63 acres) of the total area.

- Montane Mixed Hardwoods Alliance (TX): This mixed hardwood alliance generally occurs above Interior Mixed Hardwood sites in areas favorable to the growth of mid-montane conifers, such as ponderosa pine. The mixture includes any combination of non-dominant black oak, Pacific madrone, tanoak, and/or tree chinquapin (*Chrysolepis chrysophylla*) in this area. Other species, such as canyon live oak or interior live oak, may be included, but are not indicator species. The principal overstory conifer associates are Douglas-fir, ponderosa pine and others, such as incense cedar or sugar pine. This alliance makes up 0.13 percent (69.93 acres) of the total area and occurs in the Northern Sierran zone.
- White Alder Alliance (QE): White alder occurs in pure or mixed stands along rivers and streams throughout much of the state. It is sometimes found in proximity to upland conifers such as Douglas-fir, ponderosa pine, and white fir. This alliance is generally found below 5,400 feet, and may include a variety of riparian or shade tolerant species such as Pacific yew (*Taxus brevifolia*), California hazelnut (*Corylus cornuta* ssp. *californica*), Fremont's cottonwood (*Populus fremontii*), elk clover (*Aralia californica*), crimson columbine (*Aquilegia formosa*), and cardinal monkeyflower (*Mimulus cardinalis*). This alliance makes up 0.02 percent (11.19 acres) of the total area and is found in the Northern Sierran zone.
- Willow Alliance (QO): The Willow Alliance is a wide-ranging, diverse type, and occurs on both western and eastern Sierran slopes. Species of willows (growing as trees or shrubs) dominate the hardwood mixture. The alliance occurs in pure stands along streams and moist canyon bottoms as a hardwood alliance, as well as a minor understory hardwood in almost all conifer alliances within those areas. Hardwoods and shrubs such as quaking aspen (*Populus tremuloides*), white alder, mountain alder (*Alnus incana* ssp. *tenuifolia*), Fremont's cottonwood, and black cottonwood (*Populus balsamifera* ssp. *trichocarpa*) may be associated with the Willow Alliance in minor amounts, often forming mixed types of riparian hardwoods. This alliance makes up 0.02 percent (7.11 acres) of the total area and is found in the Northern Sierran zone.

### **Shrub-Dominated Alliances**

Overall, shrub-dominated alliances comprised 1.6 percent of the area (841.01 acres), with Deerbrush as the most abundant alliance. A discussion of each shrub-dominated habitat is provided below.

- Deerbrush Alliance (CI): Deerbrush (*Ceanothus integerrimus*) typically occurs in the North Sierran zone as a successional species after stand-replacing disturbances such as fire, landslide, and logging. Its tree associates in this area include Douglas-fir, ponderosa pine, black oak, and others in the Mixed Conifer-Pine Alliance. This alliance makes up 0.9 percent (467.84 acres) of the total area and is found in the Northern Sierran zone.

- Lower Montane Mixed Chaparral Alliance (CQ): A floristically diverse type associated with conifer alliances such as Douglas-Fir-Pine, Ponderosa Pine, Mixed Conifer-Pine, and Gray Pine. Canyon live oak is the typical hardwood of the vicinity. Included in the mixture are combinations of whiteleaf manzanita, common manzanita, wedgeleaf ceanothus, Lemmon's ceanothus (*Ceanothus lemmonii*), chaparral whitethorn (*Ceanothus leucodermis*), chamise, Fremont's silktassel (*Garrya fremontii*), wavyleaf silktassel (*Garrya elliptica*), birch-leaf mountain mahogany (*Cercocarpus betuloides*), poison oak, shrub oaks, hoary coffeeberry (*Rhamnus tomentella*), and other lower elevation shrub species. This alliance makes up 0.63 percent (330.55 acres) of the total area with 235.03 acres in the Northern Sierran zone and 95.52 acres in the Central Valley zone.
- Upper Montane Mixed Chaparral Alliance (CX): The Upper Montane Mixed Chaparral Alliance is a very widespread and diverse mixed shrub type. Chaparral species such as greenleaf manzanita (*Arctostaphylos patula*), mountain whitethorn (*Ceanothus cordulatus*), snowbrush ceanothus (*Ceanothus velutinus*), and deerbrush are indicators of this type. California red fir (*Abies magnifica*), white fir, and ponderosa pine are often found in the immediate vicinity of this type. This alliance makes up 0.07 percent (37.5 acres) of the total area and is found in the Northern Sierran zone.
- Whiteleaf Manzanita Alliance (CW): Whiteleaf manzanita is the dominant shrub of this alliance. Typical shrub associates include chamise, wedgeleaf ceanothus, and common manzanita. The trees associated with this alliance include gray pine and blue oak. This alliance makes up 0.01 percent (5.12 acres) of the total area and occurs in the Central Valley zone.

### **Upland Herbaceous Alliances**

Overall, upland herb-dominated habitats comprised 4.1 percent of the area (2154.45 acres), with the Annual Grasses and Forbs Alliance as the dominant type and Wet Meadows Alliance comprising a small percentage as well (7.21 acres). A discussion of the Upper Herbaceous Alliances is provided below.

- Annual Grasses and Forbs Alliance (HG): These grasslands are dominated by cheatgrass (*Bromus tectorum*) and other non-native species, often occurring as a direct result of fire or over-grazing within Eastside Pine or Mixed Conifer-Fir Alliance sites or sagebrush (*Artemisia* spp.) areas. This alliance is the most commonly encountered type of the Central Valley zone, being identified in most mapped areas. In the Central Valley zone, vernal pools occur throughout this alliance, hosting species such as toothed downingia (*Downingia cuspidata*), Douglas' meadowfoam (*Limnanthes douglasii*), California goldfields (*Lasthenia californica*), winged water-starwort (*Callitriche marginata*), popcorn flower (*Plagiobothrys* spp.), Johnny-Tuck (*Orthocarpus erianthus*), common bur medic (*Medicago polymorpha*), and linanthus (*Linanthus* spp.). This alliance makes up 4.1 percent (2,147.24 acres) of the total area with 312.14 acres in the Northern Sierran zone and 1,835.1 acres in the Central Valley zone.

- Wet Meadows (Wet Grasses and Forbs) Alliance (HJ): The Wet Meadows Alliance occurs on aquic soils of level or gently sloping areas in the Northern Sierran zone. These sites have permanent water sources, occurring adjacent to streams, meadows, lakes, and occasionally as an understory to red fir or lodgepole pine (*Pinus contorta* ssp. *murryana*) in wet swales. Dominant species are sedges (*Carex* spp.) and rushes (*Juncus* spp.), as well as water tolerant grass and forb species. This alliance makes up 0.01 percent (7.21 acres) of the total area and occurs in the Northern Sierran zone.

### **Developed/Non-vegetated Alliances**

Overall, developed/non-vegetated habitats comprised 12.2 percent of the area (6,401.44 total acres), with water as the dominant habitat type. A discussion of developed/non-vegetated habitat is provided below (PNF 1991, 2000, 2001, 2004).

- Water (WA): Water is labeled in CalVeg mapping in those cases in which permanent sources of surface water are identified within a landscape unit of sufficient size to be mapped. The category includes lakes, streams and canals of various sizes, bays and estuaries, and similar water bodies. These areas are considered to have a minimum of vegetation components, except along the edges, which may be mapped as types such as Wet Meadows, Tule-Cattail freshwater marshes, or Pickleweed-Cordgrass saline or mixed marshes. Islands within water bodies may be mapped according to their terrestrial dominant vegetation types. This alliance makes up 8.5 percent (4,448.92 acres) of the total area with 4,165.26 acres in the Northern Sierran zone on 283.66 acres in the Central Valley zone.
- Barren (BA): Barren landscapes are generally devoid of vegetation and include areas such as exposed bedrock, cliffs, interior sandy or gypsum areas, and the like. The Alliance does not include barren areas considered as modified or developed, as in urban areas. This alliance makes up 3.1 percent (1,622.53 acres) of the total area with 1,585.69 acres in the Northern Sierran zone and 36.84 acres in the Central Valley zone.
- Urban/Developed (UB): This category applies to landscapes that are dominated by urban structures, residential units, or other developed land use elements such as highways, city parks, cemeteries, and the like. In those cases in which the managed landscapes may have a considerable vegetation component, other land use categories may be more appropriate, such as Ornamental Conifer and Hardwood mixtures within city parks. This alliance makes up 0.25 percent (134.19 acres) of the total area with 128.48 acres in the Northern Sierran zone and 5.71 acres in the Central Valley zone.
- Reservoirs (W3): This includes man-made lakes and ponds. This Alliance makes up 0.15 percent (78.89 acres) of the total area and is found in the Northern Sierran zone.
- River/Stream/Canal (W1): This includes natural, flowing surface waters. This alliance makes up 0.13 percent (70.28 acres) of the total area and is found in the Northern Sierran zone.

- **Agricultural (AG):** Agricultural land is used primarily for the production of food and fiber. Agricultural land uses include forest landscapes such as orchards as well as non-forested land uses such as vineyards and field crops. Land used exclusively for livestock pasture may, however, be mapped as Annual Grassland in those cases in which land uses are not recognizable. This alliance makes up 0.09 percent (46.63 acres) of the total area and is found in the Northern Sierran zone.

#### 7.4.5.2.2 Plumas National Forest (1991, 2000, 2001, 2004)

The second source document regards existing sensitive plant species populations in the Project Area and consists of four plant occurrence discovery records completed by Plumas National Forest staff. These field forms describe populations of dissected-leaved toothwort (*Cardamine pachystigma* var. *dissectifolia*), a CNPS 3 species, and Butte County fritillary (*Fritillaria eastwoodiae*), a CNPS 3 and PNF and TNF Sensitive Species, in the Project Area.

Dissected-leaved toothwort was located in 2000 and 2001 in the Challenge USGS 1:24,000 topographic quadrangle. Approximately 30 plants were found in a 30 square foot area in a tanoak forest.

Butte County fritillary was documented in 1991 and 2004 in the Challenge and French Corral USGS 1:24,000 topographic quadrangles. The 2004 survey redocumented the occurrences initially found in 1989 and 1991. In the Project Area, approximately 90 plants were counted in an 800 square foot area. These occurrences were located in conifer-hardwood forests with an understory of manzanita.

#### 7.4.5.2.3 Yuba County Water Agency et al. (2007)

The third source document regarding botanical resources in the Project Area is the 2007 Final Environmental Impact Report/Environmental Impact Statement (FEIR/EIS) for the Proposed Lower Yuba River Accord, which includes a description of vegetation communities along New Bullards Bar Reservoir and Narrows Reach.

New Bullards Bar Reservoir is the main landscape/hydrologic feature in the Project Area. The vegetative communities around the reservoir consist primarily of oak woodland intermixed with chaparral and mixed conifer/montane hardwood at higher elevation levels. Species that occur within these oak woodland communities include interior live oak, blue oak, and gray pine with poison oak, manzanita, California wild rose (*Rosa californica*), and lupine (*Lupinus* sp.) occurring as understory species.

The Narrows Reach extends from Englebright Dam 2 miles downstream to the mouth of the Narrows Canyon. The channel here is steep, relegated to a bedrock canyon, and consists of a series of rapids and pools.

### 7.5.4.3 Downstream of the Project Area

Licensee found one source document for botanical resources downstream of the Project.

#### 7.5.4.3.1 Yuba County Water Agency et al. 2007

The source document regarding botanical resources is the 2007 FEIR/EIS for the proposed Lower Yuba River Accord, which includes a general description of vegetation communities downstream of the Project, along with more specific descriptions for Garcia Gravel Pit Reach, Daguerre Point Reach and Simpson Lane Reach.

Downstream of the Project Area, much of the riparian vegetation has been eliminated not only due to the deposition of hydraulic mining debris and dredge mining, but to the loss and/or confinement of the active river corridor and floodplain of the Yuba River. Loss and/or confinement of the Yuba River began in the mid-1800s and continues today, although to a lesser degree. In addition, the large deposits of cobble and gravel that remain in the general area downstream of the Project provide suboptimal habitat and therefore, have impaired the re-establishment of riparian species.

Garcia Gravel Pit Reach, which extends from Narrows Canyon to Daguerre Point Dam, is characterized by an alluvial valley plain and houses large quantities of hydraulic mining debris from past gold mining operations. In 1989, CDFG determined the dominant communities of the Garcia Gravel Pit Reach to be 35 percent blue oak/gray pine woodland and 44 percent riparian vegetation. A more recent 2005 effort by National Marine Fisheries Service (NMFS) observed a more shaded riverine habitat than that of the adjacent Daguerre Point Reach. This suggests an improvement in habitat conditions between 1989 and 2005.

Daguerre Point Reach, which extends from Daguerre Point Dam to Marysville, is heavily influenced by mining debris. In 1989, CDFG observed that the dominant streamside community was riparian vegetation. A more recent 2006 reconnaissance survey determined the riparian community consists primarily of shrubby willow species (*Salix lasiolepis*, *S. exigua*, and *S. lasiandra*), interspersed with Fremont cottonwood.

In 1989, CDFG determined that the dominant community type of the Simpson Lane Reach, which extends from Marysville to the Feather River, was also riparian vegetation. However, in 2003, the Environmental Water Account FEIS/EIR observed grassland, agricultural fields, and barren land.

### **7.5.5 List of Attachments**

This section includes one attachment:

- Attachment 7.5A: Vegetation Maps



## **Section 7.5**

# **Botanical Resources Attachment**

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- **Attachment 7.5A: Vegetation Maps**

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