

Two types of special-status species habitat are found within the project area. Vernal pools and serpentine/gabbro soils (SP-T2) were mapped during special-status species surveys. However, these habitats were not included in the vegetation communities/land use mapping project. These unique communities were mapped using a combination of aerial photos, soils and geologic maps, and field surveys.

Upland Communities

Upland Forest/Woodland Community. The upland forest/woodland community is the largest community in the project area, occupying over 11,100 acres. Lands around Lake Oroville and the Diversion Pool are mostly composed of open to dense woodland, forest, and chaparral communities. Although there is some degree of disturbance (dirt roads, natural land slides, etc.) in these vegetation types, the majority of this area is in a mostly natural state.

Upland woodland/forests in the vicinity of the project area are composed of a variety of mixed oak woodlands, foothill pine/mixed oak woodlands, and oak/pine woodlands with a mosaic of chaparral. Twenty-one associations of upland woodland/forest types were identified in the project area. Typical dominant species include interior and canyon live oaks (*Quercus wislizenii*, *Q. chrysolepis*), blue oak (*Q. douglasii*), and foothill pine (*Pinus sabiniana*). Blue oak woodland dominates the lower elevations but drops out fairly quickly as the dominant woodland type with distance upstream from the dam and is replaced by live oaks and foothill pine. Farther up the arms of the reservoir, live oaks and foothill pine are replaced by mixed hardwood/conifer types, composed of ponderosa pine (*Pinus ponderosa*), Douglas-fir (*Pseudotsuga menziesii*), black oak (*Quercus kelloggii*), madrone (*Arbutus menziesii*), and canyon live oak.

Upland Herbaceous Communities. Approximately 392 acres of annual grasslands occur above the dam, usually as small openings among woodland, forest, and chaparral vegetation. Around Thermalito Forebay and Thermalito Afterbay, annual grasslands are the major upland vegetation type, occupying over 2,300 acres. Annual grasslands are composed mostly of non-native annual grasses such as soft chess (*Bromus hordeaceus*), red brome (*B. madritensis* ssp. *rubens*), and wild oats (*Avena* spp.); however, native forbs such as lupine (*Lupinus* spp.), clarkia (*Clarkia* spp.), and popcorn flower (*Plagiobothrys* spp.) and perennial bulbs such as brodiaea (*Brodiaea* ssp.) and Mariposa lily (*Calochortus luteus*) are interspersed with the grasses. Some grassland areas are heavily infested with the noxious weeds yellow starthistle (*Centaurea solstitialis*) and medusahead grass (*Taeniatherum caput-medusae*).

Vernal pools and vernal pool/swale complexes are a common part of the valley grassland habitats in this area and are discussed in further detail under special-status plant habitats.

Upland Shrub/Scrub Communities. Approximately 232 acres of upland shrub/scrub communities (chaparral) occur within the FERC Project boundary around Lake Oroville and the Diversion Pool. Shrub/scrub vegetation in the project vicinity consists mostly of chaparral vegetation, which is characterized by evergreen, tough waxy leaves.

Common chaparral species include whiteleaf manzanita (*Arctostaphylos viscida*), buckbrush (*Ceanothus cuneatus*), toyon (*Heteromeles arbutifolia*), and scrub oak (*Quercus berberidifolia*). Chaparral is typically found on soils that are rocky or gravelly, and nutrient poor. Wildfire is a fundamental component of chaparral ecosystems, and most species have adaptations that encourage regrowth after fire. Stands of chaparral that undergo many years without fire are extremely flammable due to accumulated standing dead vegetation, leaf litter, and resinous foliage.

Agricultural and Disturbed Lands

Agriculture. A small number of areas (126 acres) within the FERC Project boundary are currently developed for agricultural uses. Approximately 100 acres within the grasslands surrounding Thermalito Afterbay have been converted to dryland cereal crop production for the benefit of waterfowl. Other agricultural types within the FERC Project boundary include eucalyptus groves, deciduous and evergreen orchards, vineyards, and rice fields.

Disturbed/Urban/Bare. Approximately 2,300 acres of disturbed areas were mapped within the FERC Project boundary, which include lands mostly barren of vegetation. These may be lands that have a high degree of human disturbance such as urban (developed) areas, levees, roads, gravel tailings from historic mining activities, gravel bars that result from natural processes, and natural rock outcrops.

Riparian Communities

The project area and the Feather River have a history of land uses that have affected natural river processes within the floodplain, including hydraulic mining, gravel mining, gold dredging, timber harvesting, construction of levees and dams, water diversion, agricultural encroachment, and urbanization. Historically, river systems in the project area were flanked by extensive floodplains that supported riparian forests and associated wetlands (Katibah 1984).

Riparian zones typically consist of a mosaic of vegetation types of various ages and species. Cottonwoods (*Populus fremontii*) and willows (*Salix* spp.) are usually the first species to colonize bare streambanks and bars. As vegetation from one cohort matures, it traps sediment and provides habitat for later successional species. Riparian shrub/scrub vegetation typically occurs along the margins of rivers and streams that are continually disturbed by point-bar deposition during higher flows.

A comprehensive vegetative/cover map was developed for riparian and wetland resources within the FERC Project boundary and the Feather River FEMA 100-year floodplain downstream of Oroville Dam. A riparian and wetland resource study including riparian recruitment downstream of the dam was conducted under SP-T3/5 and may be found in Figures 4.5.2-2 and 4.5.2-2a through 4.5.2-2g.

Riparian Forest/Woodlands. Approximately 3,238 acres of riparian forest/woodland occur within the FERC Project boundary. Over 2,450 acres of Fremont cottonwood forest occur within the project area; most of this acreage occurs in the OWA. Other

riparian forest types in the OWA include valley mixed riparian (490 acres), mixed willow riparian (99 acres), and cottonwood/black willow riparian (117 acres). Eighteen acres of riparian vegetation dominated by valley oaks occur in and around the OWA.

A very small percentage of these habitat acreages occur upstream of the dam. Around Lake Oroville, native riparian habitats are restricted to narrow strips along drainages, consisting mostly of alders, willows, and occasional cottonwoods and sycamores. A small amount of riparian vegetation occurs around the Thermalito Complex. The north shore of Thermalito Forebay is lined with a thin strip of mixed riparian species (mostly willows) with an understory of emergent wetland vegetation. Cottonwoods and willows occur in scattered areas around the high water elevation of Thermalito Afterbay.

Riparian Shrub/Scrub. During relicensing studies, 215 acres of riparian shrub habitat were mapped within the project area. These shrub associations occur almost entirely along the Feather River directly upstream and downstream of the Thermalito Afterbay Outlet. They are a mix of species but are predominately Arroyo willow (*Salix lasiolepis*) and sandbar willow (*S. exigua*). Non-native species such as giant reed (*Arundo donax*) and scarlet wisteria (*Sesbania punicea*) are prominent in the riparian shrub community along the Feather River above the outlet in the Low Flow Channel (LFC).

Wetland/Aquatic Communities

Wetlands. Wetlands are areas that are inundated or saturated by surface water or groundwater at a frequency or duration to support a prevalence of hydrophytic vegetation (plants that are specially adapted to inundated or saturated soils). Wetlands generally include marshes, ponds, bogs, and vernal pools.

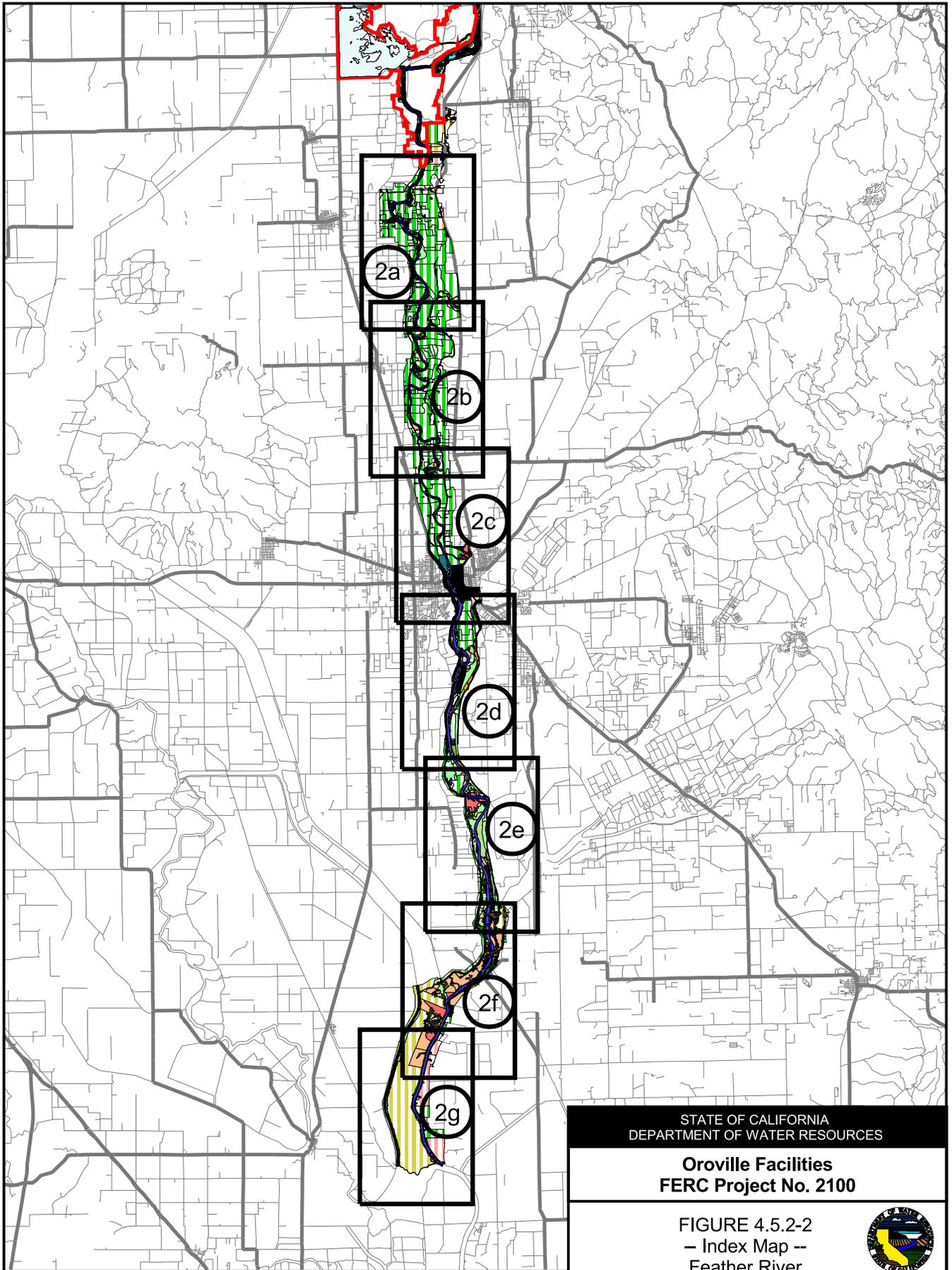
A total of 912 acres of wetland vegetation were mapped in the project area (Table 4.5-7), most of which occurs around Thermalito Afterbay. Less than 7 acres of wetland vegetation occurs around Lake Oroville and the Diversion Pool, mostly associated with seeps and springs that are a natural part of the landscape above the high-water line.

Approximately 42 acres of emergent wetland vegetation occur along the edges of ponds in the OWA.

Table 4.5-7. Acreages of wetland vegetation types for major project features.

	Thermalito Afterbay	Thermalito Forebay	Diversion Pool	Lake Oroville	OWA
Bulrush	<1	0	0	0	0
Cattail	<1	0	0	0	<1
Mixed emergent	234	10	0	<1	42
Rush	381	<1	0	<1	0
Rush/verbena	201	0	0	0	0
Verbena	36	<1	0	0	0
Seep/wet area	0	0	<1	6	0
Totals	852	11	<1	6	42

Source: SP-T3/5



 Project Area boundary
 Major roads
 Minor roads



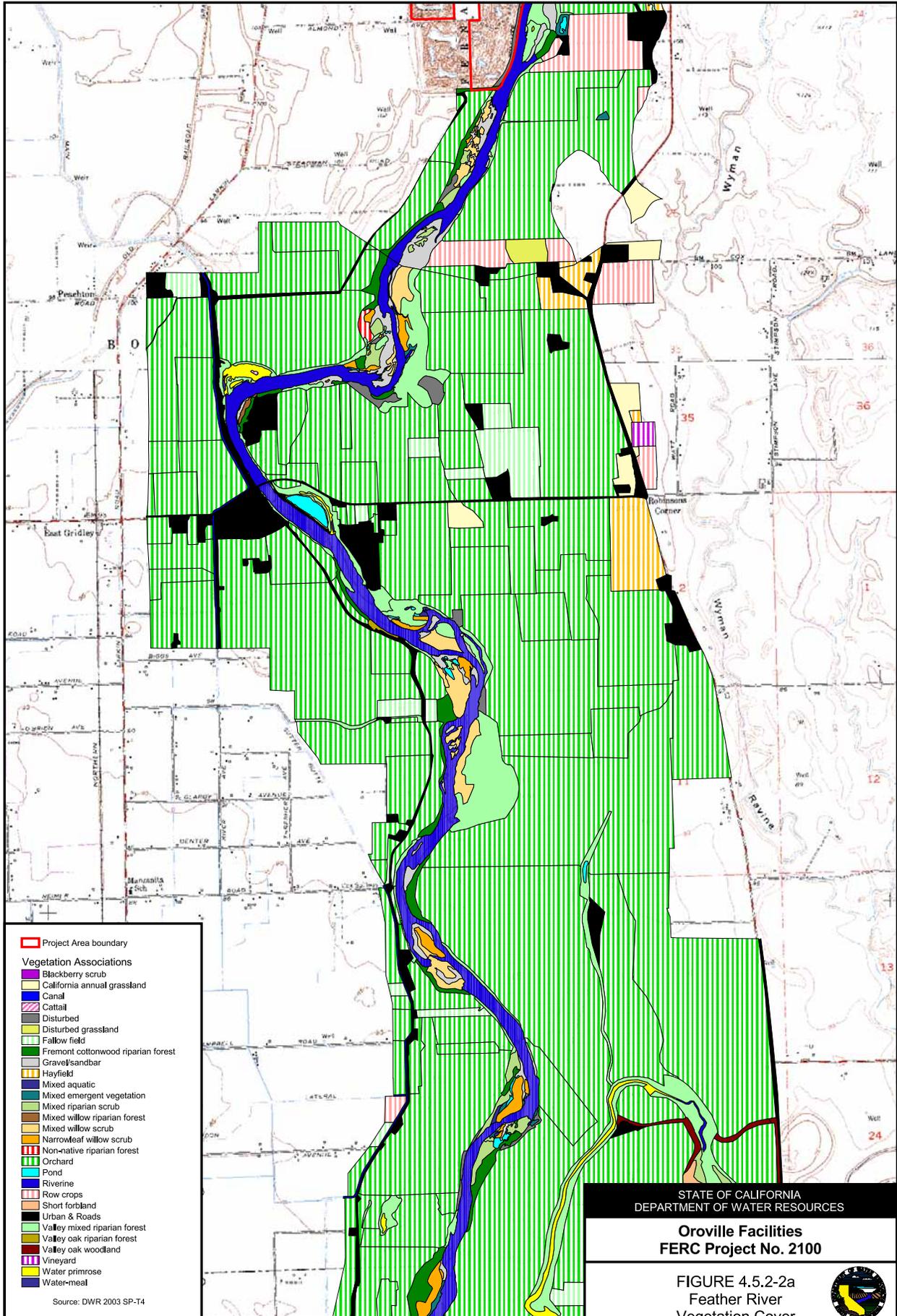

 Original Scale 1 : 360,000
 1" = 5.7 miles

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**Oroville Facilities
FERC Project No. 2100**

**FIGURE 4.5.2-2
-- Index Map --
Feather River
Vegetation Cover**





Project Area boundary

Vegetation Associations

- Blackberry scrub
- California annual grassland
- Canal
- Cattail
- Disturbed
- Disturbed grassland
- Fallow field
- Fremont cottonwood riparian forest
- Gravel/sandbar
- Hayfield
- Mixed aquatic
- Mixed emergent vegetation
- Mixed riparian scrub
- Mixed willow riparian forest
- Mixed willow scrub
- Narrowleaf willow scrub
- Non-native riparian forest
- Orchard
- Pond
- Riverine
- Row crops
- Short formland
- Urban & Roads
- Valley mixed riparian forest
- Valley oak riparian forest
- Valley oak woodland
- Vineyard
- Water primrose
- Water-meal

Source: DWR 2003 SP-T4

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**FIGURE 4.5.2-2a
Feather River
Vegetation Cover
(Area 2a)**

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Prepared by: L.J. DWR-ND Date: 10/20/06 n022\pdea_veg_fr_map_5-6-2a.apr

0.2 0 0.2 0.4 0.6 Miles

Original Scale 1 : 30,000
1" = 0.5 mile

