

List of Habitats and their Dominant Trees in the Tulare Region

Blue Oak Woodland

Blue oak (*Quercus douglasii*) dominates this upland habitat, but other tree species, such as interior live oak (*Quercus wislizenii*) and valley oak (*Quercus lobata*) may be present along drainages and rivers. Trees grow less than 18 meters high with a continuous to savannah-like canopy. Shrubs can be infrequent to common in this habitat, and the ground layer is grassy. Slope and aspect vary. Shallow and infertile soils characterize this habitat and many locations include rock outcrops and stony soils.

The riparian and wildlife corridors on the eastern side of the Tulare Basin host the blue oak woodland, including along the Kings River, Kaweah River, and Deer Creek. This habitat is located above 150 meters in elevation and is still found where it was historically. Land fragmentation and degradation don't currently require significant restoration efforts, but better management using seasonal grazing techniques, such as late spring and summer grazing, and late spring prescribed burns could benefit native plants and animals.

California Buckeye Woodland

California buckeye (*Aesculus californica*) dominates this upland habitat, though California bay (*Umbellularia californica*), gray pine (*Pinus sabiniana*), and interior live oak may be present. Trees grow less than 10 meters high with a continuous to open canopy, infrequent shrub cover, and a sparse, grassy ground cover. This habitat is almost always located on steep north-facing slopes with shallow, well drained soils.

While generally still found where it was located historically, this habitat type is very rare along the riparian and wildlife corridors in the upper elevations of the Tulare Basin. Examples of the California buckeye woodland can be found along the Kings River, Kaweah River, Deer Creek, Tejon Creek, and El Paso Creek. While restoration is probably not needed, better management using seasonal grazing techniques, such as late spring and summer grazing, and late spring controlled burns will benefit native plants and animals.

California Sycamore Series

Permanently saturated in the root zone with fresh water, California sycamore (*Plantanus racemosa*) dominates this wetland habitat. These sites also include black willow, Fremont cottonwood, red willow, and white alder. Trees grow less than 35 meters high with an open canopy. Shrubs can be sparse to common in this habitat, and the ground cover is grassy.

Limited to riparian corridors including riverbanks, braided channels of intermittent streams, gullies, springs, and seeps, these trees grow in alluvial, open cobble, and rocky soils. The CNDDDB tracks this rare habitat.

The best examples of the California sycamore series are found along the Kings River upstream from the City of Reedley, along Deer Creek east of Highway 65, and along the upper portions of Poso Creek. Restoration techniques for this habitat type are well understood, providing many opportunities for restoration along the upper portion of these creeks.

Eucalyptus Naturalized Forest

One or more species of non-native, planted eucalyptus (*Eucalyptus* spp.) dominates this upland habitat with few other species of plants present. Trees grow less than 50 meters high with infrequent shrubs, and ground cover is sparse to absent. The eucalyptus naturalized forest grows on all slopes and soils.

Scattered throughout the Tulare Basin, examples of this habitat can be found along the Kings River, Kaweah River, Deer Creek, Poso Creek, Caliente Creek, and San Emigdio Creek. Eucalyptus is invasive in coastal California, but does not appear to spread on its own in the Tulare Basin. When the trees flower, they attract native nectar-feeding birds. Swainson's hawk (*Buteo swainsoni*), red-tailed hawk (*Buteo jamaicensis*), great horned owl (*Bubo virginianus*) and other raptors use the mature trees for nesting sites. While additional plantings are not encouraged, eradication is not recommended, except in areas where tree-nesting raptors were historically absent.

Fremont Cottonwood Series

Fresh water intermittently or seasonally floods or saturates this wetland habitat. Found along floodplains, river banks, stream terraces, and slough edges, this habitat hosts Fremont cottonwood, black willow, box elder (*Acer negundo*), mulefat, red willow, California wild grape (*Vitis californica*), California sycamore, Oregon ash (*Fraxinus latifolia*), and white alder. Trees grow less than 25 meters high with a continuous to open canopy. Below, shrubs and grape lianas are infrequent to common and the ground cover varies. CNDDDB tracks this rare habitat as Great Valley cottonwood riparian.

Very little of this habitat type remains in the Tulare Basin, with small stands or scattered trees in few locations. Restoration techniques for this habitat type are well understood, providing numerous opportunities for re-establishment in developed wetland areas and along water distribution channels

Mesquite Series

This habitat features both wetlands and uplands. Fresh water intermittently floods or saturates the wetlands found on the edges of floodplains, lake edges, sand dunes, stream banks, and

alkali sinks. Above the water, uplands at the margins of washes and arroyos host this habitat. Honey mesquite (*Prosopis glandulosa*) dominates, with trees growing less than 10 meters high in an open canopy, which is often widely spread. Below, a grassy ground layer is occasionally interspersed with alkali saltbush (*Atriplex polycarpa*) shrubs. CNDDDB tracks this rare habitat as Great Valley mesquite scrub.

Across the Tulare Basin, the mesquite series ranges from extensive stands in the south to small stands with few trees further north. D. C. Holland, as published in Madroño, 1987 & 1988, argues that this habitat isn't native to this region, but also argues for protection of the remaining stands. Descriptions from the 1920s of cotton farmers pulling out hundreds of acres of mature mesquite trees and an over 500-year-old tree on the Wind Wolves Preserve lead one to question Holland's conclusion. While little or no restoration work had been attempted on this habitat in the Tulare Basin, successful restoration has been carried out along the Colorado River in California and Arizona. Habitat dominated by the honey mesquite may be able to be restored in areas with high water tables.

Black Willow Series

Fresh water seasonally floods or saturates this wetland habitat, found along the edges of rivers, streams, ponds, and sloughs. Plants include: black willow (*Salix gooddingi*), Fremont cottonwood (*Populus fremontii*), Mexican elderberry (*Sambucus mexicana*), mulefat (*Baccharis salicifolia*), red willow (*Salix laevigata*), and white alder (*Alnus rhombifolia*). Trees grow less than 30 meters high with a continuous canopy covering sparse shrubs and variable ground cover. The California Natural Diversity Database (CNDDDB) tracks this rare habitat as black willow riparian forest and woodland.

Restricted to a few locations in the Tulare Basin, this habitat is neither extensive nor healthy. Some areas feature scattered trees or a single row of trees along a stream or lake. Restoration techniques for this habitat type are well understood, providing numerous opportunities for re-establishment in developed wetland areas and along water distribution channels.

Mixed Willow Series

Fresh water seasonally floods or saturates this wetland habitat, found on floodplains and along rivers and streams. A mix of willow species dominates these sites, including: black willow, red willow, narrowleaf willow (*Salix exigua*), and arroyo willow (*Salix lasiolepis*); Fremont cottonwood, California sycamore, and white alder can be found here as well. Trees grow less than 10 meters high in a continuous canopy with sparse shrub cover below. CNDDDB tracks this rare habitat as mixed willow riparian forests and woodland.

Very little of the mixed willow series remains in the Tulare Basin. Restoration techniques for this habitat type are well understood, providing numerous opportunities for re-establishment along water distribution channels in developed wetland areas.

Red Willow Series

Fresh water seasonally floods or saturates this wetland habitat, found on ditches, lake edges, floodplains, and along rivers and streams. Dominant plants include: red willow, California sycamore, Fremont cottonwood, Mexican elderberry, mulefat, and white alder. Trees grow less than 15 meters high with a continuous canopy. CNDDDB tracks this rare habitat as the red willow riparian forest.

Very little of this habitat remains in the Tulare Basin. Restoration techniques for this habitat type are well understood, providing numerous opportunities for re-establishment along water distribution channels in developed wetland areas.

Valley Oak Series

Found along floodplains, fresh water intermittently floods and seasonally saturates this wetland habitat. Valley oak dominates; Oregon ash may also be present. Trees grow less than 30 meters high with a continuous, intermittent or open canopy. Shrubs are occasional, lianas are common, and the ground layer is grassy. CNDDDB tracks this rare habitat as Great Valley valley oak riparian.

Very little of this habitat type remains where it was found historically in the northern portion of the Tulare Basin. This habitat provides critical nesting areas for Nuttall's Woodpecker (*Picoides nuttallii*), a National Audubon Society "Watch List" species. Restoration techniques for the valley oak series are well understood, providing numerous opportunities for re-establishment along waterways in the northern portion of the Tulare Basin.