California Wildlife Habitat Relationships System
California Department of Fish and Game
California Interagency Wildlife Task Group

Valley Oak Woodland

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Vegetation

Structure-- This habitat varies from savanna-like to forest-like stands with partially closed canopies, comprised mostly of winter-deciduous, broad-leaved species. Denser stands typically grow in valley soils along natural drainages. Tree density decreases with the transition from lowlands to the less fertile soils of drier uplands. Exceptions to this pattern are known, especially in the central coastal counties (N. H. Pillsbury, pers. comm.). Similarly, the shrub layer is best developed along natural drainages, becoming insignificant in the uplands with more open stands of oaks. Valley oak stands with little or no grazing tend to develop a partial shrub layer of bird-disseminated species, such as poison-oak, toyon, and coffeeberry (J. R. Griffin, pers. comm.). Ground cover consists of a well-developed carpet of annual grasses and forbs. Mature valley oaks with weil-developed crowns range in height from 15 to 35 m (49 to 115 ft) (Cheatham and Haller 1975, Conard et al. 1977).

Composition-- Canopies of these woodlands are dominated almost exclusively by valley oaks (Conard et al. 1977). Tree associates in the Central Valley include California sycamore, Hinds black walnut, interior live oak, boxelder, and blue oak. The shrub understory consists of poison-oak, blue elder, California wild grape, toyon, California coffeeberry, and California blackberry. Various sorts of wild oats, brome, barley, ryegrass, and needlegrass dominate the ground cover. Foothill pine and coast live oak are associated with VOWs along the Coast Range (Parker and Matyas 1979). Griffin (1976) reported that Coulter pine and canyon live oak are found in a montane Savannah of valley oak in the Santa Lucia Range, Monterey County.

Other Classifications-- This type is referred to as the Foothill Woodland by Munz and Keck (1959), Valley Oak Savanna (33) by Küchler (1977), the Valley Oak Phase of the Foothill Woodland by Griffin (1977), Valley Oak Series by Paysen et al. (1980), and Valley Oak Community by Parker and Matyas (1979). Conard et al. (1977) and others include VOWs in the Central Valley riparian zone, a vegetative division in the physiographic gradient extending from river edges to higher terraces. Cheatham and Haller (1975) included part of the VOW habitat in their Central Valley Bottomland Woodland (6.11), and Küchler (1977) included parts in his Riparian Forest (28) designation.

Habitat Stages

Vegetation Change-- 1;2-5:S-D. In most remaining VOW, little recruitment of young oaks occurs to replace the veteran oaks dying of natural causes or being destroyed by urban and agricultural development (White 1966, Griffin 1973, 1976, 1977). The lack of oak recruitment seems to be related to animal damage of acorns and seedlings (Griffin 1980a, b). The successful combination of circumstances for valley oak establishment is speculative. The future of this habitat in valley locations seems to be fewer valley oaks and more open grassland (Griffin 1976). However, Griffin (1976) found that the current absence of ground fire encourages the invasion of evergreen oaks, Coulter pine, or both, in upland sites in the Santa Lucia Mountains. Presently, most valley oak stands are in mature stages 5:S-D, but structural classes 1-5:S-D are presumably possible. Canopy development and plant density are variable. Only a few localized studies give quantitative data on the structure of VOW (see Griffin 1976, Conard et al. 1977).

Duration of Stages-- Secondary succession of VOWs under natural conditions has not been studied and little opportunity exists for its study. Most surviving stands appear to be between 100 and 300 years old, and individual valley oaks may live as long as 400 years (Stern 1977). Valley oaks seem to be tolerant of flooding (Harris et al. 1980), and young trees will sprout when fire damaged (Griffin 1976). Given natural perturbations such as fire and flooding, and assuming successful regeneration of valley oaks, VOW would probably remain the climax community.

Biological Setting

Habitat-- VOWs in the Great Valley usually merge with Annual Grasslands or border agricultural land. Where these woodlands extend to the foothills surrounding the valley, they intergrade with Blue Oak Woodlands or Blue Oak-Foothill Pine habitats. Near major stream courses this community intergrades with Valley-Foothill Riparian vegetation. West of the Coast Range, VOWs sometimes associate with Coastal Oak Woodlands and, to a limited extent, Montane Hardwood and Coastal Scrub.

Wildlife Considerations-- These woodlands provide food and cover for many species of wildlife. Oaks have long been considered important to some birds and mammals as a food resource (i.e., acorns and browse). Verner (1980a) reported that 30 bird species known to use oak habitats in California include acorns in their diet. An average of 24 species of breeding birds were recorded on a study plot at Ancil Hoffman Park, near Carmichael, in Sacramento County from 1971 to 1973 (Gaines 1977). The study plot was dominated by valley oaks but included some cottonwood in the canopy. Probably the most significant breeding bird species recorded was red-shouldered hawk. In decreasing order, the most common species were European starling, California quail, plain titmouse, scrub jay, rufous-sided towhee, Bewick's wren, bushtit, and acorn woodpecker. Barrett (1980) indicates that the ranges of about 80 species of mammals in California show substantial overlap with the distribution of valley oaks, and several, such as fox and western gray squirrels and mule deer, have been documented using valley oaks for food and shelter.

Physical Setting

This habitat occurs in a wide range of physiographic settings but is best developed on deep, well-drained alluvial soils, usually in valley bottoms. Most large, healthy valley oaks are probably rooted down to permanent water supplies (Griffin 1973). Stands of valley oaks are found in deep sills on broad ridge-tops in the southern Coast Range. Where this type occurs near the coast, it is usually found away from the main fog zone (Griffin 1976). The climate is Mediterranean, with mild, wet winters and hot, dry summers.

Distribution

Remnant patches of this habitat are found in the Sacramento Valley from Redding south, in the San Joaquin Valley to the Sierra Nevada foothills, in the Tehachapi Mountains, and in valleys of the Coast Range from Lake County to western Los Angeles County. Usually it occurs below 610 m (2000 ft), although Griffin (1976) reported a ridge-top stand at 1525 m (5000 ft) in the Santa Lucia Mountains.

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