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

Closed-Cone Pine-Cypress

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Vegetation

Structure-- This habitat includes a number of different series of evergreen, needle-leaved trees. The height and canopy closure of these series are variable and depend upon site characteristics, soil type, the age of the stand and the floristic composition (Cheatham and Haller 1975, Küchler 1977, Parker and Matyas 1981). The closed-cone pine habitats are similar to each other and will be described separately from the cypress habitats, although some of the series within this habitat contain both pine and cypress.

Cypress habitats may reach a height of 10 to 20 m (33 to 66 ft). The understory is a well-developed shrub layer of chaparral species (chamise and manzanita) on open, well-drained sites and a low, dense cover of shrubs and herbs on the poorly drained soils. On low nutrient or serpentinic soils the shrub layer cover is often less than 50 percent. Pine habitats typically reach heights of 30 m (66 ft). Most pine series have a shrub layer of chaparral species with high relative cover (up to 100% and a sparse herbaceous layer.

After fire, particularly on good sites, both cypress and pine habitats form dense, even-aged stands. As the stand matures, the stocking density decreases, but single species site dominance is common. Closed-cone Pine-Cypress habitats found along the extreme coast or on very shallow infertile soils contain stunted, wind-pruned individuals.

Composition-- This habitat is typically dominated by a single species of one of the closed-cone pines or cypress; few stands contain both pines and cypress. In general, associated species change as the dominant species changes. In southern California, cypress habitats are dominated by Tecate, Cuyamaca, or Piute cypress and contain species common to the surrounding chaparral such as chamise, manzanita, ceanothus and California buckwheat (Armstrong 1978).

MacNab and Sargent cypress, both northern California species, are frequently associated with foothill pine, leather oak, scrub oak, sticky whiteleaf manzanita and/or wedgeleaf ceanothus (Cheatham and Haller 1975, Vogl et al. 1977); the herbaceous layer may support a number of grasses and forbs. Sargent cypress stands are on moister slopes than the surroun (No Hardham 1982 Lit Cite. There is a Hardham 1962 cite.) ding chaparral stands (Koenig et al. 1982, Hardham 1982). Modoc cypress groves contain species from the adjacent yellow pine, juniper woodland or sage scrub habitats.

Along the immediate coast in Central California, Monterey cypress occurs in nearly pure stands with some salal and rhododendron in the understory. Gowen cypress associates with a number of north coastal shrub species, including rhododendron, Pacific bayberry and salal. Santa Cruz cypress stands, also found in Central California, include knobcone pine, ponderosa pine and silverleaf manzanita (Cheatham and Haller 1975, Vogl 1977, Küchler 1977). Mendocino pygmy cypress, the northern-most coastal cypress, may be codominant with pygmy pine. The understory in these stands has a number of northern shrub species associates including California huckleberry, labrador tea, glossyleaf manzanita and salal (Sholars 1983(No Sholars 1983 Lit Cite. I used Sholars 1982 for Lit Cite at end.), Westman and Whittaker 1975).

The pines which dominate Closed-cone habitats are knobcone pine, Monterey pine, Bishop pine, Torrey pine and beach pine. Knobcone pine frequently grows in small dense patches with chamise, ceanothus, leather oak and manzanita occurring between patches or in openings in the pine stands (Colwell 1980). Monterey pine stands include coast live oak and occasionally knobcone pine and madrone in the overstory. The shrubby understory includes California buckthorn, poison oak, California huckleberry and woolyleaf manzanita (Roy 1966). Shrubs associated with Bishop pine stands are typically those of the surrounding vegetation: California huckleberry, salal, rhododendron and labrador tea in the north, (Westman and Whittaker 1975) and chamise, manzanita, toyon and poison oak in the southern stands (Cole 1980). Torrey pine stands are very rare, two stands occur on the mainland and two on the Channel Islands. Associated woody vegetation includes manzanita, ceanothus and California sage. Beach pine habitats, found on stabilized dunes of the north coast, include bearberry manzanita, salal, Pacific bayberry and wavyleaf silktassel (Thorne 1976).

Other Classifications-- Other names of Closed-cone Pine-Cypress habitat include: MacNab Cypress, Sargent Cypress, Pygmy Cypress, Modoc Cypress, Piute Cypress, Knobcone Pine, Bishop Pine, Monterey Pine, Santa Cruz Cypress, Gowen Cypress, Monterey Cypress, Cuyamaca Cypress, Tecate Cypress, and Torrey Pine Series (Parker and Matyas 1981); Knobcone Pine - 248 (Colwell 1980), Closed-cone Coniferous Pine, Monterey Pine, and Torrey Pine Series, (Paysen et al. 1980), Closed-cone Pine Forest (Munz and Keck 1973), Coastal Cypress and Pine Forests (Küchler 1977), 42 Evergreen Forest Land (Anderson et al. 1980)(No Anderson et al.1980 Lit Cite. Only a Anderson et al. 1976.) and Closed-cone coniferous woodland, Shore pine woodland and Torrey pine woodland (Thorne 1976).

Habitat Stages

Vegetation Changes-- 1;2-5:S-D._Closed-cone pines and cypress retain their seeds in serotinous cones which remain on the branches. These habitats are true fire-climax or fire-dependent vegetation types, but fire may occur at any phase of the community. The heat of the fire causes the cones to release seeds which fall on the bare mineral soils. The full sunlight provided in early successional stages is excellent for seedling establishment and promotes the dense even-aged stands typical of all types of

closed-cone pine and cypress habitats. Numerous "fire following" herbaceous species are abundant in the early successional stages following fire.

Duration of Stages-- Stand longevity varies greatly among types. For some, the fire frequency and life span are not known; other types are known to be short-lived. For example, knobcone has a short life span, with fire frequencies between 35-50 years. Individual knobcones which escape fire rarely live to 100 years of age (Vogl 1963)(No Vogl 1963 Lit Cite.). Tecate cypress do not produce cones until the trees are 10 years old and they reach maximum cone production at about 50 years (Zedler 1977). In contrast to these, small individuals of pygmy pine may be over 200 years old.

Biological Setting

Vegetation-- The cypress habitats usually occur as "arboreal islands" (Bowers 1961) within a matrix of chaparral or forest types. Similarly the pine habitats are patches in the surrounding chaparral, Montane Hardwood-Conifer or Mixed Conifer habitats.

Wildlife Considerations-- Numerous game species, including tree squirrels and band-tailed pigeons, and nongame species make use of this type for feeding and cover. Few species make substantial use of this type as a breeding habitat, although the great horned owl and red-tailed hawk will nest in closed-cone pine forests.

Physical Setting

Closed-cone Pine-Cypress habitats are typically found on sites that are more rocky and infertile than the surrounding soils. Many stands (especially of knobcone pine, and Sargent and MacNab cypress) are found on serpentine soils. Although, typically found at low elevations, due to the coastal distribution of much of this habitat type, interior stands may be found at elevations up to 2000 m (6550 ft). Landforms are gentle to steep slopes where stands occur in interior California and coastal terraces or bluffs where distributed along coastal California.

Distribution

Closed-cone pine-cypress occurs in patches as an interrupted forest along coastal California from southern San Diego county north to Oregon. Inland, the distribution is a few widely scattered locations in the Peninsular and Coast Ranges and in the North and Central Sierra Nevada. Monterey Cypress occurs naturally in two locations on the Monterey peninsula. Elevations range from nearly sea level to approximately 2000 m (6550 ft) (Griffin and Critchfield 1972, Cheatham and Haller 1975).

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