

Ecological site group F019XG915CA

Sandy Hills <30"ppt

Last updated: 07/06/2023
Accessed: 04/27/2024

Key Characteristics

- located on hills
- sandy texture
- <30" ppt

Provisional. A provisional ecological site description has undergone quality control and quality assurance review. It contains a working state and transition model and enough information to identify the ecological site.

Physiography

This ESG is found typically on sloping to steeply sloping (15-50% most typical) mountains from 5,000-7,300 feet.

Climate

Mediterranean climate. It is also tolerant of frost, and high temperatures. However, its resistance to freezing is low relative to conifers that grow at higher elevations. Frost-free days are typically from 120 to 175 days.

Soil features

Ponderosa pine grows in many different soil types, in soils derived from igneous, metamorphic, and sedimentary substrates. It also grows in gabbro and other ultramafic soils. It grows in soils of many textural classes—but grows best in coarse-textured loams and moderately sandy or gravelly soils. Soil pH in ponderosa pine stands varies but usually ranging from slightly acidic to neutral (pH 6.0-7.0) in upper soil horizons.

Representative soils for this ESG are the Wapi and Pacifico family soils, which are typic or lithic Xeropsamments.

Vegetation dynamics

The ponderosa pine habitat includes pure stands of ponderosa pine as well as stands of mixed species in which at least 50% of the canopy area is Ponderosa pine. Associated species vary depending on location in the state and site conditions. Typical tree associates include white fir, incense-cedar, Coulter pine, Jeffrey pine, sugar pine, Douglas-fir, bigcone Douglas-fir, canyon live oak, California black oak, Oregon white oak, Pacific madrone and tanoak. Tree spacing in ponderosa pine stands varies from open patchy to extremely close. Typical overstory coverage of all layers may exceed 100%. Other conifers, when present, provide denser crowns than do the pine, thus creating habitat diversity. Grasses, shrubs, and deciduous trees may be present or absent. Typical coverage of shrubs is 10-30% and of grasses and forbs is 5-10%.

Ponderosa pine is shade intolerant. It is a successional stable or climax species on low elevation, dry sites and seral on more mesic and mid elevation sites. At mid elevations, ponderosa pine is generally seral to Douglas-fir and other more mesophytic, shade-tolerant species. It is a minor late successional species in some poor-site (pumice) lodgepole pine stands of south-central Oregon. In southern Oregon and California, it is a late-successional species that displaces shrubs in montane chaparral. Ponderosa pine encroaches into some perennial grasslands and mountain meadows. It establishes in canopy gaps or larger openings resulting from fire, bark beetle outbreaks, or other disturbances. Low- to moderate-severity fire maintains ponderosa pine dominance. After stand replacing fire, succession in dry forest cover types generally follows a trajectory leading from dominance by annual herbs to dominance by conifers. Ponderosa pine is replaced successional by shade-tolerant species with long fire-free

periods, and is in decline as a forest cover type on fire excluded sites.

Frequent, low- and moderate-severity fires favor ponderosa pine and other shade-intolerant species. Understory vegetation is top-killed or killed without much mortality of the overstory, although patches of severe fire kill the overstory and create openings that favor ponderosa pine establishment. If fire-free intervals are long, shade-tolerant, understory Douglas-fir, grand fir, incense-cedar, and/or white fir increase in number and size, shading out ponderosa pine. Historically, long fire-free intervals on some sites, particularly north-facing slopes, allowed more fire sensitive species such as Douglas-fir to develop thicker bark before the next fire, so some shade-tolerant trees survived successive fires.

Information from:

California Wildlife Habitat Relationships System

California Department of Fish and Game

California Interagency Wildlife Task Group

E. Lee Fitzhugh

Major Land Resource Area

MLRA 019X

Southern California Coastal Plains and Mountains

Subclasses

- F019XG915CA–Sandy Hills <30"ppt
- F019XI200CA–Pinus muricata/Quercus pacifica 13-24" p.z.
- F019XI201CA–Pinus torreyana var. insularis/Nassella pulchra 21-31" p.z.
- R019XD033CA–LOAMY UPLANDS
- R019XD035CA–SANDY
- R019XD036CA–SHALLOW LOAMY UPLANDS
- R019XD060CA–SHALLOW LOAMY
- R019XD062CA–ACID CLAYPAN
- R019XE003CA–COARSE LOAMY
- R019XI100CA–Loamy slopes 13-31" p.z.
- R019XI102CA–Shallow uplands 13-24" p.z.
- R019XI105CA–Deep slopes 13-24" p.z.
- R019XI106CA–Shallow slopes 13-31" p.z.
- R019XI108CA–Convex slopes 13-24" p.z.
- R019XI110CA–Concave slopes 13-24" p.z.
- R019XI112CA–Moderately deep volcanic slopes 13-31" p.z.
- R019XI113CA–Loamy volcanic slopes 13-24" p.z.
- R019XI116CA–Clayey slopes 13-31" p.z.
- R019XI119CA–Gentle calcareous slopes 21-34" p.z.
- R019XI121CA–Rocky bluffs 24-34" p.z.

Correlated Map Unit Components

23481894, 23481900, 23481906, 23481910, 23481913, 23481921, 23481926, 23481929, 23482299, 23482301, 22642310, 22642344, 22642234, 22642235, 23477705, 23477701, 23477429, 22668425, 22668434, 22668762, 22668760, 22668194, 22668827, 22668272, 22668823, 22668821, 22668266, 22668545, 22668543, 22668529, 22668217, 22668218, 22669064, 22668278, 22668734, 22668800, 22668799, 22668863, 22668740, 22668198, 22668745, 22668758, 22668729, 22668730, 22668454, 22668459, 22668751, 22669004, 22668478, 22668213, 22669086, 22668486, 22668773, 22669054, 22588413, 22673489, 22673359, 22673753, 22673752, 22673516, 22673515, 22673630, 22673632, 22673634, 22673636, 22673638, 22673637, 22673518, 22673517, 22673404, 22673406, 22673524, 22673526, 22673759, 22673758, 22673646, 22673764, 22673408, 22673415, 22673769, 22673499, 22673602

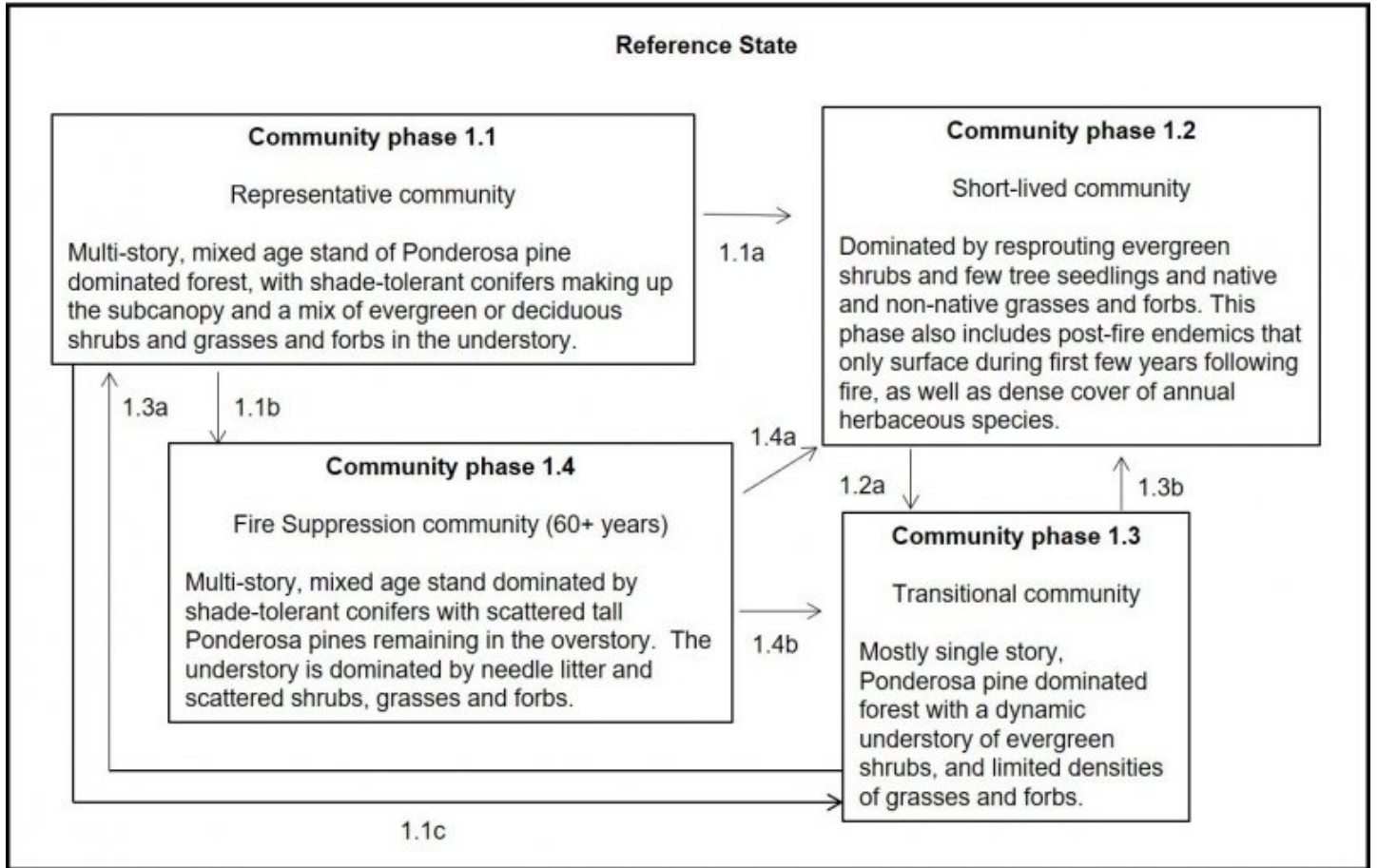
Stage

Contributors

Curtis Talbot

State and transition model

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Reference State Community Pathways (Natural dynamics only – no management scenarios)

While low-severity surface fires are common in open-canopy forests with limited understory fuels, increased forest densities and an increased presence of ladder fuels in the understory fuel higher-severity fires. On a landscape scale, a mixed-severity fire regime occurs in Jeffrey pine habitats. In the San Bernardino Mountains, succession from ponderosa pine to incense-cedar and white fir was more rapid on mesic than xeric sites. **Low-severity fire is defined as fire that replaces <25% of the dominant overstory (i.e., ponderosa pine and any co-dominants); moderate-severity fire replaces 25% to 75% of the dominant overstory; and high-severity fire replaces >75% of the dominant overstory [59].

- 1.1a This community pathway occurs following a high severity fire. A prescription of mechanical clearing and burning of slash may also produce the same results.
- 1.1b This community pathway occurs over time without fire (60+ years), as the shade-tolerant conifers over top and shade out the Ponderosa pine. This results in decreased Ponderosa pine recruitment, increased Ponderosa pine mortality, increased stand density, increased shade-tolerant conifer importance, and increased canopy closure are common as succession proceeds without fire in Ponderosa pine-dominated stands.
- 1.1c This community pathway occurs following a low to moderate severity fire that removes younger subcanopy conifers, some Ponderosa pines and understory species.
- 1.2a This community pathway occurs over time without vegetation management or major disturbances.
- 1.3a This community pathway occurs over time without vegetation management or major disturbances and normal progression.
- 1.3b This community pathway occurs following a low to moderate severity fire.
- 1.4a This community pathway occurs following a high severity fire that removes everything.
- 1.4b This community pathway occurs following a moderate severity fire.

FEIS info: Across mountain ranges, successional advancement was slower in the drier, more southerly San Bernardino Mountains. In many fire-excluded areas, ponderosa pine and other early-seral, shade-intolerant tree species have been replaced successionally by late-seral, shade-tolerant species. Stand structure has changed from a mostly single canopy layer to multiple canopy layers.

Montane chaparral species are common post-disturbance on these deeper forest soils. After disturbance (logging, fire, erosion) chaparral proliferates and may exclude conifers and other vegetation for many years. However, chaparral may facilitate the germination of red fir seedlings (Barbour 1984) and other shade tolerant conifers by providing a protective cover, moderating microclimate, and improving soil conditions. Chaparral shrubs may be an essential link in forest succession by building up soil nutrient levels, especially nitrogen, to the point where trees can survive. In mature timber stands, chaparral species may senesce due to insufficient light through the canopy and are only present as a sparse understory. Thus, silvicultural practices have a strong influence on the structure of montane chaparral.

Citations