

Ecological site group F019XG913CA

Loamy Hills <30"ppt

Last updated: 07/06/2023
Accessed: 05/10/2025

Key Characteristics

- located on hills
- loamy 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 generally found on slopes that are steep, rocky, and dry. Pinyon-juniper may exist on deeper valley soils, but tree size and density increase as elevation increases and soil depth decreases. Characteristic landforms include gently rolling hills to steep mountain slopes, rocky canyons, and narrow ridges.

Climate

Climatic conditions include low precipitation and relative humidity, hot summers with high evapotranspiration rates, and clear weather with intense sunlight. Potential evapotranspiration is from one to four times as great as precipitation.

Soil features

This ESG currently groups the thermic and mesic soils associated with the pinyon and juniper woodlands. Soils are mostly residual or recently weathered, typically rocky, coarse, porous, and well drained.

Representative soils for this ESG include Osito family, Springdale family, Lithic Xerorthents, and Olete family.

Vegetation dynamics

This ESG is dominated by pinyon-juniper (PJN) and is typically an open woodland of low, round crowned, bushy trees that are needle-leaved, evergreen, and depending on site suitability, range from less than 10 m (30 ft) to 15 m (50 ft) in height. Crowns of individual trees rarely touch and canopy cover generally is less than 50 percent. These open groves of overstory trees often have a dense to open layer of shrubs reaching heights of 1.5 m (5 ft). Low herbaceous plants may also be present in this habitat.

Stand structure varies depending on site quality and elevation. On favorable sites with little disturbance, pinyon-juniper forms dense cover; whereas on drier sites, spacing between trees increases and tree size decreases. At low elevations, pinyon-juniper stands are rather open, becoming denser at higher elevations. At maximal elevations, this habitat grades rapidly into adjacent habitats.

Overstory species composition at lower and mid-level elevations ranges from pure stands of singleleaf pinyon to stands of pinyon mixed with juniper (California), or oaks (California scrub or canyon live). At higher elevations, Jeffrey pine may also be found. Shrub-size plants in the subcanopy include small individuals of the overstory species, especially California juniper, as well as big sagebrush, blackbrush, common snakeweed, narrowleaf golden bush, Parry nolina, curleaf mountain mahogany, antelope bitterbrush, Parry rabbitbrush, chamise, and redshank, with an herbaceous layer of grasses and forbs associated with this habitat include western wheatgrass,

blue grama, and Indian ricegrass.

Information from:

California Wildlife Habitat Relationships System
California Department of Fish and Game
California Interagency Wildlife Task Group
By William F. Laudenslayer Jr. and Jerry R. Boggs

Hilberg, L.E., W.A. Reynier, and J.M. Kershner. 2017. Southern California Pinyon-Juniper Woodland Habitats: Climate Change Vulnerability Assessment Synthesis. Version 1.0. EcoAdapt, Bainbridge Island, WA. This document is available online at the EcoAdapt website (<http://ecoadapt.org/programs/adaptation-consultations/socal>).

Major Land Resource Area

MLRA 019X
Southern California Coastal Plains and Mountains

Subclasses

- F019XG913CA—Loamy Hills <30"ppt
- F019XI200CA—*Pinus muricata*/*Quercus pacifica* 13-24" p.z.
- F019XI201CA—*Pinus torreyana* var. *insularis*/*Nassella pulchra* 21-31" p.z.
- R019XD001CA—CLAYEY
- 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.
- R019XI109CA—Shaly 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.

Correlated Map Unit Components

23481782, 23482628, 23482633, 23482621, 23481862, 23481934, 23482290, 22642408, 22642343, 22665579, 22665246, 22666851, 22666852, 22644044, 22644050, 22644372, 22644288, 22644199, 22668723, 22668720, 22668719, 22668419, 22668424, 22668255, 22668253, 22668435, 22668697, 22669136, 22669133, 22668615, 22668397, 22669139, 22669143, 22669148, 22668341, 22668468, 22668467, 22668659, 22668354, 22668917, 22668364, 22668927, 22669159, 22669165, 22669174, 22669175, 22669180, 22669181, 22668930, 22668708, 22668704, 22668707, 22668815, 22668813, 22668806, 22668805, 22669049, 22669046, 22668837, 22668839, 22668838, 22669106, 22669105, 22669107, 22669083, 22669082, 22668597, 22668596, 22668600, 22669099, 22669100, 22668854, 22668856, 22669090, 22668713, 22668716, 22668714, 22668188, 22668192, 22669077, 22669073, 22668833, 22668829, 22668828, 22668273, 22668556, 22668555, 22668239, 22668240, 22668248, 22668249, 22668548, 22668537, 22668538, 22668534, 22669063, 22668276, 22668736, 22668732, 22668523, 22668524, 22668237, 22668236, 22668526, 22668525, 22669031, 22669032, 22669033, 22669025, 22669019, 22669020, 22668767, 22668765, 22668766, 22668291, 22668292, 22668293, 22668849, 22668847, 22668850, 22668223, 22668222, 22668780, 22668783, 22668507, 22668501, 22668505, 22668515, 22668510, 22668511, 22668297, 22668295, 22668519, 22668520, 22668302, 22668304, 22668303, 22668586, 22668592, 22668578, 22668863, 22668744, 22668440, 22668445, 22668444, 22669000, 22669002, 22668987, 22668990, 22669043, 22669041, 22668195, 22668752, 22669007, 22669009, 22668477, 22668479, 22669038, 22669036, 22669037, 22668464, 22668461, 22668480, 22668484, 22668485, 22668571, 22668569, 22668561, 22668559, 22668789, 22668788, 22668284, 22668283, 22587511, 22587516, 22587515, 22588124, 22588127, 22588344, 22588412, 22588411, 22587535, 22587536, 22588064, 22588147, 22588146, 22588398, 22587804, 22588392, 22588387, 22670977, 22670974, 22670978, 22670982, 22670986, 22670983, 22671527, 22673841, 22673458, 22673468, 22673685, 22673338, 22673487, 22673593, 22673594, 22673597, 22673590, 22673588, 22673592, 22673797, 22673799, 22673800, 22673435, 22673432, 22673437, 22673429, 22673430, 22673428, 22673794, 22673793,

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Stage

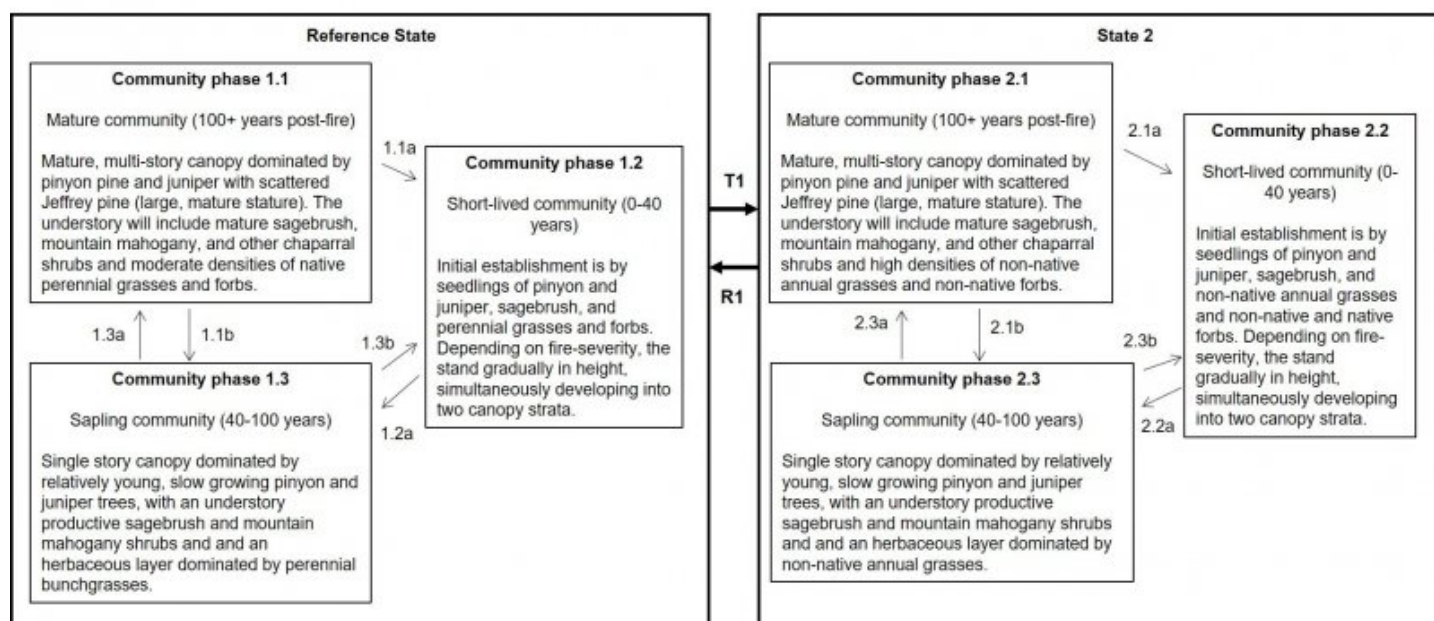
Provisional

Contributors

Curtis Talbot

State and transition model

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

While low- to moderate-severity surface fires are common in these more open-canopy pinyon and juniper woodlands with sagebrush and mountain mahogany shrubs and grasses as the prime understory fuels. As the woodland understory gets denser there is an increased presence of ladder fuels in the understory fuel higher-severity fires. On a landscape scale, a mixed-severity fire regime occurs in these pinyon-juniper woodlands. Stands with high densities and/or a significant shrub understory are more likely to experience severe fires and high tree mortality, and under these conditions, stand-replacing crown fires may kill almost all pinyon and juniper trees regardless of age. Pinyon and juniper woodland habitats are sensitive to drought, primarily due to low seedling recruitment and growth rates that may prevent habitat regeneration; dry conditions have been linked to tree mortality and range contraction. Moisture-stressed trees are more vulnerable to insects and disease, and anthropogenic stressors such as pollution can exacerbate the impacts of climate stressors. Human activity may contribute to increased fire ignitions, and more frequent and/or severe wildfires may not allow stand regeneration, resulting in the loss of large areas of habitat.

1.1a This community pathway occurs following a severe fire that removes most of the vegetation. Severe fires are not a common occurrence in these reference stands, due to the more scattered nature of the understory shrubs and perennial herbs that don't carry fires unless conditions are ideal--very dry, unusually productive summer followed by fire ignition and wind to carry the fuels. A prescription of mechanical clearing and burning of slash may also produce the same results.

1.1b This community pathway occurs when a low-moderate severity fire removes some but not all the overstory and shrubs, but enough to set the woodland back to a more single story, similar aged stand with higher shrub densities due to the open canopy.

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 that burns out all the young, thin barked pinyon and juniper trees and shrubs.

Transition Pathway (T1) This transition is caused by the introduction of non-native seed that allowed the conversion from a native perennial prairie to a non-native perennial and annual dominated prairie. Once these species become a part of the system, it is highly unlikely to go back without significant time and labor, and yearly maintenance.

Restoration Pathway (R1) – This restoration pathway occurs only when significant time and money inputs that would require constant maintenance and weed management and should be focused on areas that have not been permanently altered by urban developments. This restoration pathway may be less likely than R2, since most of these very altered landscapes will be more hospitable to invasive species than to the native species that are more particular and require specific growing conditions that may not be replicable due to the alterations to the site that had occurred.

State 2 – High severity fires may be more frequent now than they were historically, possibly due to changes in temperature, precipitation, stand density, and/or increasing abundance of non-native annual grasses and forbs that promote more frequent fires. Fire severity is one of the most important factors determining the mortality rate for pinyon and juniper species, but the timing of fire may also determine stand recovery. Overall, shifts in the wildfire regime toward a more severe and/or more frequent fire have the potential to damage large areas of pinyon and juniper habitat, which could require centuries for full re-establishment.

2.1a This community pathway occurs following a severe fire that removes most of the vegetation. Severe fires are a more common occurrence in these invaded woodland stands, due to the more continuous coverage between trees and shrubs in the understory shrubs that carry fires and burn easily, especially in late summer when conditions are ideal--very dry and windy. A prescription of mechanical clearing and burning of slash may also produce the same results.

2.1b This community pathway occurs when a low-moderate severity fire removes some but not all the overstory and shrubs, but enough to set the woodland back to a more single story, similar aged stand with higher shrub densities due to the open canopy.

2.2a This community pathway occurs over time without vegetation management or major disturbances.

2.3a This community pathway occurs over time without vegetation management or major disturbances and normal progression.

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