Ecological site group F014XG925CA
Sandy Upland

Last updated: 09/07/2023
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Key Characteristics

None specified

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 typically found on sloping to very steep hills formed in marine and wind modified marine sediments and soft sandstone formations. The elevations range from 250 to 1,500 feet.

Climate

The average annual precipitation in this area is 11 to 53 inches (272 to 1,353 millimeters), this site is on the higher end at 35 to 50 inches. The higher amounts of precipitation occur at the higher elevations in the area north of San Francisco. Most of the rainfall occurs as low- or moderate-intensity, Pacific frontal storms during winter. This area is very dry from midspring to midautumn. Snowfall is rare. The average annual temperature is 54 to 61 degrees F (12 to 16 degrees C). The freeze-free period averages 315 days and ranges from 265 to 365 days. It is longest near the coast, and it becomes shorter with elevation.

Soil features

Soils in this ESG soils are deep, somewhat excessively drained sandy soils that formed in weakly consolidated marine sediments. The soils are fine sand textures.

Some representative soils include:

Zayante, a sandy, mixed, mesic Humic Dystroxerept

Vegetation dynamics

This ESG covers the areas of the valleys in MLRA 14 that are on the transition zone with MLRA 4B or 15, and will be a mix of pines or oaks, chaparral shrubs and perennial and non-native annual grasses and forbs. The urbanized landscape in the valleys within this MLRA that exists today makes it difficult to imagine the full extent and dynamics of this natural landscape prior to human development.

These sandy upland areas that received significant spring water run-on from upslope watershed water. Once the area began to be settled, much of this site was cleared for agriculture and urbanization. As this landscape became houses and agriculture, the water table for many of these habitats moved deeper and deeper, creating soils that were more susceptible to invasion by non-native annual species which also increased fire frequencies. These well drained sandy soils would have transitioned to an altered state with the removal of the yearly groundwater sources, due to lower water holding capacities during the warmest parts of the growing season. The coarser textures will dry out through both drainage and evapotranspiration in the summer months making them less hospitable for many of the native plants and more dominated by annual grasses and forbs, these lower water-holding textures will have a lower resistance to disturbance. Annual production will vary depending on the soil texture and proximity to groundwater sources.

Historically, this site may have looked similar to the CWHR oak woodlands and chaparral, however with the introduction of non-native annual grasses and the impacts from fragmentation, extensive agriculture, continued de-watering, and human alterations such as homes and roads, this site now reflects a lower producing, dry, oak grassland with scattered pines.

Currently, where this site is not under cultivation or urban developments, it is dominated by oaks, chaparral shrubs, and an understory of non-native annual grasses. These include wild oats, soft chess, ripgut brome, red brome, wild barley, and foxtail fescue. Common forbs include broadleaf filaree, redstem filaree, turkey mullein, true clovers, bur clover, popcorn flower, and many others. Perennial grasses will be found in moist, lightly grazed, or relic prairie areas. Species composition is also related to water availability with greater amounts of relic perennial grasses in areas of greater precipitation or soil moisture.

Information from:

John G. Kie
California Wildlife Habitat Relationships System
California Department of Fish and Game
California Interagency Wildlife Task Group

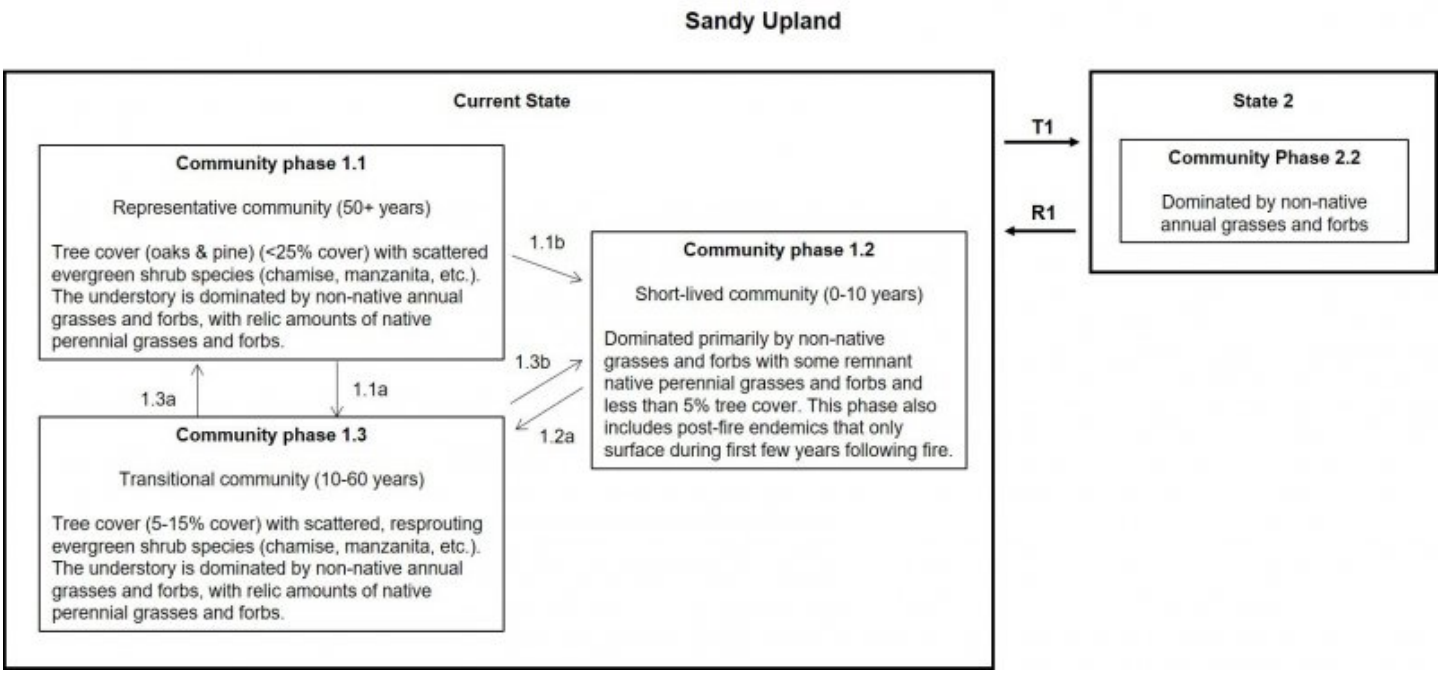
Major Land Resource Area

MLRA 014X
Central California Coastal Valleys

Stage

Provisional

State and transition model



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

Community Phase 1.1 – Tree cover (oaks & pine) (<25% cover) with scattered evergreen shrub species (chamise, manzanita, etc.). The understory is dominated by non-native annual grasses and forbs, with limited amounts of native grasses and forbs.

Community Pathway 1.1a: The historical fire regime is approximately 70 to 200 years, with lightning being the primary ignition source. Low severity, surface fires are most typical with severity of the fire increasing with the density of shrubs in the understory. Fires result in a decrease in mostly small or young trees, most shrubs and all herbaceous cover.

Community Pathway 1.1b: Fires become more frequent (less than 10-year intervals).

Community Phase 1.2 - Dominated primarily by non-native grasses and forbs with some remnant native herbs and less than 5% tree cover. This phase also includes post-fire endemics that only surface during first few years following fire.

Community Pathway 1.2a: The shift occurs as the oaks and evergreen shrubs regenerate and begin to shade out the herbaceous species.

Community Phase 1.3 – tree cover (5-15% cover) with scattered, re-sprouting chaparral shrub species (chamise, manzanita, etc.). The understory is dominated by non-native annual grasses and forbs, with limited amounts of native grasses and forbs.

Community Pathway 1.3a: This occurs as the coast live oak and other species becomes taller and older.

Community Pathway 1.3b: This occurs when a fire takes place before the coast live oak and other species have time to create a more dense, closed canopy.

State 2

Community Phase 2.1 - This community phase represents all the varied land uses that significantly alter this ecological site, typically removing the tree cover but not always. This is an extremely varied community phase that includes all types of alterations that so significantly alter the ecological site that it is permanently changed and no longer has typical or even representative ecological dynamics.

Transitions

T1 This transition is caused by repeated fires that have removed most to all of the trees and evergreen shrub seed sources and/or significant human alterations that force this ecological site over a threshold and change the function and structure of this site in extensive ways that serve mostly intensive agriculture or urban/housing developments.

R1 This restoration pathway occurs only when significant time and money inputs are focused on returning ecological function and native seed source to the site.

Citations