Ecological site group R022AW001CAESG
Valley Bottoms, Basin Floors, and Terraces

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Key Characteristics

- valley bottoms, basin floors, terraces

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

Site is found on valley bottoms, basin floors, and terraces at elevations that vary and slopes under 15%.

Climate

The average annual precipitation is 40 to 80 inches (1,015 to 2,030 millimeters) in much of this area, but it as low as 6 inches (150 millimeters) in the lower valleys and foothills and as much as 100 inches (2,540 millimeters) on the mountain peaks. The amount of precipitation increases with elevation and from south to north. Summers are dry, but there are occasional thunderstorms. Much of the winter precipitation occurs as snow. The average annual temperature is 25 to 63 degrees F (-4 to 17 degrees C), decreasing with elevation. The freeze-free period averages 205 days and ranges from 65 to 345 days, decreasing in length with elevation. It is longest at the lower elevations along the western edge of the area.

Soil features

Soils in this ESG are typically deep to very deep, moderately well drained or well drained soils that formed in alluvium and/or till from granitoid rock and volcanic ash or glacial deposits.

The most typical soils represented include:

Monache, a coarse-loamy, mixed, superactive, frigid Cumulic Ultic Haploxerolls
Marmotland, a coarse-loamy, isotic Vitrandic Dystrocryepts
Lorack, a loamy-skeletal, mixed, active, frigid Ultic Haploxeralfs

Vegetation dynamics

This ESG is characterized by the low slopes, short growing days, and valley bottoms and terrace landforms. Lodgepole pine typically forms open stands of similarly sized specimens in association with few other species and with a sparse understory. On fertile sites, trees can reach a height of 40 m (130 ft.), but typically a stand consists of groups averaging 15 to 20 m (40 to 65 ft.) in height. Mature Sierran stands often contain significant seedlings and saplings, in contrast to the even aged character of stands in the northern Cascades and Rocky Mountains. Lodgepole pine generally dominates the habitat. Occasional associates include aspen and mountain hemlock. The amount of understory is weakly correlated with overstory density. The understory may be virtually absent, consisting of scattered shrubs and herbs, or a rich herbaceous layer at meadow margins. Many lodgepole stands are associated with meadow edges and streams, where the understory consists of grasses, forbs, and sedges. In the southern Sierra and mountains of southern California, understory shrubs such as huckleberry and mountain heather may be common.

Three major disturbances affect lodgepole pine in California: fire, insects, and logging. These disturbances create openings of various sizes that lodgepole pines rapidly recolonize. The stages of vegetation change are primarily the

result of increased tree density, canopy cover, and size. A short period of herbaceous productivity precedes closure of the tree canopy on productive sites. The prolific seed output, establishment, and seedling growth of lodgepole pine makes the period of herbaceous production short.

Continued recruitment into stands produces overstocking and slow growth of the overcrowded trees. This overcrowding may make them susceptible to insects, although others have argued that the more vigorously growing trees are more likely to be attacked. Beetle infestation creates large quantities of fuel that increase the probability of wildfire.
Many Sierran meadows have been invaded over the last few centuries by lodgepole pine; creating new dense stands. Although the understory persists, productivity is lowered. The causes of this invasion are poorly understood. Repeated episodes of tree invasion and subsequent reestablishment of meadows have occurred since the most recent glaciation.

Sourced from:

California Wildlife Habitat Relationships System
California Department of Fish and Game
California Interagency Wildlife Task Group
James W. Bartolome

Major Land Resource Area

MLRA 022A
Sierra Nevada and Tehachapi Mountains

Subclasses

- F022AB100CA–Subalpine, sandy-skeletal, moderately steep slopes
- F022AB111CA–Skeletal Valley Floor Till
- F022AD100CA–Gravelly Moraine
- F022AD101CA–Frigid Shoulders And Slopes
- F022AD102CA–Cool Moraines
- F022AD103CA–Very Deep Cryic Slopes
- F022AD104CA–Colluvial Frigid Mountain Slopes
- F022AD105CA–Frigid Glacial Outwash
- F022AE025CA–Loamy Moist Outwash
- F022AF001CA–Frigid Sandy Outwash Plain Gentle Slopes
- F022AH201CA–Cobbly Alluvial Terraces
- F022AH203CA–Mesic Moraine
- F022AI204CA–Mesic Mountain Valley Complex Moderately Well Drained
- F022AX014CA–Frigid D-C Low Gradient Riverine
- F022AX100CA–Frigid, Sandy, Moist, Outwash Fan
- R022AD003CA–Gravelly Southern Slopes
- R022AE013CA–Granitic Loam 15-20 P.Z.
- R022AE014CA–Wet Meadow
- R022AE016CA–Dry Meadow
- R022AE202CA–Granitic Pocket
- R022AW001CA–Valley Bottoms, Basin Floors, and Terraces
- R022AX000CA–C-D-Channel riverine meadow system
- R022AX001CA–Cryic lacustrine meadow
- R022AX006CA–High Gradient, Glacially Scoured Headwater Riverine
- R022AX007CA–Subalpine, low to mid gradient E-channel riverine
- R022AX008CA–Moist Bedrock Pockets
- R022AX009CA–Subalpine Discharge Slopes
- R022AX010CA–Mesic C-channel riverine system
- R022AX011CA–Mid-Gradient, Upper Montane E-channel Meadow complex
- R022AX101CA–Frigid Anastomosed System
- R022AX102CA–Frigid E-C Meadow System

- R022AX103CA–Cryic E Meadow System
- R022AX104CA–Sphagnum Fen
- R022AX105CA–Steep Mountain Drainageways
- R022AX107CA–Frigid C Channel System
- R022AY016NV–WET MEADOW
- R022AY017NV–SEMI-WET MEADOW
- R022AY018NV–DRY MEADOW
- R022AZ036CA–MOIST CLAYPAN
- R022AZ037CA–CLAY BASIN
- R022AZ054CA–MOIST MOUNTAIN BASIN

Correlated Map Unit Components

22938420, 22938419, 22938629, 22936465, 22946977, 22523081, 22523064, 22523065, 22559990, 22559989, 22667127, 22667132, 22667138, 22667139, 23015921, 23015812, 23015816, 23016485, 23016487, 23016285, 23016453, 23016227, 23016280, 23016249, 23016610, 23016234, 23016351, 23016352, 23027955, 23027803, 23027802, 23027877, 23028036, 23028041, 23028043, 23028046, 23028049, 23027963, 23027882, 23027967, 23027886, 23027817, 23027821, 23027888, 23027968, 23027896, 23027975, 23028054, 23026895, 23026901, 23026900, 23026918, 23027682, 23027507, 23027530, 23027559, 23027577, 23028327, 23028328, 23028167, 23028523, 23028527, 23028533, 23028534, 23028181, 23028707, 23028544, 23028545, 23028543, 23028189, 23028188, 23028333, 23028334, 23028546, 23028547, 23028191, 23028192, 23028719, 23028557, 23028559, 23028375, 23028566, 23028216, 23028400, 23028589, 23028769, 23028239, 23028594, 23028593, 23028255, 23028664, 23028669, 23028298, 23028310, 22589696, 22589795, 22589833, 22590053, 22589923, 22589838, 22589730, 22589758, 23488101, 23488104, 23488237, 23488240, 23488106, 23488110, 23488113, 23488115, 23488117, 23488241, 23488242, 23488243, 23488244, 23488278, 23488276, 23488279, 23488859, 23488865, 22591678, 22591798, 22591166, 22591824, 22591825, 22591317, 22591830, 22591831, 22591878, 23482881, 23482884, 23482927, 23482928, 23482944, 23482949, 23482943, 23482975, 23482977, 23483010, 23483008, 23483020, 23483065, 23483084, 23483762, 23483761, 23483763, 23483767, 23483770, 23483771, 23483773, 23483107, 23483183, 23482860, 23483686, 23483694, 23483692, 23483570, 22595739, 22595740, 22595736, 22595948, 22595949, 22595507, 22596030, 22595251, 22595544, 22595373, 22595889, 22596070, 22596072, 22595356, 22595623, 22596033, 22596035, 22595878, 22595884, 22595877, 22595413, 22595417, 22609929, 22610178, 22609877, 22609898, 22609892, 22610206, 22609903, 23030616, 23030610, 23030609, 23029777, 23029775, 23030602, 23030603, 23030240, 23030241, 23030232, 23030167, 23030162, 23029212, 23029152, 23029150, 23029240, 23029247, 23029264, 23029158, 23029254, 23029249, 23029253, 23030086, 23030082, 23029192, 23029191, 23029180, 23029177, 23029387, 23029388, 23031848, 23031847, 23031719, 23031528, 23031520, 23031509, 23031475, 23031474, 23031358, 23031674, 23031461, 23031459, 23031320, 23031928, 23031783, 23031778, 23031403, 23031286, 23031506, 23031267, 23031774, 23031773, 23031740, 23031741, 23031840, 23031701, 23032388, 23032390, 23032389, 23032179, 23032325, 23032397, 23032402, 23032436, 23032438, 23032298, 23032051, 23032050, 23032171, 23032112, 23032484, 23032486, 23032134, 23032336, 23032314, 23032273, 23032275, 23032362, 23032073, 23032340, 23032282, 23032285, 23032281, 23032154, 23032159, 23032308, 23032305, 23032306, 23032208, 23032207, 23032200, 23032197, 23032453, 23032450, 22663168, 22663171, 22663022, 22663309, 22663311, 22663328, 22663330, 23149974, 23149767, 23149575

Stage

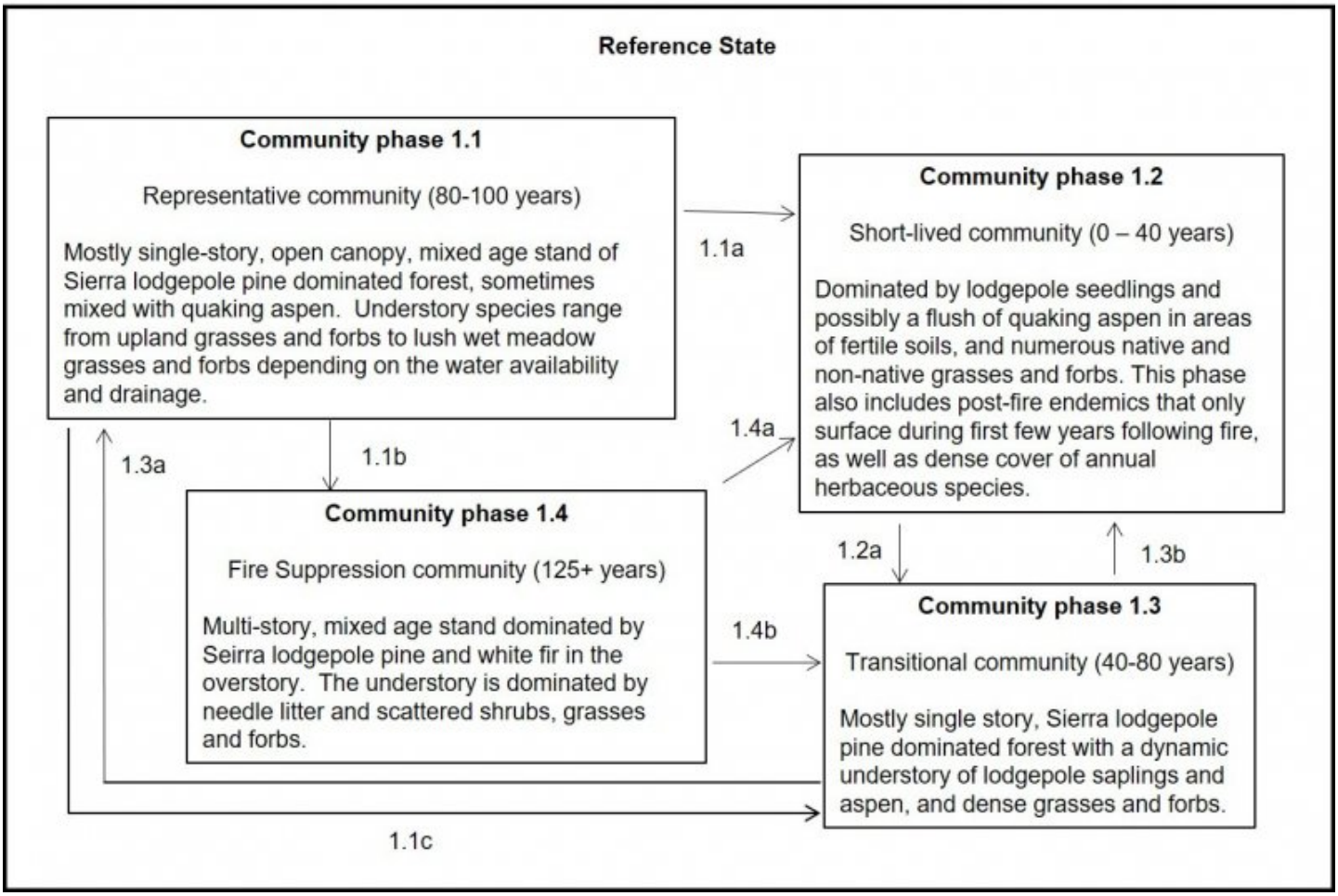
Provisional

Contributors

Curtis Talbot

State and transition model

Valley Bottoms, Basin Floors, and Terraces



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

Sierra lodgepole pine can be long-lived exceeding 150 years old. Trees grow tall and narrow with short branches and 1.2 to 2.4 inch needles in fascicles of two. Its thin bark and shallow roots make it susceptible to fire. Sierra lodgepole pine is the only non-serotinous lodgepole pine. Therefore it does not need fire to open its cones to release seeds. The roots of Sierra lodgepole pine are generally shallow, which enables it to grow on shallow soils. Sierra lodgepole pine produces a taproot that may atrophy or grow horizontally in cases of high-water tables or root restrictive layers.

1.1a This community pathway occurs following a high severity fire. Sierra lodgepole pine regenerates prolifically after fire and evenly aged stands are formed. 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 the stand becomes more mixed aged and dense. White fir, which has established in the understory, becomes increasingly prevalent in the canopy and creates a dense Sierra lodgepole pine-white fir forest.

1.1c This community pathway occurs following a low to moderate severity fire that removes many but not all of the lodgepole 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.

Citations