

11280

Northern California Coastal Scrub

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Vegetation Type

Shrubland

Map Zones

2, 3, 4

Geographic Range

This type occurs from the central California coast in Monterey and San Luis Obispo counties north to about the Oregon border. It is found usually within 5-10mi of the coast and is within the zone of summer fog. In the south, it gradually transitions to Southern California Coastal Scrub starting in Monterey Co., and in the north, it gradually dissipates around the Oregon border.

Biophysical Site Description

This type occurs on coastal bluffs, terraces, and hill slopes. Soil is variable from fine-grained sedimentary and skeletal granitic substrate to deep sandy and clay loam on terraces. Shrubs are tolerant of salt spray and winds and typically are bathed in cool marine air even in the summer dry season. This type occurs below the zone of summer temperature inversion that commonly occurs along the California coastal hills.

Vegetation Description

A moderately dense to dense scrub averaging >60% cover, with variable openings that may have relatively dense understory herbaceous species. Species are a mix of evergreen microphylls and winter-deciduous species, as opposed to south coastal scrub which are largely a mixture of summer drought deciduous and evergreen species. Dominant species are *Baccharis pilularis*, *Eriophyllum stoechadifolium*, *Frangula californica*, *Mimulus aurantiacus* (*Diplacus aurantiacus*), *Toxicodendron diversilobum*, *Ceanothus thyrsiflorus*, *Lupinus arboreus*, *Eriogonum latifolium*, *Gaultheria shallon*, *Rubus ursinus*, *R. spectabilis* (north of San Francisco), *R. parviflorus*, *Corylus cornuta*, and *Holodiscus discolor*. An herbaceous and woody understory is well developed in the northern California range and diminishes south of the Golden Gate. South of the San Francisco Bay, it sometimes lacks the understory and incorporates drought-deciduous Southern Coastal Scrub species from the south, such as *Artemisia californica* and *Eriogonum fasciculatum*.

BpS Dominant and Indicator Species

Symbol	Scientific Name	Common Name
BAPI	<i>Baccharis pilularis</i>	Coyotebrush
ERST9	<i>Eriophyllum stoechadifolium</i>	Seaside woolly sunflower

FRCA12	<i>Frangula californica</i>	California buckthorn
TODI	<i>Toxicodendron diversilobum</i>	Pacific poison oak
RUUR	<i>Rubus ursinus</i>	California blackberry
RUPA	<i>Rubus parviflorus</i>	Thimbleberry
CETH	<i>Ceanothus thyrsiflorus</i>	Blueblossom

Species names are from the NRCS PLANTS database. Check species codes at <http://plants.usda.gov>.

Disturbance Description

Coastal scrub is often considered a seral intermediate vegetation between coastal grassland and various woodlands and forests of central and northern California. In extreme northwestern California, this scrub tends to only occupy the steep coastal bluffs where a combination of erosion and salt-laden winds tend to maintain it as a narrow strip. In central coastal California, transitions between coastal grassland and coastal scrub are common, as at Point Reyes National Seashore. Here much of the grassland was probably maintained by clearing and livestock grazing, and the scrub colonizes old pastures and ungrazed fields. Further from the coast where coast live oak woodland has been cleared for pasture land, the same process occurs and has been described by McBride and others. Prior to Native American colonization, fire was sporadic and lightning-caused (perhaps >100yr return). After Native American habitation, many portions of the coastal scrub were burned frequently, particularly around encampment and village sites (perhaps 5-20yr intervals). There was undoubtedly a dynamic interface between coastal scrub and coastal grassland and between coastal oak woodland and coniferous forest for many years. The most stable coastal scrub was likely to occur on windswept points and bluffs on shallow soils that precluded the colonization by trees and precluded the dominance by grasses of the northern California coastal grasslands.

Northern Coastal Scrub commonly occurs on thicker soils and moister aspects than Southern Coastal Scrub or Chaparral in the Central Coast Ranges; and where it occurs adjacent to the other two types, the Northern Coastal Scrub is usually at a lower elevation. The Southern Coastal Scrub elements are typically more drought-deciduous than the northern elements (Axelrod 1978:1119). On sites of thicker soil and more moisture, Northern Coastal Scrub is commonly found in a matrix with open meadows or patches of coastal prairie or annual grassland. It commonly invades and replaces these grasslands, the result of natural succession after the cessation of frequent fire and livestock grazing. Major shrub species are a combination of wind-dispersed and animal-dispersed, with the former usually dominant in early seral situations. *Baccharis* brushland in the Berkeley Hills is commonly invaded by coast live oaks (*Quercus agrifolia*), which can eventually succeed into oak woodland and replace the brushland (McBride 1974).

Fire Frequency

Severity	Avg FI	Percent of All Fires	Min FI	Max FI
Replacement	109	100		
Moderate (Mixed)				
Low (Surface)				
All Fires	109	100		

Fire interval is expressed in years for each fire severity class and for all types of fire combined (All Fires). Average FI is the central tendency modeled. Percent of all fires is the percent of all fires modeled in that severity class. Minimum and Maximum FIs show the relative range of fire intervals as estimated by model contributors, if known.

Scale Description

[illegible]

Tree	5-10	C	C	C	C	C	C	C	C	C	C
Tree	10-25	C	C	C	C	C	C	C	C	C	C
Tree	25-50	C	C	C	C	C	C	C	C	C	C
Tree	>50	C	C	C	C	C	C	C	C	C	C

Succession class letters A-E are described in the Succession Class Description section. Some classes use a leaf form distinction where a qualifier is added to the class letter: Brdl (broadleaf), Con (conifer), or Mix (mixed conifer and broadleaf). UN refers to uncharacteristic native or a combination of height and cover that would not be expected under the reference condition. NP refers to not possible or a combination of height and cover which is not physiologically possible for the species in the BpS.

Description

Class A 5 Early Development 1 - All Structures

Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
BAPI	<i>Baccharis pilularis</i>	Coyotebrush	Upper
DIAU	<i>Diplacus aurantiacus</i>	Orange bush monkeyflower	Upper
RUUR	<i>Rubus ursinus</i>	California blackberry	Lower

Description

Immediately following disturbance, most understory is colonized by various herbs and grasses with scattered young *Baccharis*, *Mimulus aurantiacus* (*Diplacus aurantiacus*), and *Rubus ursinus*. Replacement fires consume these grasses (mostly lightning strikes), but more frequent fires occurred near villages.

Maximum Tree Size Class

None

Class B 15 Mid Development 1 - Closed

Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
BAPI	<i>Baccharis pilularis</i>	Coyotebrush	Upper
RUUR	<i>Rubus ursinus</i>	California blackberry	Low-Mid
TODI	<i>Toxicodendron diversilobum</i>	Pacific poison oak	Upper
FRCA12	<i>Frangula californica</i>	California buckthorn	Upper

Description

After about 5yrs, *Baccharis* infills and other shrubs colonize, starting with *Toxicodendron* and *Frangula californica* and eventually including slightly taller mature shrubs of coffeeberry and other species such as *Corylus*, *Rubus parviflora*, and *Toxicodendron*. Eventually, the *Baccharis* begins to have a large number of dead stems. Herbaceous cover diminishes, and crown closure increases up to 100%. Native grazing assumed to consume ~1/200 per year.

Maximum Tree Size Class

None

Class C**80****Late Development 1 - Closed**Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
FRCA12	Frangula californica	California buckthorn	Upper
COCO	Collinsia concolor	Chinese houses	Upper
TODI	Toxicodendron diversilobum	Pacific poison oak	Upper
RUPA	Rubus parviflorus	Thimbleberry	Upper

Description

The most mature old-growth forms of coastal scrub tend to lose dominance of *Baccharis* and are dominated by varying mixtures of *Frangula californica*, *Toxicodendron*, *Corylus cornuta*, *Holodiscus discolor* and may have emergent trees such as *Pseudotsuga menziesii*, *Picea stichensis*, or farther inland and southward, *Quercus agrifolia* and *Umbellularia californica*. These trees are grown through a closed canopy (60-100%) of *Baccharis*.

Maximum Tree Size Class

None

Model Parameters**Deterministic Transitions**

From Class	Begins at (yr)	Succeeds to	After (years)
Early1:ALL	0	Mid1:CLS	5
Mid1:CLS	6	Mid1:CLS	999
Late1:CLS	30	Late1:CLS	999

Probabilistic Transitions

Disturbance Type	Disturbance occurs In	Moves vegetation to	Disturbance Probability	Return Interval (yrs)	Reset Age to New Class Start Age After Disturbance?	Years Since Last Disturbance
Native Grazing	Early1:ALL	Early1:ALL	0.01	100	Yes	0
Replacement Fire	Early1:ALL	Early1:ALL	0.0118	85	Yes	0
Alternative Succession	Mid1:CLS	Late1:CLS	1	1	Yes	25
Native Grazing	Mid1:CLS	Early1:ALL	0.005	200	Yes	0
Replacement Fire	Mid1:CLS	Early1:ALL	0.009	111	Yes	0
Replacement Fire	Late1:CLS	Early1:ALL	0.009	111	Yes	0

References

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