USDA Natural Resources Conservation Service

Ecological site R019XI121CA
Rocky bluffs 24-34" p.z.

Accessed: 05/11/2025

General information

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.

Figure 1. Mapped extent

Areas shown in blue indicate the maximum mapped extent of this ecological site. Other ecological sites likely occur within the highlighted areas. It is also possible for this ecological site to occur outside of highlighted areas if detailed soil survey has not been completed or recently updated.

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	(1) *Dudleya greenei* (2) *Coreopsis gigantea*

Physiographic features

This ecological site is found on all aspects of the coastal hills of San Miguel Island. The slopes range from 15 to 50 percent, and elevation ranges from just above sea level to 2624 feet.

Table 2. Representative physiographic features

Landforms	(1) Hill
Elevation	0–2,624 ft
Slope	15–50%
Aspect	Aspect is not a significant factor

Climatic features

This ecological site is found only on San Miguel Island. The average annual precipitation is 29 inches with a range between 24 to 34 inches, mostly in the form of rain in the winter months (November through April). The average annual air temperature is approximately 61 to 66 degrees Fahrenheit, and the frost-free (>32F) season is 365 days.

Table 3. Representative climatic features

Frost-free period (average)	365 days
Freeze-free period (average)	365 days
Precipitation total (average)	34 in

Influencing water features

This site is not influenced by riparian or wetland water features.

Soil features

This ecological site is found on soils classified as lithic haploxeralfs, which have developed from residuum weathered from calcareous sandstone. The soils are shallow with a surface texture comprised of loamy sands and a subsurface texture of gravelly sandy loam. The mean annual soil temperatures (MAST) range from 59 to 64 degrees F, which are classified as thermic.

This ecological site occurs on the following soil components in the Channel Islands Soil Survey:

SSA Map Unit Component
CA688 980 Lithic Haploxeralfs

Table 4. Representative soil features

Surface texture	(1) Very gravelly loamy sand
Family particle size	(1) Sandy
Drainage class	Well drained
Permeability class	Moderate
Soil depth	10–20 in
Available water capacity (0-40in)	1.2 in
Electrical conductivity (0-40in)	0 mmhos/cm
Sodium adsorption ratio (0-40in)	0
Soil reaction (1:1 water) (0-40in)	6.6–7.3
Subsurface fragment volume <=3" (Depth not specified)	10–15%

Ecological dynamics

This ecological site is on shallow, wind-exposed soils that can be found on the steep bluffs and exposed flat terraces near the ocean. The dominant species can vary, but Green's liveforever (*Dudleya greenei*) and Giant coreopsis (*Coreopsis gigantea*) seem to be the most common. Other common species include golden-yarrow (*Eriophyllum confertiflorum*), San Miguel milkvetch (*Astragalus miguelensis*), redflower buckwheat (*Eriogonum grande* var. rubescens), and prostrate coastal goldenbush (*Isocoma menziesii* var. sedoides). Common non-native species in this area are sea fig (*Carpobrotus chilensis*), and common iceplant (*Mesembryanthemum crystallinum*).

There is very little data about plant succession in this habitat. It appears that if a hardy species can find itself a suitable niche it will take hold in that area. This plant community was relatively undisturbed during the years of heavy grazing, because of its location on steep, inaccessible sea cliffs.

State and transition model

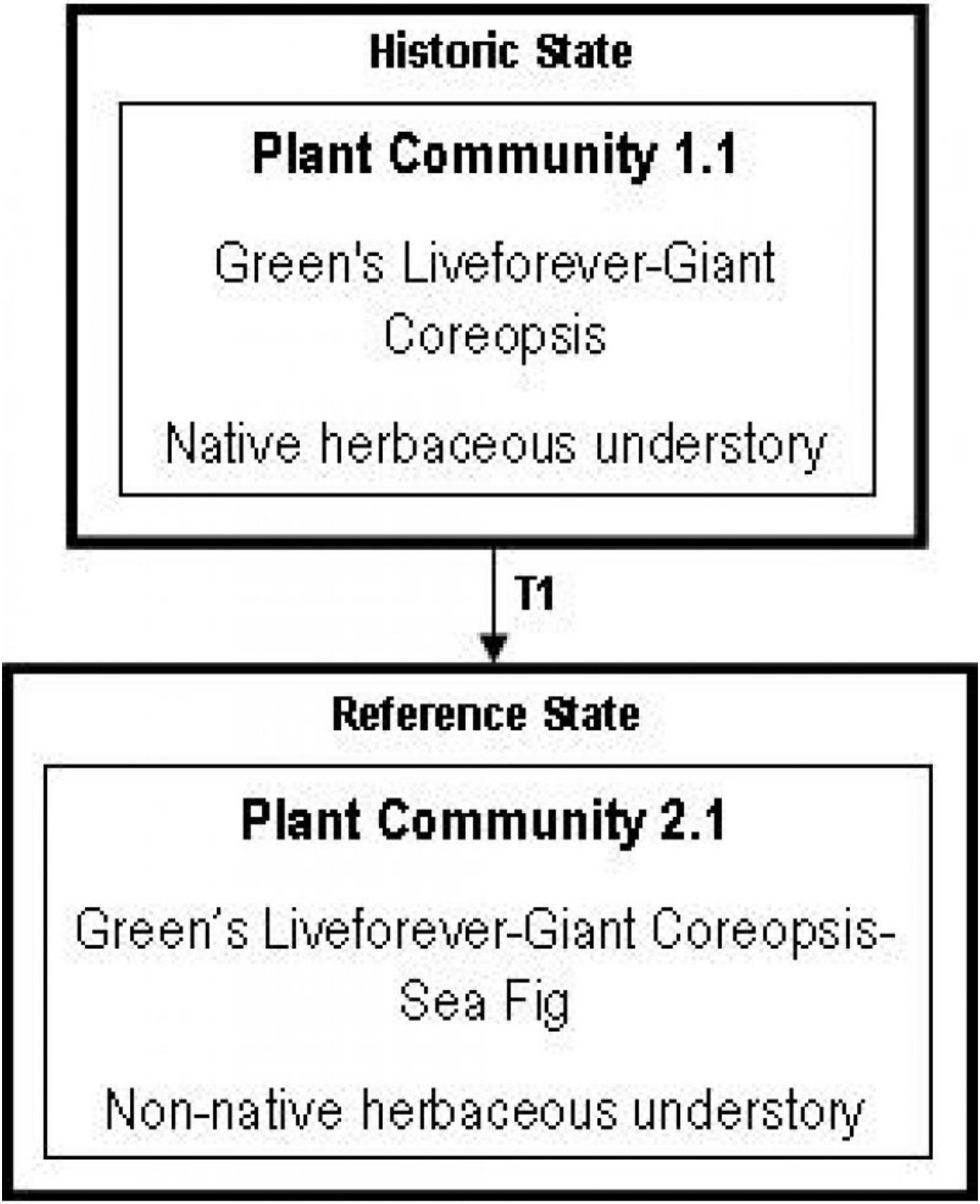

Figure 3. State Transition Model

State 1
Reference State - Plant Community 2.1

Community 1.1
Reference State - Plant Community 2.1

This reference state is similar to the historic plant community. The steep bluffs that make up this site are protected from most non-native herbivores and so are less susceptible to the disturbances seen on other Channel Island sites. This site is quite static and is dominated by the presence of Green's liveforever (*Dudleya greenei*) and Giant coreopsis (*Coreopsis gigantea*). Common non-native species in this area are sea fig (*Carpobrotus chilensis*), and common iceplant (*Mesembryanthemum crystallinum*).

State 2
Historic State - Plant Community 1.1

Community 2.1
Historic State - Plant Community 1.1

The historic state was likely represented by a rocky coastal bluff scrub community, which was dominated by low growing, salt tolerant species. The site was dominated by Green's liveforever (*Dudleya greenei*) and Giant coreopsis (*Coreopsis gigantea*), but vegetation cover and species composition varied due to the rockiness, exposure, and the slope of the terrain. Other species included golden-yarrow (*Eriophyllum confertiflorum*), San Miguel milkvetch (*Astragalus miguelensis*), redflower buckwheat (*Eriogonum grande* var. rubescens), and prostrate coastal goldenbush (*Isocoma menziesii* var. sedoides). Transition 1: Fires and, more rarely, non-natural grazing by livestock and non-native wildlife can place a stress on the historic state. This pressure gives an advantage to encroaching non-native plant species and will lead to the invasion of non-native annual grasses and forbs.

Additional community tables

Table 5. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
Shrub/Vine					
1	**shrub**			10–1000	
	Menzies' goldenbush	ISMES	*Isocoma menziesii var. sedoides*	10–1000	–
Forb					
2	**forbs**			500–1200	
	dudleya	DUDLE	*Dudleya*	1–1000	–
	giant coreopsis	COGI	*Coreopsis gigantea*	1–500	–
	golden-yarrow	ERCO25	*Eriophyllum confertiflorum*	1–100	–
	San Miguel milkvetch	ASMI6	*Astragalus miguelensis*	1–100	–
	sea fig	CACH38	*Carpobrotus chilensis*	1–100	–
	redflower buckwheat	ERGRR	*Eriogonum grande var. rubescens*	1–30	–

Inventory data references

The following NRCS plots were used to describe this ecologcial site:

SM-22

Type locality

Location 1: Santa Barbara County, CA	
Latitude	34° 4′ 7″
Longitude	120° 22′ 3″
General legal description	The site location is on San Miguel Island, near Harris Point.

Contributors

M. Munnecke

Rangeland health reference sheet

Interpreting Indicators of Rangeland Health is a qualitative assessment protocol used to determine ecosystem condition based on benchmark characteristics described in the Reference Sheet. A suite of 17 (or more) indicators are typically considered in an assessment. The ecological site(s) representative of an assessment location must be known prior to applying the protocol and must be verified based on soils and climate. Current plant community cannot be used to identify the ecological site.

Author(s)/participant(s)	
Contact for lead author	
Date	
Approved by	
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:**

2. **Presence of water flow patterns:**

3. **Number and height of erosional pedestals or terracettes:**

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):**

5. **Number of gullies and erosion associated with gullies:**

6. **Extent of wind scoured, blowouts and/or depositional areas:**

7. **Amount of litter movement (describe size and distance expected to travel):**

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):**

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):**

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:**

---

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):**

---

12. **Functional/Structural Groups (list in order of descending dominance by above-ground annual-production or live foliar cover using symbols: >>, >, = to indicate much greater than, greater than, and equal to):**

    Dominant:

    Sub-dominant:

    Other:

    Additional:

---

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):**

---

14. **Average percent litter cover (%) and depth (in):**

---

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):**

---

16. **Potential invasive (including noxious) species (native and non-native). List species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicators, we are describing what is NOT expected in the reference state for the ecological site:**

---

17. **Perennial plant reproductive capability:**
