

# Coastal Habitats of Los Angeles



## A Dynamic History

Native plant species were restored on this path in 2005 by the City of Los Angeles. This trail provides a snapshot of the coastal dunes ecosystem, a unique coastal habitat that has survived agricultural use, military use, and residential development.

In fact, some of the original plant and animal species still survive here today in pristine condition. Some species were reintroduced in the disturbed areas of the El Segundo Dunes by environmentalists and by the City of Los Angeles beginning in 1986 during the restoration of the habitat for the federally endangered El Segundo Blue Butterfly.

This path gives the public regular access to the beauty and biodiversity of the coastal dunes. Thanks to the efforts of committed environmentally-minded citizens and nonprofit organizations and their supporters, in 1992 and 1994, the City of Los Angeles officially protected this approximately 307-acre coastal dunes area from further development by rezoning it for nature preservation-related land uses only (City of Los Angeles Ordinances No. 167,940 and 169,676). As such, the Airport/El Segundo Dunes area is currently protected:

- As an Environmentally Sensitive Habitat Area (ESHA) by the California Coastal Commission under the California Coastal Act of 1976;
- In part as an El Segundo Blue Butterfly Preserve by the United States Fish and Wildlife Service (FWS) under the Endangered Species Act (ESA) of 1973; and
- As habitat for sensitive species of concern by the California Department of Fish and Wildlife (CDFW) under various California laws.

All major restoration work in these coastal dunes is overseen by the Los Angeles World Airports (LAWA) Environmental Services Division and the California Coastal Commission. LAWA also coordinates with FWS, CDFW, and the public to guide the restoration activities.

The California Coastal Commission is the public agency established in 1972 to protect, conserve, restore, and enhance environmental and human-based resources of the California coast and ocean for environmentally sustainable and prudent use by current and future generations.

## Beautiful Sights and Smells

During the spring, visitors can enjoy a showy display of native wildflowers and butterflies while walking along this path. During the summer and autumn, the calming aromas of coastal sagebrush (*Artemisia californica*) give visitors a sense of peace and clarity, a perfect mindset with which to visit the ocean and send off the California sun, a favorite pastime of California residents.

## Southern Coastal Backdune

Coastal backdune is on the lee side of the dunes facing away from the ocean. The backdune experiences less drying from the prevailing westerly winds and salt spray. The slope is steep and unstable and receives wind-transported sand that was deposited at the dune crest because of the decrease in wind velocity at this point. The backdune receives morning sun, but is shady by midafternoon, so it is cooler than the foredune and experiences less thermal stress. Fog also tends to hang over the backdune, so humidity is generally higher than on the foredune. The plant community here is dominated by a dense community of scattered shrubs, sub-shrubs, and herbs generally less than 3 feet tall. This area has greater plant diversity than foredune. The plant species include:



Mock heather  
(*Ericameria ericoides*)



Lemonadeberry  
(*Rhus integrifolia*)



California sunflower  
(*Encella californica*)



Bladderpod  
(*Isomeris arborea*)



Dune lupine  
(*Lupinus chamissonis*)



Coast prickly pear  
(*Opuntia littoralis*)



Horkelia Parish's brittlescale  
(*Horkelia cuneatus*)



Hairy goldenaster  
(*Atriplex parishii*)



California sagebrush  
(*Artemisia californica*)



Telegraph weed  
(*Heterotheca sessiflora ssp. fastigiata*)

## Coastal Dune Scrub/Prairie Ecotone

An ecotone is a transition area between plant community types. The biodiversity here is often greater than that found in either of these two plant community types due to the "edge effect" where these communities meet. In addition to the plants found in the Southern Dune Scrub, one can also find in this ecotone:



A photo by W.D. Pierce of the coastal dunes scrub/prairie ecotone in 1936 (in Mattoni and Longcore (1997). "The Los Angeles Coastal Prairie: A Vanished Community").



Nodding needlegrass  
(*Stipa cernua*)



Wild celery  
(*Apiastrum angustifolium Nutt.*)



Popcorn-flower  
(*Plagiobothrys canescens*)



Many thanks to our landscaping and environmental staff, and volunteers for all of your hard work on the LAX Coastal Dunes Preserve.

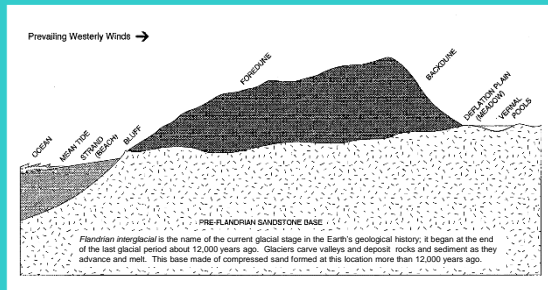


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## Microenvironments of the Dunes and the Diverse Plant Communities That Thrive in Them

The native plant communities that dominate the Los Angeles coastal dunes are especially adapted to the unique coastal foredune and backdune environments. The dunes flora must be capable of dealing with the harsh conditions unique to this coastal habitat, such as exposure to winds, salt spray, and temperature extremes. In addition, the loamy sand and sandy loam soils have up to 97% sand content, and are high in sodium and low in the major fertility components – nitrogen, phosphorous, and potassium. The sole source of natural water for the dunes is direct precipitation and local runoff. Runoff drains quickly through the sandy soil, and is only briefly retained at the surface in areas where the weathered, cemented sand remnants of the pre-Flandrian dunes are exposed or near the surface. Average annual rainfall is less than 12 inches, with 6 inches being the lowest recorded.



## Microenvironmental Variations

Microenvironmental variations to these environments are created by slopes that face north and south rather than east and west, by areas with accumulated organic debris from plant growth, and by areas where the sand has been blown off and the relatively impermeable sandstone underneath is exposed. Over time, depressions in this sandstone formed from erosional forces. This variation in the landscape allows for differences in levels of sunlight, temperature ranges, degrees of moisture and humidity, salinity, and many other factors that contribute to the diversity of the plant community. Biodiversity is especially high along the ecotones (transition areas) between the plant communities – often called the “edge effect.”

## Adaptations

Plant adaptations often found in coastal dunes environments are:

- Thicker leaves that sometimes hold water and protect plants from sun exposure, salt spray, and dehydration.
- Delayed germination that allows plant species to survive through harsh conditions such as excessive salt.
- Leaf hairs that minimize heat stress.
- Waterproof and shiny leaves that protect them from salty winds.
- Low- or ground-level growth to minimize wind damage.
- Long, thick taproots that travel deep into the sand to find water and to resist shifting sands caused by winds.

## Southern Coastal Foredune

The coastal foredune is the upward sloping part of the dunes that faces the ocean. It is subject to the most severe physical stressors in the dunes system: exposure to intense afternoon sun, prevailing westerly winds, salt spray, and great temperature extremes within a 24-hour period. The plant community is adapted to these conditions and is dominated by widely-spaced perennial species (2-3 feet apart) with a high proportion of suffrutescent plants (shrubby but not very woody) up to 12 inches tall, and includes:



Dune lupine  
(*Lupinus chamissonis*)



Silver beach bur  
(*Ambrosia chamissonis*)



Coastal buckwheat  
(*Eriogonum parvifolium*)



Deerweed  
(*Lotus scoparius*)



Beach primrose  
(*Camissonia cheiranthifolia*)



Scaly-stemmed sand plant  
(*Pholisma arenarium*)



Jimson weed  
(*Datura wrightii*)



Sand verbena  
(*Abronia umbellata*)



Lance-leaf liveforever  
(*Dudleya lanceolata*)



California croton  
(*Croton californica*)



Dune wallflower  
(*Erysimum capitatum*)



Two-tone everlasting  
(*Gnaphalium bicolor*)



Lewis' evening primrose  
(*Camissonia lewisii*)



Cleveland cryptantha  
(*Cryptantha clevelandii*)



Branching phacelia  
(*Phacelia ramosissima*)



Yellow pincushion  
(*Chaenactis glabriuscula*)



Dodder  
(*Cuscuta* spp.)  
a parasitic species



Telegraph weed  
(*Heterotheca grandiflora*)



California poppy  
(*Eschscholzia californica*)