Flora of the Peninsula

An efield Guide to the Vascular Native Plants of the Palos Verdes Peninsula


By: Neil Uelman

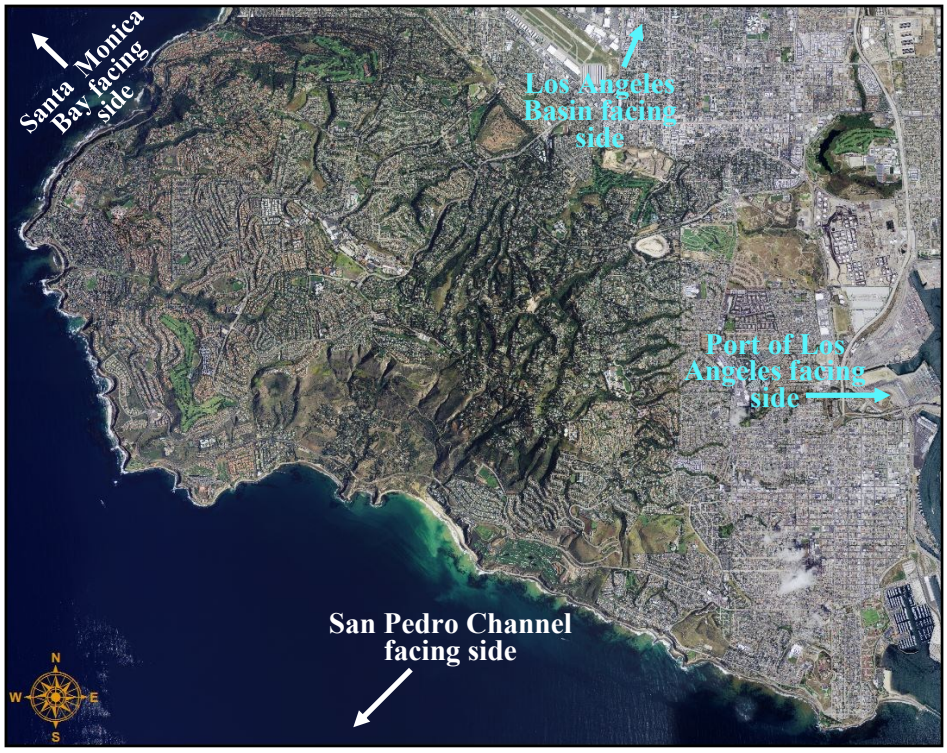
Dedication

This efield guide is dedicated to the native plants of the Palos Verdes Peninsula; thank you for letting me tell your story and teaching me your secrets. This efield guide is also dedicated to all the people that have strived to protect, preserve, and educate about the native plants and open spaces of the Palos Verdes Peninsula.

Preface

Rolling hills, breathtaking vistas, rugged and windswept bluffs, carved canyons, cloud-filled skies−set to the background of a vast blue ocean or bathed in a deep marine layer−the Palos Verdes Peninsula possesses all of these and more. The native plants of the Palos Verdes Peninsula bring all these scenes alive with color, texture, smells, and excitement. This is an efield guide to the native vascular flora of the Palos Verdes Peninsula. It encompasses 12 years of fieldwork and shows all vascular native plants that I have encountered in and out of nature reserves on the Palos Verdes Peninsula. This efield guide is designed to help you identify the native plants you come across on the Palos Verdes Peninsula. In this efield guide, 242 species are represented. Each species page is accompanied by full color photographs showing everything from overalls of the plants to microscope photos of plant parts. In addition, common names, scientific names, flowering times, and plant descriptions accompany each page. Get outside and start enjoying all the wonders and excitement that the native vascular plants of the Palos Verdes Peninsula have to offer. Cheers!

Palos Verdes Peninsula (PVP)



The Palos Verdes Peninsula (PVP) is situated on the southwestern edge of Los Angeles County and extends into the Pacific Ocean from the mainland. The PVP is known for its cool, moist maritime climate, steep coastal bluffs, terraced hillsides, island history, and remnant patches of native plant communities such as coastal sage scrub, willow riparian, back dune, coastal bluff scrub, grassland, and chaparral. These remnant patches dot the landscape and represent some of the last remaining stands of these plant communities between Orange County and the Santa Monica Mountains.

It is characterized by steep coastal bluffs up to 60 m tall, terraced hillsides, and numerous drainages, including Miraleste Canyon, Que Viento Canyon, Altamira Canyon, Agua Amarga Canyon, Malaga Canyon, and George F Canyon, among others. The PVP is 15 km long and 8 km wide and includes both the Palos Verdes Hills and the San Pedro Hill. These hills have a mixture of suburban communities and open space. Access to most open spaces is via over 1,700 acres managed by the Palos Verdes Peninsula Land Conservancy. Elevation of the PVP ranges from sea level to 451 m at the top of San Pedro Hill. The PVP has a Mediterranean climate and typically receives its rainfall from late fall through late spring (November to April). The average rainfall on the PVP is up to 16 inches (Gale 1988). The temperature on the PVP typically varies from 51˚F to 76˚F and is rarely below 46˚F or above 84˚F (Gale

1988). Frost events on the PVP are rare. The PVP has a strong maritime influence, and dense sea fog is common year-round. The dense sea fog is especially prevalent during late spring and early summer (May through July), and these months often see cloudiness persist for weeks. The PVP has an intriguing geological history that is relevant to the biogeography of its extant flora and fauna. Tectonic movements that eventually gave rise to the peninsula began in the Pliocene (5.3 mya to 2.6 mya) and resulted in the submarine formation of a doubly plunging anticline along the south side of the northwest-trending Palos Verdes fault (Woodring et al. 1946, Dibble 2000). This anticline emerged first as an island during the early Pleistocene (ca. 2.8 mya), becoming part of the mainland Los Angeles Basin only by the end of the Pleistocene, around 11,700 ya (Woodring et al. 1946, Dibble 2000). The oldest rocks found on the PVP are from the Jurassic Period (150 mya). These rocks, known as Catalina Schist, form the lowest layer of the PVP. Lying atop the Catalina Schist is a diverse mixture of sands, silts, gravels, and clay, which provides numerous substrate types for the vegetation communities of the PVP. Coastal sage scrub (CSS), which is one of the major plant communities found on the PVP, primarily consists of *Artemisia californica*, *Salvia leucophylla*, *Encelia californica*, *Eriogonum cinereum*, *Eriogonum fasciculatum*, *Opuntia oricola*, *Opuntia littoralis*, *Malosma laurina*, *Stipa lepida*, *Melica imperfecta*, *Elymus condensatus*, and *Rhus integrifolia*. An interesting component of the PVP CSS is that it is dominated by *Rhus integrifolia*. Another major plant community found on the PVP is riparian woodland. The PVP's riparian woodland can be found in most canyons where there is seasonal or perennial water flow. The riparian woodland primarily consists of *Salix lasiolepis*, *Salix laevigata*, *Artemisia douglasiana*, *Baccharis salicifolia* subsp. *salicifolia*, *Urtica dioica* subsp. *holosericea*, *Toxicodendron diversilobum*, *Rhus integrifolia*, *Rubus ursinus*, and *Sambucus mexicana*. The last major plant community on the PVP is coastal bluff scrub. The PVP's coastal bluff scrub primarily consists of *Atriplex lentiformis*, *Encelia californica, Opuntia littoralis*, *Opuntia oricola*, *Cylindropuntia prolifera*, *Suaeda taxifolia, Lycium californicum*, *Isocoma menziesii var. sedoides*, *Extriplex californica*, *Eriogonum parvifolium*, *Rhus integrifolia*, and *Cleomella arborea* var. *arborea*.

The unique biogeographical relationships of the PVP to the Channel Islands and coastal southern California present numerous interesting questions and conservation concerns regarding its vascular flora.

Palos Verdes Peninsula

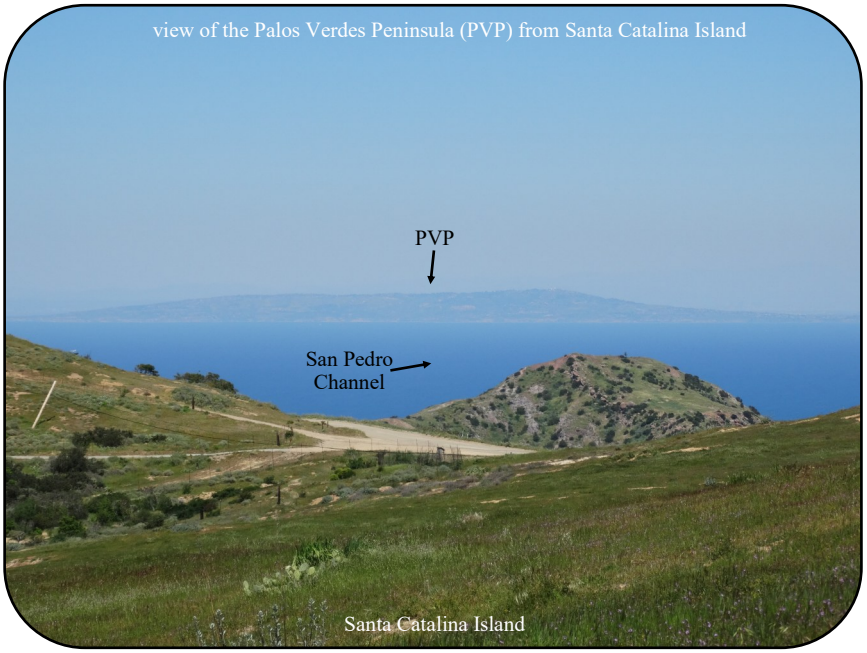
Santa Monica Bay facing side

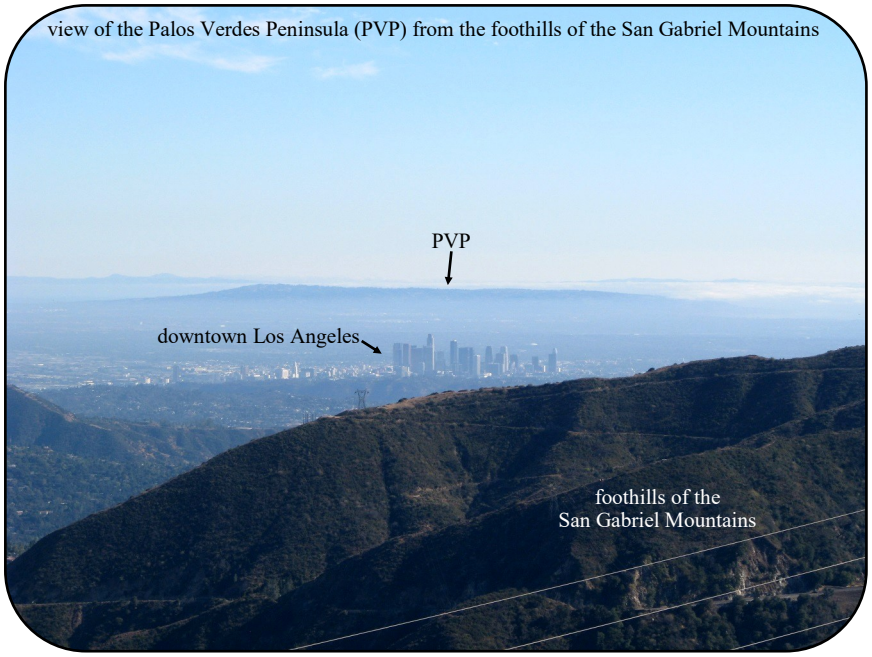
Los Angeles Basin facing side

San Pedro Channel facing side

Port of Los Angeles facing side

Palos Verdes Peninsula



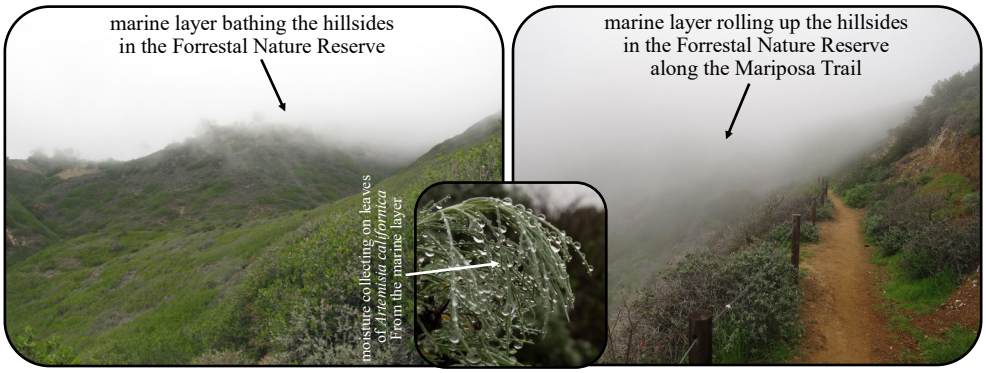


Palos Verdes Peninsula
Plant Communities

The native plant communities found on the PVP are coastal sage scrub, coastal bluff scrub, chaparral, back dune, grassland, riparian woodland, and marine rocky intertidal.

Palos Verdes Peninsula
Plant Communities

Since the PVP is situated on the coast of the South Bay area in southern California, temperatures on the PVP are fairly pleasant year around, and in addition, it can often become bathed in a marine layer throughout the year. This coastal marine layer provides the plants of the PVP with much needed supplemental moisture (outside of average rainfall) throughout the year, especially during the summer months.



PVP Plant Communities
Marine Rocky Intertidal Surfgrass

Marine rocky intertidal surfgrass community is found throughout the coast of the PVP. It is in the area between marine and terrestrial habitat in turbulent waters at or below the low tide line. The organisms of this zone are well adapted to being exposed for periods of time with fluctuating tides and wave action. The aquatic flowering plant that dominates this turbulent rocky area along the PVP waters is *Phyllospadix torreyi* or commonly known as surfgrass (and yes this plant produces underwater flowers!). This species also provides a whole suite of ecosystem services as well as provides refuge for many marine organisms.


Phyllospadix torreyi exposed at low tide

exposed

submerged

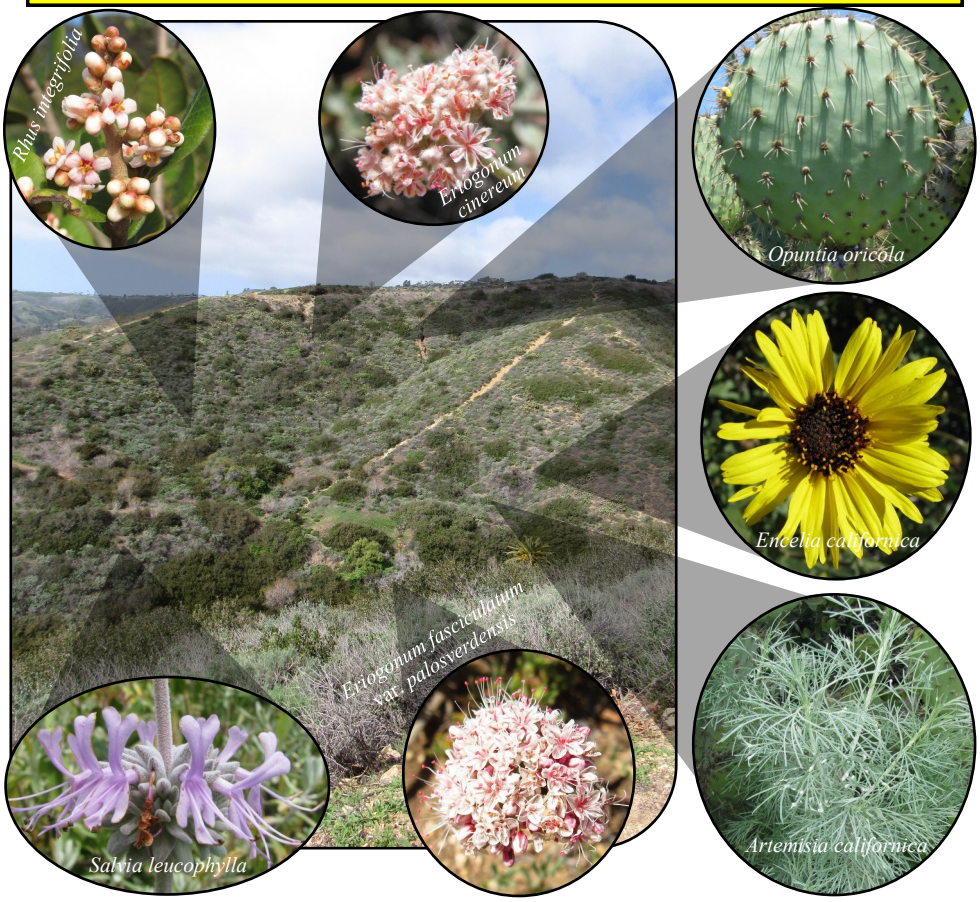

Phyllospadix torreyi submerged

PVP Plant Communities
Coastal Bluff Scrub

Coastal bluff scrub is found throughout the steep coastal bluffs PVP. This plant community is constantly exposed to high salinity, fierce winds, extreme exposure, and erosion. The plants of this community are shrubs, subshrubs, herbs, and succulents. The dominant plants of this community on the PVP are *Atriplex lentiformis*, *Dudleya lanceolata*, *Dudleya virens* subsp. *insularis*, *Encelia californica*, *Rhus integrifolia*, *Cylindropuntia prolifera*, *Opuntia oricola*, *Opuntia littoralis*, *Isocoma menziesii* var. *vernonioides*, *Isocoma menziesii* var. *sedoides*, *Extriplex californica*, *Eriogonum parvifolium*, *Mirabilis laevis* var. *crassifolia*, *Suaeda taxifolia*, *Lycium californicum*, *Peritoma arborea* var. *arborea*, *Aphanisma blitoides*, *Phacelia hubbyi*, and *Lupinus succulentus*.

PVP Plant Communities
Coastal Sage Scrub

Coastal sage scrub is the most commonly encountered plant community on the PVP. It is found throughout the PVP, most extensively on south-facing slopes. Soft shrubs and subshrubs often comprise this plant community. The native plants in this community usually have soft foliage and many species are aromatic. A good amount of the plants of this community go dormant in response to drier times (summer to fall). As ground moisture becomes less available, the plants drop leaves (drought deciduous) or reduce leaf size to conserve water. Other plants will completely die back to the ground and hangout in underground storge organs until moisture is available, while some other types of plants store water in stems or leaves (e.g., *Dudleya*, *Opuntia.*) and can be active year around. The dominant plants that make up coastal sage scrub of the PVP are *Artemisia californica*, *Salvia leucophylla*, *Salvia mellifera*, *Encelia californica*, *Eriogonum cinereum*, *Eriogonum fasciculatum* var. *palosverdensis* (unpublished name), *Opuntia oricola*, *Opuntia littoralis*, *Rhus integrifolia*, *Malosma laurina*, *Stipa lepida*, *Melica imperfecta*, *Elymus condensatus*, and *Galium angustifolium* subsp. *angustifolium*.



PVP Plant Communities
Riparian Woodland

Riparian woodland is found along stream channels throughout the PVP. Most of these stream channels are found along canyons and have seasonal or perennial water flow. Since water is available in the ground for most of the year, the stream channels become dominated by large woody tree species. Other native plant species found in this community take advantage of the shade and cooler temperatures. The dominant plants in the riparian woodlands of the PVP are *Salix lasiolepsis*, *Salix leavigata*, *Artemisia douglasiana*, *Baccharis salicifolia* subsp. *salicifolia*, *Urtica dioca* subsp. *holosericea*, *Toxicodendron diversilobum*, *Sambucus mexicana* and *Rubus ursinus*.

PVP Plant Communities
Riparian Woodland

PVP Plant Communities
Chaparral

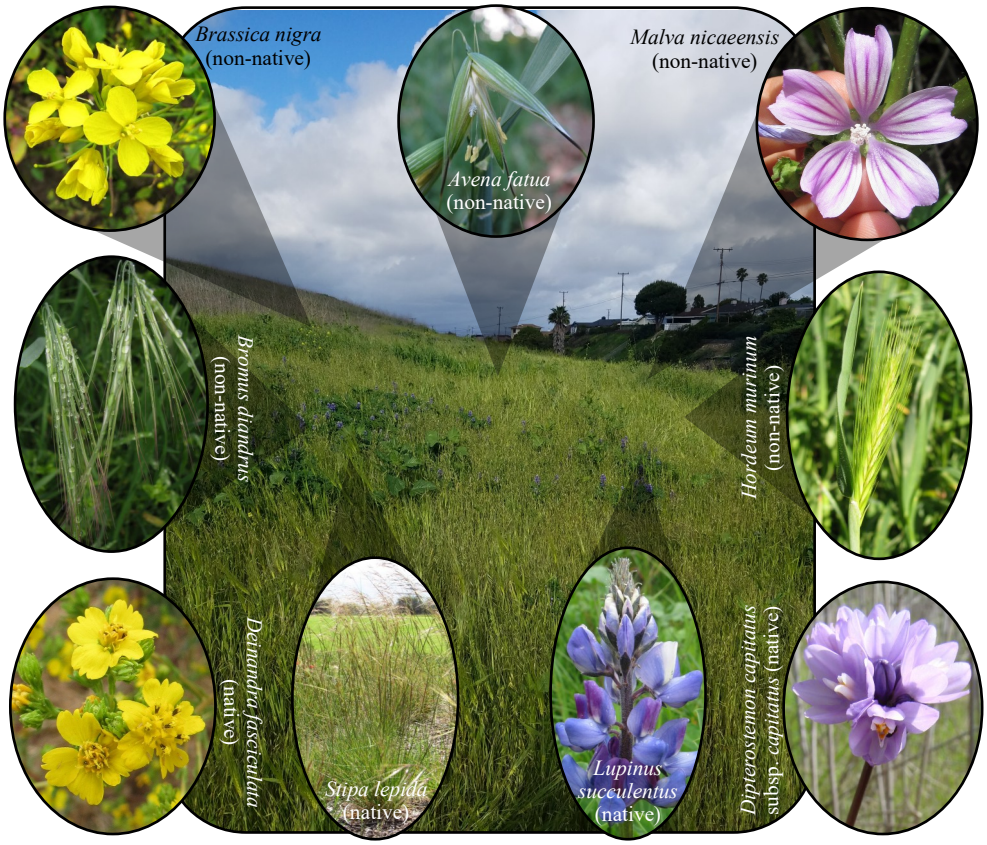
Chaparral is usually found along north-facing slopes on the Santa Monica Bay and Los Angeles Basin facing sides of the PVP. Due to the extensive development on these sides of the PVP, its occurrence nowadays is patchy and restricted primarily to canyons. The plants that make up this community are more arboreal (developing a single main trunk and producing a canopy) than shrubby and tend to be evergreen and hard-leaved. These plants also have extensive taproots that tap into the deep ground water allowing them to stay green all year. The dominant plants that comprise this community on the PVP are *Rhus integrifolia*, *Heteromeles arbutifolia*, and *Prunus ilicifolia* subsp. *lyonii*. The PVP chaparral community appears similar to chaparral seen on nearby Santa Catalina Island.

PVP Plant Communities
Back Dune

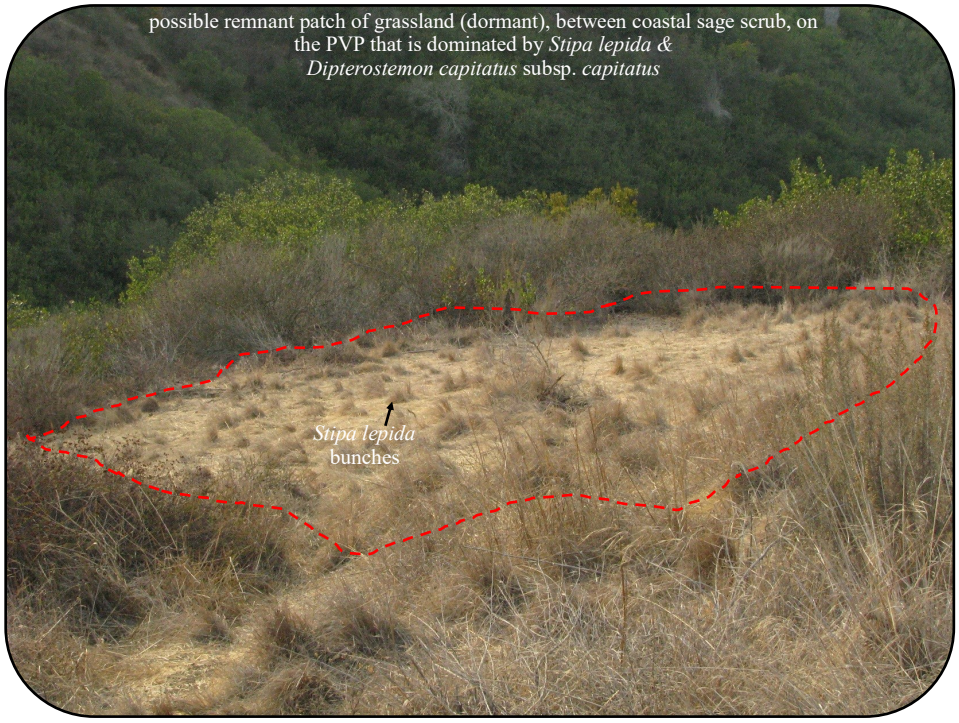
A back dune plant community is found at Malaga Dunes on the PVP. The Malaga Dunes area is a back dune that was once part of an extensive dune system that covered the coastal area of the present day South Bay area. This back dune is situated furthest back from the historical frontal dunes and is unique and special. The soil is a sandy clay combination. The dominant native plants that make up this back dune community are *Clarkia purpurea* subsp. *quadrivulnera*, *Croton californicus*, *Acmispon glaber* var. *glaber*, *Lupinus truncatus*, *Camissoniopsis lewsii*, *Camissoniopsis bistorta*, *Ericameria ericoides*, *Phacelia ramosissima*, *Rumex hymenosepalus*, *Artemisia dracunculus*, and *Pseudognaphalium stramineum*.

PVP Plant Communities
Grassland

Grasslands are found throughout the PVP. Nowadays, these grasslands have become type converted to mostly non-native grasslands and have increased in size due to historical disturbances such as extensive grazing, agriculture (dry farming), and development on the PVP. Historical native grasslands on the PVP were probably small patches found in spaces between coastal sage scrub on the hillsides (see pg. 18). These native grasslands were probably dominated by *Stipa lepida*, *Stipa cernua*, *Bromus sitchensis* var. *carinatus*, *Festuca microstachys, Dipterostemon capitatus* subsp. *capitatus*, *Brodiaea terrestris subsp. kernensis*, *Lupinus succulentus*, *Calochortus catalinae*, *Castilleja exserta*, *Deinandra fasciculata*, *Amsinckia intermedia*, and *Asclepias fascicularis.* The native plant species that can still be found in the present-day PVP grasslands are *Stipa lepida*, *Stipa cernua, Bromus sitchensis* var. *carinatus, Dipterostemon capitatus* subsp. *capitatus*, *Deinandra fasciculata*, and *Lupinus succulentus.* However, these grasslands are now dominated by non-natives species such as *Avena fatua*, *Avena barbata*, *Bromus catharticus*, *Bromus diandrus*, *Bromus madritensis*, *Brassica nigra*, *Hordeum vulgare*, *Hordeum murinum*, *Malva nicaeenis*, *Malva parviflora*, and *Centaurea melitensis*.

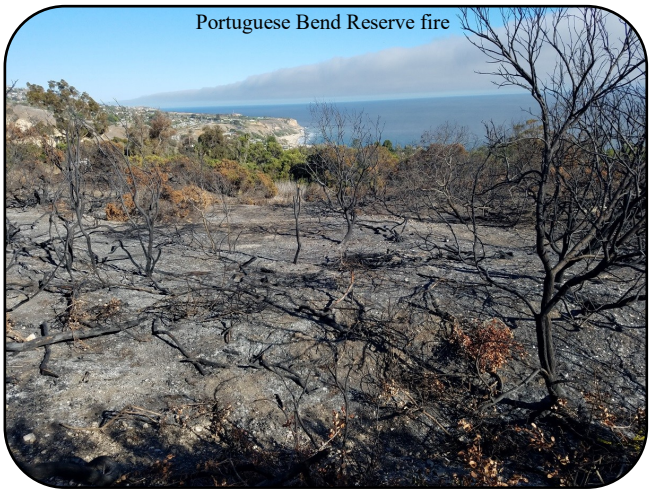


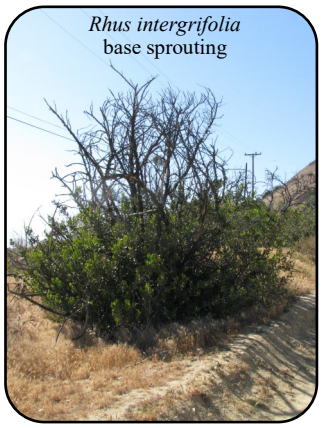
PVP Plant Communities
Grassland



Palos Verdes Peninsula
Fire

Many of the native plants on the PVP appear to be fire adapted. Perennial shrubs such as *Rhus integrifolia*, *Artemisia californica*, *Heteromeles arbutifolia, Malosma laurina, and Isocoma menziesii var. vernonioides* have been found resprouting after fires. Native annual species and corms/bulbs have also come up in great abundance following fires, like *Emmenanthe penduliflora* (see pg. 21) and *Calochortus catalinae*. Historically fire probably opened up plant communities on the PVP and helped to maintained a good balance of native plants. Nowadays, fires on the PVP convert the areas that burn to non-native grasslands or monocrops of *Brassica nigra*.


Portuguese Bend Reserve fire


Rhus intergrifolia
base sprouting


Three Sisters Reserve fire


Heteromeles arbutifolia
base sprouting

Palos Verdes Peninsula
Fire

Isocoma menziesii var. *vernonioides*
base sprouting after a fire

Palos Verdes Peninsula
Fire

Emmenanthe penduliflora following the
2009 Portuguese Bend Reserve Fire

Emmenanthe penduliflora

Palos Verdes Peninsula
Historical Plants & Herbaria

Herbaria records have helped to shed light on what native plants where historically found on the PVP. Currently, a few species appear to be extirpated from the PVP as they are only seen in herbaria records but are no longer able to be found in the wild on the PVP. For example, plants such as *Cirsium occidentale* and *Ranunculus californicus* appear to be extirpated.

Cirsium occidentale from 1931

Ranunculus californicus from 1931

Literature Cited:

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