



## Friends of Los Peñasquitos Canyon Preserve

### About Nature: Habitats and Conservation Challenges

Black Mountain, Carmel Valley, Del Mar Mesa, and Los Peñasquitos Canyon

#### Coastal Sage Scrub

Coastal sage scrub grows on south-facing slopes in constant sunlight, and in hot, dry areas. Plants are adapted to conserve moisture in this harsh environment. Leaves are commonly small or narrow, folding, or coated with wax. Coastal sage scrub plants are generally less than a meter tall and grow far apart. Common plants are flat-top buckwheat, California sagebrush, black sage, and white sage. California quail, roadrunners, horned lizards, racers, and rattlesnakes have all adapted to this intense environment and are common in this habitat.



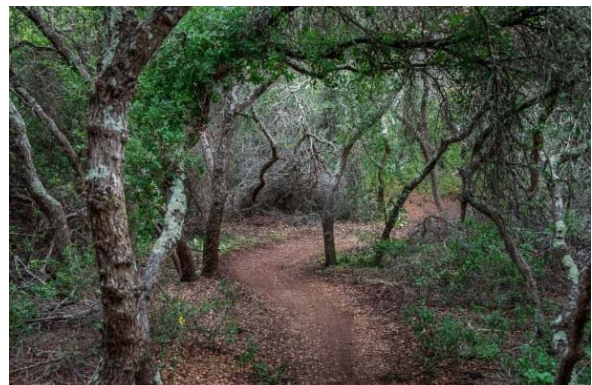
#### Chaparral

Chaparral grows on north-facing slopes that are protected from the hot sun. Shrubs generally have leathery leaves, and include toyon, chamise, Ceanothus, scrub oak, lemonade berry, and mission manzanita. The thick, tangled vegetation provides homes, hiding places, and food for pack rats, kangaroo rats, deer mice, black tailed jackrabbits and brush rabbits, bobcats and mule deer. Chaparral is home to wrentits, spotted towhees, and California thrashers. Reptiles are common, including the Western whiptail lizard, Granite spiny lizard, San Diego horned lizard and Pacific rattlesnake.



#### Old-growth Chaparral

Old growth chaparral is one of southern California's rarest plant communities, and is found on the nearly-flat plateau of Del Mar Mesa. Here the old growth chaparral has been undisturbed and untouched by fire for more than 100 years. It was home to the now extinct California grizzly bear. Mission manzanita, scrub oak, lemonade berry, and mountain mahogany are tall shrubs that form "tunnels" over the trails in some areas. Beyond the tunnels and other designated trails is a complex interweaving tangle of branches that creates a rich, but fragile habitat for a wide array of animals. This is why it is important to stay on designated trails.



## **Southern Maritime Chaparral**

Southern maritime chaparral or coastal chaparral is limited to the coastal fog belt, along the edges of Carmel Mountain Preserve and Los Peñasquitos Lagoon. This habitat type has low, relatively open vegetation that rarely rises above waist or shoulder height. Dominant plant species are Del Mar manzanita, wart-stemmed ceanothus, and chamise. Other common plants are lemonade berry, black sage, spine brush, coast prickly pear, spice bush, common fiddlenecks, and bush monkeyflower.

## **Grasslands**

Grassland habitat is found in the meadows in the valleys and on the mesa tops where native perennial bunch grasses and wildflowers have mostly have been replaced by non-native grasses. But there are still protected patches of purple needle grass and wildflowers such as shooting stars, mariposa lilies, Johnny jump-ups, blue dicks, owls' clover, tarweed, and goldenbush. Native grasslands support rodents and voles. Grasslands provide homes and food for rabbits, voles, gopher snakes, and other rodents, which are then prey for raptors including red-tailed hawks, white-tailed kites, and northern harriers. Many grasshoppers, other insects, trap-door spiders, and tarantulas live in the meadows.



## **Riparian—Right Along the Creek**

The riparian zone is where water flows year-round, and the “greenbelt” of creek, marshes, and ponds. The sycamore, willow, cottonwood, coast live oak, and mulefat dominate this habitat, and provide shelter and shade for wildlife and visitors to the preserve. Many animals visit the riparian zones for water, shade, and cover. Dragonflies, tree frogs, egrets, herons, mallards, raccoons, mule deer, bobcats, and coyotes all depend on riparian habitat to complete their life cycles and produce healthy young. Watch for their tracks in the sand or mud!



## **Vernal pools**

Vernal pools are shallow depressions in the clay soils. They were once abundant on the mesas, and due to development, it is estimated that only three percent remain. In summer, they look like dry puddles, but in wet winters the rains fill the pools with water. Tiny cysts in the soil hatch into small transparent “fairy shrimp” when the pools fill, sometimes surviving decades of drought. Frogs breed and lay their eggs here, and snakes and birds visit the pools to catch and eat the fairy shrimp and tadpoles. Some vernal pools have been fenced and protected, but all mesa visitors should avoid walking in or on any of the pools.



## Salt marshes

A salt marsh is a low-lying wetland periodically flooded with salt water. The west and central basins of the Reserve receive a steady saline influence when the mouth of the lagoon is open. Salt water along with mild, even temperatures sustain an assemblage of halophytes, or salt-tolerant plants, many of which are low-growing succulents. Salt marshes are an important habitat for shorebirds, which feed on the rich assortment of invertebrates in the mud; this is part of the reason why coastal San Diego county contains such a diversity of bird species. (from <https://thenaturecollective.org/>, more information at [www.lospenasquitos.org/](http://www.lospenasquitos.org/) ).



## Freshwater marshes

A freshwater marsh occurs where the creek is slowed down and the water has room to accumulate. There are several in the Peñasquitos Watershed, most prominently at the west end of the Preserve. The water is often shallow, but dense with vegetation that often includes the easily recognized Cattails, sedges, and rushes. The fresh-water Tule was used by native Californians to build boats capable of fishing out at the Coronado Islands. With their roots underwater, these plants have air tubes and air spaces to store and allow transport of oxygen down to the roots. A wide variety of bird species utilize these marshes.



## List of trees

(to be added)

# Conservation Challenges

## Oak trees

Several hundred coast live oak trees in the canyon are infested with Gold Spotted Oak Borer (GSOB). The insect larvae feed under the bark and destroy the cells that transport water and nutrients inside the tree. As adults, they bore a small D-shaped exit hole in the bark to fly and lay eggs on the bark of other oak trees. The GSOB has spread on firewood, so infested wood must not be moved or used as firewood until a tree has been dead for two years. Field surveys have recorded the location of infested trees, and management actions have been taken to slow but not eliminate the infestations and the tree mortality.



Large oak trees in Los Peñasquitos Canyon

## Rare and endangered plants

Four rare and endangered plants occur in the vernal pools. More information about each plant at <https://www.calflora.org/>.

- Otay Mesa mint (*Pogogyne nudiuscula*) PONU
- San Diego Mesa mint (*Pogogyne abramsii*), POAB
- Spreading navarretia (*Navarretia fossalis*), NAFO
- San Diego button-celery (*Eryngium aristulatum* var. *parishii*), ERAR

## California Gnatcatcher

The California Gnatcatcher (*Poliophtila californica*) is a Federally-endangered bird that has lost most of its habitat to development. Birds live only in coastal sage scrub, foraging for insects in shrubs and low trees. Gnatcatchers forage by moving about actively in shrubs and low trees, searching for a wide range of insects. They nest from late February to mid-July, building nests in dense low shrub. Eggs are incubated by both parents for about 14 days, and the young leave the nest about 15 days after hatching. Brown-headed Cowbirds often lay eggs in nests of this bird, and the gnatcatchers may wind up raising only young cowbirds.



California Gnatcatcher

## Least Bell's Vireo

Least Bell's Vireo (*Vireo bellii pusillus*) has also lost most of its habitat to development, and is a state- and federally-listed endangered species. The birds are sensitive to human disturbance, including night lighting and persistent human presence. Least Bell's Vireo are highly territorial, establishing breeding territories of about 1 to 4 acres in riparian woodland vegetation and building nests together. They winter in southern Baja California, Mexico, returning to southern California in mid-March and flying south in September. Least Bell's Vireos feed on insects, catching insects by foliage gleaning (picking prey from leaf or bark substrates), and hovering (removing prey from vegetation surfaces while fluttering in the air).



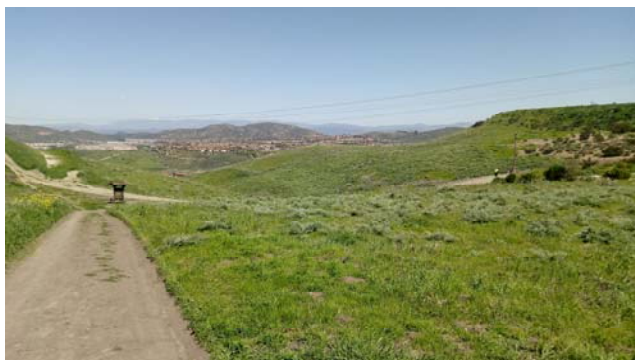
Least Bell's Vireo

## Weeds and weed removal

Many non-native plants now grow in the canyon, replacing native plants. Rye grass, oats and other grasses were first introduced in the 1800s to provide grazing for cattle. Others have grown from seeds in bird droppings, horse manure, and adjacent yards. They now also include wild geranium, black mustard, horehound, curly dock, pineapple weed, and several filaree species. These plants crowd out the native plants, that are important food and shelter for wildlife, and for erosion control. Volunteers now help to remove these plants by weeding and planting native species.

## Restoration projects

Most of the native habitats of chaparral, coastal sage scrub and grasslands have been destroyed by development. In some areas of the preserves, nonnative grasses and weeds dominate.



*Restoration sites, before and about four years after establishment*

## Volunteer restoration projects

Volunteers and plant restoration experts work together to remove invasive thistle plants and other weeds, plant native species, water the plants in dry months, and remove competing weeds. The Friends plan and organize restoration projects that include:

- Large restoration project is currently underway in the Santa Luz area, with work parties on many Sunday afternoons.
- Cactus has been established in some areas to provide habitat for threatened cactus wrens.
- Volunteers remove weeds in several areas that are adjacent to homes, where invasive plants invade from landscaping.



*Girl Scouts fill watering cans and water native plants*

Boy Scouts, Girl Scouts, and high school students often volunteer for the work parties.

The San Diego Hang Gliding and Paragliding Association has done cleanups and restoration in launch and landing areas.



*Volunteers prepare sites for planting*



### California Cactus Wren

Most of the habitat of California Cactus wren (*Campylorhynchus brunneicapillus*) has been lost to development, including the Santa Luz and 4 S ranch. Cactus wrens nest in Prickly pear cactus (*Opuntia* spp.) and Cholla (*Cylindropuntia* spp.) in tall, dense clusters, that provide protection for their nests and young from many predators. They hunt insects in California sagebrush, California buckwheat, and other plants in the coastal sage scrub. Restoration efforts on Black Mountain Open Space were supported by the City of San Diego, the Natural Resource Conservation Service and volunteers.

### Willow Monardella

Willow Monardella (*Monardella viminea*) is a perennial herb or subshrub in the mint family, that has been almost completely eliminated by development. This plant grows in clumps made up of 1-4 individual plants in coastal sage scrub and riparian scrub in sandy bottoms and on banks of ephemeral washes in canyons. Restoration in Lopez Canyon focused on installing barriers to slow creek flow and erosion, and transplanting seedlings from other locations.



### San Diego Thornmint

San Diego Thornmint (*Acanthomintha ilicifolia*) is a California endangered plant species. It occurs naturally in southwestern San Diego County and northern Baja California on gabbro and clay soils in openings within coastal sage scrub, chaparral, and native grassland. It is a small plant, blooming from April through June. Most of the populations have been destroyed by development and remaining populations are threatened by weeds that invade from agricultural fields and fuel modification zones, off-vehicle road use, and vulnerability of small plant populations. Conservation actions focus on weeding and protecting the plants from off-trail.

### Trail conditions

Preserve visitors who take shortcuts and follow unmarked “user trails” cause damage to plants, disturb animals, and invite others to disregard trail designations and responsible trail travel. Rangers and volunteers maintain and restore these trails. On Black Mountain Open Space Preserve, the San Diego Mountain Bike Association works with the rangers to maintain those trails.

### Backyard encroachment

Homeowners adjacent to the preserves are sometimes tempted to illegally expand their backyards into the public land of the preserves. This often introduces invasive plants and secondarily increases wildfire risks from the dried weeds. Homeowners need to secure household garbage and pet food to reduce urban-dependent animals that displace native wildlife. That leads to more opossums, skunks, coyotes, rats, and mice, which expand into native habitat and compete with native wildlife.

## Visitor education

Regulations are outlined at <https://www.sandiego.gov/park-and-recreation/parks/osp/lospenasquitos/penasq2>. This includes the following:

- Bicycles are allowed only on designated trails, speed limit is 10 miles per hour as posted.
- Dogs must be contained on a maximum 8-foot leash at all times.
- All plants, animals, rocks, artifacts, and structures are protected. Do not remove, disturb, deface, or collect any of them.
- Firearms, bows, slingshots, air rifles, fire and fireworks are prohibited.
- Glass containers, littering, loud noise, and amplified music are prohibited.
- Parking lots and trails are closed from sunset to 8 a.m, and overnight camping is prohibited.

## Climate Change

San Diego is projected to have more heat waves, drought, and wildfires in the years ahead, as the climate changes due to increased greenhouse gas emissions. There may be more hot days and more dry years. This drought will affect species differently and alter the mix of species in the canyon. Some plants and animals are more sensitive to temperature extremes and will have lower reproductive and survival rates. If insects emerge before birds hatch, there may not be food for the chicks. Increasingly dry fall months could extend the fire season and increase the risk of wildfires in the canyon. Some storm events may be more intense, causing erosion, and increasing flooding of the creek.