

Darlingtonia Trail

Smith River National Recreation Area Six Rivers National Forest

Welcome to a most uncommon habitat, home of the extraordinary California Pitcher Plant (*Darlingtonia californica*), a host of other plants, a few animals, and various insects. It's the insect-digesting characteristic of the Darlingtonia, plus its Cobra-like shape and showy blossoms, that people find so intriguing. As prospectors in times past sought out serpentine rock formations because of the minerals they contained, photographers and wildflower enthusiasts today seek the botanical treasures produced in **serpentine** environments. You're invited to walk a short, easy trail to a bog where you may observe the beauty of a large Darlingtonia community from two viewing platforms. Learn more about this rare and amazing plant and the plants and animals which share this space.

Did you notice the beautiful jade-green color of the water in the Smith River as you drove along the Highway 199 Scenic Byway? The mineral **serpentine** has a gray-green color and many of the rocks in the Smith River NRA contain this mineral in various forms, lending its distinctive color to the flowing water. The weathering of serpentinized rocks produces soils rich in magnesium, silica, and iron and low in calcium, potassium, and aluminum with high concentrations of the heavy metals nickel, chromium, and cobalt.

Serpentine soils are highly toxic to most plant species, and if you were to drive in areas along the North Fork Smith River, where the soils have a high serpentine content, you would notice how the trees appear stressed and stunted in growth. But some plants have adapted to serpentine soils and several will grow only in serpentine environments.

Welcome to the **Smith River National Recreation Area**, located within the Six Rivers National Forest and managed by the Forest Service, United States Department of Agriculture. This 305,337 acre National Recreation Area (NRA) was designated by Congress in November 1990 to protect the area's special scenic value, natural diversity, cultural and historical attributes, wilderness, wildlife, fisheries, and the Smith River watershed's clean waters. The Forest Service has been designated as the steward of the NRA to provide recreational opportunities and to manage this diverse area for all of its valuable resources.

Away from the coast, the Darlingtonia is usually found in perpetually wet serpentine soil, like seeps or bogs.

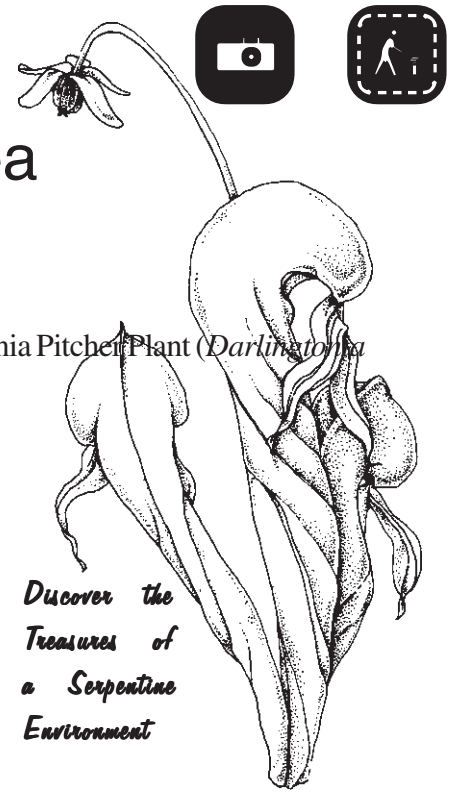
A Warning!

Another plant species that grows well here is **poison oak**. Please stay on the path, both to minimize impact on this fragile environment and to protect yourself from poison oak. Remember, **look, but don't touch!** The Darlingtonia may be viewed and photographed but picking or collecting them is not

permitted. Help us maintain this special resource for both present and future visitors.

At Mile Post 17.9 Hwy 199

The trail begins at the left (west) end of the parking lot and continues in a .2 mile loop. The two viewing platforms are wheelchair accessible. Trail surface is gravel.

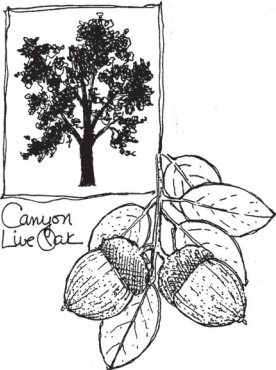


*Discover the
Treasures of
a Serpentine
Environment*

On the Way to the Bog

Pitcher Plants thrive in wetland environments where few other plants can survive.

But judging by numerous plants growing along the path, one would not guess that a bog is nearby. You may see the western fence lizard on the large rock at the beginning of the trail. Or you may discover a northern or southern alligator lizard or a blue tailed skink darting among rocks or logs. You'll also see coffeeberry, manzanita, blue-blossom ceanothus, canyon live oak, and Squaw Carpet, which all prefer

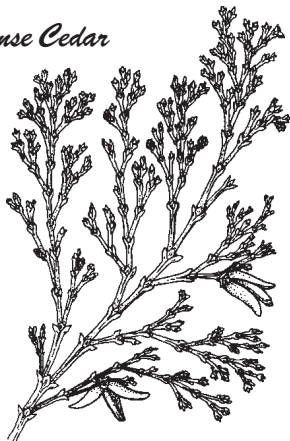


dry, well-drained soils typical of rocky serpentine environments. Some plant species, like Douglas-fir and Pacific madrone, will tolerate more variances in growing conditions, though obviously **all** the plants you see can withstand the heavy winter rainfall of northern California.

Evergreen huckleberry grows here and on moist, well-drained soil, in sun or shade, throughout the NRA, as does California laurel. As you get closer to the bog you'll notice more plants that like moist well-drained soil, like ocean spray and incense cedar. Another common name for ocean spray is *arrowwood*, so called because native Americans used its straight stems for arrow shafts. You can spot the flower "sprays" even in winter. Incense cedar is easily identified by its duckbill-shaped cones.



Incense Cedar



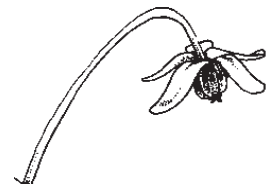
Don't miss the majestic Jeffrey pine growing near the bog. It's estimated to be about 150 years old. The cinnamon-red bark has a fruity odor and an appearance almost like a jigsaw puzzle.

Platform One: A Darlingtonia Haven

Most plants receive essential nutrients like nitrogen and phosphorous from the soil and not many can survive in wetlands. Wetlands typically have few nutrients available for plants. Darlingtonias receive their nitrogen and other nutrients from an unusual source — the insects and other small organisms that become trapped within the hood of the plant.

The hood and other appendages secrete a nectar that lures the insect into a hole on the underside of the hood. (See drawing on the right.) Light enters the transparent top of the hood and the insect flies toward the light. But the hood's slippery interior walls, with many downward-pointing hairs, impede an escape and the invading insect falls into the "pitcher's" water in the stem and drowns. Many minute organisms living in the water slowly consume the bug and, in the process, release essential nutrients that are absorbed by the darlingtonia.

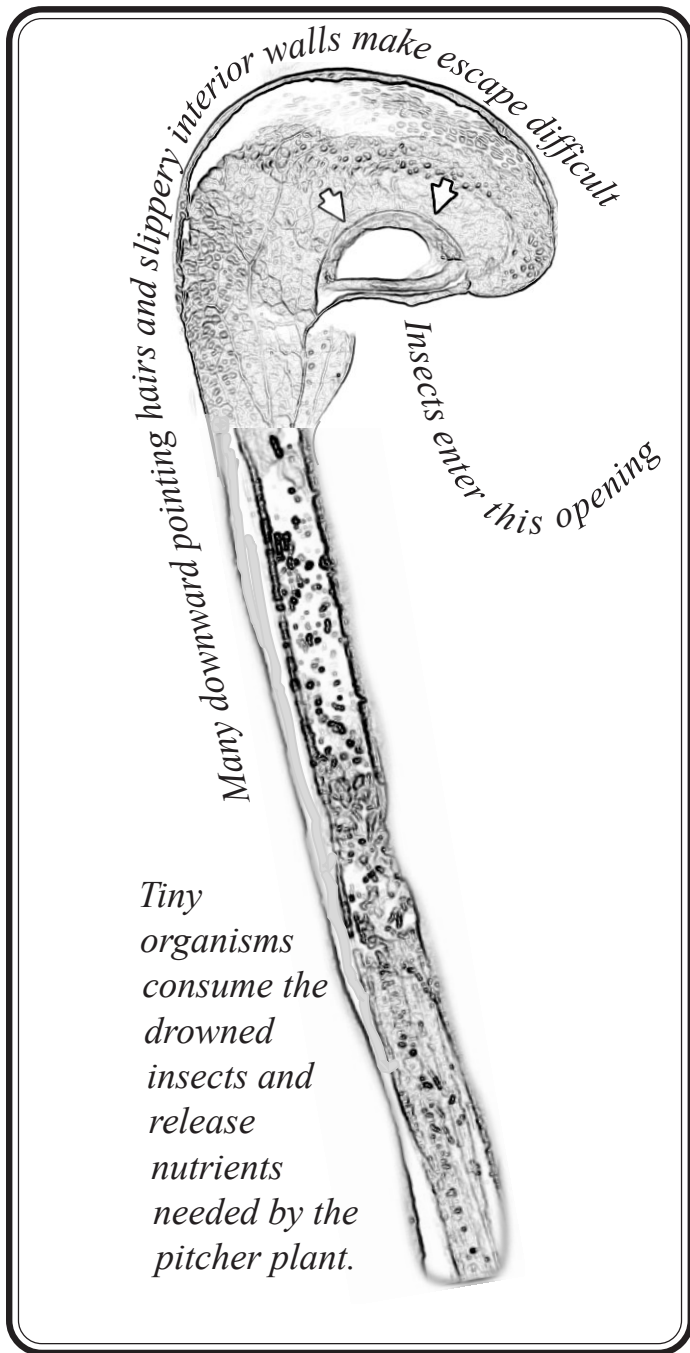
Do you see any darlingtonia flowers? They almost appear to be a separate plant, their reddish lily-like blossoms rising beside and often above the parent plant.



The flower turns upright after pollination and you may see some of last year's crop. Botanists are uncertain as to how exactly the flower is pollinated. Wouldn't it be ironic if the pitcher plant's source of pollination and food were the same insect? A real predicament!

Nearby neighbors to the darlingtonia are plants that thrive in the moist yet well-drained soil near the edges of the bog: the lovely California lady slipper, Labrador tea, the beautiful western azalea, delicate five-





A vertical cross-section of the hood and stem of Darlingtonia californica

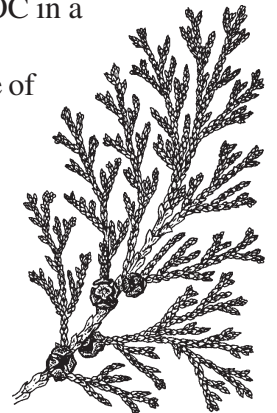
finger ferns, and Port-Orford-cedar. Some of the not-so-visible bog neighbors may include snakes — garter, gopher, brown racer, and the colorful ring neck — all non-venomous.



Platform Two: Another Photo Opportunity

A Port-Orford-cedar (POC) with its beautiful lacy foliage provides shade for this platform and the adjacent

darlingtonia. Look around for other POC in the area — you'll see white X's on the underside of the foliage sprays and a grayish-brown bark that often splits into long narrow strips. These and other cedars frequently share space with pitcher plants. Unfortunately, Port-Orford-cedars are threatened by a disease fungus carried by water and mud. Many POC in southern Oregon and northern California have been killed by this disease which has no cure. We do not know how the loss of POC in a bog like this one will affect the habitat and ultimately the future of darlingtonia. Everyone can help protect healthy POCs by observing gate closures and washing mud from the underside of vehicles and equipment used in spore-infested areas. The Smith River NRA Visitor Center can provide additional information on the disease and its prevention.



Port-Orford-cedar

What's this big Hole-in-the-Ground?

A fence surrounds a hole which is probably a *test mine*, dug by a miner to examine the area for traces of gold or other valuable mineral. Since no other evidence of mining exists at this site, the area must have "flunked" the mining-potential test. This hole could have been dug in the 1930s, when the Depression brought many people to the Smith River area looking for quick income. This cross-section of soil shows just how rocky the land is and how unsuitable it would be for farming. However, since this location is relatively flat, it may have provided a home site for miners working the Middle Fork Smith River.

Since the 1860s prospectors have explored and exploited the many serpentine areas along the Smith River for gold, chromite, and copper. The history of Del Norte County is intimately connected to the mining of gold.

The Return Loop

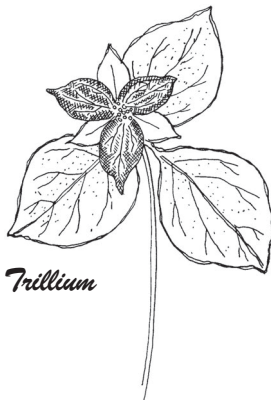
As you walk the return trail loop, look for wildflowers growing along the path: trillium, iris, western modesty, calypso orchid, false solomon's seal, lupine, wild rose, and others. Can you tell by looking at the trees, shrubs, ferns, and flowers where the soil changes from moist to dry? You may see evidence of past logging where selective trees were removed. See how many trees you can identify — look for sugar pine, madrone, California laurel, live oak, tanoak, incense cedar, and Douglas-fir.



Calypso Orchid



Lupine



Trillium



Western Modesty

Please help us protect darlingtonia

communities wherever they grow. The numbers of this rare plant growing in the wild have been severely diminished by illegal collecting and loss of wetlands habitat. Commercial growers have developed some varieties for gardeners and many sources are available on the Internet.

Botanical Areas with Serpentine Influences

Would you like to see other examples of serpentine influences on a landscape? Investigate the five special Botanical Areas in the Six

Rivers National Forest featuring serpentine habitats: North Fork Smith River, Broken Rib Mountain, Myrtle Creek, Horse Mountain, and The Lassics.

03/03

For More Information please visit, call, or write one of the Forest Service offices below. Office hours at Smith River National Recreation Area are Monday - Friday, 8:00 a.m. - 4:30 p.m. All Forest Service offices are wheelchair accessible.

Smith River National Recreation Area

10600 Highway 199 P.O. Box 228

Gasquet CA 95543

707-457-3131 (also TTY#)

Six Rivers National Forest

1330 Bayshore Way

Eureka CA 95501

707-442-1721 (also TTY#)

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