WELCOME TO PINO ALTO
(Spanish for "High Pine")

The Pino Alto interpretive trail was developed so that you might learn more about this forest environment. Temperatures here range from highs in the upper 80's to low 90's, with lows in the mid-20's. Such varying temperatures are due to a combination of factors which include the relatively high elevation of approximately 4,500 feet, and the coastal influences. The average annual rainfall is 25 inches and snow is not uncommon in the winter months. Numbers on the posts located along the trail near points of interest correspond to the numbered interpretive paragraphs in this guide. The one-half mile of easy going trail takes between thirty and forty-five minutes to travel, depending on your individual speed and the amount of time you want to spend in observation or just enjoyment of the scenery. Let it be said of your visit to the National Forest - *you took away nothing but memories, left nothing but your footprints, and of nature, that you treated her with respect.*

PINO ALTO NATURE TRAIL

Post #1 FIGHT FOR SURVIVAL. These trees are young Ponderosa pines *(Pinus ponderosa)*. Note that their needles are long and in bundles. Trees, just like all living things, struggle to live. Throughout their lives, trees must compete to get their share of sunlight, moisture, soil and nutrients. Even the trees in this grove are in continual competition to stay alive. As the years go by, some of the more hardy pines will outgrow their fellows, taking more of the available sunlight and nutrients. The less hardy pines die and decompose, providing nutrients for the healthy trees. A thick layer of forest litter, combined with the presence of too much shade, impedes sprouting. If you look to the meadow beyond, you will notice that ample sunlight and a lack of forest litter creates an opportunity for grasses and other plants to sprout.

Post #2 LUCKY OAKS. Here we see Goldencup oaks *(Quercus chrysolepis)* that have little competition from the new pines growing near them. The oaks are proliferating in this hospitable environment which includes an abundance of leaf mold and sunlight. Observe how the oaks are all relatively the same size, suggesting they germinated from the same parent and at the same time. For this to happen, conditions would have to be ideal, as oaks do not germinate easily. You might call these oaks "lucky".

Post #3 KING OF THE MOUNTAIN. Notice how this Ponderosa pine and the Big Cone Douglas-fir *(Pseudotusuga macrocarpa)* are both growing very near each other. The Ponderosa keeps the Douglas-fir in the shade, thus hindering further growth of the Douglas-fir. In Southern California, the Big Cone Douglas-fir is found at altitudes between 900 and 8,000 feet. Generally, Ponderosas tend to do better than Douglas-firs here on Figueroa Mountain, as exemplified in this case. Note the difference between the needles of the Ponderosa and the Douglas-fir. Needles on the Ponderosa are long and in bundles while the Douglas-fir needles appear short, flat and born in single fashion.

Post #4 RECYCLING OF LIFE. Here we see the accumulation of debris in a forest environment. The pine needles and oak leaves on the ground gradually decompose to form a rich soil called humus. If this layer of humus is destroyed by forest fire, the earth becomes subject to erosion by rain and wind. Then the long slow process of soil building must begin again.

Post #5 BENEFIT FOR BIRDS. Note the many small holes on the fallen tree attesting to the fact that, when it was standing, woodpeckers used it as a resource for storing food. Before this tree fell, it served as a vantage point for local birds of prey. Note the standing dead tree, or snag, uphill on the other side of the trail. Some of the trees and snags still standing here serve as lookout points for raptors, such as hawks.

Post #6 NATURE'S AIR COOLER. During summer months it is several degrees cooler in the shade beneath this Goldencup oak tree than it is in the open. Oak leaves, like all tree leaves and needles, transmit water vapor through tiny pores in their surface. This water vapor is released to the surrounding air providing a cooling effect. Botanists call this process of water loss "transpiration".

Post #7 NATURAL PRUNING. If you look at the branches of the Ponderosas, many seem to be in the early stages of dying. However, this is not the case. What you are witnessing is the process of a pine tree shedding its old needles and replacing them with new ones. Also, note the absence of branches and needles on areas of the Ponderosas which do not get sufficient sunlight to conduct photosynthesis. Photosynthesis is the process by which green plants manufacture a simple sugar from carbon dioxide and water and which requires the presence of light.

Post #8 NATURE'S ANCHOR OF LIFE. Root networks not only anchor trees to the earth, they also absorb water and nutrients for the tree's nourishment and hold the soil together which reduces erosion. The thousands of small roots of a single tree provide many avenues for the movement of rain water into the soil. This network of roots serves as a new habitat for animals, fungi, and microorganisms when the tree has fallen.

Post #9 SANTA YNEZ OVERLOOK. The Santa Ynez Valley, stretching out below you for some twenty miles from northwest to southeast, is eight miles wide near the lower end, and only a few hundred feet wide in the upper canyon.

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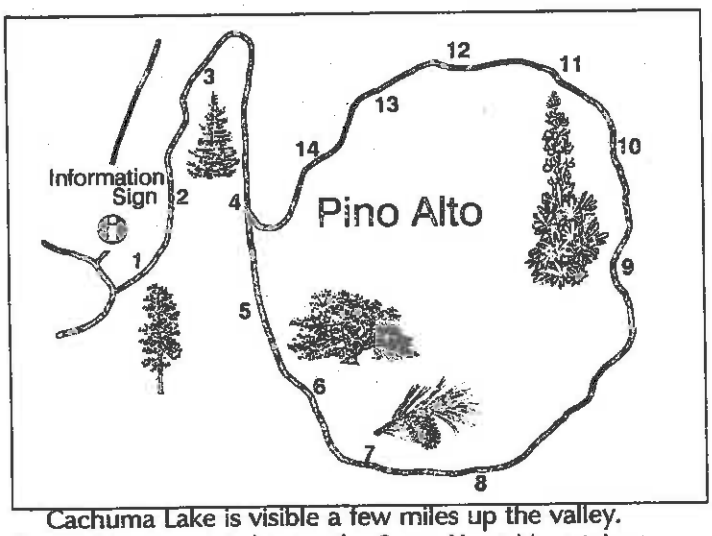

Cachuma Lake is visible a few miles up the valley. Beyond Cachuma Lake are the Santa Ynez Mountains. On a clear day you can see Santa Cruz Island on the horizon.

Post #10 NITROGEN FIXERS. The Lupine *(L. nanus)* seen here blooms in a spectacular array of blues and purples in the spring. In the winter it goes dormant, while summer and fall are transition periods. Lupine is one of the few higher plants able to convert nitrogen gas from the air into a useful form for themselves and other plants. This process is called nitrogen fixation. You will see a vast expanse of Lupine along this section of the trail.

Post #11 LIGHTNING STRIKES. The trees on Pino Alto are vulnerable to lightning strikes. Lightning removes the bark in its path as it spirals down the tree, often leaving a characteristic scar and starting small fires at the base of the tree. Observe the charred indentation at the base of the tree in front of you, and on several trees around you, indicating they may have been struck by lightning some time in the past. Such wounds could render a tree vulnerable to the entry of bark beetles and other organisms which could harm the growth tissue (cambium) between bark and wood. This could eventually kill the tree. Lightning may also cause forest fires.

Post #12 A SHADED FUELBREAK. Looking downhill, notice the open areas and absence of brush under the tall trees. This did not occur naturally, but is the result of the establishment of a shaded fuelbreak. The purpose of a shaded fuelbreak is to eliminate the middle-height brush that could lead up the fuel ladder causing crown fires in the tall trees.

Post #13 A VARIETY OF GRASSES. There is more to this grassland than meets the eye. Actually, there is a variety of grasses here, including rye and brome, and other kinds of plants. These plants not only serve as animal food but are also a ground cover protecting the soil from wind and rain erosion, serving to keep moisture in the soil surface and acting as an insulator to keep the topsoil from freezing during winter.

Post #14 A FRAGILE ECOSYSTEM . You have just witnessed the intricacies of an ecosystem. The many organisms that live here are involved in fragile, interdependent relationships. The slightest change in this delicate balance can benefit the organisms or wreak havoc. If we treat these wild places gently, we can insure their survival and benefit from their gifts for years to come.

Lookout Tower and Vista Point. To round out your experience, be sure to visit the lookout tower and vista point. From there, you will be able to observe and photograph a very beautiful panoramic view of the forest and of the San Rafael Wilderness. If you enjoy overnight camping, take note of the area map which shows the camping sites that have been provided for your enjoyment. These forest campgrounds, Figueroa, Davy Brown and Nira, are open year round and can enhance your recreational experience.

POSTSCRIPT: Pine trees in the Figueroa Recreation Area periodically experience some mortality due to infestations of pine bark beetles. The recent drought is one factor in causing some trees to be vulnerable to this pest.

Those helping with the trail and brochure were: Santa Maria 4-wheelers, Santa Maria Valley Sportsmen, Santa Barbara County Sage Hens, Los Prietos Youth Conservation Corps, Bob Winters and Nat Fast of Santa Maria.

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Only you can prevent forest fires.