THE PINE RIDGE ASSOCIATION • HENRY W. COE STATE PARK •

The Ponderosa

The Pine Ridge Association Newsletter
Henry W. Coe State Park

December 1995

From under My Brim

by Barry Breckling

Life in an Oak

I was surrounded by oak trees in the East Bay suburb where I grew up. When I've lived away from oaks, I've missed them and have sought them out on my days off. Now I'm surrounded by oak trees again, and the better I get to know them, the more marvelous I find them to be. All oaks are wonderful, but my favorites are the black oaks and the valley oaks.

From a distance you could see a swing beneath the spreading branches of the huge valley oak. It was just an old tire hung by a rope to one of the tree's massive limbs. You had to get a bit closer to see the tree house perched between three large branches about twenty feet above the ground. We built the tree house out of spare wood Dad gave us and with scraps of plywood from the houses they were building in the vacant lots across the road. Although we often spent the night in the tree house, we usually didn't sleep much. In the flickering candlelight, the hooting of the great horned owls and the cries of the mourning doves seemed more like the sounds that terrible monsters might make.

People could live in trees, I suppose, but there are thousands of plants and animals that are much better suited to life in an oak. An oak tree is like a whole world unto itself. For some organisms, the entire cycle of birth, life, and death takes place on a single tree. The tree provides water, oxygen, shelter from the elements, protection from predators, and nourishment in many forms—in essence, everything an organism might need throughout its life.

An oak tree's shade and the moisture around it provide an ideal habitat for simple forms of life. All surfaces on an oak tree and the ground beneath it are home to mosses, lichens, and fungi.

If you want to see mosses in their prime, take a walk through an oak forest or woodland during the winter. When the mosses are lush and bright green from the winter rains, it's hard to resist running your fingers over their soft leaves. People who are lost in the woods can use moss as a compass. Mosses really do grow primarily on the north side of trees. On the north side, they're protected from the sun and they have the moisture that's essential to their growth.

There are three kinds of lichen—crustose, foliose, and fruticose—and all three kinds live on oaks. Their names are based

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recycled paper

on the way they look. Crustose lichens form a low crusty growth, and though they grow on trees, they're more commonly found on rocks. Foliose lichens have a leafy appearance, like the foliage of plants. Fruticose lichens have stringy, sometimes interwoven strands of growth that give them a bushy look. You might expect that fruticose lichens would be shaped like cherries or pears, but the word fruticose actually comes from the Latin word for shrub.

Lichens are two kinds of organisms in one, a fungus and algae that live in a mutually beneficial alliance. The fungus is the structure that we see; it provides the algae with a place to live, with minerals, and with the moisture that is essential to life for the water-loving algae. In return, the algae provide food for the fungus. Algae harness the sun's energy and manufacture the carbohydrates that the fungus cannot live without.

Lace lichen and old man's beard are two of the more conspicuous lichens that grow on California oaks. Both are fruticose lichens, and both have grayish-green strands that drape over tree limbs. They look a lot like the Spanish moss that grows in southern states, but Spanish moss is neither a lichen nor a moss. It's a bromeliad, a relative of the pineapple.

Mushrooms are found in all oak forests and woodlands. They have a network of rootlike structures called mycelium that permeate living and dead plant material and absorb nutrients. The tasty morsels we buy in grocery stores are called mushrooms, but they're only the reproductive part of the mushroom fungus. The rest of the fungus is hidden from sight, spreading sometimes for many feet through organic material.

Mushrooms, other fungi, and bacteria are solely responsible for the decay and decomposition of all organic matter, and they can be found wherever other forms of life exist. They recycle organic material by breaking it down into the basic ingredients required for new life.

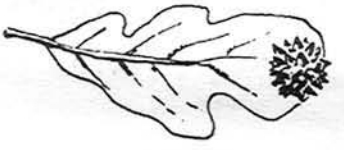
Mushrooms and oak trees live in close association. As an oak gets old and weak, some mushroom species invade the tree, absorbing its essential nutrients, decomposing its tissues, and speeding its death. Other mushroom species form a mutually beneficial alliance with oak trees, a commingling that biologists call a mycorrhizal relationship. The mushroom's mycelium penetrate the roots of an oak and supply it with nitrogen, phosphorus, and other nutrients that the tree cannot easily obtain on its own. The roots of the tree give the mushroom the moisture and organic compounds essential to its survival.

Insects by far outnumber all other organisms that rely on oak trees. One group of insects—the oak gall wasps—cannot exist without oaks. More than 200 species live in California, and each species deposits its eggs in the tissues of an oak tree. Different species select different parts of a tree, and you can find evidence of them all over the tree—on the bark, leaves, stems, roots, and acorns. The eggs hatch into wormlike larvae, and the larvae secrete chemicals that cause the tree to produce a tumorlike growth—the gall. The gall encloses the larvae and provides them with food and shelter until they're ready to bore their way through to the world outside. Species other than gall wasps make use of galls and the larvae inside them. Some insect species feed on the galls, others eat the larvae, and some are larvae parasites.

STEM GALL

Galls come in a dazzling assortment of shapes, colors, and sizes. Some are as large as baseballs, and some are so small that you may never notice them. Blue oaks have the showiest galls. They also have the greatest variety; a single blue oak tree can have over 20 different kinds of galls on it. For example, on a blue oak leaf you can find several kinds of pink to dark red galls, all pea-sized or slightly larger. One resembles a fuzzy little ball, one looks like a thorny crown, and another one resembles a sea urchin.

BLUE OAK LEAF GALL



If you think you've seen an apple growing on the stem of a valley oak tree, what you've probably discovered is a gall called an oak apple. It's a smooth, round gall that changes in color as it matures, from green to pink to gray to black. Hikers often come across oak apple galls lying on the ground. Some know that they've found a gall, but others may still be puzzled about those mysterious round objects.

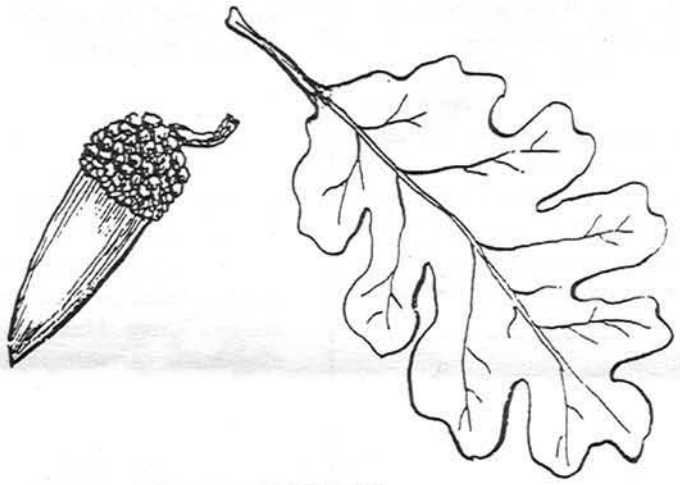
OAK APPLE GALL

Many species of birds live in oak forests and woodlands and nest within the protective foliage of the trees. Woodpeckers, nuthatches, and warblers thrive on the insects that live in oak trees, and they exist in harmony with each other because they eat different kinds of insects and collect them from different parts of the tree.

The stealthy Cooper's hawk is attracted to oak woodlands because of the other birds that live there. Cooper's hawks often nest in oaks, and you may spot one darting and gliding swiftly through the boughs of the trees, hunting for smaller birds to eat.

Acorns play a vital role in the natural history of California. Because of their abundance, high nutritional value, and availability during the winter months, they are considered the most important source of food for California wildlife. Many animals feed on acorns, and those that do are preyed upon by other animals.

Oak trees and animals sometimes form interesting partnerships. Squirrels and acorn-loving birds like the scrub jay gather acorns and store them in the ground so that they can rely on them as food later in the year when they can't find much else to eat. A single scrub jay may bury several thousand acorns during the fall. The jay will dig up and eat many of the acorns in the winter, but it never finds them all. Some of the overlooked acorns, so conveniently planted, grow into new oak trees. The acorn-storing animals thrive on the meat of the acorns, and the oak trees get a free distribution service.



VALLEY OAK

Much earlier in California history, naturalists wondered how oak trees could end up on the sides and tops of our rolling hills and steep ridges, since acorns obviously can't roll uphill. When the naturalists discovered the acorn-stashing habits of jays and squirrels, the mystery was solved.

The most notorious acorn-eating birds are the acorn woodpeckers. These noisy little clownface birds live in communal groups, and they make sure that they always have an ample supply of acorns. They drill holes in trees and stuff the holes with acorns, moving the acorns to smaller holes as they dry out and shrink in size. When a woodpecker is hungry for an acorn, it cracks one open and eats the acorn meat, along with any insect larvae it finds inside. The trees where the woodpeckers store their acorns are called granaries, and a single tree may have as many as 10,000 acorn-stuffed holes.

The sapsucker is a seldom-seen woodpecker. What you're more likely to see are the sets of horizontal holes the sapsuckers drill in the trunks of oaks and other trees to reach the sap-producing layers inside. Although sapsuckers eat a fair amount of tree sap, insects make up a larger part of their diet.

Mistletoe sucks much more sap from oak trees than the sapsuckers do, but it depends on birds for its successful propagation. Oak mistletoe berries are eaten by jays, western bluebirds, cedar waxwings, and other berry-loving birds. As the berries pass through the digestive tract of a bird, their seeds become capable of germinating. If a bird deposits a seed on the limb of an oak, in just the right sort of spot, the seed develops rootlike structures that bore into the oak.

As mistletoe grows, it absorbs water and minerals from an oak, but it doesn't rely entirely on the tree for its sustenance. Mistletoe is a green plant, and like all green plants it can produce its own food. An oak tree may be stressed by an abundance of mistletoe, and some limbs may have dead zones beyond thick mistletoe growths, but mistletoe doesn't kill healthy oaks. As an oak gets old and weak, it is more susceptible to damage from fungi, insects, and mistletoe, all of which can be contributing factors to its death.

Mammals are common in oak woodlands, and they sometimes make an oak tree their home. A hollow trunk with an opening near the ground is likely to be claimed by a skunk, fox, bobcat, ground squirrel, or wood rat, depending on the size of the hole, and a raccoon will take up residence in a hollow area if the opening is farther up the tree.

Deer are more dependent on oaks than any other mammal. The adults and fawns eat lots of acorns during the fall. The oil-rich acorns help fawns put on the fat they need to make it through a harsh winter. If the grown deer have plenty of acorns to eat in the fall, they'll be more fertile in the spring, and the does will have a better chance of giving birth to twins. Deer also eat the leaves and twigs of oak trees. In open areas, you're likely to see a browse line at the base of oak foliage that shows how high the deer can reach. By wintertime, when the deciduous oaks have lost their leaves, deer turn to two of their favorite browse foods—the lichens and mistletoe that cling to the oaks.

Acorns were the most important source of food for the Native Americans who lived in our area. Their populations were relatively small until they discovered that acorns could be used for food. Raw acorns are essentially inedible; eating one would be as unpleasant as eating an olive right off the tree. Long ago, some incredibly clever or particularly patient person found that you can remove the bitter tannin from mashed acorns by repeatedly pouring water over them. Suddenly there was a massive

new food crop available to Native Americans, since about 30 percent of the land in California was covered with oak forests or woodlands.

When the Native Americans in California adopted oaks as their staple crop, they no longer had to wander over large areas hunting for animals. Acorns gave them a protein-rich, carbohydrate-filled, tasty food that was easy to gather, easy to store, and relatively easy to prepare. Their populations soared. The mortar holes found throughout California are testimony to the value of the acorn.

From our tree house, we could see lots of oak trees and just a few houses. But that would change. One summer evening we heard the growl of a chain saw off in the distance. A few days later, while we were exploring the far side of the new housing development, we found a big oak tree lying on the ground. We didn't know why it had been cut down. Maybe someone wanted to use it for firewood, or maybe they wanted to make room for a road or another house. We spent the afternoon climbing all over the tree, finding many wonderful things and having a glorious time. Still, I couldn't get over the feeling that something wasn't quite right. It made me sad to see the huge tree lying broken on the ground. Before we left, we counted its rings. The tree was over 500 years old that summer, and I had just turned twelve.

The Flat Frog Trail

by Winslow Briggs

Henry W. Coe State Park is not distinguished for its modest grades, gradual climbs, and long stretches of gently rolling landscape. However, not all of its visitors are ready to descend a third of a mile only to be required to ascend it again at the end of the day! Hence there is obvious need for somewhat more considerate trails near headquarters. Such trails should nevertheless pass through some of the park's wild backcountry so that the average visitor can experience the solitude and beauty that define Coe Park so well. The Forest and Springs Trails are both recent additions to address this need, and the Flat Frog Trail is the most recent project to extend this user-friendly system.

What is in a name? Conversations overheard: "We need a level route from the Coe Ranger Station to Frog Lake." "We have to begin scouting an alignment for a flat route to Frog Lake." "How is scouting for the flat Frog Lake Trail coming?" "The next Trails Day will concentrate on the Flat Frog Trail." The name was inevitable.

Less than a mile from Coe Headquarters is the junction of five trails: The Corral Trail, the Springs Trail, the Forest Trail, the Fish Trail, and the just-completed Flat Frog Trail. A short spur leading a few yards southwest from the Manzanita Point Road meets the end of the Springs Trail and intersects the Corral Trail, while the Flat Frog, Fish, and Forest Trails all meet just a few feet northeast of the Manzanita Point Road. Since the trails don't all meet at a single point, it is a bit confusing, and the confusion is aided and abetted by the rambunctious excavations carried out by Coe's infamous Rooting Hogs. These beasts can obliterate many yards of trail in a single orgy. Just have patience, and you'll find the right trail. All of them are signed. The whole area is actually a broad saddle in Arnold Field, with views out to both northeast and southwest, and a hundred yards or so to the southeast are the remnants of the corral for which the Corral Trail was named. Just beyond the corral is the magnificent ponderosa pine (*Pinus ponderosa*) known as Sada's Tree, the tree whose image provides the Pine Ridge Association with its logo (see the front and back pages of this issue of *The Ponderosa* or the shoulder patch of a PRA volunteer at the park).

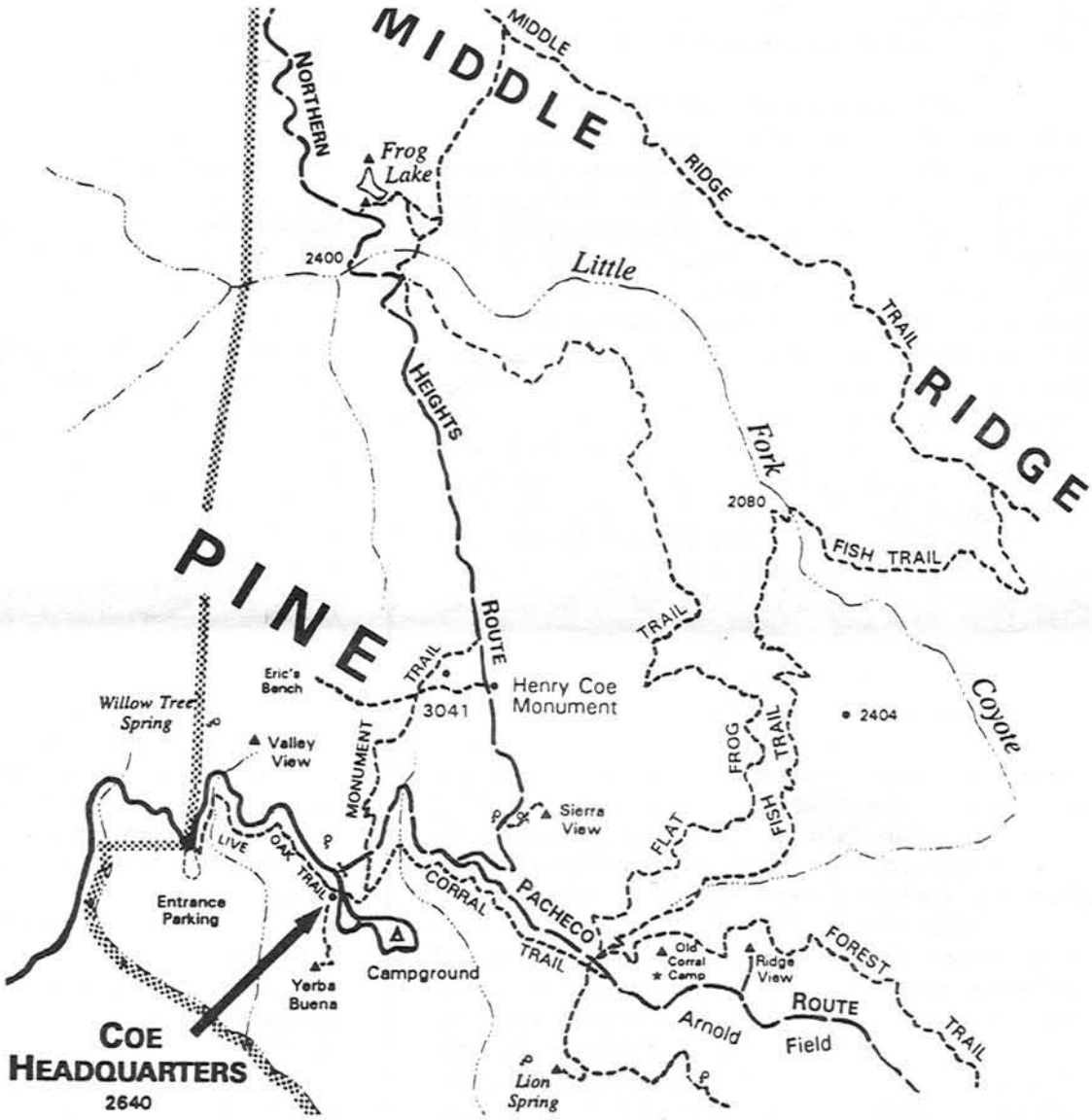
Both the Flat Frog Trail and the Forest Trail contour along the eastern face of Pine Ridge, and in fact one is really a continuation of the other. However, whereas the Forest Trail never really emerges from forest except just at its two ends, and hence provides mostly intimate views, the Flat Frog Trail is far more diverse. It leads deep into wooded canyons, traverses forested slopes, crosses an occasional patch of chaparral, and despite its distance from Manzanita Point, has some splendid large manzanitas (*Arctostaphylos glauca*). However, it is its high open meadows with their breathtaking views that make it one of the most scenic trails in Coe Park.

The Flat Frog Trail heads immediately left across a sloping meadow into a fairly deep and lightly wooded canyon, the first of many. Indeed, much of the trail, especially its first half, describes a fairly uniform scallop design: the trail bears left to enter a canyon, makes a sharp right turn back out, and then bears gradually left into the next canyon. Note a large valley oak (*Quercus lobata*) on the right just at the start. (Note: for some bizarre reason, the author has not mentioned *Quercus lobata* in his many previous trail descriptions for Coe Park. Perhaps the effects of an earlier *Quercus* lobotomy.) The route crosses the first canyon over a culvert designed to handle the rather minor amount of water expected from the relatively small drainage basin above. The winter rains of 1995, however, loosed unanticipated masses of debris from the slopes upstream of the crossing—large branches, small sticks, dead leaves, rocks, gravel, sand, mud, and more than one gray pine cone—completely blocking the upper end of the culvert and entirely filling the canyon for several yards upstream with this marvelous mixture. It was obviously a mistake to Fool With Mother Nature. (The tangled melange has been dug out to expose the upper end of the culvert, and water is now supposed to run un-

der rather than over the trail, but watch for further reports. Mother Nature may not be through.)

The canyon sides are steep on both sides of the culvert but become more moderate as the trail sweeps out to begin its first long scallop. Below you just beyond the crossing is a rotting stump that provides toeholds (rootholds?) for a luxurious stand of poison oak—a veritable miniature sylvan glade of the noxious shrub! Above and below the trail are several dozen tiny gray pine seedlings (*Pinus sabiniana*), no doubt at least partially the legacy of a dead gray pine just down the slope. This fallen giant was standing and alive when the trail was first scouted (crossing Coe's steep slopes in the process of scouting trail routes severely abused the ankles of several scouts).

Quite suddenly as the trail crosses a sloping meadow, Blue Ridge comes into view in the distance, with the meadows of Middle Ridge below in the foreground. After a relatively straight stretch, the trail enters the woods again and turns left into another fairly deep canyon. Although there is no culvert here, volunteers have done some very nice rock work at the creek crossing.



The usual sharp right in the canyon leads to a slight climb into more open ground. No, the Flat Frog Trail is not the Absolutely Flat Frog Trail, but compared with the Short Cut Road or the Hartman Trail (the former goes straight up the face of Blue Ridge, while the latter is a horror leading from the Orestimba Basin to Mississippi Ridge), it most nearly resembles a stretch of Interstate Highway I-5 in the south San Joaquin Valley of California near Buttonwillow.

As the trail curves left once again, you come abruptly into a patch of chamise (*Adenostoma fasciculatum*), readily recognizable by its dense branching pattern and its short needle-like leaves. No longer is the soil a rich loam; it is now a coarse reddish-brown gravel with some broken sandstone showing through, a soil poor both in nutrients and in water-holding capacity. After crossing a minor rocky draw, the trail makes another slight climb, swinging left into more chamise. Suddenly just as abruptly as you entered the chamise you leave it, and the richer soil is all around you once more. You are now in open woodland, with a number of coast live oak (*Quercus agrifolia*)

and bay (*Umbellularia californica*) trees around you—a pattern characteristic of moister east-facing slopes in this part of Coe. The sinuous trail leads somewhat left across a slope that drops at close to 45 degrees (pretty hard on the ankles without a trail) and meanders past a cluster of bay trees, some bowed and twisted, just to the right. After a hundred yards or so, the trail crosses a steep meadow with numerous small rock outcrops punctuating its surface. Note the robust and healthy ponderosa pine at the bottom of the meadow. Even during the recent severe drought, this tree must have had sufficient water.

A rocky wooded draw and a turn back right are followed by more open country again, and soon you are traveling across a slope that climbs relatively gently above you but drops more steeply below. The trees, both blue oaks *(Quercus douglasii)* and valley oaks, are widely scattered in a woodland-meadow terrain that typifies large areas of Coe Park. The branch of one oak just to the left of the trail is worth noting: it goes into the ground and then re-emerges as though it were an independent tree. (Oaks do this occasionally—there used to be a nice example along the Springs Trail, but the last time the author passed by both the parent tree and branch were dead. Maybe it's not such a good deal). Your trail along this meadowy brow and across the open grassy basin beyond it provides some magnificent views of Blue Ridge to the east and Willow Ridge far to the south. Middle Ridge, in the near foreground to the east, seems pretty puny. On a clear day, far in the distance, other ridges are visible to the south and east, bracketing Willow Ridge.

The trail next swings left across the top of a grassy side ridge, revealing more and more of Blue Ridge. The meadows along the crest of Middle Ridge also come more prominently into view. As you cross another steep grassy slope after a few hundred yards, watch for a couple of large big berry manzanitas about 15 yards down the slope. They are the first of many along this trail. There are also a number of somewhat charred and twisted skeletons of manzanitas, perhaps the unwitting victims of a prescribed burn. (The prescribed-burn program in Coe has been extremely successful in keeping the fuel load on the ground below catastrophic levels and rejuvenating the meadows and forests.) Watch below you for a miniature forest of gray pines as well. After you enter a blue oak forest once again, the trail passes an interesting rock outcrop on the left, part of which has tilted beds 2-3 inches thick, and part of which appears pretty homogeneous. As you proceed, you will cross a grassy draw to a dramatic view down the Little Fork of Coyote Creek. You can now see south to Manzanita Point with its bristle-top of ponderosa pines, and additional more distant ridges above and beyond.

The trail leads left again, and below you to the right, hidden from view, the Fish Trail crosses the saddle of a side ridge only a few hundred feet away, parallel to the Flat Frog Trail. You soon pass through somewhat denser woodland with numerous oaks, mostly blue, lots of small pines, and an occasional manzanita. The trail next enters and crosses a more major draw containing two small drainages that meet just a few yards below the trail. There was fresh erosion here in the spring of 1995, a consequence of the torrential rains that lashed California that winter. In the canyon below are numerous black oaks (*Quercus kelloggii*) with their characteristically dark bark. This species is clearly recognizable by its leaves: several inches long, bright green and shiny with several deep rounded indentations (an inch or more deep) separated by sharply pointed lobes.

Yet another sharp right turn leads you past a meadow opening above, and the land drops off steeply to your right once again. The trail almost immediately curves left through a fairly large manzanita grove and yields some fine views of Middle Ridge meadows below the more distant Blue Ridge. Middle Ridge is clearly creeping up on Blue Ridge and appears ever more imposing to the north. May 1995 yielded the soft colors to be expected in early spring—dark green live oaks with bright green new growth, bright green black oaks, fresh light blue-green shoots of blue oaks, gray-green gray pines, and deep green ponderosa pines, all set against the brilliant green of the surrounding grasslands.

Around a buttress and to the left are a couple of very nice madrone trees (*Arbutus menziesii*), their smooth bark yellowish-orange and lighter than manzanita bark, and their large oval shiny leaves glistening in the sunlight. Several tall straight ponderosa pines vie with unusually straight and tall gray pines to dominate the canopy above. This is an excellent place to compare the color and texture of the needled branches of these two species, the darker green ponderosa and the bluer gray pine with its longer needles. Close by are several large-leaf maples (*Acer macrophyllum*), and as you curve right across a small basin, watch for another pair of madrone trees, one about 25 feet above and the other about 25 feet below the trail. On your right, close by the trail, is the wonderfully sculpted trunk of yet another giant manzanita.

A fairly sharp turn left keeps you in the woods but with nice glimpses of the two ridges to the east. A prominent wooded mound on Middle Ridge all but hides the face of Blue Ridge behind it. There are scattered gray and ponderosa pines downslope, with the bright orange-yellow bark of the upper branches of a madrone or two sparkling through the green. After a straight stretch of about 50 yards, the trail curves left and then right across a basin, and a few yards farther you can spot the trail ahead as it slants up to the right across the steep slope of a major lateral buttress directly facing you. You are entering a major side canyon. You enter denser forest here, as the trail

meanders roughly straight for about a hundred yards, and abruptly cross a deep canyon over another culvert. Running water not just in April 1995, but on May 14 and May 19, provided unseasonable but delightful background music.

Another sharp right out of the canyon (you must be used to them by now) leads (as usual) into a curve left. The slope below you drops off at perhaps fifty degrees as you round the turn, not a place to slip. A dozen steps down over a retaining wall, a fine piece of backcountry engineering, leads you into a second deep canyon, and yet another sharp right turn. Water descending this canyon in May (still a reasonable trickle on May 19) made one want to stop and listen. The trail climbs out of canyon number two at about a ten percent grade (don't complain: think of the Short Cut Road and the Hartman Trail) for a few yards, out onto the flank of the imposing large buttress you saw before.

The two canyons you just crossed were by far the most daunting obstacles in locating a reasonable route for this trail. First, their sides are impossibly steep in most places. Second, at an elevation where one of them might be reasonable to cross, the other always turned out to be impossible. Third, although there was a possible route where the two came together far below (it might have required a bridge), one would have had to descend a considerable distance to this crossing and then climb back out again—perhaps even over a switchback or two. We would then have had to rename the trail the Fairly Flat Frog Trail. Finally, a possible route a hundred feet higher up had the same problem—a climb and a descent. In addition, it crossed another sort of obstacle—a steeply sloping rock river. Remove a shovel's worth of this miserable stony substrate, and two shovels' worth promptly come tumbling down from above. Step on it and feel it drop out from under you. There was no way to build a trail across this unstable trap save by constructing a major bridge. The loose rock mass seemed bottomless and must have extended 25 yards both upslope and downslope from the potential crossing. The ultimate solution was provided by retaining walls and steps, the elegant piece of backcountry engineering you passed over on your way into the second canyon.

(On a recent hike to verify details for this trail description, we were treated to the mating serenade of the wild pig—an unimaginably unmusical and interminable squealing and snorting.)

As you ascend to round the buttress, you are treated again to wonderful views to the south—down the Little Fork of Coyote Creek and on to Willow Ridge beyond. This is the stretch of trail you glimpsed as you entered the system of canyons now behind you. Your climb lasts for about a hundred yards, leading again into open woods with a gentle slope above and a steeper slope below. As you round the nose of the buttress, you pass by more manzanitas and end your climb with another swing left. You are in deeper forest now, and the trail begins a long gradual descent across a gentle slope. As you meander fairly straight across this slope, watch for numerous black oaks on both sides. The slight descent continues for about 200 yards, with the woods still fairly dense around you. The crossing of a small draw (sharp right, abrupt left shortly thereafter, manzanitas above and below) leads to the continuation of a wandering descending traverse. Although you are still in forest—a mixture of oaks and a few lovely manzanitas—there are occasional views out to the right, and now Middle Ridge has almost completely overwhelmed Blue Ridge, the latter now barely visible. (For those of you with a soft spot in your heart for Blue Ridge, remember that on the ascent from Poverty Flat to Arnold Field on the way back to Headquarters, it is Blue Ridge that ultimately overwhelms Middle Ridge!)

You continue to wander through blue oak for another 300 yards or so and then curve left into a draw. A sharp right is followed almost immediately by a curve left into another draw, all still deep in the forest. Watch for a lovely small lichen-adorned rock formation on the left close by the trail, near a small meadow above. Despite the forest, there are still occasional glimpses of distant ridges to your right, beyond the barely discernible pines of Manzanita Point, and one of the best views is to be found just before the rock formation. Stop and take a look: Californians are indeed fortunate to have this magnificent wild country as part of their State Park system!

The trail meanders past a small meadow above and soon crosses another small steep draw. The view back to the right is again spectacular, well worth a pause. The clearly symmetrical conical peak in the far distance is Mariposa Peak, south of Highway 152. Middle Ridge, its face displaying some formidable rock outcrops, looms ahead as you curve back left again. The meandering and gentle descending continue, and Middle Ridge appears ever closer. A left turn into a few manzanitas leads to a continuation of the wandering through open woods. Another draw (the crossing involves some more nice rock work by volunteers) is followed by a patch of open meadow above and yet another draw. The scenery is now all much more intimate, and the last of the distant views are now behind you. Here the view is of a low forest of many small blue oaks and gray pines through which the flank of Middle Ridge is still occasionally visible.

You are now in far gentler country. Middle Ridge looks much less imposing and closer, the slopes are more gradual, and the draws less impressive. Listen carefully—at the right time of year you may be able to hear the Little Fork of Coyote Creek below. Somehow, right here, Coe no longer seems so rugged. The facing slope of Middle Ridge is upholstered with great tufts of chamise, a deep reddish-brown in the autumn. The trail curves to the left around some rock outcrops, and for the first time you are surrounded by brush, a lot of it the common scrub oak, *Quercus dumosa*. Another swing left takes you out of the

brush and into what is almost a **pygmy** forest—small blue oak, large manzanita, small black oak—the tallest of the trees are actually the manzanitas! Into a deep draw, sharp right out of it again, you are abruptly surrounded by tall clumps of the native California bunch grass, *Festuca californica*. In bunches a couple of feet or more in diameter, these remarkable grasses can still be green at the very end of the long summer drought (they were still green in October 1995, before the first drops of winter rain had fallen), relying on their deep perennial root system to keep moisture coming up to the leaves. Cross a culvert and you are suddenly back among the exotic annual grasses such as the wild oat (*Avena fatua*), already dead and desiccated for months.

You are soon back in open woods, the trees no longer pygmies. A brushy slope is above you, and tall pines below. Note the huge valley oak on the left just above the trail. Its bark consists of polygonal plugs two to four inches across, separated by deep furrows. Compare this bark with the bark of the black oak just beyond—the latter has plugs that are smaller and much darker, and the furrows are not nearly as deep. Valley oaks are hardly engineering masterpieces. They develop massive branches that can extend horizontally for great distances, and pretty soon even the development of enormously strong reinforcing tissue on the underside of the branch is insufficient to prevent catastrophe. All too soon, the branch comes crashing down. (Maybe this is the **true** Quercus lobotomy.)

The trail continues on in an unusually straight line, with one turn into a draw making a minor squiggle near the end of the straight stretch. Watch for rock formations adorned festively with bright orange lichens across the creek. There are soon several lovely ponderosa pines nearby, with a large dead one on the right serving a community of acorn woodpeckers as a granary. A slight climb leads you to a saddle with a little rocky pinnacle to the left, and just beyond to the right is a huge black oak, one of the more impressive in the park. The trail soon passes through a group of juvenile manzanitas and abruptly emerges on the road at a hairpin bend.

A rough and badly eroded trail comes down from above and drops away to the creek. You could go straight ahead on the road or sharp right on the trail to reach Frog Lake, or obliquely uphill left on the road or right angles left on the trail to return to park headquarters, the latter options showcases for some of Coe's most famous grades. The author's choice would be to visit Frog Lake and then return the way he came!

This article is dedicated to Everett Allen whose Herculean efforts brought this trail into existence from the earliest scouting and planning through the final stages of construction.

Where Does the Flow Go?

by Phil Frame

A raindrop falling on Coe Park has but one decision to make: shall I attempt a return to my birthplace, the Pacific Ocean, via Monterey Bay; or shall I try for a reunion at the more popular Golden Gate. The poor clump of water molecules clustered around a speck of dust (or silver iodide, if the Santa Clara Valley Water District's cloud seeding generations are working properly) probably is pondering in vain. The drop has little alternative but to fall where winds and gravity direct it. Although the drop has little impact itself, collectively many drops can move mountains or at least shape a once faceless blob of dirt and rock into the terrain we now see.

Those of you who have suffered through my previous installments on the geology of Coe Park may notice a shift in this exciting episode. We will now start reflecting on geology (and I use the term loosely) that can actually be seen, rather than the theoretical bumping and grinding of tectonic plates in the distant past. If you have not completely blocked that concept from your mind, you may recall there was a period when our park was entirely under the Pacific's waters. As the land slowly rose through the surf zone, it was eroded to produce a fairly flat surface. Remnants of that erosion surface can still be seen from most any high point in the Park.

The next time you arrive panting and ready for a break after conquering another one of Coe's ridges, look not for the Power Bar but for the horizon. Chances are the ridge you are on has a fairly even crestline, as does the next ridge over. As a matter of fact, most of the ridge crests you can see have slopes and elevations similar to the one you are standing on. These are thought to be remnants of the ancient erosion surface planed off by the Pacific's surf; a surface now all but lost to the impact of those falling raindrops.

As your gaze moves southeastward to the skyline beyond the Park, you will notice the planar surface you have been following is interrupted by a group of mountains with one in particular having a conical shape. This area is the Quien Sabe volcanic field. Since the mountains jut upward through the erosion surface, we can assume that surface was eroded flat sometime before these volcanics formed. Rocks of the Quien Sabe have been age dated at 9.3 to 11.6 million years old, making the erosion surface at least 12 million years old—a young whippersnapper relative to the rocks ten times that age beneath our feet.

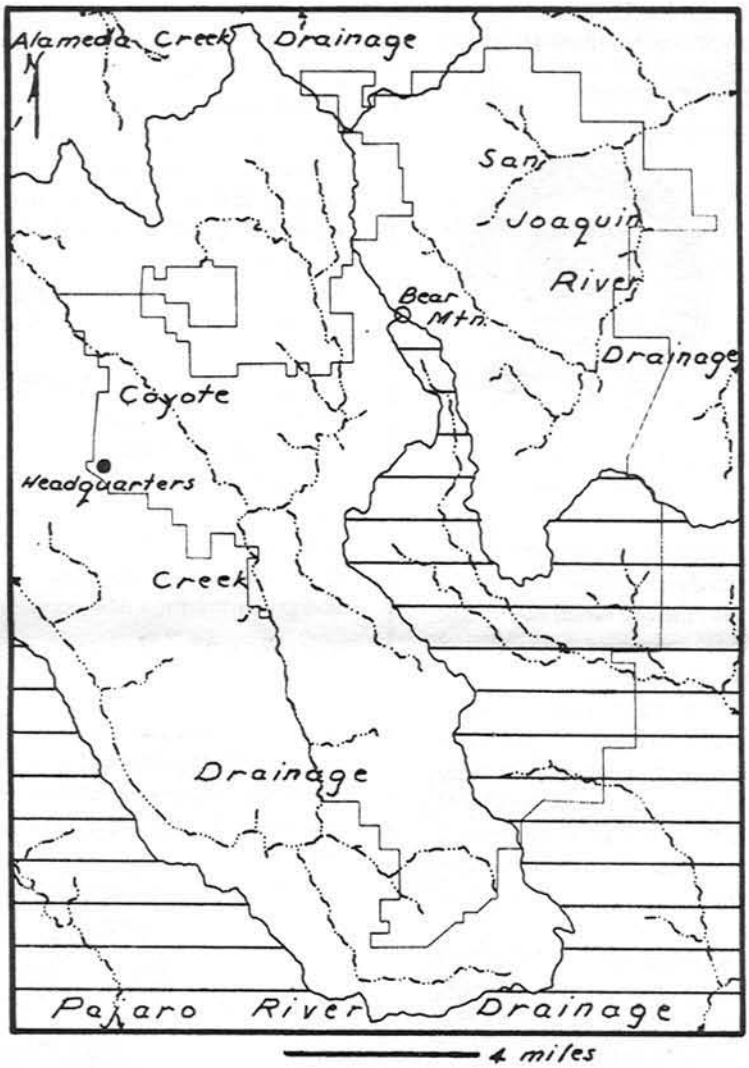
Do I detect some scoffing out there, mutterings about "here he goes again"? Remember, these are not millions of government dollars, but years. Think of the changes in the past year and imagine 12,000,000 of them. If we assume an average elevation of 3,000 feet for the present day erosion surface, this works out

to be an uplift rate of just 0.003 inches/year (0.08 mm/yr). Not unreasonable considering it is less than the rate of movement on major faults in the Bay area. How about erosion? The difference in elevation between Mt. Sizer and the Middle Fork of Coyote Creek is about 1,800 feet. For this distance to erode in 12 million years, 0.002 inches/year (0.05 mm/yr) of stream downcutting would be required. Certainly not an implausible rate.

If we had a flat surface underlain by uniform materials to begin with and added evenly distributed raindrops, a random pattern of streams would develop to drain the surface. Each stream would collect water from the immediate area, creating a drainage basin. Where two streams join, the resultant flow is increased as is the erosive power of the water, and the resulting stream will become more deeply incised and its valley wider than either tributary. This process continues until major rivers develop draining large tracts of land. The rivers continue downslope, adding tributaries along the way, until they reach the Pacific and can flow no farther, their energy spent.

The accompanying figure is the flight plan for our raindrop. This map is centered on Coe Park, as indicated by its exterior boundary. Major drainage basins are shown by the darker solid lines, and streams are indicated by the dot-dash patterned lines.

If our raindrop is aiming for a journey to Monterey Bay, it should fall within the portion of the map with the horizontal line pattern. This represents the upper reaches of the Pajaro River drainage basin, which flows into the Pacific between Watsonville and Moss Landing. The northernmost portion of this drainage extends to the flanks of Bear Mountain where Mississippi Creek begins its journey southward to Pacheco Creek. Another major tributary to the Pajaro River system is Llagas Creek. None of the Llagas drainage basin lies within the park, but most of us cross its uppermost portions as we travel along East Dunne Avenue on our way up the hill.



Drainage basins and major streams in the vicinity of Coe Park. Area with horizontal line pattern drains to Monterey Bay through the Pajaro River. Two areas drain into San Francisco Bay, one through Alameda Creek (northwest tip of map), the other through Coyote Creek (west-central portion). The northeast corner of the map shows the area draining into Suisun Bay via the San Joaquin River. Bear Mountain is a three-way divide separating runoff that could end up in bay waters 40 to 80 miles apart.

As long as we have started our journey to headquarters, we may as well continue with a brief description of the Coyote Creek drainage basin. We first enter this drainage where Dunne Avenue passes over the ridge crest at Jackson Oaks, then crosses the main branch of Coyote Creek at the bridge over Anderson Reservoir. The Coyote Creek drainage basin extends both north and south of the park boundaries and includes its entire western portion. Zorro perhaps had a hand in laying out the upper portion of the watercourse, since it zigs and zags south and then north several times before finally making a direct run through the Santa Clara Valley and entering San Francisco Bay between Milpitas and Fremont.

The third major drainage system in the park is part of the San Joaquin River basin. This drainage, in the northeastern part of Coe, lies entirely within Stanislaus County and is marked by the county line, which follows the drainage divide. Orestimba Creek drains most of this area, although water falling east of Mustang Peak flows into Garzas Creek, a separate tributary to the San Joaquin River. These waters enter Suisun Bay west of Stockton and reach the Pacific via San Pablo Bay.

A small portion of the northernmost part of the Park drains through Upper San Antonio Valley. This water flows northward through Arroyo Mocho, into Alameda Creek, down Niles Canyon, and reaches San Francisco Bay west of Union City.

With all the circuitous options available to our raindrop, south to Monterey Bay or east, west, or north to the Golden Gate, no wonder they seem to just give up and fall where they may. In the next article, we will look at individual streams within these drainages to see if their patterns can tell us anything about the ground they cross and its geologic history.

Park News

by Kay S. Robinson,
Park Superintendent

If you've had a chance to get to the park recently, you will have noticed some changes. The old metal water tanks and dilapidated travel trailer that sat on the pad above the visitor center are now gone. Maintenance Workers Dean Meyer and Rick Perez as well as Heavy Equipment Operator Sam Craig have worked diligently to remove them and clean up the area. This is in preparation of the space for the possible siting of a mobile home, the replacement residence for our Coe Headquarters Ranger Barry Breckling. No, the old ranch house will **not** be removed. In the spirit of adaptive reuse, we will find other purposes for it, such as possibly an expansion of the house museum currently in the visitor center, an expanded training facility for volunteer groups, or quarters for living history demonstrations. Another change at headquarters is the new bridge and trail realignment of the Corral Trail. The bridge will be of sturdier and wider construction, and the new trail will eliminate some of the steepness. The new trail will tie into the old one just beyond (east of) the current bridge.

Moving farther out into the park, you'll find the Flat Frog Trail completed. Volunteer Everett Allen has poured sweat, blood, and tears into this two-mile trail for about three years. The payoff is just around the corner as park visitors begin to use it. It is a multi-use trail, even though it has a few steps in it. Bikers will be advised to use caution by walking their bikes through this area, and horses will be able to negotiate the risers. Until the trail "sets," it is requested that bikers and horseback riders not use the trail. We expect to have this restriction only through May 1996, at which time it will be open for all park users. The good cooperation found at Coe happens when visitors abide by the rules and follow accepted etiquette when meeting on the trail.

In the future, you will be seeing a different style to the directional information provided to park visitors. Say goodbye to the Gill, Coit, Pacheco, Northern Heights, Interior, and Rooster Comb Routes. We find that the route designations are confusing to the public. Often they are misled by route names that imply that they are the only way to a destination when, in fact, a route may be simply one of many ways to reach that location. The route names also did not take into account what type of surface you were traveling on—a maintained dirt road, an old road now in disrepair, or a single track trail. The new sign program (which also involves revision of maps and literature) will be destination-driven. The four-sided post may have one to four sides used, will give destinations (popular sites, Coe headquarters, etc.), will supply directions and distances to those locations, and will name the surface you are on (e.g., Mahoney Meadows **Road,** Cougar **Trail**). The new regime will take a while to implement, mainly because of the great cost involved and also because of the need to coordinate with map and literature revisions.

Preparation for Coe Backcountry Weekend (April 27–28, 1996) has begun with a steering committee hammering out the details for another successful event. Entry forms for admission will be available by early February. Again, it will be a lottery draw on April 5 because the expected number of applicants will exceed our capacity. Backcountry maintenance tasks recently have revolved around road grading, trail maintenance, gate repair, and preparing for a new septic system at Pacheco Camp.

I and the staff of Henry W. Coe State Park wish you and your family a very happy holiday season and a healthful and prosperous 1996. This past year has been a good one for the park, and we are looking forward to a productive new year. Increased visitation, improved facilities, and continued support and involvement by the volunteers and the community are our goals for 1996.

Happy Holidays!

Membership & Contributions

by Lee Dittmann

As of December 3rd, we welcomed many new members to our organization, bringing the total number of memberships to 351. Thank you all for your support, and welcome to the Pine Ridge Association!

David E. Baumgartner, San José
Risa Baumrind, Vallejo
Scott Bradley & Cathy Daigle, Los Gatos
Steve & Kim Bradley, Fremont
Joe Cannon, Marina
Ric Carpenter, Gilroy
Scott Cowherd, San José
Aileene & Larry Edsinger, Morgan Hill
Debby & Robert Esposito, Gilroy
Sheila & Bill Flodberg, San Martin
Maria T. García de la Noceda, Berkeley
Colleen Grzan, Morgan Hill
The Hatakeyama family, Morgan Hill
Alan Haviland, Morgan Hill
Hubbard & Anderson, Santa Cruz
John Kolb, Gustine
Margaret Mary McBride, Morgan Hill
A.J. & Pam MacLaren, San Martin
Chris Mahon, Los Altos
Sharon & Bob Melton, San José
Steve Schramm, Mountain View
Vicki & John Shelton, Morgan Hill
Eleanor Sherman, San José
Michael Torralba, Gilroy
Maury Tripp, Los Gatos
Wolfgang & Silvia Wedenig, Morgan Hill
Vanessa & Alan Wray, Morgan Hill

New Contributors to the Visitor Center Expansion Fund

Maryellen Bauer
Kelly & Robert Douglas
Debby & Robert Esposito
Julie Fitzharris
The Hatakeyama family
Carol Hoefler
Hubbard & Anderson
Jim Larkin
Gordon W. & James J. MacKey
Chris Mahon
Margaret Mary McBride
Brandi O'Ryan
Teri Patane
Vanessa Wray
Paul, Corinne, & Ariel Zane

PRA Calendar

Thursday, January 11: The next regularly scheduled meeting of the PRA Board of Directors. The board meeting will be at 7:30 p.m. at the Coe Sector Office in Gilroy. All PRA members are invited to attend. Please contact PRA Chair Dennis Pinion for more information (408/779-3916).

Saturday, February 3: The annual meeting of the Pine Ridge Association, including the Coe Park Volunteers. This year's speaker is Alan Kaplan of the East Bay Regional Parks District Interpretive Program. More information about the meeting will be mailed to PRA members in January.

Saturday and Sunday, March 16 & 17: The 1996 season of interpretive hikes, walks, and evening programs begins this weekend. A flyer announcing the schedule of events for the weekend programs will be mailed in February.

Saturday and Sunday, April 27 & 28: The Coe Backcountry Weekend, which will be held in the Orestimba. Flyers describing this very popular event will be mailed in early spring.

Brown Creeper

Acorn Woodpecker

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The Ponderosa is a periodic publication of the Pine Ridge Association. Its mission is to enhance and enrich the public's experience at Henry W. Coe State Park through education and interpretation. Articles and artwork relating to the history, natural history, and management of the park are welcome. Please send submissions to the editors care of Henry W. Coe State Park, P.O. Box 846, Morgan Hill, CA 95038; or call 415/851-7813.

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