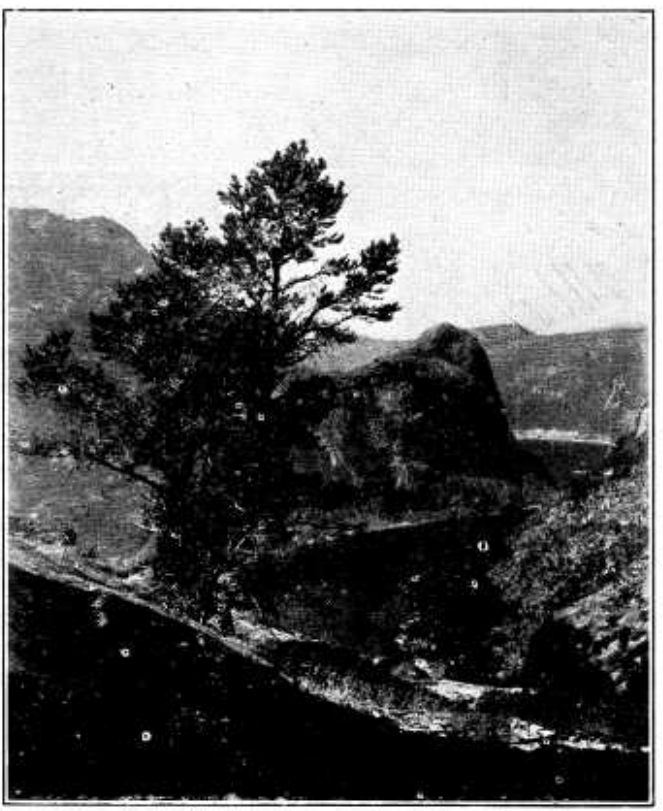
YOSEMITE NATURE NOTES



Single-leaf Pine above Hetch Hetchy

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Single-leaf Pine in Yosemite

C. A. Harwell, Park Naturalist

In 1909, Mr. H. W. Gleason, with the Sierra Club party, discovered the first-known occurrence of the Single-leaf or Pinon Pine (Pinus monophylla, Torrey and Fremont) in Yosemite National Park. Jepson in his "Trees of California" issued December 16, 1909, says, "On the west slope of the Sierra Nevada it occurs in a few circumscribed localities, in Piute Canon, near Pate Valley (Grand Canon of the Tuolumne River), Kings River, along the west wall of the Kern Canon, and southward into the lower Kern country." Harvey M. Hall recorded in "A Yosemite Flora," 1912, that the specimen found by Mr. Gleason was at about 5500 feet altitude in the Piute Creek Gorge. This single tree has been noted several times since by park officers. It is supposed to have been accidentally planted by Paiute Indians enroute from Mono Lake country to Pate Valley, a favorite summer camp.

During the late summer of 1935, Junior Forester Elliott Sawyer found a second lone specimen near the Rancheria Trail on the lower western slope of Rancheria Mountain. This find was recorded by Park Forester Emil Ernst in Yosemite Nature Notes for February, 1936. This tree is also on a possible route of the Paiutes entering Hetch Hetchy Valley. Now a third locality is established for the park.

On September 14, 1936, while on a field trip with Mr. F. E. Matthes, Senior Geologist of the U. S. Geological Survey, from base camp in Tiltill Valley, I discovered a small Single-leaf Pine tree at 5800 feet altitude, 150 yards south of Tiltill Valley Trail at point where the up-trail from Hetch Hetchy reaches top of ridge and makes a slight dip. We were at once aware of the presence of a number of trees of this species.

so made a survey, finding there were between 100 and 200, varying in altitude from 5800 to 6100 feet, spread over an area of some two acres.

The trees seemed perfectly at home in this environment. There were young ones a foot or two high and on up to gnarled old giants (for this species). One, on a granite shelf at 6000 feet altitude, I estimated to be 60 feet high with a limb spread of 30 feet and trunk diameter of 28 inches. Cones on this specimen and many others were well-developed, and full of good pine nuts.

An unusually large specimen

Mr. Matthes and I noted they were principally to be found on a series of broad, granite shelves which terminated at a marvelous view-point overlooking the Hetch Hetchy Reservoir. We were climbing toward this promontory for photographs, when we discovered the Single-leaf Pines. Mr. Matthes suggested this point be designated "Pinon Point" to bring attention to the location of these trees, and because of fine views obtainable. Looking south across the deep canyon of Rancheria Creek, one sees Rancheria Mountain and glaciated ridges beyond the Tuolumne River Gorge. Looking west, as shown in photogaph on cover, one sees practically the full length and breadth of the Hetch Hetchy Reservoir, and rugged North Dome with numerous intervening domes and ridges well-rounded by glacial action. We searched all slopes in view with binoculars, but could locate no other Single-leaf Pines outside our two-acre "orchard."

Were these trees planted by the Indians? Mr. Matthes and I noted a ducked trail out across these natural shelves to "Pinon Point" and on up the ridge. We followed these markers easterly around a high dome, and were led into the upper end of Tiltill Valley. I consulted Mr. Gabriel Sovulewski, for many years Supervisor of Road and Trail construction in Yosemite, and he said he had tentatively laid out this route following an old Indian trail, but had later abandoned it for the more direct, present Tiltill Valley Trail location.

Tabuce, an old Paiute resident of Yosemite, told me that as a little

girl she had gone several times from Mono Lake to camp for the summer with her family in Hetch Hetchy. She said they first went to Bridgeport, and her description of the route seemed to indicate they entered Tiltill Valley, where there are many mortar holes in granite, indicating villages, and then on to Hetch Hetchy, evidently by this old trail. She said children ate pine nuts as they walked along and "maybe lots of times drop 'em." So perhaps a Paiute child several hundred years ago started this "orchard" of Single-leaf Pines. It would take two or three hundred years for one of these slow-growing pines to reach a diameter of 28 inches.

On September 15, we moved camp from Tiltill to Pleasant Valley. I hiked across-country in order to visit these trees again and to explore the box gorge of Rancheria Creek. During a two-hour period among the Single-leaf Pines I observed an interesting floral and faunistic association. Western Junipers seemed the most common trees of this area; Jeffery Pines and Ponderosa Pines were both present, though dwarfed; one or two small Sugar Pines grew near the Point; Black Oaks and Canon Live Oaks were common; two Digger Pines were growing vigorously at 6000 feet, which is an altitude record for this species. Both the Green-leaf and Gray-leaf Manzanitas were common, and Mountain Mahogany was also present among the chaparral. A flock of thirty Bush-tits, two Wren-tits and three Plain Titmouses were observed in this two-acre area, as were two Anna Hummingbirds, one Black-throated Gray Warbler and two Spotted Towhees. California Ground Squirrels seemed common. Certainly here is a zonal complex inviting further study. To discover these Single-leaf Pines here is important enough, but to find the largest single recorded tree of the species, the elevation record for Digger Pines, and the elevation record for the post-nesting wandering of the Plain Titmouse all in one small area makes the occasion notable.

SEASONAL NOTES

Park travel for December - 7,847 a decrease of six per cent over December, 1935.

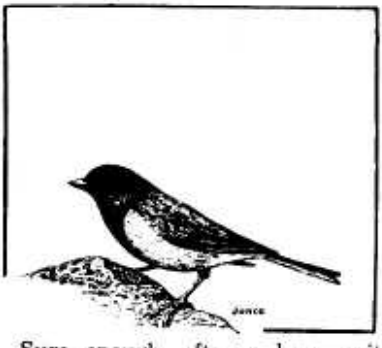
Valley Temperatures
High - 56 degrees Dec. 10
Low - 14 degrees Dec. 19
Average December mean 37 deg.
Total precipitation to Jan. 10 - 13.85 inches
Total snowfall - 67 inches

Winter Sports
All operating. Snow pack at Badger Pass on Jan. 10 - 54 inches
Skiing and skating, excellent.

The Junco's Ruse

By Enid Michael, Ranger-Naturalist

Sounding his click note of alarm, the Sierra Junco sat perched on a twig that lifted slightly above the clump of azalea bushes. He did not appear to be greatly excited and yet his notes of alarm were persistent, almost continuous. Seemingly the center of concern was below the Junco and somewhere near the middle of the azalea clump. The Junco continued to sound his alarm, continued to keep watch from his perch, but did not dart down into the bushes. I thought it was a snake, but whatever it was disturbing the Junco it had not found the nest, else there would have been more action. I was willing to wait; I was sitting in the morning sunshine with my back against a tree.



Sure enough, after a long wait something did happen. The Junco fluttered and fell to the bare ground at the edge of the thicket and tumbled about as though having a fit. A ground squirrel dashed from the thicket and almost caught the Junco, but not quite. The Junco fluttered to wing and with white tail feathers flashing, he fanned the nose of the ground squirrel for fifty yards or more. The Junco was winging slowly to just keep ahead of the squirrel, the squirrel was pawing the ground with all four feet, going for all he was worth, but just getting his nose fanned and never getting a mouthful. Having successfully lured the squirrel away from nest and young, the Junco circled back.

Sad to say the very next day the squirrel found the nest. The parent birds were making a very great fuss and I ran over in time to see the squirrel making off with the last of the four babies.

Ground squirrels go to bed early and get up late. When once up they spend all of their active hours either eating or searching for food. Naturally, where ground squirrels are numerous, the ground nesting birds are bound to suffer. Unfortunately, in the Yosemite Valley the ground squirrel has practically no natural enemies. In years past the coyotes and bob-cats were hunted and trapped off and for some unknown reason the squirrel-eating hawks avoid the Valley.

Wawona Pot Holes

Lloyd Smith, Student Enrollee

Half a mile west of Wawona, up Big Creek, an area of unusual geological and ethnological interest was recently discovered, easily accessible to the moderate hiker but seldom visited because it is simply not well-known.

Big Creek itself is one of the most beautiful swift-flowing streams in that area, with a steep, almost precipitous barricade of granitic boulders on the east bank and a gradual, sandy slope on the west. Scattered rocks interspersed with abundant brush and conifer growths contrast with the sheer barrenness of lichen-covered slabs of stone. The banks are as beautiful as they are different.

But it is the stream-bed itself, not the confining limits, that make the region unusual. Scattered along, out in the stream itself, every few rods, are projecting ledges and expanses of rocks. In these have been worn innumerable, circular holes. They seem to be omnipresent up the stream spaced in crowded groups. At first glance they resemble nothing so much as the giant Indian motar-holes frequently encountered throughout the Park.

In size, these pot-holes, as they are called by geologists, range in diameter from three inches to ten feet. Their depths are as varied. All possess that too-symmetrical form of natural-formed holes. No human alone could possibly have made one. Their existence, then, is probably due to gradual erosion, in which sand in suspension in the water, whirling around in a circle, due to a whirlpool-like current, acts as an abrasive and, with the passage of time, wears a bowl-shaped hole into solid granite. Once a depression has been started, the erosion is speeded by the addition of larger rocks and bits of drift wood to the grinding sand. The giant size of several of these pot-holes would indicate a very long expanse of time, perhaps as long as several thousand years.

In inquiring about these odd formations, it was learned that arrowheads have often been found near the holes after heavy rains. That the Indians lived nearby or at least camped on the banks is thus assured. Moreover, as it is a known fact in other regions, the Nuchus, the tribe that formerly inhabited the Wawona Basin, undoubtedly used these pot-holes to a good advantage as bath-tubs. Perhaps they might have aided nature's rather slow and tedious work by chipping off sharper protrusions with rock hammers. Anyway, several of these holes are perfect tubs, as if actually humanly-designed. One measured five feet in length, four feet in width and five feet in depth. It had been

so worn-down on one side that the water just barely washed over the rim into the cavity, keeping the contents of the "tub" fresh and clear.

All of Big Creek was not searched for these pot-holes, but in the areas investigated twenty-three of various dimensions were noted. More are certain to exist both further upstream and downstream.

AN INDIAN VILLAGE SITE NEAR THE MARIPOSA GROVE

ROBERT L. JOHNSTON
Ranger-Naturalist

Taking the trail from the Mariposa Grove camping ground past the Corridor Tree, one rambles through thick groves of sugar pine and white fir. After winding a half mile through the woods, the trail suddenly enters what appears to be a large clearing. The absence of trees is due to a large out-cropping of solid granite, the solid rock prohibiting the growth of trees.

The outcrop has the form of a gentle dome but does not rise more than six feet above the level of the ground on the upper side. The dome is elongated in an east-westerly direction. On approaching the upper or eastern side, a number of Indian mortar holes can be seen in a flattened portion of the rock. One instantly recognizes this as being an ideal site for a village. The upper part of the domed outcrop giving a point of vantage, the shaded level spots of ground adjacent being suitable for dwelling sites, and a cool sparkling stream nearby to furnish an abundant supply of water.

Although bits of grey obsidian and one or two arrowheads indicate the ancient presence of Indians, perhaps the best evidence lies in the number of mortar holes to be found. There are twenty-two holes altogether. The rock at this spot is split into three sections. Eighteen of the holes occur in one section, and the other two sections contain two holes each. These mortar holes are very symmetrical in shape. The smooth rounded sides take the form of an inverted elongated cone. The deepest holes average about six inches in depth.

The holes occupy an area of about twelve feet in diameter which is partially shaded by a young white fir tree. It might be supposed at first that the holes were made here to benefit from the tree's shade, but closer examination shows that the tree is probably only forty years old. The tree is growing in a split portion of the rock, undoubtedly being the cause of the cracking. Further evidence that the tree sprang up after the holes were made, is that one of the larger holes is broken by a number of branches from the larger nearby crack.

It is not very difficult to imagine two or three hundred years ago when this site was probably a scene of busy village life—men making arrowheads, women pounding acorns and smoke winding its way from the many camp fires.

Slender-waisted

Lloyd Smith, Student Enrollee

In the parking lot in front of the Yosemite Museum in Government Center, a crawling blotch of wings and feet on the asphalt was noticed. On closer examination it resolved itself into female Slender-waisted Wasp (Sphex nigricans) and an unidentified caterpillar. The larva was at least twice as large as its attacker, but the wasp's deadly toxin had paralyzed the caterpillar to immobility. That was apparently the least of the victor's worries now. Again and again she tried to fly off with it, but the load was too great for her fragile wings. At last she hit upon a new technique. Straddling the prostrate larva, she carefully fastened her mandibles in its neck and started walking, dragging the load under her. It was laborious, and every two or three feet she would stop to readjust her hold. At first it seemed as if she were transporting it rather aimlessly. She detoured around every fallen leaf and every stone, returning to her former route's direction. At last she had traversed over forty feet to a bare, dust-covered patch at the end of a log. Here she got to work in earnest. Dropping the worm, she began digging violently an inch or so distant. In a second a tunnel-opening had been uncovered. She crawled inside and returned shortly with debris which had fallen down the shaft. Sticking her head out, she grabbed the caterpillar and dragged it slowly down the passage out of sight.

For several moments she remained within, probably laying her eggs in the unfortunate and still-living larva. But soon she withdrew from the opening and ingeniously began filling up the hole. Carefully she selected fine sand and let it drop into the hole; then she reached in and packed it all down tightly on top. This was repeated six times until the opening had been entirely filled to the brim. Now she began the camouflaging. Gathering shreds of bark and bits of dried grasses, she scattered these over the spot. Larger stones she picked up, flew a foot or so away from the clearing, and dropped. One living blade of bunch grass continually got in her way, so she grasped it firmly in her mouth, flew with it to one side, and carried it to the ground so it could not flop back into place. With debris over the plugged-opening, she turned her back on the spot and began kicking light dust and particles backward. All around the hole she went, kicking as she made the circle, until there was no trace of the former opening. It was as completely concealed as any human could have made it, perhaps even better.

Satisfied that it was quite safe from ghouls, she flew away in search of more prey, knowing well that her eggs would hatch within

the larva, feed upon the living catterpillar until it died and deteriorated, then pupate, hatch, and repeat the life-cycle again. The concealment was so cleverly carried out that a later excavation to obtain the larva and eggs proved fruitless. No trace of either was located.

A TICK FOUND ON A LIZARD

GRANVILLE P. ASHCRAFT
Ranger-Naturalist

It has been the practice of the author from time to time to handle the Blue-bellied Lizard (Scoloperus occidentalis) confined at the Yosemite Museum for exhibit to see whether a lizard would actually learn to enjoy being fondled or stroked. While handling this little lizard on June 16, 1936, two rather interesting observations were made. The lizard was allowed to perch on the back of the hand and was held on the level of the observer's eye. While in this position, it was amusing to note that one can look through the little exterior auditory opening and see light. The tympanic membranes seem to form a translucent window with a communicating canal between.

Perhaps of more scientific value was the discovery of a mature wood tick imbedded in a fold of skin on the left shoulder of this lizard. One ordinarily associates such parasites as ticks and lice with the class mammalia or at least with warm blooded creatures. The general sclerotic texture of the scales of reptiles would seem to discourage the attachment of ticks but the Scloperus has a few more vulnerable spots in folds of skin around the limbs where the scales are small. It is logical to assume that this lizard acquired the tick while still at large in its natural habitat. At the writing, the lizard has been in captivity about four weeks. Also the advanced maturity of the tick indicates a long period of attachment.

It will be interesting to observe more individuals in the future to investigate this condition of lizards.

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