

# YOSEMITE

VOLUME FORTY-THREE, NUMBER 2

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## Birding . . . according to Warren



Warren

None of the YNHA staff people was able to go along on Dr. Dave DeSante's recent 'bird-banding' seminar at Crane flat. However, Warren White, National Park Service naturalist attended as our man-in-the-field. He sent back a set of notes, which we pass along, edited only slightly.

### Good Stuff:

There was great diversity to the group; each brought different background information, each added to the total educational experience.

With incredible luck we saw a great variety of birds — all the "good ones." This was less a matter of luck than a result of DeSante's ability to identify birds by sight and by their song . . . by his knowledge of the whole park and where the good "birding" spots were located—and by his nearly uncanny sense of which birds to look for in which habitat. The lectures were exemplified in the field—examples of the topic literally "flew by."

DeSante knew more than simply why birds lived (or visited) a habitat or life zone—his knowledge of the ecological

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## Orchids of Yosemite

by James Sleznick

Of all the national parks, one of the most scenic is our own Yosemite. Here, in approximately 1,200 square miles, one can find a biome of almost unbelievable variety. Nature has endowed Yosemite with the largest of living things, the mighty sequoias. And, through a series of fascinating geological events, there has been

present to the park visitor.

Among the many interesting features of Yosemite are the numerous lush meadows. With the arrival of spring, these verdant areas begin a succession of wildflower displays that ends only with the first frost of fall. It is in meadows such as these that one can find *Spiranthes romanzof-*



Rein-orchid:  
*Habenaria leucostachys*



Mountain Lady-slipper:  
*Cypripedium montanum*



National Park Service Photos  
Phantom orchid:  
*Cephalanthera austinae*

formed a valley where rivers literally burst into space and cascade hundreds and thousands of feet to the floor below.

But what of the native orchids that dwell in this sylvan splendor? To date, eleven species representing eight genera compose the park's orchid population. These include *Spiranthes*, *Goodyera*, *Listera*, *Epipactis*, *Cypripedium*, *Corallorhiza*, *Cephalanthera*, and *Habenaria*. Dr. Harold Bryant, one of the first park naturalists in the National Park Service, told me that he recalled seeing a *Calypso bulbosa* in the park years ago. Apparently, it is (or was) so rare that it has not been observed since. Perhaps with time, this delicate Fairy Slipper may come out of concealment and make its beauty

*fiana*. Being a far-ranging species, it can be encountered in many of our national parks. In the bogs and meadows of Yosemite, it starts to bloom in July at elevations of 6,000 feet. The marshes south of Tiltill Valley and at Peregoy Meadows are excellent places to see this plant. It can be distinguished quickly by the creamy-white flowers attached to a twisting stalk.

A strange but beautiful orchid at Yosemite is the Phantom Orchid, *Cephalanthera austinae*. Found frequently in the Big Tree country, it adds a hint of mystery to the cathedral-like atmosphere of the towering sequoias. The leaves of this orchid are vestigial scales and the flowers somewhat

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## Orchids

reminiscent of a strange kind of *Cymbidium*. A touch of yellow on the lip breaks up the white waxy form of this saprophyte. The plant can be seen best in July and August when it is blooming at its peak. The Phantom Orchid is only about 12 to 20 inches high and probably the most beautiful flowering plant in the park.

One day, while hiking to the top of Yosemite Falls, my wife and I came across *Habenaria sparsiflora*. Being early autumn, the plants were all in very late seed stages. Flowering time at Yosemite is normally around August for this species. Other places one can find this inconspicuous green orchid are in the meadows along the Pohono Trail and around the heavy-forested areas west of Cascade Creek near the new Big Oak Flat road.

August is also the flowering time for *Habenaria dilatata* var. *leucostachys*. Akin to the common *H. dilatata* or White Bog-orchid, this variety is easily distinguishable by the exceptionally long floral spur. Damp meadows along the Merced Lake Trail above Nevada Fall and Crane Flat on the Big Oak Flat road are typical locations of this striking species. In the higher elevations of the park, this orchid blooms in early September. Although *H. leucostachys* is common to the wet meadows, it has been found growing among the granite talus slopes of Tioga Pass.

The third *Habenaria* found at Yosemite is *H. unalascensis*. This orchid is extremely inconspicuous among the grasses and other plants in its habitat. It seems to require a drier location than the other *Habenaria*. One can find this orchid growing at Eagle Peak Meadows, Big Oak Flat, and along the El Capitan Trail in the red-fir forest. Like the other *Habenaria* in the park, it tends to bloom in August.

One overcast day in late November, a group of friends and I went on a hike to the Hetch-Hetchy-Pate Valley portion of the park. The vegetation about us had taken on a drab, brown color, as though waiting for the first snows

of winter to arrive. But in all this solitude, we were able to find the bright green-and-white rosette leaf-pattern of *Goodyera oblongifolia*. These orchids were growing under a canopy of sugar pines and had shed their seeds. Three hours later, a snowstorm rolled in and covered everything. Some authorities say that this species is evergreen. This green-leaved Rattlesnake Orchid has also been found on the Half Dome side of Tenaya Canyon in the dense stands of white fir.

In early summer, *Listera convallarioides* or Broad-leaved Twayblade starts to flower. By August, this orchid is in the seed stage and completed by September. There are about six to eight flowers on each plant. An interesting feature of this green-flowered orchid is the broad lip. This characteristic has led some people to call it the Broad-lipped Twayblade. The forests of sugar pine and white fir are favorite haunts of this small, two-leaved orchid.

The ninth orchid known to occur at Yosemite is *Epipactis gigantea*. Another moisture-loving herb, *Epipactis* can be found in the lower and moderate elevations of the park. It grows along the Yosemite Falls Trail and wet talus slopes near Rocky Point in the Valley. At 4,500-foot elevation, the Stream Orchid blooms in July and progressively later in higher parts of the park. The attractive flowers can be easily overlooked if one is not careful. Surprisingly enough, this species also grows at Death Valley National Monument!

Scattered through the park are several ecological niches of giant sequoias. These mighty patriarchs of the plant kingdom lend a sanctioning atmosphere to the rich vegetation of the forest floor. It is in such a habitat that a careful observer can find the shy Mountain Lady's-slipper, *Cypripedium montanum*. This stunning orchid can be seen at the Merced Grove of sequoias and in the dense shade bordering a mountain stream near Wawona Meadows. The flowers at Yosemite vary from three to five inches in size with

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The Happy Birders

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## Birding . . .

interdependencies between other wildlife, (i.e. other birds, insects, predators), the plants (for food and nesting places)—other material factors of the environment . . . (rainfall, temperatures, snowfall, ground water, winds, etc.) turned birdwatchers into environmentalists.

DeSante's in depth presentations gave the amazing details of bird life. Survival: winter adaptations, food adaptations, predator adaptations, migra-



He went that way!

tions of enormous distances, communities, communications, density, population, maintenance, diversity. Flight: the physiology of the adaptations of the birds' bodies to accomplish this incredible feat are incredible themselves.

Besides creating Park awareness, by giving the names of trees, flowers, place names etc., Dr. DeSante showed the values of national parks natural or wilderness areas.

Bad Stuff: Your camping arrangements!

We are glad that our good stuff outweighed our bad stuff. The bad stuff was occasioned by a soggy Crane Flat Campground, causing the bird people to muddy themselves and their gear and to defend themselves against vast numbers of mosquitoes.

# Return of the Lodgepole Needle Miner

by Thos. W. Koerber  
Photos by the author.

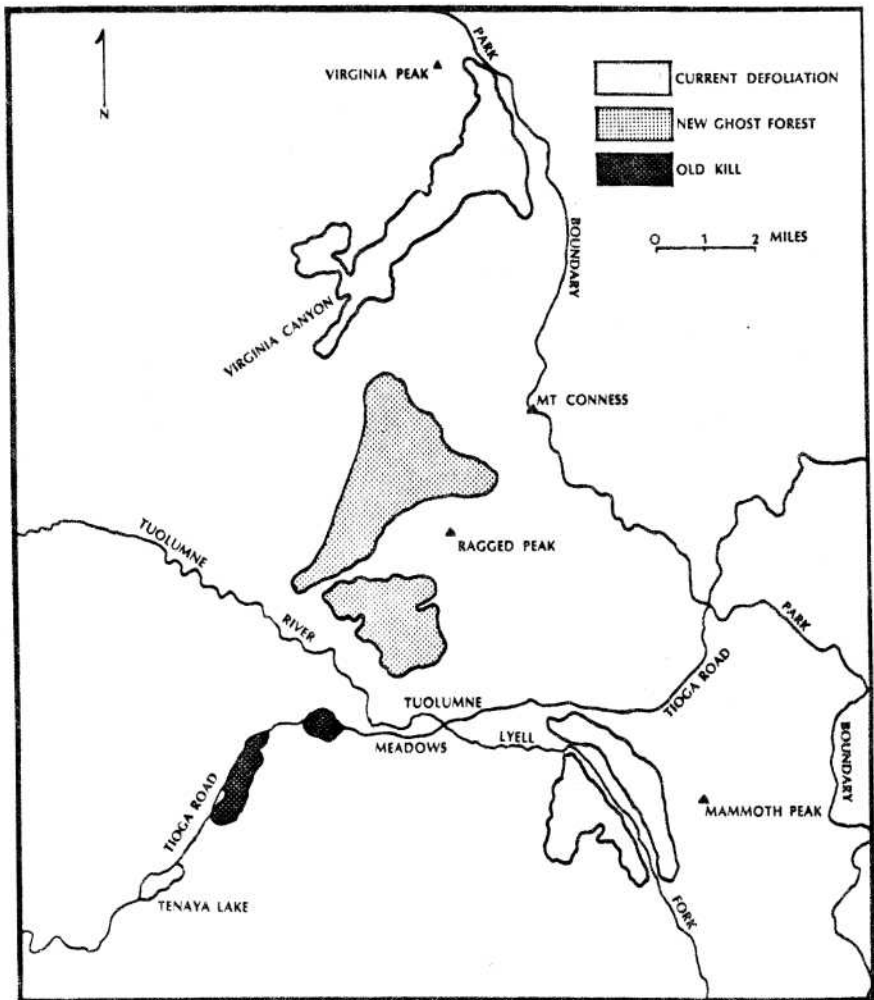


Lodgepole Needle miner:  
*Coleotechnites Milleri*

This summer hikers on the John Muir trail along the Lyell fork of the Tuolumne River have been wondering why the trees are so brown. Others passing through Virginia Canyon wonder about the showers of brown needles falling from the trees. Even airline pilots, descending toward San Francisco, have noted and reported great swaths of brown trees in the green carpet of Yosemite's forests.

Has the lodgepole needle miner returned? Actually the lodgepole needle miner has been with us constantly, but it has been ten years, or longer, since this insect was abundant enough to cause noticeable defoliation of large areas of lodgepole pine forest. In the meantime, it has been present in low numbers, unnoticed by any but the most careful observers.

The needle miner is a native insect in the lodgepole pine forests of Yosemite. Periodically, it develops dense populations which defoliate and kill thousands of acres of lodgepole pine forest. No other animal, not even man, has such a powerful effect on the high mountain landscape. The dead trees decay very slowly in the cold dry climate of the high mountains and the young trees of the new forest grow very slowly. Thus, stark grey snags standing in thickets of young trees cover thousands of acres of the high country with "ghost forests." The ghost forests in Yosemite date mainly from needle miner epidemics



which occurred from 1900-1916 and from 1953-1963. Most of the dead trees resulting from the earlier epidemic have since fallen, but considerable numbers may be seen in the Tenaya Gap area and on the north flank of Fairview Dome. The more recent ghost forests may be seen northeast of Cathedral Lake and from the lower reaches of Delany Creek northward to Alkali Creek. The ghost forests provide many excellent opportunities to observe ecological processes in action, for it is only in an extensive national park such as Yosemite, that the natural cycle of replacement of a dead forest by grasses and by herbs, and finally by the growth of a new forest, is allowed to proceed unmodified by man's timber salvage or by tree planting efforts.

The adult needle miner is a little grey moth only 1/4 inch long. The females deposit their eggs in hollowed-out needles or in bark crevices. In about a month, the eggs hatch, producing little caterpillars which bore into lodgepole pine needles. They spend the next 23 months almost entire-

ly inside pine needles, eating them from the inside. Each larva consumes an average of five needles before reaching maturity in the spring of an odd numbered year. The mature larva constructs a thin silk lining in the last needle it has mined. Here it transforms to the pupal stage, a jet black, immobile creature, which, in turn, transforms to an adult moth. All of the moths emerge for their short adult life in July and in early August of an odd numbered year, such as 1973. There were no moths in 1972 or any other even numbered year when all the needle miners were half-grown caterpillars living inside the needles.

During their long growing period, the needle miners are preyed upon by a host of predatory insects and birds. Also vast numbers of the needle miners are killed by cold in the winter, or by storms in the summer which knock the needles from the pines. In fact, the vast majority of needle miners do not live to become mature moths. However, the moths have a reproductive capacity

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An example of an old ghost forest and new trees 30-40 years old.



New ghost forest at ten years.

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## Needle Miner

which allows a thirtyfold increase each generation. Further, the larvae living inside individual needles are protected from many potential predators, and the fact that all needle miners develop in step may prevent some predators from maintaining large populations over the even numbered years when only small larvae, hidden in needles, are present. Consequently, the predators do not destroy quite enough needle miners to hold the population in check as in the usual case with insect populations. Thus, the number killed by adverse weather conditions become the key factor in determining whether or not the needle miner population will increase or decrease. It has been found that warm dry summer weather without violent storms, and mild winters with early springs, are favorable for needle miner survival. For example, the most recent epidemic was ended by unfavorable weather patterns in 1963 and 1965. Over the last four years, we have had favorable weather patterns which have permitted an average sixteenfold increase in the population, resulting in the large areas of defoliated trees we now see.

Once the needle miners are numerous enough to defoliate

the forest they, to some extent, begin to make their own weather. The sun penetrates to the ground after the needles have been destroyed and the trees no longer shade each other. Thus, a cool, shady forest becomes a warm, dry place that is more favorable for needle miner survival. Once the microclimate has been modified, the needle miner population may continue to increase under weather conditions which would not normally be favorable for survival.

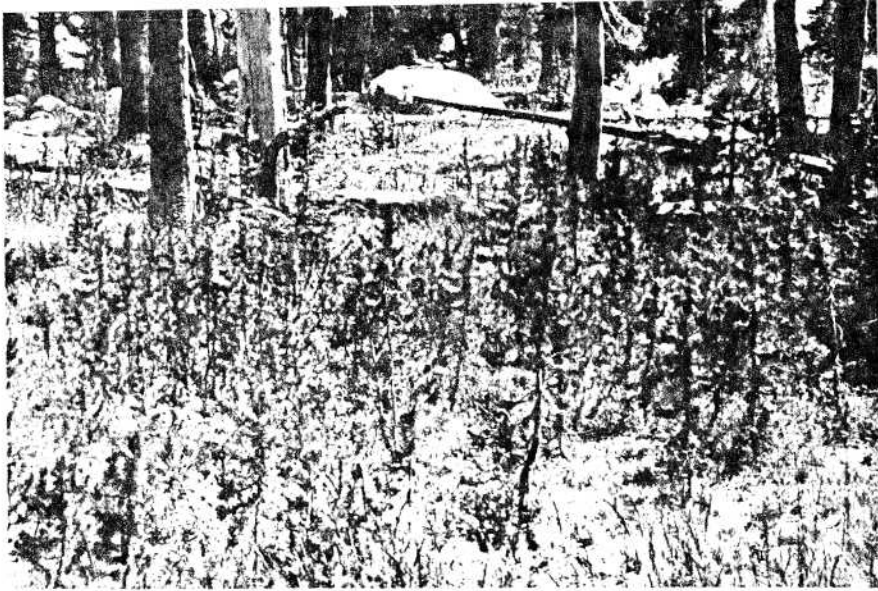
Fortunately, the lodgepole forest is not as fragile as is generally believed. Healthy lodgepole pines can tolerate three complete defoliations by needle miners before they begin to die, and particularly tough or vigorous individuals will withstand a lot more. After repeated defoliations, the trees begin to die. Usually, bark beetles, such as the mountain pine beetle, invade the weakened trees and finish them off. The bark beetles may continue to attack weakened trees for many years after defoliation has stopped, a phenomenon which is seen in the Delaney Creek area.

According to present National Park Service management poli-

cies, the defoliated forests are in areas where natural processes will be allowed to proceed unhindered. Therefore, no spraying or other insect control actions are being planned. Entomologists detailed to Yosemite by the U.S. Forest Service are keeping a close watch on the needle miner to learn as much as possible about the phenomenon of unrestrained insect epidemics. The Park Service naturalist staff at Tuolumne Meadows has been provided with up-to-date information on the needle miner. It is hoped the maximum number of visitors will take advantage of this opportunity to observe ecology in action before their very eyes.

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*Dr. Koerber was trained in insect ecology and forest entomology at the University of Wisconsin at Madison and the University of California at Berkeley. He has been conducting research on the lodgepole needle miner in Yosemite Park since 1967. He is now Research Entomologist, Pacific Southwest Forest and Range Experiment Station, National Forest Service, U.S. Dept. of Agriculture.*



Emerging stand of lodgepoles in relatively new ghost forest.

## Winter Environmental Seminars

Dr. Carl Sharsmith, well known High Sierra botanist and instructor, will conduct three winter ecology seminars in Yosemite Valley, on Feb. 9-10, 16-17, 23-24, 1974. During the 14 hours of field work, participants will examine the interrelationships between rocks, soil, plants, animals and microorganisms as they are affected by winter temperatures,

wind, light and moisture conditions.

The courses are sponsored by the Yosemite Natural History Association and, will earn one quarter-credit through arrangement with U.C. Davis (Ext. Div.).

Members interested in receiving complete details may write Box 545, Yosemite National Park, CA, or call (209) 372-4532.

## Yosemite Sketches Published by Y.N.H.A.

Your Association is pleased to announce that it recently has published a collection of outstanding pencil sketches done by Lee Panza, a talented devotee of the area. These are faithfully reproduced by lithography on fine quality paper. The sheets are gathered in an attractive folder cover and the whole in a white envelope with stiffeners. Each of the familiar Yosemite scenes is ac-

curately rendered and we suggest that the set would make an admirable Christmas gift.

The set retails for \$4.95; the price to members with their 20% discount will be \$3.95. We will mail these to you, or to whom-ever you direct, for \$4.65, including tax, postage and handling. Foreign mailings are \$1 additional. We will enclose a gift card if you indicate.



A COLLECTION OF 10 PENCIL DRAWINGS BY *Lee Panza*

## Members' Ostrander Ski Touring Trip

Ostrander Lake Ski Hut again, will be the destination of three-day environmental ski touring trips, sponsored by your association. Warren White, National Park Service naturalist, will lead these tours, as he did last winter.

Parties will leave Badger Pass at about 9:30 a.m. for the 7½ mile journey. There is an elevation gain of some 2,000 feet, so the trip would not be enjoyed by the novice.

The hut will be reached by about 4 p.m. There, sleeping accommodations are provided in bunk beds with mattresses (sleeping bag necessary).

On the second day, Warren will lead a day tour to the Hart Lakes Basin, pointing out the effects of winter weather on the plant and animal life, the geology of the cirques, the effects of glaciation. The return trip will be along the Merced Crest trail which is somewhat longer but involves less climbing. Tours are scheduled for March 29, 30 and 31 and April 19, 20, 21. The charge for the trip is \$25.00, which includes two dinners, two breakfasts and two lunches, use of the hut. Participants need bring only a sleeping bag, lunch for the in trip and personal necessities. Reservations and more information may be had from the YNHA office.



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*A non-profit, educational association dedicated to the interpretation of the natural and human history of Yosemite National Park, in cooperation with the National Park Service. Contributions and donations are tax deductible.*

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## Orchids

one or two blossoms per plant. Except for the white pouch, this species is very similar to the common Yellow Lady's-slipper.

The last genus of Orchidaceae at Yosemite is *Corallorhiza*. *Corallorhiza maculata*, or Spotted Coral-root, grows in the Mariposa grove of sequoias; along the old Oak Flat road and with *Goodyera oblongifolia* along the El Capitan Trail. I have found numerous plants under the red firs near the Harden Lake Campground. This common native orchid is found in many of the western parks and is abundant in rich, decaying humus. Visitors should be careful not to disturb this delicate saprophyte in the park, as the fleshy and knobby rhizomes are very brittle.

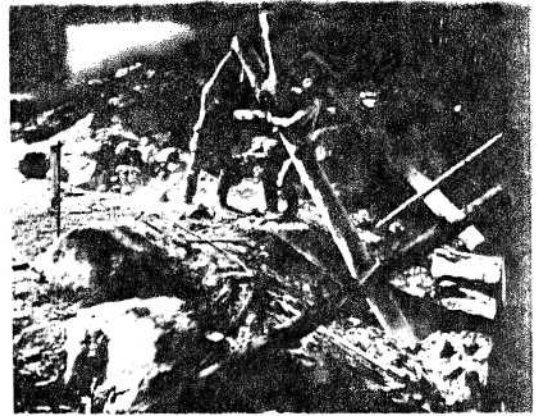
The Striped Coral-root, *Corallorhiza striata*, has been found growing in the same general areas as *Listera convallarioides*. Around Cascade Creek (5,800 feet), it flourishes in dense shade and moderately moist soil. Some flower stalks of *C. striata* have had as many as 24 blooms whereas others as few as 6 or 4. This very attractive Coral-root is easily identified by the distinctive purple

stripes on the floral parts. In addition to growing near the Big Oak Flat road, it can be found in such remote areas as Illilouette Canyon.

Yosemite has an interesting selection of native orchids. Although many are relatively inconspicuous, they are nevertheless an important part of the total park flora. When you are in Yosemite, make a stop at the Visitor Center for an orientation by a park naturalist before "orchid hunting." Giant sequoias, lofty waterfalls, and delicate orchids are yours to enjoy at Yosemite. Help protect the park and all that it contains for those that may follow after you.

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*Jim Sleznick has been with the National Park Service thirteen years and has served at Lake Mead National Recreation Area, Gila Cliff Dwellings National Monument in New Mexico, Buck Island Reef, St. Croix, V.I. A graduate of Northern Illinois University, Sleznick has a primary degree in Botany, a masters in Biology. He is presently Chief of Visitors Services and Public Information in Yosemite. This article is one of several he has done on orchids.*



## Round House

A massive but beautifully simple Miwok round house is being built in the Indian Garden. In Miwok, it is called a "haje" (pronounced hanje).

When completed next month, it will serve as the focal point for the reestablishment of the Indian culture of Yosemite and the scene of spiritual ceremony and ritual dancing, the same as in pre-Caucasian time.

The haje will have a "three-man" radius, the measure used by the Miwok. Three men, lying head to toe, will reach from the perimeter to the center, or roughly 20 feet. It will be semi-subterranean, the whole being some five feet below ground level. The roof line basically is conical; but when covered first with cedar bark, then thatched with wormwood, pine needles and finally with a covering of earth, it will present a domed shape.

Craig Bates, of the Valley interpretive staff "engineered" the construction, piecing the plan together from descriptions given him by the old people. Most of the work has been done by the interpreters, with some aid from National Park Service people and their heavy machinery.

The haje will be a most significant addition to the revival of Yosemite Indian history and culture and will give park visitors a singular opportunity to enjoy learning about the first inhabitants of this Valley.

Four other round houses exist in central California; at the Tuolumne Rancheria, at Grindstone, in Glen County, at Stewart's Point, west of Healdsburg and at Ahwahnee in Madera County. The earliest of these is that at Grindstone, having been built about 1900 by the Wintuns.

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