

YOSEMITE NATURE NOTES

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Badger Pass Ski Area

Yosemite Nature Notes

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DENIZENS OF THE NIGHT

By Ranger-Naturalist Willis A. Evans

One enjoys observing the wild animals about during the daytime in Yosemite, but with the shadows of night appear an entirely different set of creatures. During the summer of 1941, while living on the valley floor in Camp 19, many nocturnal visitors paid their respects by a brief call.

Most outstanding perhaps were the nightly prowling of the black bears. A slight crackling of the forest litter now and then is all that is heard evidencing the bears' approach. My shining the flashlight often revealed two blazing eyes and a moving black form. Mothers with cubs, enormous old males, young half-grown ones, all wandered through the camp, which seemed to be on their main route of travel. When startled, the bears will lumber off emitting a sound like small pebbles rattling in a large empty can. This sound is in reality caused by rapid snort-like inhaling and exhaling—the sound apparently originating deep in the throat. Sometimes bears were most unwelcome. On two different occasions, upon our returning home late, an individual was

seated peacefully upon the table inside the tenthouse.

Of course the most frequent callers are the ever present numbers of little White-footed Mice or Deer Mice. Even before the evening meal is completed, the rattling of bottles and pans begins, as inquisitive mice explore every nook and cranny for possible food. Their large, erect ears and shining, black eyes peering out from behind long bristly whiskers make them interesting prowlers to watch. They like to thump noisily on the tin plates or the floor by vibrating their tails. Often they become a little troublesome. For instance, one succeeded in prying off the lid from a pint jar of rice, and through the night was able to pack away over half of it. Next day I found his storage bin in a cupboard corner lined with kapok stolen from my sleeping bag. Not only was the rice found, but corn meal and olive seeds evidently obtained on previous raids.

Lest the mice become too abundant, their enemies stealthily scan the night's darkness for unsuspecting prey. The rapid patter of light feet



across the bedroom floor accompanied by a sharp, high-pitched bark announces the arrival of a pair of Ring-tailed Cats. Long and slim like a tiny fox, they glide across the floor followed by that black and white ringed banner tail. After an inspection of the four corners of the kitchen, a search is begun through the cupboards. They are very adept at climbing over shelves laden with glassware without so much as disturbing one.

Our most nonchalant visitor is the little spotted skunk. Oblivious of all about him, he proceeds on his nightly tours giving little heed to man or beast. Hearing a strange rustling in the cupboard one night, I investigated with the flashlight. Pulling back the curtain suddenly, I confronted his majesty interested in a scrap of food. There is no telling who was the more surprised! At any

rate, I quietly retreated leaving him master of the situation. It is courting disaster to interrupt the wanderings of this normally peaceful character.

Mammals are not the only night wanderers, for a low but penetrating hooting indicates the presence of various kinds of owls. The four or five rich, base notes of the male Horned Owl may be answered by the higher pitched call of the female. Both reply to each others' questions from hidden perches among the tall fir and pine.

Then a call somewhat resembling the sharp barking of a small dog issues from far up the hillside, and we recognize the Spotted Owl. He generally keeps well-hidden, but if silhouetted against the lighter sky, shows a rounded head without ear tufts. This makes him easily distinguished on sight from the somewhat



larger Horned Owl possessing prominent ear tufts.

Pigmy Owls, those small but active foes of birds and mice, keep up a high, soft whistle repeated either singly or in rapid staccato succession. Seeming never to sleep they may be heard also frequently through the day. Its lack of ear tufts and diminutive size make its recognition quite simple.

Thus while the rest of the world sleeps, our creatures of the night hold sway in their realm of darkness.

LUMINESCENT WOOD OR "FOX FIRE"

By Ranger-Naturalist James R. Sweeney

In many parts of the country and especially in the "rain forests" it is possible to find decaying wood that actually produces light. This wood is often called "phosphorescent wood." However, it is not the correct name for this phenomenon, because there is no phosphorescence, but the light produced is caused by a fungus growth in the decaying wood, which requires both water and oxygen for its development, and is properly referred to as "luminescent wood," but sometimes it is called "fox fire."

There have been a number of specimens found here in the Yosemite National Park in the past, and this year there was an entire stump found in section A-8 at Camp 14. During the day this stump appeared to be just another decaying bit of

damp wood and very uninteresting, but upon further examination after dark the entire stump became a live, glowing mass of cold light. The color of the light was indefinite, but as nearly as I could tell it had a blue-green quality, closely resembling the light given off by phosphorus upon stimulation by another light source. However, the light given off by luminescent wood differs from the light from phosphorus in that it is a continuous light source which can be polarized, and will affect a sensitized photographic plate. Pictures of this luminescent wood have been taken by the intensity of its own light. In the case of phosphorus, it requires external stimulation of another light source, and then the light is of a temporary nature and not continuous as in true luminescence.

A number of specimens were selected for observation and study in order to determine some of the characteristics of this wood which produces light. Upon examination all the samples proved to be from oak stumps. As carefully as possible we checked other reports, and learned that in this particular region luminescence has only occurred in the stumps of oaks. Still it seems quite possible that it would occur on other types of wood also. Upon examination in the dark room, we found that by holding a small piece of luminescent wood between our hands that it was possible to see our hands from the light produced by the fungus growth in the wood. By allowing the specimens to remain in the dark room to dry out, we noticed that the light became weaker as the wood became dryer until some of the pieces of wood produced no light. By moistening the specimens with water it was interesting to notice that the luminescence reappeared, but with less intensity than before. It is possible to preserve pieces of the wood by a rapid drying process to remove the moisture. In a dry state the specimens can be kept for a long period of time, but before the light will show they have to be moistened. Upon examination by microscope the mycelium of the fungus could be seen in the specimens of decaying wood. It is this growth that produces the light.

Luminescence is quite common in many parts of the world. There have been forty orders of animals reported which produce luminescence, and two types of plants—bacteria and fungi. In the case of the animals it requires some sort of stimulation to cause the light to appear, but the bacteria and fungi are able to produce a continuous light without any stimulation. The chemistry of this light is of interest because it has been found that two salts—sodium chloride and potassium chloride—are always associated with luminescence of this type. An analysis of this type of luminescence has shown that two substances, luciferin and luciferase, are necessary in addition to air (oxygen) and water. The exact chemical composition of these substances is not known. The reaction producing luminescence was found to be the oxidation of luciferin. The luciferase acts as a catalytic enzyme, which induces oxidation. Experiments by Harvey have shown that luciferin plus oxygen forms oxyluciferin which is later reduced to luciferin. The chemical reaction causing luminescence is then primarily the action between luciferin and oxygen reacting to form oxyluciferin, water and light energy. This action is reversible.

Luminescence has been produced chemically, but it seems very doubtful that it could be produced on a commercial scale.





A NEW LOCATION FOR KNOBCONE PINE

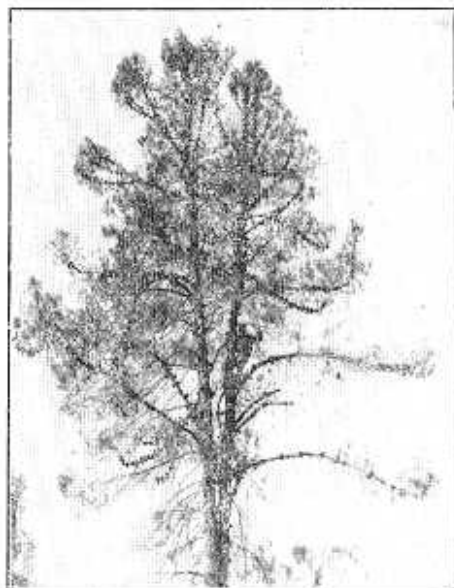
By Park Forester Emil F. Ernst

A new location for specimens of Knobcone Pine (*Pinus attenuata*) was brought to the attention of and confirmed by the writer on May 28, 1941. Three young trees, approximately 10 years old, are located in the NW $\frac{1}{4}$ of sec. 23, T. 2S., R. 19 E., which is not more than one-half mile west of the Merced Grove of Big Trees. They are growing at an elevation of 6,000 feet on the ridge just south of the former location of Camp 15 of the Yosemite Lumber Company. The land in this vicinity has been cut over in logging operations.

This is the fifth location within the park boundaries for this tree, the other locations being: on the fire motorway to Deer Camp; between the new and old Wawona Roads north of Grouse Creek; the first discovery, just west of the west portal of the Wawona Tunnel; and the fourth previously known location at the junction of the Davis Cutoff and the Coulterville Roads.

Four of the five locations are undoubtedly the results of the activi-

ties of the white man—two being located close to railroad grades used in logging, and two adjacent to



roads formerly used as main arteries of travel in the horse-drawn stagecoach days. The fifth and hardest to reach location is more than likely the result of the activities of birds.



BIRD OBSERVATIONS

By J. Dan Webster, 1941 Field School

During the course of the seven weeks spent in Yosemite National Park, the 1941 Field School made many interesting bird observations. Among them were the following:*



Turkey Vulture (*Cathartes aura septentrionalis*). One was seen at Incline (six miles west of the park boundary) on July 1.

Red-tailed Hawk (*Buteo borealis*). Two light phase adults were seen near Red Peak at 10,500 feet on July

31 by Mr. Joseph Dixon and most of the party, and over the same spot the next day by Mr. Herrold Asmusen. In the afternoon of August 1, a single very light red-tailed hawk was seen over Gray Peak, at an elevation of 12,000 feet; presumably, it was one of the same birds. These hawks were white below, save for the black wing tips, and very light gray brown above, except for the light reddish-brown tail.

Prairie Falcon (*Falco mexicanus*). Two falcons, hovering over the Field School group at Incline (six miles west of the park boundary) on July 1, were identified by Junior Park Naturalist Harry C. Parker and the writer as of this species.

Duck Hawk (*Falco peregrinus*). One was seen by Ranger-Naturalist Max Crittenden and the writer from the Four-mile Trail at about 6,000 feet on July 19.

Killdeer (*Oxyechus vociferus*). One bird at Crescent Lake (8,500 feet) on July 25 was noted by Mr. Richard Miller and the writer.

Great Gray Owl (*Scotiaptex neb-*

ulosa). One was seen flying low over Turner Meadow (7,600 feet) at dusk on July 22.

Short-eared Owl (*Asio flammeus*). One of these diurnal owls sailed low over the southern arete of Mount Clark (11,000 feet) on August 1. There are no previous records of this species from Yosemite National Park. Poor-will (*Phalaenoptilus nuttalli*). An unusually high altitudinal record was obtained when one was heard at 8,500 feet by the whole group on the evening of July 23 at Crescent Lake.



Lewis's Woodpecker (*Asyndesmus lewis*). One was seen near Horse Ridge at 7,000 feet on July 22; another by Mr. Charles Todd on Moraine Mountain at 9,000 feet on July 29.

Dusky Horned Lark (*Otocoris alpestris merrilli*). An adult Horned Lark, which definitely belongs to this Great Basin race was found dead on a snow bank on the south slope of Merced Peak at an elevation of about 10,200 feet on July 28 by Mr. Arnold Applegarth. Presumably it had been overcome in a snowstorm during the previous spring migration. The desiccated specimen is now in the Yosemite museum collection.

Rough-winged Swallow (*Stelgi-*

dopteryx ruficollis). A single individual was seen at Gravel Pit Lake (5,200 feet) just east of Miguel Meadow on July 6 by Mr. Herrold Asmussen, and on July 7 by both Mr. Asmussen and the writer.

Barn Swallow (*Hirundo erythrogastrer*). A pair was evidently nesting at Incline (six miles west of the park boundary) on July 1.

Red-breasted
Nuthatch



Red-breasted Nuthatch (*Sitta carolinensis*). Single males were seen several times at high altitudes as follows: July 25 at 9,000 feet on Moraine Mountain; July 29, at 9,500 feet above Upper Chain Lake; July 30 at 8,600 feet near Buck Camp.

Gnatcatcher (*Polioptila caerulea*). A single individual was seen near Poison Meadow (5,300 feet) on July 10.

Blue Grosbeak (*Guiraca caerulea*). A female was incubating eggs in a nest in an oak tree overhanging the Merced River at Indian Flat (1,500 feet; 7 miles west of the park boundary) on July 1. The bird was identified by Junior Park Naturalist Harry C. Parker and the writer.

California Pine Grosbeak (*Pinicola enucleator californica*). A yearling male was seen at Crescent Lake on July 24 by Miss Bernice Sagal; two

immatures were collected (JDW 156, a female in juvenal plumage and JDW 157, a male in the post-juvenal molt; both specimens in the Yosemite museum). Two other individuals were seen by the writer on Moraine Mountain at 9,000 feet on July 25; an adult male and female were seen by Mr. Joseph Dixon on July 26 near Breeze Lake (9,300 feet); a juvenile was seen by Mr. Dixon and the writer on July 27 below Chain Lakes at 8,900 feet; a single Pine Grosbeak was heard on Moraine Mountain (9,000 feet) on July 30.

Savannah Sparrow (*Passerculus sandwichensis*). At least two were seen at Crane Flat (7,000 feet) on June 26.

Vesper Sparrow (*Poocetes grami-*

neus). One was noted at Incline (six miles west of the park boundary) on July 1.

Bell's Sparrow (*Amphispiza belli*). Four were seen at close range at Incline (6 miles west of the park boundary) on July 1.

Song Sparrow (*Melospiza melodia*). One was seen in Miguel Meadow (5,200 feet) on July 8; one above Buck Camp (8,700 feet) on July 25.

(*Unless otherwise indicated, it was the writer who saw and identified the bird in question. On July 1, the school made an excursion down the Merced Canyon outside of the park, and several observations made on that day are included, although noted as west of the park boundary).

REPTILE OBSERVATIONS ON HIGH SIERRA FIELD TRIP

By Iver Madsen, Field School 1941

This year, several unusual reptile observations were made on the annual two weeks field trip of the Field School. On July 29, 1941, Dan Webster, a member of the school, noted on two different occasions the Sierra Alligator Lizard (*Gerrhonotus palmeri*). The first of these was at Lower Chain Lakes at an elevation of 9,100 feet; the second at Upper Chain Lakes at an elevation of 9,200 feet. Katharine Johnson, also a member of the Field School, observed a lizard of the same species at an elevation higher yet. Her observations were made on Red Peak on a south facing slope at an eleva-

tion of 10,500 feet on August 1, 1941.

Dan Webster also saw two individuals of the Mountain Lizard, (*Sceloporus g. graciosus*), on July 30, east of Buck Camp at an elevation of 8,700 feet.

Perhaps the outstanding reptile observation was made by Mr. Joseph S. Dixon, Assistant Director of the Field School, on the Rubber Snake, (*Charina bottae*). It was found beside the trail near Turner Meadow at an elevation of 7,700 feet. The specimen was collected and placed in the living reptile exhibit at the museum.



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