

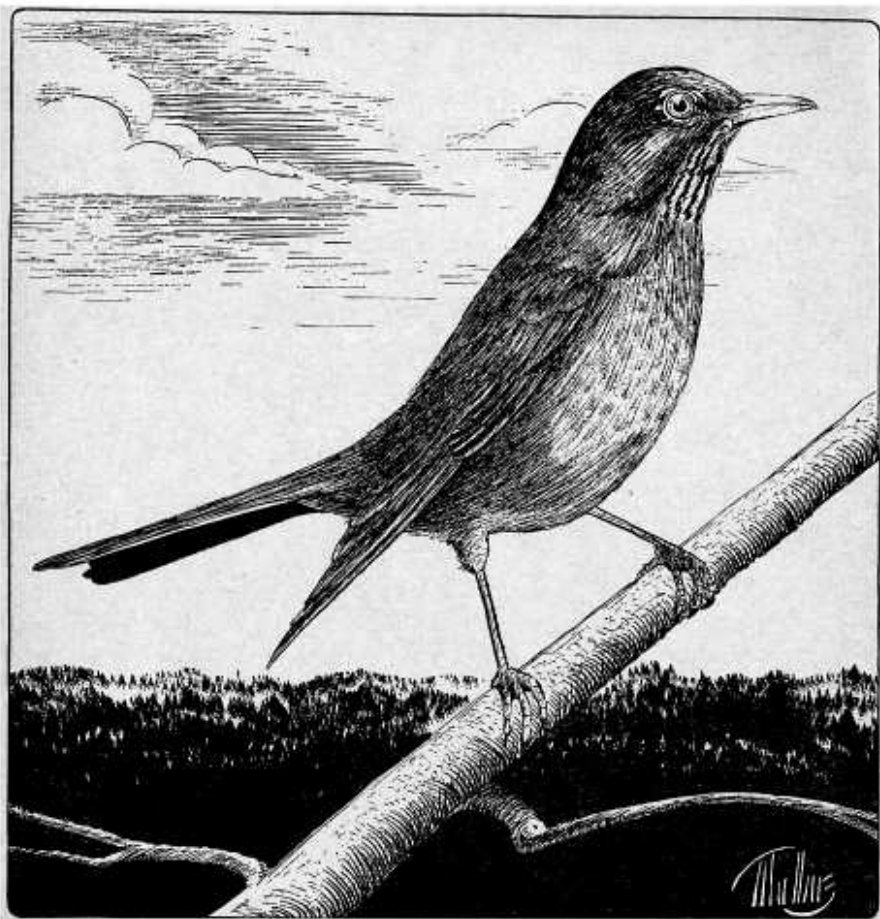
YOSEMITE NATURE NOTES

VOLUME XXXIII • NUMBER 12

DECEMBER 1954



*Yosemite winter scene
—Ansel Adams*



Western robin

YOSEMITE NATURE NOTES
THE MONTHLY PUBLICATION OF
THE YOSEMITE NATURALIST DIVISION AND
THE YOSEMITE NATURAL HISTORY ASSOCIATION, INC.

John C. Preston, Superintendent

D. E. McHenry, Park Naturalist

B. H. Hubbard, Assoc. Park Naturalist

N. B. Herkenham, Asst. Park Naturalist

W. W. Bryant, Junior Park Naturalist

VOL. XXXIII

DECEMBER 1954

NO. 12

ON ROBINS AND TADPOLES

By Ernest L. Karlstrom, Museum Assistant

Many animals are restricted by their physical makeup and instincts to the selection of highly specific kinds of food. One of the fussiest eaters in the animal kingdom is the tree sloth of South America which diets strictly on leaves of the Cecropia tree. Among the birds are found many special ways of acquiring particular types of food. The Sierra crossbill has a scissorlike beak adapted for prying apart scales of pine or fir cones to obtain the seeds. The long tubelike bill of the hummingbirds equips them for dining on the sugary juices of plants. It is no handicap in itself for an animal to be choosy, so to speak, about what it eats, as long as an ample supply of that food exists. But it is a fact that animals with highly specialized feeding habits are limited in their distribution to those places where their kind of food is available.

On the other hand, there is the western robin (*Turdus migratorius*), widespread from Canada to Mexico. In California it is a summer visitor to the foothills and mountains of the Sierra Nevada. Along with the Steller's jay and Brewer's blackbird, robins are among the most common birds seen in Yosemite Valley. Robins are opportunists, and over

the years they are found nesting in increasing numbers in the lowland areas of human settlement where they select orchards, gardens, and irrigated regions. What enables this species to produce such large numbers and to occupy new territory? At least one factor is the bird's capacity for eating a great variety of foods.

As with other members of the thrush family, the bill of the robin is generalized in structure—neither short and thick like that of the grosbeak nor long and slender like that of the hummingbird. It is designed for taking many types of animal and vegetable material, including worms, insects, berries, and other fruits such as cherries and prunes. In short, the adaptable robin utilizes almost anything available. Add another interesting item to its food—the tadpoles of tree-frogs and toads. On several occasions during May and June I have observed robins "fishing" for tadpoles in Yosemite Valley's meadow pools. But the story behind this unusual feeding behavior begins earlier in the year.

The Pacific tree-frog (*Hyla regilla*) is our herald of spring in the valley. At Stoneman Meadow near Camp Curry and in other valley meadows, the male tree-frogs moved out to the

ponds in March where they set up their raucous mating chorus. The females soon responded, and clusters of eggs appeared in the water by the end of March. The California toad (*Bufo boreas halophilus*) emerged somewhat later. Males were seen in Stoneman Meadow April 8, and by April 17 the successful matings resulted in strings of fertilized eggs in certain of the water-filled hollows. At this time numerous snowpatches still

remained at the meadow margins, night temperatures ranged downward to freezing, but the sunny afternoons brought warmth to the shallow pools, and by the end of April most of the larger ones were alive with wriggling tree-frog and toad larvae.

Then began a race against time. Snowmelt pools are transient features of most mountain meadows, and, unless fed by springs, they dry up during the summer. Would the

Meadow pool near the rim of Yosemite Valley

By Ansel Adams from "Yosemite and the Sierra Nevada," courtesy Houghton Mifflin Co.



water last long enough for the tadpoles to reach metamorphosis and free themselves of the need for an aquatic environment? This summer the vagaries of nature were such that the odds were stacked against the amphibians. Both spring and summer in Yosemite were relatively hot and dry. Total precipitation for the year between July 1953 and June 1954 was 32.4 inches, as compared with a 42-year average of 35.1 inches. The past winter's total snowfall was smaller than usual in the valley—69 inches—compared with a 40-year average of 96 inches. Reduced precipitation coupled with a light snowpack and warm spring temperatures resulted in an early drying up of the bodies of standing water in the valley's meadows. By actual measurement one large pool in Stoneman Meadow dropped from a maximum depth of 12 inches on May 1 to 6 inches on May 13, then to 1 inch on May 28, and by June 11 all water had disappeared.

What was happening to the tadpoles as their home literally wasted away? Inevitably they perished, but not before the majority of the larvae reached a stage of hindlimb development. The toad tadpoles at their untimely death had a total length of about one inch, half of which was tail. The tree-frog tadpoles were somewhat larger, but most were at the same developmental stage. It should be realized that as the pools shriveled in size the production of algae—the tadpoles' chief food—also declined. Tree-frog larvae on many occasions engaged in cannibalism, rasping away with horny teeth on dead brother tree-frog or cousin toad. The *Bufo* tadpoles were more strictly vegetarian in spite of the hard times.

Mud puddles remained where pools and culverts once stood filled



California toad

with water from melted snow. Hundreds of squirming tadpoles, having now lost their *lebensraum*, were congested in water barely deep enough to cover their backs. On May 28 I observed one puddle 2 feet wide and 2 inches deep which contained approximately 700 tadpoles, nearly all California toad. None had a chance to lose its gills and develop limbs needed to escape its impending fate.

I was astonished to note that no dead tadpoles were left to decay on the mud surfaces. The reason soon became obvious. Unmistakable bird tracks were everywhere in the soft ooze, and it wasn't long before I caught sight of robins standing at the edge of puddles pecking at the teeming aggregation of blackish tadpoles. Brewer's blackbirds were also common in the meadows, but I never saw them actually prey on the amphibian larvae.

Do the robins make a regular practice of feeding on tadpoles in our Yosemite meadows? Previous observations of this habit seem to be lacking in the records. I am of the opinion that the birds would not be particularly successful in their fishing endeavors if water remained deep in the ponds, thereby providing the larvae with room to spread out and evade this type of predation. Special conditions last summer

certainly must have encouraged the robins in their preying efforts.

One might reflect on the apparent waste of animal life herein described. A female toad lays 10,000 to 15,000 eggs. If half the eggs develop into tadpoles, thousands of her offspring will fill the pools. Multiply her production by the number of mated toads in the one meadow, probably three this summer. Triple the total number of toad larvae to include the young resulting from the scores of tree-frog matings. A grand total of 70,000 tadpoles of the two species on the south side of Stoneman Meadow is a conservative estimate. All were lost—or were

they? Those larvae which didn't decompose and add nitrogenous compounds to water and soil were taken directly by predators such as robins and insects. What a deposit of loss! Certain robins must have developed on such a protein-rich diet!

Where is the "balance of nature" when so many young of one species are lost? The so-called balance is never a static condition. It is a dynamic swinging pendulum, and next year, if conditions are favorable, amphibian tadpoles will have plenty of water, food, and time to grow. Toads and tree-frogs will emerge, and the western robin will have to spend more time hunting for other fare.

A SAPSUCKER TREE IN THE MARIPOSA GROVE

By Richard R. Wason, Ranger Naturalist

In their classic volume on Yosemite fauna, *Animal Life in the Yosemite*, Grinnell and Storer cite several cases of extensive workings of the Sierra yellow-bellied sapsucker (*Sphyrapicus varius daggetti*). One observation recorded an apparent long-term drilling operation on "an oak tree" near Sweetwater Creek. We have recently discovered a similar case in the Mariposa Grove. About 100 yards upslope from the Mariposa Grove Museum is a California black oak composed of five small trunks growing from a common root system. All of them show the vertical grillwork indicative of continued sapsucker activity over a period of many years. The current holes are all less than 5 feet from the ground, but higher up on the trunks are the scars of much previous work. These telltale patterns of markings can still be recognized long after they are made.

As their name indicates, the sapsuckers have a motive for their drilling into trees that is different from that of other members of the woodpecker tribe. While woodpeckers are primarily searching for insects (excepting, of course, when excavating for nest holes), the sapsuckers are in quest of liquid nourishment and the softer tissues beneath the bark of the tree. This means that for their food requirements sapsuckers are interested exclusively in living trees and are, therefore, a greater potential menace to our forests. It is, however, a fortunate thing that the yellow-bellied sapsucker gets into a rut, so to speak—that it chooses to work repeatedly on a certain few trees rather than to do more widespread damage by extending its activities to a greater number of individual ones. The sapsucker-riddled tree in the Mariposa Grove is clear evidence of that happy fact.

LADYBIRD SWARMS IN YOSEMITE

By Sam W. Elkins, Ranger Naturalist

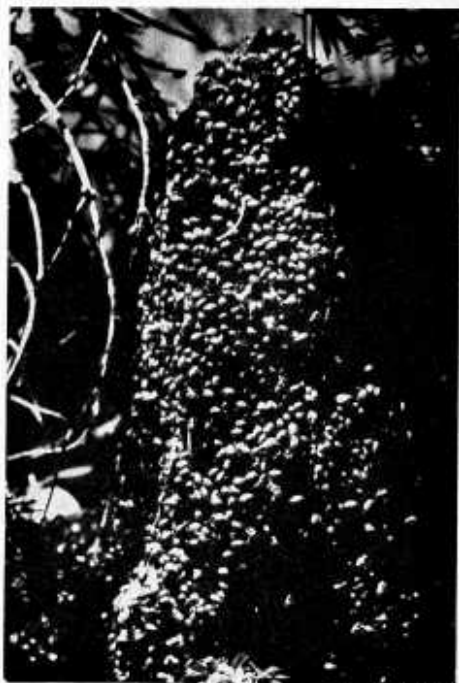
This year seemed to be a particularly good one for ladybird beetles in Yosemite. The great swarms of ladybirds which each summer congregate in the vicinity of Happy Isles were especially active. In addition to that large colony, there were many other places in the park where countless numbers of the insects could be seen in gatherings that sometimes covered as much as half an acre of territory. In Little Yosemite Valley, a mile and a half above the lip of Nevada Fall, or about the point where the Half Dome Trail branches off the main trail, was another gathering site. On our naturalist-led hikes to Little Yosemite last summer we took advantage of this spot, using it as a place to stop, rest, eat our lunches, and observe these interesting insects. As we looked around us we saw them everywhere, their living, moving bodies covering rocks and tree stumps with a vivid orange. They were crawling as well as flying in all directions. Even in the river their crawling forms were present, where they undoubtedly provided a beautiful feast for the waiting trout.

Such collecting places for ladybird beetles may be found all through the lower levels of the Sierra, from the foothills on up to 7,000 or 8,000 feet elevation. The swarms are generally composed of the convergent ladybird beetle (*Hippodamia convergens*), although there are other related species which may behave in the same manner.

These "conventions" apparently occur in the summer and fall of every year, with the insects congregating at approximately the same

sites each year. The swarms more or less stay together throughout this phase. Then with the approach of winter the individual beetles crawl among the nearby leaves and forest litter for their hibernation, during which, in the higher elevations, they are deeply buried under snow. When the warm spring sun uncovers them the following year, many of them will still be alive, and they will scatter to start the succeeding year's generation of beetles.

Entomologists have studied the swarms in a vain search for the reasons why the insects should assemble in this manner, or why they should return to the same locations each

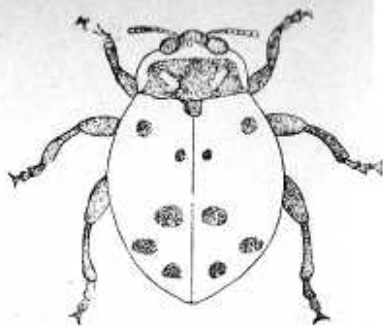


Charles Webber

Swarm of convergent ladybird beetles on small stump in Bridalveil Meadow

year. Whether it is because of the higher temperatures that prevail in these sites, or because of some other geographic or physical reasons, we are not certain. What sets the date of their appearance is also unknown. It may have to do with the warmth of the day, or perhaps the coldness of the nights. It does not seem to be connected with reproductive habits, since the beetles scatter when they are breeding. As far as food is concerned, swarming would seem to work to their disadvantage. The ladybird beetle is insectivorous, feeding upon aphids, scales, plant lice, and other soft-bodied insects. The supply of this type of food is distinctly limited, and it is difficult to see how such large numbers of the ladybirds can long survive in a density so great.

These food habits, incidentally, make this beetle one of the truly beneficial forest insects. Research has shown that each larval ladybird may consume about 25 aphids daily, and each adult about 56. Thus it is easily understood how the beetle might serve as an important



The convergent ladybird beetle
(about 5 times life size)

check upon certain insect pests. In the lowlands it eats the eggs and larvae of the Colorado potato beetle and the alfalfa weevil. Since activities of this nature could hardly go unnoticed, farmers of the West have long taken advantage of the convergent ladybirds as insect allies. Orchardists for generations have come into the mountain gathering places (though not in the national parks) and taken the beetles by the sackful down to the orchards where they might do their good work.

TAKING THE HORSES INTO THE HIGH COUNTRY

By Billy Cooper, 8th Grade, Yosemite Elementary School*

The sun rose into the turquoise sky over Yosemite's gray cliffs. It was early morning, clear and cold in middle autumn. As I made my way over the dew-filled grass of the large meadow, I looked at the path ahead of me. The leaves were changing color, and smoke hung low in the air. I should have been in school, I thought dully, but I certainly was glad that I wasn't.

The horses' work was over for the summer and they were going to go to their fall quarters in the high country today. I was going with them. They were to be driven up the trail and Jess had told me that I could go along. I knew that it would be a rough ride, but a wonderful experience.

I arrived at the stables and noticed that the horses were jumpy and

*Written as a school exercise in composition, this fine story is printed here through the courtesy of the Yosemite teachers.—Ed.

anxious to be on their way. They knew as well as we did where they were going. The dust flew thickly in the center corral. A commotion was being stirred up by Reno, a big sorrel guide horse. Jess was trying to put a cowbell around Reno's stocky neck, and the horse greatly disapproved. Jess finally gave up.

There were six of us going, and we talked as we adjusted the stirrups and tightened the cinches. Even the gentle horses were raising a fuss, and as I mounted I felt my horse quiver and jump under me. He tossed his head and pranced nervously.

The moment had at last arrived. I felt uneasy down deep as I tried to hold my horse to a trot. We spread out and covered every possible escape that could be taken by the excited horses. One specific exit was left open. This was the one the horses were supposed to take. We were all set. The animals milled around in a tight circle in the corral. Then Jess opened the gate. I placed my hand on my saddlebags. There was a moment of confusion, yet quiet. Suddenly, as we had expected, Reno snorted wildly and charged through the open gate, followed by the others.

They raced toward us at full speed, their heads erect. Two of us took the lead and the rest closed in behind. We tried to keep the hard-running horses behind us but this was impossible. They galloped down the trail. Those first two or three miles were covered at the hardest run that can be imagined. We lost control of the horses twice and they dashed madly along the riverbank.

When we reached the Nevada Fall Trail the horses slowed their pace to a trot. All of them were wet with sweat which had almost turned

to a lather. The trail was steep now, so the animals were forced to a walk in time and we all relaxed somewhat.

I had lost sight of the sun behind the cliffs which looked cold and grim in the early light. Glancing up to the mountainside to the right, I could see bright fall colors of red and yellow. Nothing could be heard except the ring of one of the cowbells, the deep muffled roar of the river far below, and the continuous clip-clop of the shod hoofs on rock.

Suddenly Chaps, a large-proportioned white horse, snorted and stepped backward off the trail. Losing his balance on the steep rocky slope he fell, rolled over twice, then regaining his feet leaped back onto the trail, shaken but not seriously injured. This was the craziest stunt I had seen so far.

As we climbed higher the scenery changed. The trail began to wind upward in a hairpin fashion. We crossed the Vernal Fall bridge and continued up. The Merced River was low, yet it dashed over rocks, white and foaming, plunged downward, splashed up and swirled in large, deep pools. It was cold and a slight breeze ran through the leaves. A dust cloud rose in the clear air, kicked up by many hoofs. Large granite boulders were on each side of the trail.

Here the scenery was again new to me. I had been as far as this bridge before, but no farther. The trail unfolded itself in long, narrow switchbacks that wound up to the very base of the cliff. We followed it for a way, then up and along a worn rock trail dug into the side of the cliff. Many a stick of dynamite had been used to blast a trail through that rock.

Our horses began to trot again. They had cooled off somewhat, but

were still wet. They soon slowed because we started to climb higher.

About 11:30 we stopped for lunch. Cinches were loosened and bridles removed. Lunches were dug out of saddlebags and we all sat down to eat. John had found an apple tree back down the trail full of ripe mountain apples. He divided them among us. We ate and talked quietly. The meal was hurried and we remounted and started once more.

It was my turn to ride in the rear, which was an unpleasant position. I was kept constantly busy keeping the horses from wandering off the trail. On top of that there was the thick dust that got in my eyes and nearly suffocated me. But here I began to look about me. There was a heavy wooded smell and all around was the soft rustle of leaves. I looked deep down in Yosemite Valley below, then directed my gaze on the back side of Half Dome. It was a great rounded rock, light tan in color, not at all like the front side which is gray and straight. Soon the valley disappeared completely from view. The forest into which we had ridden was quiet and sunny.

It was like being on top of the world. Small animals scampered here and there. We crossed small creeks and went through areas of rotting wood. High clouds drifted with the wind far above. Then to my surprise we came out abruptly onto a well-paved road. I had no idea whatsoever where I was, though I learned later that it was the Glacier Point Road. I saw a sign that read "Ostrander Lake." I was really lost.

At this point my job changed. Three of us rode far to the rear to slow up cars and warn them about the horses ahead. I dropped back about 200 yards and here began a struggle with my horse who wanted to be up with the rest of them. He

pawed the pavement impatiently, and when this had no effect he danced in a circle, cutting capers, and then jumped and reared. I don't know who was sweating most—the horse or I. My time was fully occupied with my private rodeo.

Whenever a car came along I had to dismount, and this became tiresome. When the horses got well ahead I started mine down the road at a dancing trot, straining on the reins all the time. I followed the highway to where a wide dirt road turned off and here I saw many tracks headed down it. I let my horse have free rein, and he broke into a long, easy gallop that ate up distance.

When I caught up to the rest, we were approaching a meadow covered with ice. Once across it, I saw another sign that said "Westfall Meadow." We resumed climbing for a while. A soft breeze blew the clouds overhead into peculiar shapes. I guessed it was about 2:30.

So much uninhabited, beautiful country I had never seen. High distant mountains stood guard over the deep valleys, tall trees, and green meadows. Fall seemed not to have reached this country and it was quite unmolested by the rest of the world. A small, steep trail led over the twisted ridges. It was narrow, faded, and hardly visible in places. The sun shone brightly, yet it was cool. The air was clear and without smoke. Our horses plodded on, never ceasing their movement. An old log cabin, fallen and neglected, stood silently by the trail, built and abandoned long ago.

We reached the summit and started down. I took my Stetson off and banged it against my Levi's, causing dust to rise from them both. I had dust in my mouth, dust in my eyes, and dust on my face.

The trail came down through low brush and out onto a dirt road that looked as if it was seldom traveled. Jess had the pickup parked there. We rode on a way until we came to a spot that was familiar to the horses. Here they got out of hand and ran to a flat space and started to graze. It took all of us to round them up and drive them to the regular place where they were to be turned loose. Jess had driven up to where we

would stop. After stripping our mounts of saddles, bridles, and blankets we piled the rigging in the bed of the truck and climbed on top of it for the return trip back to Yosemite Valley.

The dirt road led through two gates and finally onto the highway. The fall coloring and all the surroundings blended into a sunset as we passed Chinquapin and headed home.



By Ansel Adams from "Yosemite and the Sierra Nevada," courtesy Houghton Mifflin Co.

The high Sierra from Sentinel Dome, Yosemite Valley



Digitized by
Yosemite Online Library

<http://www.yosemite.ca.us/library/>

Dan Anderson