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FEEDING ACTIVITIES OF THE SIERRA CHICKAREE

By Ranger-Naturalist A. L. Haines

The feeding activities of the Sierra Chickaree (*Sciurus douglasii albolimbatus* Allen.) in the Mariposa Grove of Big Trees are directly dependent upon the state of development of the fruit of the various coniferous trees growing in that region. Grinnell and Storer in "Animal Life in Yosemite" report that "practically all of the cone-bearing trees within the range of the chickaree are levied upon for food." They saw chickarees working upon the cones of the Red and White Firs, the Mountain Hemlock and the Lodgepole, Jeffrey, and Mountain White Pine. Since the White Fir is the only one of this list of trees which is abundant in the Mariposa Grove, it must be expected that additional conifers would supply the chickaree food.

The Sugar Pine cone requires two years for the production of mature seeds. During the second summer of this two-year development the cones are green and fleshy and contain seeds which are highly prized by the chickaree. It so happens that the majority of Sugar Pines in the Mariposa Grove bear the large green cones in the same year.

During the summer of 1938, evidence was to be found everywhere throughout the forest that the chickarees were feeding upon them. In 1939, however, only the first year stage and the dry, open cones were to be found on the Sugar Pines. The chickarees during that summer were forced to seek another source of food and turned to the seemingly less profitable activity of harvesting seeds from the sequoias.

It was in the latter part of June 1939 that I was made aware of the chickaree's presence. At that time there was an almost constant rain of bits of cone scales dropping out of the sequoia trees onto the porch of the Log Cabin Museum. At irregular intervals the gnawed cores of green sequoia cones would fall from the trees. This occurred during most of July, but seldom was a chickaree ever seen on the ground. Apparently these active little tree squirrels were clipping the green sequoia cones from their stout pedicels and biting away the fleshy scales in order to obtain the diminutive tannin-smearred seeds; this whole operation taking place in the crown of the tree.

By August, the industry of the chickaree was increased. Then it divided its time between two species of coniferous trees, the White Fir and the sequoia. Fir cones were cut and their seeds removed and eaten soon after the cones had been retrieved on the ground. Sequoia cones were cut in large numbers and then were carried off and hidden beneath some log to be recovered later in the winter. Some idea of the vigorous activity of the chickaree in harvesting sequoia cones may be obtained from an observation made by Judge Walter Fry of Sequoia National Park who says "it



is surprising to see how rapidly the squirrels work, and what a vast amount of cones they store in a very short time. When I was in Giant Forest during late September 1905 I gathered from under a large sequoia log thirty-eight well-filled barley sacks of cones and their seed that a single squirrel had harvested within a period of about twelve days."

After observing the harvesting activities of the chickarees in the Mariposa Grove, I have little reason to doubt that the information supplied by Judge Fry is quite valid. During the last two weeks of August 1939, I recorded the rate at which chickarees were cutting green sequoia cones and in no case were fewer than ten cones cut per minute while the chickaree was at all active. My record count was made at 7:45 a.m. on August 17, at which time one chickaree dropped twenty-one sequoia cones from one tree in a period of fifty-eight seconds. At the same time there were two other chickarees on the ground beneath the tree carrying them away. Since then I have been greatly puzzled as to whether or not the chickaree in the tree would ever "reap the fruit of his labors."

THE MOUNT HOFFMAN AERY

By Ranger-Naturalist V. G. Baysinger

During the past several years a number of observations have been made on the Golden Eagle nesting on Mount Hoffman at approximately 10,000 feet. The nest has been a center of attraction to several members of the park staff and so when I climbed the peak August 23 I anticipated finding the aery again.

However, I failed to find any remnants of the large nest and did not see any of the birds. Reports by other observers indicate eagles have been seen soaring about Mount Hoffman several times this year.

A SPIDER'S MEAL

By Ranger-Naturalist Charles W. Schwartz

A terrific buzzing attracted me to a window in the Mariposa Grove Museum where I found a blue-bottle fly, frantic because it was caught in a spider's web. Its feet were tangled in the silk but its wings were clear and the fly was trying desperately to free itself. The trapper which had placed this snare was a small reddish spider, about one-quarter inch in length and was hidden in a tiny crack in the window frame when the fly became entangled. When it stopped buzzing the spider quickly appeared, approached the fly and touched it. The fly began to buzz again and the spider ran away. The next time the fly was quiet, the spider approached it, backwards this time and attached a thread of silk to the fly. It then anchored this thread about four inches away in a stronger part of the web. This web was truly a "cob-web," very irregularly built across the window pane and the window frame and had no intricate pattern for which many spider webs are noted.

The spider continued to approach the fly and each time attached another thread to its victim to make it more secure. Finally one wing was enclosed in the web and the fly could move only the remaining one. With a final spurt the fly succeeded in freeing the tangled wing and turned a summersault but could not release its legs. It was doomed! The

spider climbed on the fly which was twice as large as the spider, injected poison into the fly through its pinching jaws and then retreated for about ten minutes.

The fly, which was partially paralyzed, remained quiet during this time and then when the spider returned, it was able to wrap the fly in silk. After it was thoroughly covered, the spider broke the threads holding the fly and carried it to another spot. Then by breaking more threads in succession, the spider was able to carry its prey in a straight line across its web to a spot just outside the crack in the window frame. The fly moved a little and the spider again bit his head four times with the poison jaws and wrapped it in more silk. The fly was still alive although paralyzed, because his legs would move intermittently.

Now that its meal was prepared, the spider began to eat—and in the case of a spider this consists of sucking liquified food into its stomach by a pumping action. It first bit the top of the fly's head and sucked for three minutes, then changed to one side of the head for one minute and then the other side for another minute. It continued eating until the fly was merely a shell, then cut the threads which held the fly, cast it from the web and retreated into the crack to digest its meal.

AN INCREASE OF BREWER BLACKBIRDS IN YOSEMITE VALLEY

By Ranger-Naturalist Enid Michael

In the spring of 1920 when I came into the Yosemite to make my home there were only about five pairs of Brewer Blackbirds in the valley. That year they nested in some small yellow pines at the edge of the Kenneyville field. The number of Brewer Blackbirds in the valley increased from year to year and through the years they changed their choice of nesting site from time to time. Brewer Blackbirds are inclined to nest in loose colonies and possibly the patriarch makes the decision and the rest of the tribe follow. In any event the blackbirds moved from the pines and nested in the mistletoe clumps that hung from the Kellogg oaks on the north side of the valley. Then followed a few years when they again nested in the pines, with many nests in the same tree. Their next move was to the willows along the river, with many nests situated in trees leaning out over the water.

Last year (1939) hundreds of Brewer Blackbirds nested in the valley, with most of the many colonies choosing to nest in the willows along the river. The great flood of a year ago left many bunches of pine needles and other drift in the forks of the willows and here the blackbirds found almost ready-made nests. Bunched needles formed a good foundation for the nest and with a little fixing the nest cup was brought into shape. The nests looking like drift might have been easily

overlooked were it not for the fact that the birds made an awful fuss when one wandered through the willows.



Brewer Blackbirds from the nesting colony 300 yards away and across the river came to the feeding tray in Camp 19 to carry away food. From the tray the birds took the soft moist bread to the ground and rubbed grit into it before carrying it off to feed the young. At the nest site it was noted the birds often dipped their billful of food into the water before carrying it to the young. Birds with big green worms or a billful of insects were seen to go to the edge of the river and souse this food before going to the young at the nest. It was the warm time of day when this maneuver was noted and I thought that the young were being served food and drink at the same time. If young blackbirds need water on hot days it would be convenient for the parent birds to have their nests near the river. It was also noted that the excrement

from the nest was carried to the river and dropped into the current where it would be carried away.

Blackbirds keep their nests very clean and with so many as six young in a nest the parent birds are kept busy. Both birds of the pair

share in the care of the young, but at the feeding tray it was noted that the female birds always carried away the largest billfuls. The birds of the pair usually came and went together, with the female leading the way.

YOSEMITE BATS

By Elizabeth Schwartz

I have become extremely interested in the bats of Yosemite. Every evening about twilight during warm weather they may be heard squeaking in the trees and around bright lights where they search for their evening meal which consists entirely of insects caught on the wing. Bats are really beneficial to man because they eat many insects which are harmful. They are entirely nocturnal although occasionally one may be seen flying about late in the afternoon. During the daytime they hide in rock crevices, caves, old houses and trees where they usually hang upside down and sleep.

The wings of bats are membranes connecting the fingers of the fore limb with the body, hind limb and tail and enable the bat to fly with great precision. In fact the bat exceeds the bird in its ability to avoid obstacles in its path when flying. Many people used to consider the bat and mouse related and this is reflected in the German word for bat "Fledermaus" or flying mouse. However, they are not closely related although they belong to the same class, Mammalia.

Because I was curious about the

different kinds of bats found in Yosemite, I studied the records and skin collection in the Yosemite Museum. The most common bat of the park seems to be the Little California Bat which is smaller than a house mouse. A much larger bat is the Large Brown Bat which reaches five inches in length. This one is probably just as common as the Little California Bat. The Pacific Pallid Bat is slightly smaller than the Large Brown Bat and is pale brown with large ears reaching one and one-third inches in length. The smallest bat of this region is the Merriam Bat which attains only three-quarters the size of the Little California Bat. These four species have their tails enclosed in the wing membrane in contrast to other species of bats found here which have part of the tail separated from the wing membrane. One of these, the Mexican Free-tailed Bat, is slightly smaller than the Little California Bat while the other, the California Mastiff Bat, is the largest bat found in this region. It is commonly six or more inches in length with a wing spread reaching nineteen inches.

ADAPTABLE MOSSES

By Ranger-Naturalist Julian A. Howard

A striking and easily demonstrable example of adaptations is offered by certain species of mosses, especially *Orthotrichum speciosum*. It is quite common on shaded granite boulders and the California Black Oak (*Quercus kelloggii*). This is particularly true in the vicinity of Happy Isles, along the Lost Arrow Trail, near Mirror Lake and many other areas having a sufficiently high relative humidity.

The moss, when seen from a distance in early summer, appears as dark patches against the gray of the granite or bark. Upon closer examination it is a dark brownish green and has the appearance of being in complete dormancy. The leaves are slightly infolded and closely appressed to the central stem. On a sloping surface these stems become curved, sometimes bringing the tips into a vertical position.

It is in this state that the moss passes much of the dry summer season. During periods of wet weather, however, the leaves will unfold, pull away from the stem and become a bright green. It is only when the moss is in this turgid condition that food manufacture can occur.

The change from the dormant to the active state is accomplished in a matter of seconds, the movement of the leaves being easily visible without the aid of a lens. This ability to remain inactive for long

periods of time but to suddenly resume the life process when favorable conditions occur, is an adaptation which has developed in many of the lower life forms but which is rarely encountered among the more advanced plants and animals. Because of this ability, the moss as well as the lichen, is able to survive in habitats which would be quite unfit for other plants.

The resumption of activity by the moss affords an excellent nature walk demonstration by merely dipping it into water. Almost before the leader can return it to the visitors' view it is completely opened.

MIMULUS MEPHITICUS

By Ranger-Naturalist Enid Michael

This year for the first time cute, little pansy-faced *Mimulus mephiticus* is found blooming on the Merced River. This is all wrong, *mephiticus* is a plant of the highlands beyond the valley's rim where it grows on sandy flats or wherever it can gain foothold in the cracks of the high granite domes.

This little monkey-flower never grows more than six inches tall, but what it lacks in stature it more than makes up for with its handsome yellow blossoms which measure as much as three-quarters of an inch across. In favorable situations in favorable years it forms colonies to spread a golden carpet across

stretches of granite sand. Pretty as it looks it has an evil odor, which no doubt accounts for its specific name—mephiticus.

The great flood of the winter of 1937 probably brought down seeds from the high places. It will be interesting to see if mephiticus can establish itself 3000 feet below its normal habitat.

THE CATERPILLAR PLANT

By Elizabeth Reeder Schwartz

A curious plant to be seen in Yosemite National Park is the Caterpillar Plant which is found from the lower foothill regions to timberline. It is so-called because of its resemblance to insect larvae commonly known as caterpillars. This plant is scientifically registered as *Phacelia*



heterophylla and is a member of the Hydrophyllaceae or *Phacelia* family. You will have no trouble identifying it because of its similarity to its common name and it is interesting to see

how the resemblance is carried out. The "caterpillar" consists of flowers crowded in clusters at the ends of stems which curl at their tips. These flowers have prominent green sepals, small petals which are whitish or pale blue and stamens which are hairy and extend beyond the petals. It is these stamens which look like bristles on a caterpillar. The entire plant is from one-half to two feet in height with most of the leaves near the ground.

It is interesting to recall the resemblances between many animals and between animals and plants. In most cases, however, it is the animal which does the mimicry. The caterpillar plant is unusual because it resembles an animal.

"GRANDPA"

Ranger-Naturalist Arthur Carthew

Probably the most interesting bear in the colony frequenting the garbage pits at Glacier Point is "Grandpa", so christened by the boys in charge of garbage disposal. "Grandpa" patiently waits for the truck each morning on a favorite rock. When the truck appears he hobbles along behind and practically supervises where the load should be dropped. After the truck has backed up to the pit "Grandpa" rears up to his full height and with his huge paws dumps the garbage cans one by one unless his attention is distracted by a particularly desirable bit of food in which case the contents of succeeding cans will probably be

dumped on him by the boys. "Grandpa" doesn't mind as he has first choice of the most delicious

morsels available in terms of a bear's taste and well has he earned his reward.

NORTHERN LIGHTS IN YOSEMITE

By Ranger-Naturalist Harold E. Perry

Visitors to Glacier Point on the evening of August 11, 1939, were treated to an unusual display—the Northern Lights. Seldom is this phenomenon visible in a latitude so far south as Yosemite, and rare indeed is the occasion when the exhibition is so colorful as it was on the above mentioned date.

Beginning about eight thirty, the northern heavens radiated a reddish glow that extended along the skyline from Half Dome to Yosemite Falls. Fluctuations in the intensity of the glow occurred constantly, and frequently fingers of light reached halfway from the horizon to the zenith. During the height of the display,

orange and blue lights interplayed with the red to intensify the effect.

Gradually the curtains of night closed in to conceal from human eyes this colorful drama of the heavens. Momentarily thereafter they parted slightly and one could glimpse from time to time the decreasing splendour of the scene as the radiant actors retreated towards the polar regions from whence they came.

Fire-fall occurred that evening as regularly scheduled, but for once its eerie effect lapsed into insignificance for those who were still under the magic spell of the Northern Lights.

WESTERN JUNIPER AT GLACIER POINT

By Ranger-Naturalist Arthur Carthew

The Western Juniper (*Juniperus occidentalis*) is a tree preferring wind-swept granite slopes where its stocky roots may obtain sustenance for its growth and the gnarled trunks can withstand the assaults of wind, storm, and avalanche. Many excellent specimens of this tree are to be found in the higher parts of the park as at Tenaya Lake and Tuolumne Meadows. Visitors to Glacier Point will be interested in knowing that two fine specimens

may be seen a few hundred feet below the Glacier Point Hotel veranda and three smaller trees are visible from the Lookout Station. Farther down the cliff junipers are numerous and seem to become the dominant tree. Most of the junipers in this area are branchless on the upper side, evidently due to the rock and snow slides crashing against them. Tree lovers are sure to enjoy this picturesque conifer especially in the accessible setting of Glacier Point.



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