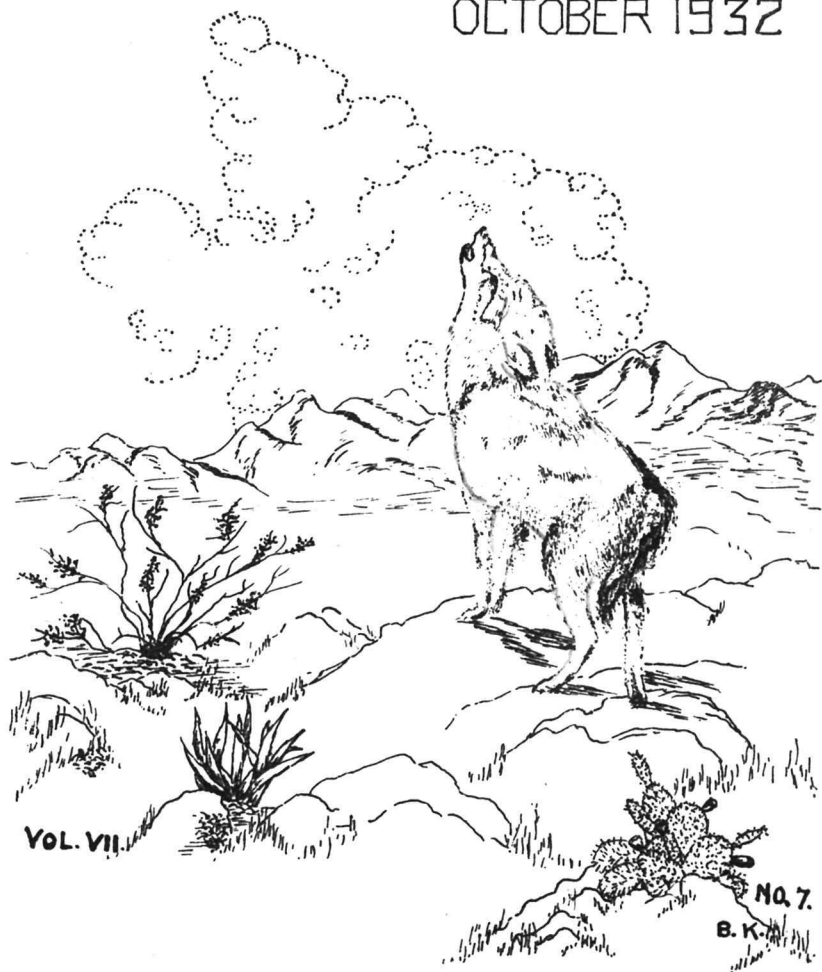


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A KAIBAB SQUIRREL FAMILY

By Ranger Naturalist Ralph Redburn

NOT OFTEN does one have the privilege and opportunity of studying the habits and nature of the white-tailed Kaibab Squirrel, Sciurus kaibabensis, both because of its very restricted range and because of its usual shyness. It is found only along the North Rim of the Grand Canyon, and in various areas in the Kaibab National Forest nearby. In the vicinity of the Public Auto Campground on the North Rim, however, one has exceptional opportunities of seeing this particular squirrel. It is the purpose of this article to record a few facts which have been observed concerning one family of them which lived at the campground.

On July 1, 1932, camp attendant, Mr. Thomas, reported to me that he had watched a mother Kaibab Squirrel transport her young to a new nest. Five babies in all were moved. They were carried beneath the breast of the mother, in an upside-down position with the tail extending back between the mother's fore legs. In this position the baby squirrels were able to support their own weight by grasping the fur of the mother with their small, yet long claws. Also, the mother held the babies by the neck with her mouth. Although this is a rather peculiar way in which to transport its young, the Abert Squirrel*, a relative of the Kaibab, also uses this method.

On the day following the report given me by Mr. Thomas, I made a trip to the campground for investigation of the recently discovered family. The old nest was located in a hollow portion of a dead yellow pine tree. This tree was near the campfire lecture site, and inasmuch as campfire talks were being given each evening, the mother probably thought the fire and the people about the place would be a menace to the schooling of her babies in the ways of nature.

* Mother Squirrel Transports Young,
by Ranger Naturalist Ralph Redburn,
Grand Canyon Nature Notes Vol. 5, No. 8, 1931.



Therefore she moved them. The new nest was approximately forty feet from the ground in a very secure place among the branches of another yellow pine. The distance between the two trees measured 432 feet.

Following this preliminary investigation, I climbed the tree in which the new nest was located. When I arrived within about eight feet of the nest, the mother suddenly jumped out, and began to scold with sharp, barking sounds and by stamping stiff-legged on the branches of the tree. When I arrived at the nest I discovered only one opening, and this was very well hidden under an overhanging branch. The nest was made of yellow pine twigs and needles, and was lined with ravelings from an old carpet. Inside I found five well developed baby squirrels, none of which had reached that stage at which time the eyes open. The mother had moved these babies only a few days after birth. Upon being handled by me they would not make a sound, although they would squirm around a great deal. Meanwhile, the mother would come close, bark very loudly, then scamper away. I noticed that she was rather thin, so decided to provide the family with a feeding box containing various kinds of food. This was done, and the mother ate freely from it. Her favorite foods were pinyon nuts, bread crumbs, oats, and crackers.

I visited the nest every day for a week, during which time the eyes of the young squirrels were still closed. Because of my frequent visits, the mother became somewhat accustomed to my presence and stopped her scolding, although she always remained close by to watch. She apparently did not appreciate my presence and finally went to another tree, built a new nest, and on the eighth day after the date of discovery moved her babies a second time. It so happened that I arrived at the time of moving and was able to locate the new site. I climbed the tree and investigated the nest which already contained four of the babies. They had their eyes open and when handled this time made queer squeaky sounds.

Soon the mother arrived with the last young squirrel. When she found that I was at the nest she placed her baby on a branch of the tree, and scampered up to drive me away. I climbed down to where she had left the baby. It looked at me with wide open eyes, then successfully tried to crawl along the branch.

After this visit I did not return to the nest for ten days during which time the young squirrels developed very rapidly, and upon my return were cautiously traveling around in the tree, sampling various pine needles.

Each squirrel was well marked and showed the characteristics of the species. The little tail which was almost as long as the body, was covered with short white hairs. The body was of a steel grey color, while the back was contrasted by the broad red brown stripe which ran from the base of the neck to the base of the tail. The stomach was a distinct black. The long hairs growing out from the tips of the ears made the head of the animal very attractive.

Now that the squirrels are almost grown and run freely among the trees in the campground with the members of various other squirrel families, they are often seen by Grand Canyon visitors. We hope that the species is increasing in number and are glad to see that certain individuals are definitely becoming more tame.

THE TURNING OF THE TABLES

By Junior Naturalist Donald Edward McHenry

ONE EVENING, as dusk was smothering the outlines of another day, Ranger Ed. Laws on the North Rim of Grand Canyon stopped along the road to casually glance at the lengthening shadows creeping over the meadows below. He was just around the hill from the Fred Harvey saddle camp. Three does of the mule deer were lazily eating their evening meal of grass in various parts of the meadows. Suddenly one nervously raised its head and listened. Her alarm was quickly sensed by her two companions. The meal became a fitful thing.

Immediately Ranger Laws suspected the presence of coyotes. Sure enough, three of the animals were soon seen in various parts of the field in the act of stalking the deer. Cautiously, cleverly, the coyotes, working in harmony as if guided by some subtle mutual understanding, rounded up the deer in the center of the clearing. Doubtlessly their next move would have been to close in on the deer and eat to their hearts' content, but they then discovered the presence of Ranger Laws. Solemnly and with resignation they filed off the field of conquest into the shadows of the forest.

* * * * *

Another evening Ranger Laws was driving toward Powell's Saddle. A flash of gray shot across the road in the twilight. It was a coyote and not far behind came an enraged doe in full pursuit. Then was seen a strange and unusual spectacle. The deer trampled the coyote to the earth under her front feet. The reprimanded coyote slunk back across the road with its tail between its legs - a beaten if not a penitent animal.



OCCURRENCE OF THE SPADEFoot TOAD IN GRAND CANYON NATIONAL PARK

AN INTERESTING addition to the list of amphibians found in the Grand Canyon National Park was recently contributed by Mr. Wallace F. Wood of Oakland, California. He writes: "On July 1, 1932, I found in Greenland Lake on the North Rim immense numbers of larvae and newly metamorphosed young of the spadefoot toad, *Scaphiopus hammondi*. Around the margins of the lake hundreds of young individuals were seen burrowing their way in the soft mud of the lake margins."



Mr. Wood also writes: "Apparently this toad has not been hitherto recorded from the Grand Canyon National Park, though it is not a rare form in Nevada, and parts of Northern Arizona." In the Preliminary Check-list of Amphibians and Reptiles, Grand Canyon* the Western Spadefoot Toad is listed under "areas closely adjacent to Grand Canyon" with the statement "Specimens have been collected from the Painted Desert."

*Preliminary Check-list of Amphibians and Reptiles, Grand Canyon, by Edwin D. McKee, Technical Bulletin No. 3, 1929.

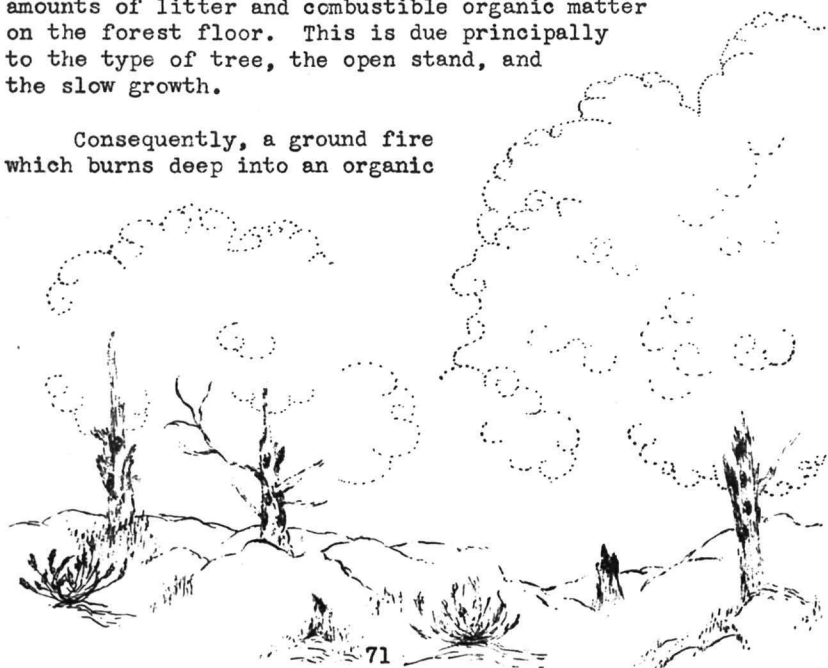
NOTES ON THE YAKI POINT BURN

Nearly three years ago a crown fire destroyed about eighty acres of pinyon-juniper forest in the vicinity of Yaki Point, about four miles east of Grand Canyon Village. Since the production of such a forest results only from a long process of plant succession it will be many years, probably more than two hundred and fifty, before a similar forest will again occupy this region.

In the meantime a great many plants will come and go on this site, as new species migrate to it, and many of them are eliminated by the vigorous competition that will result.

It is very noticeable that the dominant plants on the area at the present time are species which grew in a suppressed condition on the forest floor before the burn occurred. The reason for this is not difficult to explain. A forest of the pinyon-juniper type produces only small amounts of litter and combustible organic matter on the forest floor. This is due principally to the type of tree, the open stand, and the slow growth.

Consequently, a ground fire which burns deep into an organic



soil destroying all living roots, rarely occurs in a pinyon-juniper forest. The crown fire which destroyed this stand no doubt killed every trace of growth above ground, but left the roots of the shrubs and herbs, which grew in a suppressed condition under the dominant trees before the fire, undamaged by the heat. These plants are listed below in the approximate order of their frequency:

- | | |
|--|---|
| 1. Little Blue Pentstemon
(<i>Pentstemon linarioides</i>) | 2. Snow Berry
(<i>Symphoricarpos oreophilus</i>) |
| 3. Gambell's Oak
(<i>Quercus gambellii</i>) | 4. Snake Weed
(<i>Gutierrezia microcephala</i>) |
| 5. Quaker Bonnets
(<i>Lupinus spathulatus</i>) | 6. Black Sage
(<i>Artemisia tridentata</i>) |
| 7. Trefoil
(<i>Lotus wrightii</i>) | |

In addition to the suppressed plants which have become dormant due to the fire, there are a number of other conspicuous plants which have recently migrated to the site. They are listed below in the approximate order of their frequency:

- | | |
|--|--|
| 1. Beggar's Ticks
(<i>Lappula redouskii occidentalis</i>) | 2. Indian Tobacco
(<i>Nicotiana attenuata</i>) |
| 3. Door Weed
(<i>Polygonum ariculare</i>) | 4. Lambs Quarters
(<i>Chenopodium album</i>) |
| 5. Alfilaria
(<i>Erodium cicutarium</i>) | 6. Russian Thistle
(<i>Salsola pestifer</i>) |
| 7. Red Root
(<i>Amaranthus graecizans</i>) | 8. Blue Bells
(<i>Pentstemon cyananthus</i>) |
| 9. Scarlet Bugler
(<i>Pentstemon bridgesii</i>) | 10. Porcupine Grass
(<i>Stipa neo-mexicana</i>) |

One interesting feature about this last named group of plants is that the seeds of most of them are adapted for dispersal by the wind or animals. It is this quality, probably more than any other single factor, which accounts for their establishment on the burn.

This area will present a changing picture of plant life for many years as new species migrate to the sites and compete with those already there. This competitive process will be a feature of this area for a long time to come--until the pinyon-juniper forest is again established on the site. The coming of these two trees will stabilize the changing plant picture because there are practically no plants capable of effective competition with them as long as the present climatic factors remain unchanged.

A BITTER STRUGGLE

By Park Naturalist Edwin D. McKee



THERE WAS a pronounced sound of fluttering nearby. Low over the water of the mud tank where I stood fishing flew a large bat with long slender wings. Its size and proportions were such that they immediately commanded my attention. They formed a marked contrast with those

of the two best known bats of the region - the Little Pallid Bat, Myotis, and the Canyon Bat, Pipistrellus.

Even while I watched this winged mammal and wondered concerning its identity, a strange thing occurred. Coming from the opposite end of the tank another and similar bat approached. With rapid stroke of wings the two flew straight toward each other and for no apparent reason crashed in mid air. For a brief moment they whirled about, flapped their wings furiously, uttered strange squeaking sounds, and then dropped like two bolts.

In the dim twilight one of the bats disappeared from sight but the other was plainly visible as it slowly swam toward shore, using both wings in a type of breast stroke. By running along the water's edge, I was able to reach and easily catch this one before it crawled up on the land. Also, to my great surprise, I found the other bat lying nearby on a flat rock - apparently stunned. Thus a double capture was accomplished.

After only a brief moment both bats seemed to revive and both regained their fighting spirits simultaneously. The one which had just previously been swimming grabbed the other by the wing with a "bull dog" grip. The other uttered weird noises and vainly attempted to retaliate. Indeed, considerable force was necessary to separate the animals, and individual containers were required for peace.

It was interesting to note that on one of the bats were three large reddish bedbugs, Cimex pilosellus. These insects are not uncommon on all species of bats, though they differ

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from the bedbugs which sometimes become intimate acquaintances of man.

Upon examination the bats proved to be of a variety known as the Pallid Brown Bat, Eptesicus fuscus pallidus.* This species is considered to be the commonest of the larger bats ranging over the southwest. It has previously been recorded from the South Rim of Grand Canyon **, but there are few actual records of its occurrence there. Its flight is conspicuous for its steadiness, although the bat may make abrupt changes in direction. This type of flight, together with the large size of the animal, help to distinguish it from a distance.

* Identification by Mr. Vernon Bailey,
U. S. Biological Survey.

** Preliminary Check-list of Mammals,
Grand Canyon, by Edwin D. McKee,
Technical Bulletin No. 2, 1929.

FIELD OBSERVATIONS

The dry clash of antlers attracted my attention in the early morning of September 16th. Two handsome mule deer bucks were engaged in combat not over seventy-five feet from the North Rim ranger station. The contest soon ended with no serious consequences. It gave evidence, however, that mating season had begun in deerdom.

- D. E. McHenry -

A gopher snake that is probably the largest to have been collected in the Grand Canyon National Park, was found by Lloyd Davis near Indian Gardens on August 18th. Its length is six feet and one inch. Incidentally, it is the first specimen that has been obtained from the lower part of the canyon.

- E. D. McKee -

Probably due to the prolonged spell of warm weather during September this year, the large hairy tarantulas were late in making their annual appearance. They were first reported from the South Rim of Grand Canyon on September 23rd. After that they were seen in great numbers along the paved roads for many days.

- E. D. McKee -

Visitors have been greatly interested in the numerous White-rumped Shrikes which have been seen around Bright Angel Point and Cape Royal recently. Six were recorded by the writer at Bright Angel Point and eight at Cape Royal on the 18th of September. During previous seasons, this bird has been found to be very uncommon on the North Rim of Grand Canyon.

- D. E. McHenry -



