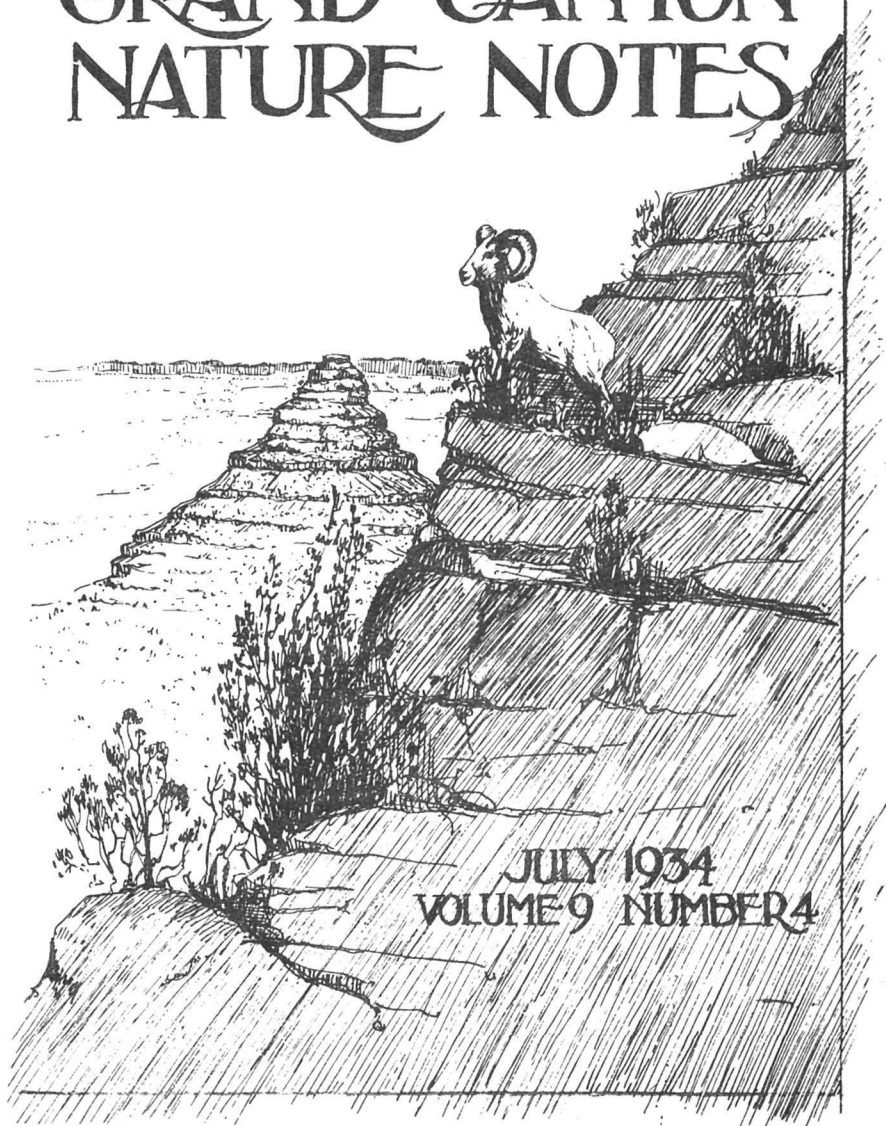


GRAND CANYON NATURE NOTES



JULY 1934
VOLUME 9 NUMBER 4

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Illustrations by Florence Satterwhite.

STATUS of the DESERT BIGHORN in GRAND CANYON NATIONAL PARK

By Park Naturalist Edwin D. McKee

Wild life conservation in the National Parks has within recent years gradually developed by necessity into the more scientific field of game management. No longer is it enough to simply protect animals from hunting, to feed them during times of stress or to supply them with salt or water. Today, largely because of the encroachments of civilization and also because of the artificial boundaries of these wild life preserves, it has become necessary to study, to experiment with and to systematically deal with each and every problem that arises.

In dealing intelligently with any particular species of animal in a given area, one necessity is a knowledge of that animal's approximate abundance or scarcity. Game counts, therefore, constitute a fundamental step in game management. These are made in numerous ways -- 1, by attempting to actually count all individuals, dividing a large area into sub-areas and assigning the count in each to a person who knows the region - 2, by selecting a small but typical section of the entire range, making a complete count in it and multiplying this by a figure which will give the average for the range - 3, by estimating from the amount of browsing and grazing that has been done over the entire range or from the tracks and trails to be found. In the Yellowstone still another type of count has been experimented with (1). There, aerial photographs are made of species which normally congregate in the open at certain seasons and from these photographs accurate counts are made. While each of the methods

- (1) Baggeley, G. F., "Yellowstone Game Census"
Vol. IX, Nos. 1, 2, 3, Jan., Feb., March 1932

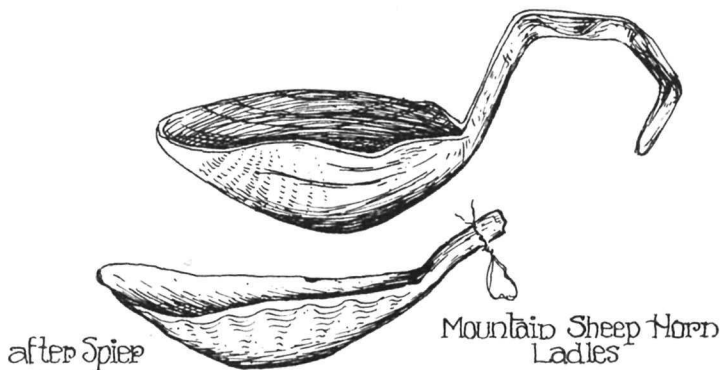
described above is practical under certain conditions and has definite advantages, it is obvious in every case that complete accuracy can not be obtained.

One interesting native animal of the Grand Canyon whose numbers can not be counted or estimated with even a fair degree of accuracy is the Desert or Nelson Bighorn Mountain Sheep, Ovis canadensis nelsoni. This animal which is known to range through many parts of Grand Canyon yet is seldom seen, has such a peculiar nature that it has never been possible by ordinary methods to make estimates of its abundance worth recording. It is for this reason that the writer has attempted to gather together from sources considered reliable all records of Bighorns seen in Grand Canyon during the past five years. Only sight records have been included since on rocky surfaces as in the Grand Canyon, the toes of deer tend to spread so in most instances their tracks are indistinguishable from those of sheep. Five years has been arbitrarily selected as the limiting time since it is felt that this period is sufficiently long to give a fair average yet it is not too long for trusting an individual's memory in the type of data here recorded.

The Havasupai Indians living in the western part of Grand Canyon have long been acquainted with the sheep and its habits and in times past used it for food. Spier (2) states that one instance was recorded of a wounded ram charging his pursuer and hurling him from a narrow ledge. In contrast to this he tells how another Indian stood at the door of his house and shot a sheep which was only a few hundred feet away. Several Havasupais have informed the writer that sheep not infrequently today descend the canyon close to their village, although, according to Flynn Watahomigie, these sheep are no longer disturbed.

In the days of the bow and arrow, The Havasupai Indians

- (2) Spier, Leslie, "Havasupai Ethnography," Anthropological Papers of the American Museum of Natural History, Vol. XXIX Part III, 1923 pp. 108



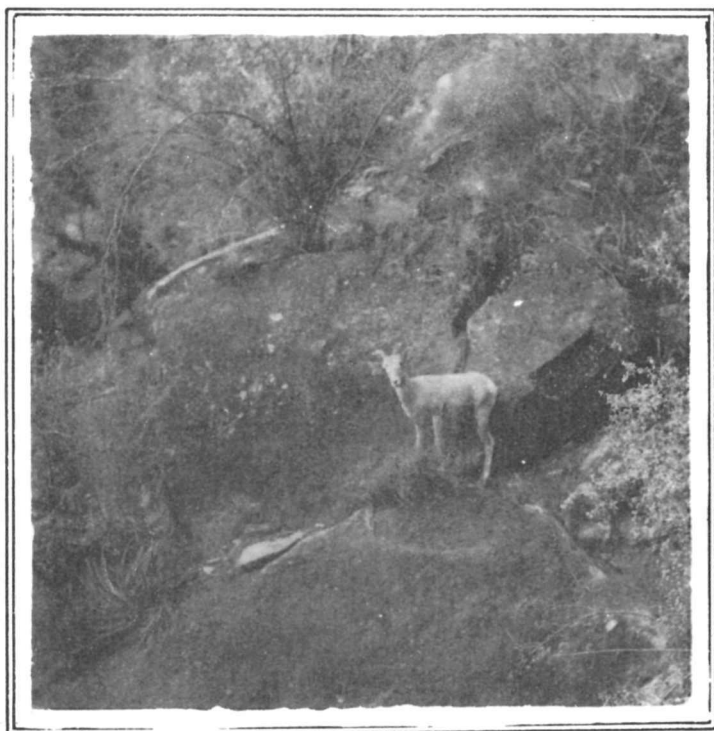
(3) used to stalk mountain sheep in Grand Canyon using as a headpiece the stuffed headskin of an ewe with horns of stuffed buckskin added. They would paint their bodies to resemble the animal and by mimicking its actions, approach within ten or fifteen meters before letting fly the arrow. Also they formerly used 'drives' forcing the animals into an ambush or even directly off cliffs. Not only did they use the sheep for its meat but also they made ladles and arrow wrenches from its horns.

Probably the earliest record of the Desert Bighorn in Grand Canyon is to be found in the biological report on the region made by Dr. C. Hart Merriam (4) in 1890. In this he states, "Sheep are common at the Grand Cañon, where I surprised a small herd Sept. 14" and again, "we saw fresh signs nearly every day, and started a small herd opposite Point Sublime."

By compiling the principal mountain sheep records of

(3) Idem, pp. 110, 111

(4) Merriam, C. Hart, "Results of a Biological Survey of the San Francisco Mountain Region and Desert of the Little Colorado, Arizona," North American Fauna No. 3, U. S. Department of Agriculture, 1890, pp. 38, 79



Ewe - For several years occasionally observed from
the Bright Angel Trail. Ensor Photo

Grand Canyon for the past five years many interesting and significant facts concerning the status of this animal have been made apparent. In drawing any conclusion from these data, however, caution must be used since lack of records from certain areas may be due to the inaccessibility to man of those areas, while, on the other hand, numerous reports from other areas may be accounted for by the great number of people that frequent certain localities or by the fact that the same sheep are seen on many occasions. Nevertheless, certain generalizations appear to be beyond reasonable doubt so these are here presented.

Mountain sheep are of general and not uncommon distribution along the entire Grand Canyon south of the Colorado River. They are most numerous above the Redwall and below the rim. It is not unusual to find them either on the rim or on the Tonto Platform but they rarely go back from the Canyon's edge or down into the Inner Gorge. One of the strangest localities in which a Bighorn has been found is among the Yellow Pines near the main road south of Grand View Point. There, in the fall of 1931, Mr. Chick Sevey found himself within fifty feet of a ram.

North of the Colorado River in Grand Canyon not a single authentic sight record of a mountain sheep east of Kanab Canyon has come to the writer's attention. Several people have reported seeing 'sheep' tracks in this area but for reasons already stated these are not considered as good evidence. Ranger R. E. Laws who built the Thunder River trail and has traveled the North Rim area extensively knows of no sheep records from that section. In Kanab Canyon, however, and farther west in Toroweap (Grand Canyon Nat'l Monument) sheep are reported (5) as fairly numerous.

Judging from observations made along several of the trails leading into Grand Canyon from the South Rim, mountain sheep stay in a rather restricted area for long periods, ranging about locally in small bands or singly (possibly varying with the season). In brief, it is believed that the large band or bands seen so often around Hermit Basin and below remain in this immediate area from year to year - probably because of the abundance of springs in this vicinity. On the other hand, a smaller and distinct group of sheep stay near the Bright Angel trail and one ewe which can be recognized absolutely and which is very tame has been seen in that area many times during the past few years.

- (5) Thompson, Ben H., "Toroweap - The New Grand Canyon National Monument" G.C. Nature Notes Vol. 8, No. 4, July 1933, pp. 167.

In conclusion, the writer presents a tabular summary of the records of the Desert Bighorn in Grand Canyon and also, for the convenience of persons interested in the local status of this species, a bibliography of published records of it in Grand Canyon Nature Notes. While several conclusions are offered in this paper, it is felt unwise to offer any estimates on the number of sheep in Grand Canyon on the strength of these data.

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- Mountain Sheep leads way up trail,
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- Note on the Desert Bighorn,
E. D. McKee, Vol. 3, No. 11, July 1927
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S. B. Jones, Vol. 4, No. 1, Sept. 1927
- Mountain Sheep, R. A. Redburn, Vol. 7, No. 9, Dec. 1932
- Toroweap - The Grand Canyon National Monument,
B. H. Thompson, Vol. 8, No. 4, July 1933
- Note on occurrence, Paul Kraus, Vol. 8, No. 8, Nov. 1933

SUMMARY OF DESERT BIGHORN OBSERVATIONS GRAND CANYON NAT'L PARK 1928-1934

LOCALITY (EAST TO WEST) - NO. and KIND - DATE - OBSERVER

Bunker Trail, Coconino level	2 Ewes	Autumn 1933	H. Childers
Hance Trail, Base of Kaibab ls.	1 Ram	April 1930	E. D. McKee
Grandview Pt., near main road	1 Ram	Autumn 1931	A. T. Sevey
Grapevine Canyon, below Redwall	1 Ram	April 1930	Ed. Cummings
Kaibab Trail, base O'Neill Butte	1 Ram, 2 Ewes	May 1931	A. T. Sevey
do., Cedar Ridge	1 Ram	Feb. 1930	C. C. Arberry

Continued

LOCALITY (EAST TO WEST) - NO. and KIND - DATE - OBSERVER

On Rim, east of Verkamp's	1 Ewe	July 20-1929	E.D. McKee
Under Rim, near El Tovar	1 Ram	Early sum. 1929	R. Williamson
do. do.	1 Ewe	Early sum. 1929	R. Williamson
do. do.	1 Ewe	Early sum. 1929	Perry Brown
Bright Angel Trail, below Battleship	1 Ewe	Aug. 1928	E.D. McKee
do. , top Redwall	9 Mixed	Spring 1928	A.T. Sevey
do. , above Redwall	2 Ewes, 1 Lamb	Winter 1928	J.P. Brooks
do. , 300 ft below rim	2 Lambs	Aug. 1929	R. Williamson
do. , Jacob's Ladder	6 Mixed	Autumn 1930	Chas. Dunn
do. , above Redwall	1 Ewe	Often, Fall 1931	E. Ensor
do. , below Coconino	1 Undet.	Winter 1931	R. Williamson
do. , upper part	1 Ewe	Winter 1931	A.T. Sevey
do. , upper part	1 Ram	Several times '31	Ed. Cummings
do. , Supai formation	6 Mixed	Winter 1931	H. Childers
do. , above Redwall	1 Ewe	Often, Fall 1932	E. Ensor
do. , top Redwall	1 Ram, 1 Ewe	Winter 1932	Ed. Iles
do. , Indian Gardens	Ram, 2 Ewes, Lamb	Nov. 18, 1932	R.A. Redburn
do. , top Redwall	1 Ram	Dec. 1932	C.C. Arberry
do. , above Redwall	1 Ewe	Winter 1932	J.P. Brooks
do. , Redwall	1 Ewe	Autumn 1932	D.E. McHenry
do. , above Redwall	1 Ewe, 1 Lamb	Spring 1933	E. Ensor
do. , above Coconino	1 Lamb	Spring 1933	E. Ensor
do. , upper Supai Form.	1 Ram	Spring 1933	J.E. Shirley
do. , above Redwall	1 Ewe	Often, Fall 1933	E. Ensor
do. , almost at river	1 Ram	Oct. 1933	Ed. Cummings
do. , almost at river	1 Ram	Dec. 1933	Ed. Cummings
do. , almost at river	1 Ram	Jan. 1934	Ed. Cummings
do. , below Redwall	2 Rams	June 1934	(Tourists)
Horn Creek on Tonto	1 Undet.	Summer 1930	H. Childers
do. do.	3 Rams, 2 Ewes	Summer 1930	Chas. Dunn
do. do.	4 Ewes - Several times, Sum. 1931		Ed. Cummings
Salt Creek on Tonto	7 Mixed	Summer 1930	H. Childers
The Abyss, top Coconino	15 Mixed	1928 ?	Ed. Cummings
Monument Creek, at mouth	2 Ewes	Spring 1928	Chas. Dunn
do. , on Tonto	1 Ewe	March 1929	J.P. Brooks
do. , Inner Gorge	8 Mixed	Spring 1931	Chas. Dunn
Hermit Trail, The Basin	3 Rams	Autumn 1928	C.H. Munroe
do. , at river	11 Mixed	Autumn 1928	C.H. Munroe
do. , Santa Maria Spr.	15 Mixed	Spring 1929	H. Childers
do. , Breezy Pt.	20 Mixed	1929	C.C. Arberry
do. , The Basin	Ram, 2 Ewes, Lamb	Feb. 1930	J.P. Brooks
do. , Breezy Pt.	Small flock, "30-40 times", 1930		H. Childers
do. , below Basin	Small flock, Several times, 1930-1		A.T. Sevey
do. , Santa Maria Spr.	1-2 Rams	Several times, Sum. '31	C. Dunn
do. , top Cathedral Strs.	2 Ewes	About 20 times up to 1931	Ed. Cummings
do. , Dripping Spring	Ram, 2 Ewes	Spring 1932	Ed. Cummings
do. , near Coconino s.s.	Ram, 2 Ewes	Spring 1932	Ed. Cummings
do. , Santa Maria Spr.	11 Mixed	Spring 1932	Ed. Cummings
do. , Dripping Spring	1 Ram	Spring 1934	Ed. Cummings
Sapphire Canyon on Tonto	Ewe or Lamb	March 1931	J.P. Brooks
Havasupai Pt., on rim	?	Several times, Nov. '33	P.K. Kraus
Great Thumb Pt.	6-7 Mixed	Every rainy season	Flynn Watahomagie

CANADIAN ZONE PLANTS on the SOUTH RIM of GRAND CANYON

By Junior Naturalist Donald Edward McHenry

One of the features for which the Grand Canyon is noted is the variety of climatic conditions represented in its walls. Such climatic differences are easily recognized when one compares the North and South Rims. On the North Rim, where the Canadian type prevails, such trees as Blue Spruce (1), Engelmann Spruce (2), Alpine Fir (3), White Fir (4), Douglas Fir (5) and Quaking Aspen (6) are characteristic. On the South Rim where the altitude is from 1,000 to 2,000 feet lower, and the climate is warmer and drier, one does not expect to see these trees. Here the scrubby Pinyon Pine-Juniper forest is quite characteristic. Tall Western Yellow Pines and scrub oaks also cover large areas.

Here and there on the south side of Grand Canyon one will discover isolated pockets of Canadian Zone plants tucked away in alcoves just beneath the plateau where the graceful forms of the Douglas Fir and White Fir are found rising majestically almost against the very cliffs. In these north-facing coves they are protected against the long hours of the hot, direct rays of a merciless summer sun and against the hot, moisture-absorbing winds blowing off the vast arid regions to the southwest. Because the climatic condition in these places is cooler and more moist, plants of the Canadian Zone thrive at an elevation over a thousand feet lower than that of their normal environment and, strangely enough, actually below the plateau which is characterized by a hotter climatic condition.

So distinctly confined to these restricted areas are these Canadian outlaws that they are almost never seen above

- | | |
|------------------------------|-------------------------------------|
| (1) <i>Picea pungens</i> | (4) <i>Abies concolor</i> |
| (2) <i>Picea engelmannii</i> | (5) <i>Pseudotsuga taxifolia</i> |
| (3) <i>Abies lasiocarpa</i> | (6) <i>Populus tremuloidesaurea</i> |

the South Rim. There is, nevertheless, a noteworthy exception to this rule. Along the rim about half a mile east from the site of the old Grandview Hotel, near Grandview Point, the writer discovered quite an advanced detachment of Douglas Fir seedlings extending for several hundred yards back from the edge. These ranged in age from about two to ten years. Their locality was favored in being a somewhat more protected and lower spot than the region immediately surrounding. Down this trough drains the cooler, heavier air before it spills over into the ravine below. Dick Gilliland, an 'old-timer' at Grand Canyon, reports a well developed, mature tree of Douglas Fir in the Western Yellow Pine forest just about a mile south of Grandview Point.

That Douglas Fir and White Fir grow in sheltered groves under the South Rim has long been recognized as normal, yet as far as the writer knows, no spruce trees are to be found anywhere along the rim. But then he has had the opinion that Quaking Aspen were restricted to the North Rim at Grand Canyon until recently Dick Gilliland led him to a shimmering grove of these trees tucked down in the secret recesses of an all but forgotten gulch. This delightful group included possibly two hundred trees both young and old. It was located on the rim about three-quarters of a mile east of the site of the old Grandview Hotel at the mouth of a ravine. This ravine heads in the neighborhood of the tank seen at the foot of Buggeln Hill, looking north just off the east rim drive to Desert View. The spring thaws and summer down-pours wedge their water between the narrow, precipitous walls of this diminutive valley. These incidental streams race madly through the Aspen grove, only to dash recklessly over a ledge just beyond, as an ephemeral water fall, disappearing in the foam among the boulders 200 feet below the canyon rim.

This elfin glade, with the fairy green of the quivering Aspen hidden in the bottom of a ravine, evidently was the secluded bower of lovers in the days of the Grandview Hotel. A Cupid's dart through a heart, together with the date, "August 13, 1891" was cut with deep black gashes into the chalk-white bark of one sturdy veteran. Quite evidently this was done in a day long before there were any Park rangers to

discourage even lovers from marring the native beauty of nature's wonderland.



SOME WILD LIFE OBSERVATIONS

A Western Chipping Sparrow and his mate were endeavoring to fill the stomachs of their ever hungry nestful of youngsters one recent sunshiny morning, May 21, when there came a rude interruption in the form of a Gila Chipmunk. Whatever his objective might have been in wanting to climb the tree containing the Sparrow family -- it was never achieved! Instantly the male Chipping Sparrow was metamorphosed from a quiet, timid little creature into a raging, shrieking mass of angry feathers and snapping eyes. For a moment, the chipmunk endeavored to offer some opposition, but he was hopelessly outclassed and was forced to make a very inglorious retreat leaving the victorious Chipping Sparrow in control of the situation.

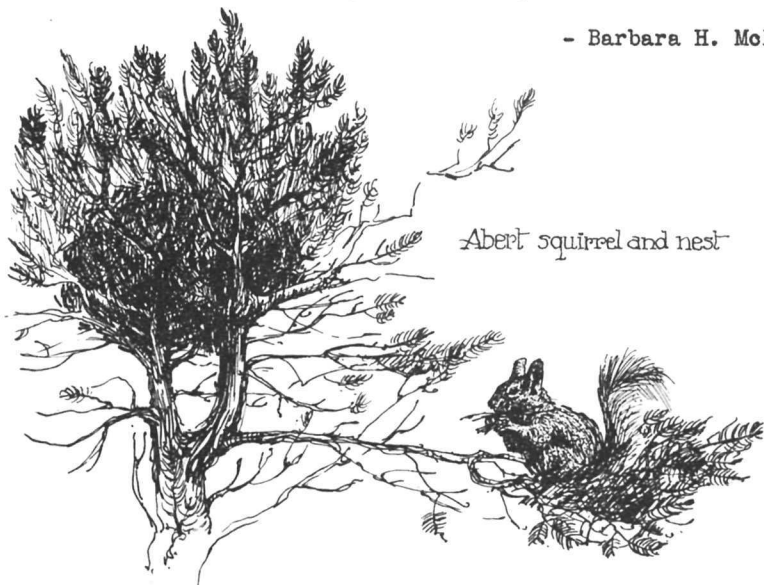
This goes to prove that sufficient courage, if applied in the right manner, can overcome some exceedingly large obstacles.

- Ranger-Naturalist Russell Grater -

A female Abert Squirrel was seen one morning in early May with a mouthful of strips of juniper bark and dry pine needles. She seemed a little nervous at my approach as she evidently had all she could carry and did not want me to see where she intended to put her load. After picking up a few more pine needles and crowding them into her fore paws, she ran up a tree trunk a few feet only to come down and try another tree. Then she pretended to run off through the forest. Finally when she saw I was determined to stay, she boldly ran up a nearby tree to the topmost branches and jumped a few feet beyond to the one in which she had built her home. While I watched she carefully pushed the needles and juniper bark into the top of her nest and patted them in place.

The explanation for this reconstruction work appeared obvious. Although the nest had been skillfully built a month or more previously, it had never been tested in rain. Indeed the dry spell of this past spring probably helped materially in developing lines of weakness which the heavy rains of the previous night had exposed. The mother squirrel simply demonstrated that she was a good housekeeper.

- Barbara H. McKee -



Abert squirrel and nest

