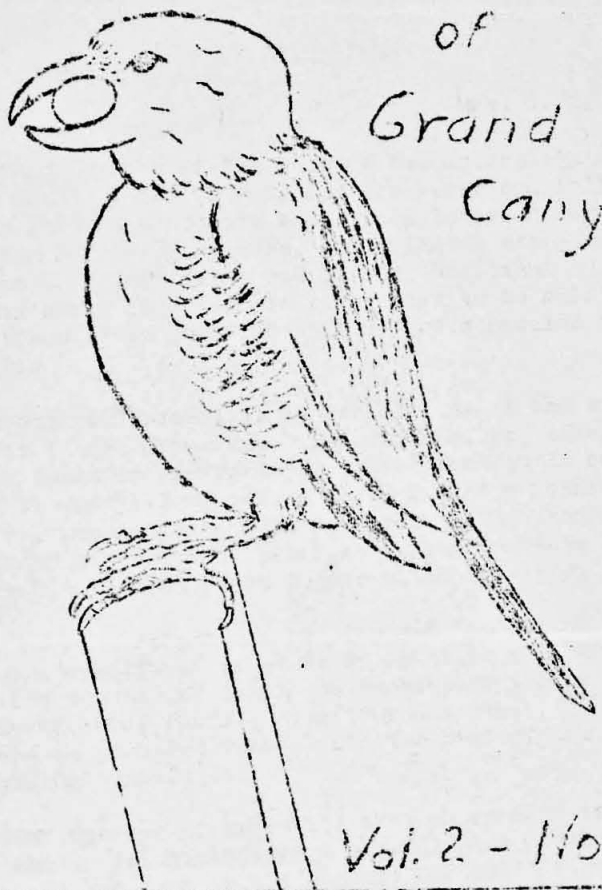


*Nature Notes  
of  
Grand  
Canyon*



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VOL. 2

GRAND CANYON NATURE NOTES

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This bulletin is issued monthly for the purpose of giving information to those interested in the natural history and scenic features of the Grand Canyon National Park. Additional copies of these bulletins may be obtained free of charge by those who can make use of them, by addressing the Superintendent, Grand Canyon National Park, Grand Canyon, Arizona.

M. R. TILLOTSON, Superintendent. By - G. E. STURDEVANT, Park Naturalist.

CROSSBILL

By Mrs. G. E. Sturdevant.

Dull care seldom knocks at the door of the Naturalist's wife. Each day brings forth its share of excitement, for she never can tell what animal, plant, insect, or bird is to occupy some place in her household obligations. My guests vary from burrowing spiders, camouflaging stick bugs, hairy tarantulas, and scorpions to desert ferns and plants, brilliant colored lizards, birds, rodents and small animals. It never pays to be curious in a Naturalist's home either for there is no guessing what may be concealed in any shape or form of receptacle.

My latest occupant, Crossbill, is perhaps one of the safest and most interesting guests I have harbored. We found him, broken-winged, near one of the numerous rain tanks in our park. I placed the little creature in a paper shopping bag but it wasn't long before I found that something stronger than a paper container was necessary to hold my ward. He had readily cut a hole in the bag and effected his escape. After searching for some other container, I decided to encage him in the popcorn popper which served my purpose excellently.

It was with as much reluctance as pity and tenderness that I took this curious charge upon myself. Most of my experiences with wild birds have been sad ones. Refusing to eat and drink and expressing terror and confusion at our service tendered, they usually pine away and die. With this in mind my first actions were to acquaint myself with the history and habits of this bird and to apply anything practical.

The particular species of crossbill that we rescued is the *Loxia curvirostris minor* (Brehm). Its distribution extends over northern North America and especially northward and east of the Plains. Crossbills, however, like other birds who depend upon the fruits of trees, come and go only when the coniferous trees suggest a hospitable aspect. This year according to the Havasupai Indians is the traditional seventh year for the abundant bearing of piñon nuts - hence the appearance of crossbills.

The adult male is a dull red generally brighter on the rump, the under parts are gray while the wings and tail are dusky. The female is a dull green olive color shading often to a bright yellow on its breast. It was this yellowness of breast which almost made us think that the bird was a wild canary before we were able to see it at a closer view. The tips of the bill in the

adults are crossed while the nasal plumules which are conspicuous, conceal the nostrils. From beak to tail my crossbill measures 5.50 inches; being in appearance a little fluffier and larger than the common sparrow.

The nest of the crossbill is to be found in coniferous trees. It is rather flat and is composed of spruce twigs and shreds of soft bark lined with horse-hair and fine rootlets. Four pale greenish eggs spotted with various shades of brown and purplish gray are usually deposited.

After learning all I could, I placed the crossbill in a box and put a few pinon nuts of last year's picking together with a small dish of water in with it. For the first day or so the pinon nuts were untouched. I was afraid that this little bird would follow the same course as my other wild birds. It was by accident that I received my delightful surprise. We had been out picking pinon nuts in the morning and just out of curiosity I placed a small pan of the fresh nuts in the crossbill's box. Now whether the little fellows' hunger would not allow him to contain himself longer, or whether the fresh pinons served to stimulate his appetite, I'll not swear to, but anyway he partook of this new treat in an unrestrained measure of enjoyment.

After a week's time I allowed my little pinon eater free range of the house. Every time he became hungry he would hop back to the little pan in which the nuts were placed, and every evening we were down on all fours looking for him to put him to bed. One evening our search proved fruitless yet the next morning before we were up our crossbill was busily engaged at his breakfast. The next two evenings he managed to cache himself again. Along about twelve o'clock of the third night I was awakened by a queer tinkling sound which seemed, as I listened, to come from under the bed. Woman-like I turned on the light and looked under the bed to discover my bird shifting himself to a more comfortable position in the deep-coiled springs. I allowed him to continue his repose in this most appropriate place for several nights. Then one day the door to our upstairs rooms was opened and Mr. Crossbill thought it was high time he was seeing the rest of his abode. This upstairs, where one can see the top branches of the pinon pines, seemed to have a fascination for him; for after this visit he decided he would change his quarters to the upstairs, coming down only when hunger pangs attracted him. Although he is still a bit shy around us he maneuvers around until he reaches his pinon nut pan where he evidently feels quite safe from harm. Here he cracks the thin-shelled nuts quite gracefully in two, retaining the sweet meat in his beak.

In a week or so the little wing may be fit for use again but until the wings are a little stronger Mr. Crossbill must stay a little longer, then he too can join the other crossbills, the jays, Abert squirrels, etc., in the pleasant task of picking pinons. And you may be sure that I shall miss my little wild companion very much.

### PINON NUTS

By G. E. Sturdevant.

Grand Canyon is enjoying the best season in recent years for pinon nuts. In spite of the lack of frost to date, the cones have already bursted, speckling the ground with sweet-tasting, thin-shelled nuts about the size of large coffee beans.

Man, bird, and rodent are busy gathering a supply sufficient to last during the winter. The Havasupai Indians, residing within the park, and the Navajo Indians, on the reservation adjoining the park boundary to the east, are perhaps the most enthusiastic pickers. Moving patches of red and orange may be seen as the squaws move about beneath the trees in their brilliantly colored gingham. Jays sit in nearby trees voicing their disapproval at the gleaners. In fact, the Indians might well be called gleaners for few nuts may be found beneath trees picked by these aboriginal Americans. The Havasupai Indians believe pinon nuts are especially plentiful once in seven years. Whether this is the case or not, can only be attested by patient observation.

Wood Rats, Chipmunks, Rock, and Abert Squirrels are the most industrious rodent harvesters. Differing from the remaining members of this harvesting army, the Abert or Pine Squirrel has been observed passing over areas flecked with pinon nuts in search of western yellow pine cones. Probably these seeds are more tasty in the opinion of the squirrel. They are, however, more difficult to procure. The squirrel was seen in a tall western yellow pine, clipping off cones and then coming to the ground to bury them.

### MOTHER GROUSE POSES FOR MOVIE CAMERA.

Abundant native wild life on the north rim of the Grand Canyon occupies second place only to the unmatched scenic beauty of the Canyon itself as an attraction to the tourist. Here is where one may see the famous Kaibab herd of deer roaming the primeval Kaibab Forest, where is isolated the beautiful white-tailed, tassel-eared Kaibab Squirrel, where former President Roosevelt once hunted the Mountain Lion, and where the Bob-cat and Coyote still trod the soil in considerable numbers. Last but not least, however, is the Dusky Grouse or "Fool-hen," noted for its placid attitude towards man. Undoubtedly the most singular incident that recently took place in this sanctuary was the posing of a mother grouse for a movie.

As related by Ranger A. L. Brown, a tourist, with a small movie camera came upon a mother grouse sitting on a log near the rim of the Canyon. What an ideal picture of native wild life it would be! Difficulties in the form of broken branches lay between the camera and the grouse. Would the grouse remain stationary while the brush was moved? The brush was carefully pulled away piece by piece until an un-obstructed view extended from the camera to the grouse. A few feet of film were exposed at a distance of ten or fifteen feet. Gradually the camera-man moved towards the grouse and obtained a fine

close-up picture at a distance of about four feet. Mother grouse withstood the burring noise of the camera for a short time and then moved along the log. It was necessary to remove more brush and again move in close. This time the grouse appeared entirely unconcerned and with no outward signs of fear permitted an exposure of the remaining film.

Why was the grouse so tranquill while acting the part of the "star" in this unique movie? This question perplexed the tourist until he found the solution to be eight or ten chick grouse hidden in the underbrush nearby.

### PEGMATITE DIKES

Of the numerous types of rock found in the depths of Grand Canyon, perhaps the most interesting is the pegmatite dikes cutting the Archean rocks. Small excavations penetrating the dikes reveal the former presence of some anxious prospector trying to reap a reward from Mother Nature. The wide variety of minerals in the form of beautiful crystals, make the dikes interesting to the layman as well as to the mineralogist. Finally the geologic mode of occurrence of these dikes discloses a remarkable story of the presence at one time of vast amounts of rock that must have been even greater than the present walls of the Canyon.

Pegmatite dikes are really off-shoots of some parent molten rock mass. When the molten rock started to cool, at least a mile or two miles beneath the surface, the outer portions of the molten rock started to solidify first. As the great mass gradually cooled and solidified contraction resulted in great joints. Due to the great over-burden of rock, the still fluid interior of the molten mass was forced up through solidified joints of the outer portions, even penetrating the over-lying rock along lines of weakness. Unlike the parent rock where the individual crystals are relatively small, pegmatite dikes are characterized by the huge size to which the crystals grew. In fact, pegmatites are often termed "giant granites."

Numerous obscure trails leading from the depths of the Canyon up to small excavations in and along the dikes tell epic stories of hardship performed by prospectors in the early days. In one place some 1200 feet above the river, occurs small amounts of the iron oxide - magnetite. Shallow diggings in the dike indicated the previous presence of some prospector. He had made a perilous journey packing his supplies to the depths of the Canyon. After that he had built a crude trail on the side of a precipitous wall to reach his prospect 1200 feet above. Finally he labored arduously to penetrate the exceedingly hard rocks left by an un-inviting nature. Failing to make his stake he moved on to more promising localities.

Pegmatite dikes have long been regarded by the mineral collector as a lucrative hunting ground. In addition to the essential minerals of quartz, feldspar, and some ferro-magnesian mineral - generally mica, found in the parent rock - granite, pegmatite dikes often contain many accessory minerals. Tourmaline is a very common constituent. Besides many relatively rare minerals, other minerals often found in pegmatite dikes, are topaz, fluorite, magnetite, beryl,



sapphire, and ruby garnet.

In addition to the wide variety of beautiful minerals found in the pegmatite dikes, the dikes tell the geologist how a great mantle of rock - thicker than the present walls of the Canyon - must have rested here at the time but was slowly worn away by the destructive forces of nature during a vast interval of time. At the present time, the dikes are generally found extending up through the Vishnu schist of Archean age where they were worn away along with the Archean rocks untold ages ago. Since they cooled at least a mile or two miles beneath the surface, it must be inferred that a vast mantle of rock was removed from this area before the deposition of the over-lying Algonkian sediments.

#### GRAND CANYON ANIMAL TRACKS

In a recent publication of the Smithsonian Institution entitled "Fossil Footprints of the Grand Canyon," Dr. C. W. Gilmore, Curator of Vertebrate Paleontology of the U.S. National Museum, has greatly increased the number of described tracks found in the park. The described species from this region now total thirty-three. Additional tracks collected by Dr. Gilmore this year assures Grand Canyon of enjoying the reputation of being the best Carboniferous fossil track horizon in the world.