

GRAND CANYON NATURE NOTES



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Donald Edward McHenry,
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Illustration and Lettering by Tom Jackson

QUAKING ASPEN- ITS FUTURE IN THE PARK

By

Donald Edward McHenry,
Junior Park Naturalist

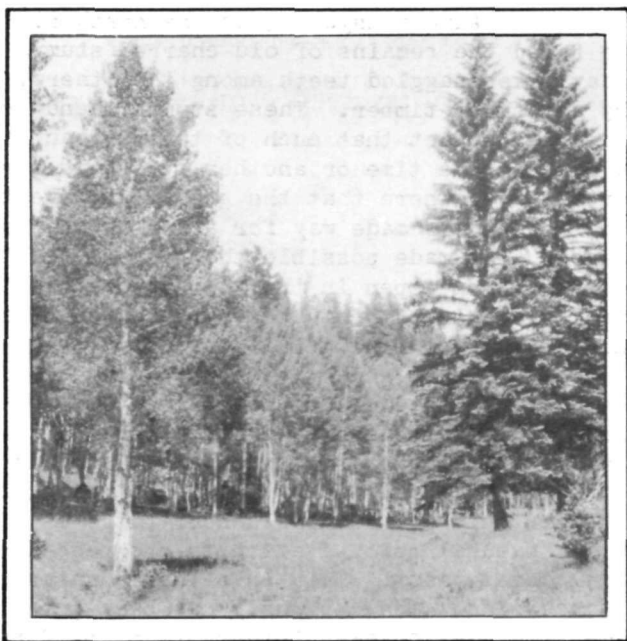
World famous are the graceful white-barked Quaking Aspen¹ trees on the north rim of the Grand Canyon, and justly so, especially when seen clothed in their brilliant autumn colors. Yet, if in passing one pauses but a moment, he might detect an almost imperceptible minor undertone in what is otherwise a glorious symphony of the forest. Among the aspen on the north rim there is very little reproduction at present. This situation in combination with certain biotic factors does not promise a very prosperous future for the aspen in the Grand Canyon National Park.

The aspen, a sub-climax species in our forest on the north rim, is just one of several steps of plant succession in the natural reforestation of burnt over areas in this region. The presence of aspen trees in such great numbers on the north rim, where it seems to be an indicator of former forest fires, bears witness to the extent of the early fires in this region. That there were such forest fires is a fact which is supported by statements of some of the "old timers" in Southern Utah, the country a little to the north of the north rim. Nate Adams, one of these early pioneers still living in Kanab, in southeastern Utah, tells how in the pioneer days of this community, the inhabitants would frequently look to the south to see great clouds of smoke rolling over the Kaibab Plateau on the north rim of the Grand Canyon. This smoke would be almost continuous from early spring until late autumn.² Because white men were still being killed by outlaw Indians in that day,³ very few if any trips were made up

1. *Populus tremuloides aurea*.

2. Ranger Ed Laws, Kanab, Utah, Verbal Communication, 1934.

3. THE FOUNDINGS OF UTAH - Young, page 172.



GROVE OF QUAKING ASPEN IN EVERGREEN FOREST ON NORTH RIM

into this Kaibab Country. Hence they knew little more about these fires than just what could be observed from a distance. It is supposed, nevertheless, that many of these fires were caused by lightning, for that is still the case today. In the absence of any protective measures, these fires ran their course and probably destroyed extensive areas of timber. In addition to these forest fires from natural causes, we hear tales about the Indians chasing their prey out on the points on the rim of the canyon and then setting fire to the forest behind them to concentrate the game at the very tips.⁴

4. Ranger Ed Laws, Kanab, Utah, verbal communication, 1934.

Almost anywhere in the north rim forest will be found the remains of old charred stumps standing today like snagged teeth among the otherwise healthy growth of timber. These stumps stand as mute evidence to the fact that much of the plateau had been burned over at one time or another, possibly even more than once. Everywhere that the ground was swept clean by such fires, this made way for a series of changes which eventually made possible the present beautiful stands of Quaking Aspen in the Kaibab Forest. Much of this took place in the days before this area was made a national reserve or a national forest.

Today, now that modern methods of fire protection are maintained in this forest by both the National Park Service and the National Forest Service, the number of fires and the extent of the areas destroyed by them, have been reduced to a negligible quantity. Under this present influence, there is a greater chance for natural reforestation to progress along lines of normal development. This involves an interesting plant succession which obviously has been in progress for some time. With fewer interruptions by forest fires, this succession will normally proceed to a climax vegetation. The aspen is not a climax but a subclimax tree in this forest. It is obvious that at best it can be considered but a temporary tree. In the changes which are bound to occur in this plant succession, it is evident that the aspen will finally decrease as the climax evergreens crowd it out.⁵ Many evidences that this is now in progress on the north rim can be found. If this continues the aspen no longer will form a conspicuous part of the forest formation in this region. This would normally take a very considerable period of time dependent, for the most part, upon the rapidity of the growth of evergreens.

There is, however, a biotic factor involved, which will doubtlessly hasten the reduction of the number of aspen trees on the north rim. Deer are very fond of aspen leaves. Anywhere an aspen seedling appears, very soon there is a deer on hand to chew it up.

5. Flora of Utah and Nevada - Tidestrom, page 29.

That this has effectively limited aspen reproduction, is an inescapable fact as one looks through the forest to see practically no new, young growth. Incidentally this fondness of the deer for aspen shoots and leaves explains the striking uniformity of the height of the lower branches of these trees throughout the forest. The deer eat off not only all the leaves but also all the tender new shoots as far up the tree as they can reach.

In marked contrast to this general condition through the Kaibab Forest, one finds rather extensive reproduction of the aspen in the vicinity of the Quaking Aspen Ranger Station, of Forest Service in Kaibab Forest just north of the park boundary. Here a number of hounds are kept and, of course, no deer come near. Thus the aspen are protected and normal reproduction thrives.

In addition to this general absence of reproduction among the aspen, is also to be considered the age of these trees now growing today. Very few individuals are under twenty years of age, while the general run probably will vary somewhere between twenty-five and sixty years old. The aspen is normally a short-lived tree.⁶ A considerable number of these trees in the forest today are now beginning to show signs of old age. It might safely be concluded that, the present conditions maintaining, there will be a great deduction in the number of aspen trees to be found on the north rim within an estimated period of from about fifty to seventy-five years. The aspen may conceivably even approach a situation of comparative rarity in this region eventually, present conditions maintaining.

It is evident that the rate of reduction of the number of aspen trees on the north rim will be retarded should there be any decided reduction in the size of the deer herd in this region. If this does take place, then reproduction will thrive and the aspen will grow normally in its role as a subclimax tree until finally crowded out by the climax spruces,⁷ pines, firs,⁸ and Douglas Firs,⁹ or "False Hemlocks."¹⁰ Under any

6 & 10. Flora of Utah and Nevada - Tidestrom, page 29.

7. *Picea pungens* & *P. engelmannii*.

8. *Abies lasiocarpa* & *A. concolor*.

9. *Pseudotsuga taxifolia*.

circumstances, however, as far as the writer can see, except for the abandoning of protective measures, the Quaking Aspen trees in the Kaibab Forest on the north rim of Grand Canyon, must eventually be reduced to a relatively limited number of individuals at the most.

SOME WILDLIFE OBSERVATIONS ON THE CANYON FLOOR

By

Ranger Naturalist Russell Grater

Many persons visiting the Grand Canyon National Park from a half hour to longer, leave secure in the belief that they have seen about all there is to see.

The writer recently returned from a three-day trip into the Canyon, during which time he had an excellent opportunity to see and examine some of the interesting features not visible from the rim. The purpose of the trip was to collect new zoological specimens for study purposes and to establish a bird banding station near Phantom Ranch at the bottom of the Canyon.

On November 21, the writer left the South Rim with most of his equipment preceding him by pack train. Snow covered the ground at the head of the trail, but this was soon left behind as the descent began. Little of interest, except scenery, was observed on the way to the river, for there seemed to be practically no animal or bird life abroad. However, one flock of Lead-colored Bush Tits¹ numbering about twenty-five, was seen at an elevation of approximately 5500 feet, and a solitary Pinyon Jay² was observed a few moments later.

Arriving at the river, camp was established near the mouth of Bright Angel Canyon and the

1. *Psaltiriparus m. plumbeus*.

2. *Cyanocephalus cyanocephalus*.

collecting of specimens and the operation of the bird-banding station was begun. Of the birds observed in the vicinity were numerous flocks of Shufeldt Juncos³ in one of which was a Red-backed Junco⁴ and two Gambel's Sparrows.⁵ Nearby two birds were collected for study skins, one a Says Phoebe⁶ and the other a Rock Wren.⁷

The following day a trip was made up Bright Angel Canyon as far as Ribbon Falls. About two miles above Phantom Ranch two bird specimens were collected, one a Canyon Wren,⁸ and the other a Water Ouzel or Dipper.⁹ The latter was collected only after careful maneuvering when the writer managed to get him near shallow water.

Continuing up the Canyon numerous Western Ruby-crowned Kinglets¹⁰ and two large flocks of Lead-colored Bush Tits¹¹ were seen. Just before reaching Ribbon Falls two familiar calls were heard from a nearby tree, which finally proved to be none other than the White-breasted Woodpecker¹² and the Mountain Chickadee,¹³ that cheery little acrobat of the forest.

After eating lunch at the base of the falls, a little tour of inspection was made which resulted in the discovery of a huge clump of Scarlet Monkey Flowers¹⁴ in full bloom. At the same time there was snow on the cliffs overhead! Looking still farther in the vicinity a number of tracks were discovered near the base of the falls, in slightly moist earth. From

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3. *Junco o. shufeldti*
 4. *Junco phaeonotus dorsalis*
 5. *Zonotrichia l. gambeli*
 6. *Sayornis s. saya*
 7. *Salpinctes o. obsoletus*
 8. *Catherpus m. conspersus*
 9. *Cinclus m. unicolor*
 10. *Corthylio calendula cineraceus*
 11. *Psaltiriparus m. plumbeus*
 12. *Dryobates v. leucothorectis*
 13. *Penthestes g. gambeli*
 14. *Mimulus cardinalis*

their shape and size, they probably were made by a Bailey Bobcat.¹⁵ The tracks were rather recent.

It was on the way back to camp that a Desert Sparrow Hawk,¹⁶ was observed flying overhead. The writer immediately had visions of adding him to the collection and watched carefully to see where he might alight. The bird stopped on top of a huge rock near the mouth of a large box canyon. It was a slow and tedious task of creeping carefully up a steep slope in order to get within range of the hawk. Just as a close approach was reached, the bird flew away. Disappointed, the writer was about to return to the trail when he saw something moving far up the slope in the box canyon. Training field glasses on the moving object it was a surprise to see a large Mountain Sheep.¹⁷ Evidently he had seen the writer coming for he was quickly leaving the vicinity.

While on the return trip, a fishing and diving exhibition was staged by a Western Belted Kingfisher.¹⁸ Just before reaching camp a dark, heavily streaked sparrow was flushed. Although unable to get near enough for a good view, he appeared to be a Desert Song Sparrow.¹⁹

The following day the return trip was made to the South Rim. Leaving the mouth of Bright Angel Creek, the trail followed the sandy beach along the river where fresh tracks of the Ring-tail²⁰ were discovered. Other tracks, which, from their size appeared to be those of the Arizona Gray Fox,²¹ were also noted. Just before reaching the Kaibab Suspension Bridge a small Colorado Rock Squirrel²² was seen. Nothing of unusual interest was observed on the remainder of the climb. Late in the afternoon the writer "topped out" on the South Rim, once more in a snow-covered country.

15. *Lynx r. baileyi*

16. *Falco s. phalaena*

17. *Ovis c. nelsoni*

18. *Megasceryle a. caurina*

19. *Melospiza m. saltonis*

20. *Bassariscus a. flavus*

21. *Urocyon c. scotti*

22. *Otospermophilus g. grammurus*

EDITOR'S NOTE:

The picture on the cover is of Bright Angel Canyon, which cuts into the north rim and through which Bright Angel Creek flows. In the mouth of this canyon among a grove of cottonwood and fruit trees is Phantom Ranch, an inner canyon guest ranch of about 14 acres. It is in Bright Angel Canyon from Phantom Ranch well up towards the head of the Canyon that the survey reported above was made. The inner canyon bird banding station was established on the banks of the Colorado River a little to the left of the part of the stream shown at the bottom of the picture.

Rock SLIDE IN THE COCONINO SANDSTONE

By

Ranger Naturalists Russell Grater
and Harold H. Hawkins

On August 13, about eleven o'clock in the morning, a sudden roar and a trembling of the foundation of Yavapai Observation Station on the South Rim advertised the presence of a rock slide below. A few seconds later dust began rising in vast quantities on the Canyon side of the station, first white then changing with astonishing rapidity to cream color and then red. For about a minute and a half the Canyon was almost completely obscured by the rising cloud of dust. Gradually, however, the air became clear again, but a heavy layer of dust over the glass cases and chairs in the station remained as witness to the event.

An examination of the walls beneath the station revealed that a column of rock approximately 150 feet high, 20 feet wide, and 6 feet thick had collapsed in the lower half of the Coconino formation.

The entire display was very spectacular while it lasted, and produced an extreme case of "nerves" among many of the Yavapai visitors who were present.



HAWKINS PHOTO

A VIEW OF THE ROCK SLIDE (SHOWN BELOW ARROW) AS SEEN FROM THE NORTH RIM. THE DUST CLOUD IS ABOUT 2,000 FEET HIGH.

The rock slide herein described was also observed from Bright Angel Point on the north rim; directly across the Canyon from Yavapai Station, much to the interest of a group of people on a Nature Walk. No sound of the break was heard. The first warning of the phenomenon was a large spherical mass of white "smoke", similar to that made by an explosion of a great quantity of dynamite at the top of the Hermit Shale. As the cloud slowly disseminated its color changed to a cream and then pink. The change of color was undoubtedly due to the rock mass striking the red Hermit Shale and breaking off particles of the shale.

The interesting feature concerning the cloud of dust was that it rose out of the Canyon instead of dropping into it. This was doubtlessly due to a strong up-draft which is frequently common along the Canyon walls. After all dust had cleared out, some fifteen or twenty minutes later, the particles of Coconino sandstone were seen to be strewn over the Supai formation below. The scar left by the slide appeared like a huge waterfall on the face of the Coconino sandstone and over half the thickness of the Hermit shale was covered by Coconino talus.

STATIC ELECTRICITY

By

Ranger Naturalist Harold H. Hawkins

An article¹ has been written and many observations have been made of lightning striking at numerous places along the rims of Grand Canyon, but no mention has been made of human beings acting as lightning rods and "pulling" electricity out of the air. About four o'clock in the afternoon of August 3rd, the writer was standing at Precipice View Point, on the North Rim, with about thirty-five visitors, and pointing to certain features on the Painted Desert. His right hand was grasping an iron railing and his left arm was extended in the direction of interest over the Canyon. Without warning there was heard at the ends of his fingers a sound resembling that of a swarm of bees. Quite surprised he pulled his hand in and examined the end of his fingers to ascertain the cause. Of course, seeing nothing wrong he again extended his arm and resumed speaking. Again the same sound was heard and once more he lowered his arm. At the same time he called attention of the visitors to the phenomenon. Naturally they all thrust their arms out over the railing and the writer noticed a marked decrease in the amount of buzzing at the end of his own hand. A peculiar thing was that at no time was there a tingling sensation on the tips of the fingers accompanying the buzzing. When the railing was released there was a severe shock received in the right hand. Finally a flash of lightning over Grandview Point stopped all further excitement.

The secret of this interesting experiment was that the extended arms were conducting electricity to the ground, through the bodies of the individuals from a cloud either overhead or nearby which was heavily charged with static electricity. The seriousness of this experiment, unbeknown to anyone in the group at the

1. Count, Earl W. "Yavapai Catches A Bolt", Grand Canyon Nature Notes, Vol. 3, No. 11, July 31, 1929.



SHOCKED TOURISTS ENJOYING
AN ELECTRICAL STORM AT GRAND CANYON

time, was that had this cloud been sufficiently charged so that the potential had been great enough, it could have easily attracted a bolt of lightning from any one of the several rainstorms nearby. It was raining over Cedar Mountain, Grandview Point, the Canyon in front of Grand Canyon Village, and the North Rim west of Grand Canyon Lodge.

There have been observations made, particularly in mountainous regions, where such a charge could have attracted a very large bolt of lightning. Therefore, even though this particular experience proved to be a very interesting and harmless experiment, much to the enjoyment of all present, sane advice to the reader is that should he ever encounter the same situation, move away from the vicinity as quickly as possible in order to keep from being struck by lightning.