

NOTES ON THE OCCURRENCE OF MAMMALS IN THE REGIONS ADJACENT TO THE SALT PLAINS OF NORTHWESTERN OKLAHOMA*

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The list of mammals here included is the result of collecting activities of members of the University of Oklahoma Biological Survey, assisted by the senior author representing the Bureau of Biological Survey, United States Department of Agriculture, during the summer of 1930 in the regions adjacent to the salt plains of northwestern Oklahoma, and along streams associated with these areas. Collections were made in the following general locations: Alfalfa County, the Great Salt Plains (Cherokee Plain); Major County, along the Cimarron River, 3 miles south of Cleo Springs; in the same county, Glass Mountains, 5 miles west of Orienta; Woods County, in sand dunes and along the banks of the Cimarron River, 3 miles southwest of Waynoka; Woods County, the Big Salt Plain of the Cimarron (Edith Plain) at the mouth of Buffalo Creek, 2 miles west of Edith.

METHODS

Most emphasis was placed on the forms that could be secured by trapping, although some collecting with guns was resorted to from time to time. Attempts were made to estimate the various possible habitat relationships in a region, and environmental areas were trapped over for several successive nights. Trap lines were usually allowed to run for at least two consecutive nights in the same set. They were then moved and new lines established until a given territory was covered.

Caves in the region of the Edith Plain were explored by members of the party and several bats collected.

Evidences of the presence of mammals other than those actually preserved as skins were noted in many instances. These included records of tracks of two forms, runs of moles, and the skeletal remains of seven other genera. Two genera were seen but not collected, and one genus is included on the basis of substantial evidence obtained from residents of the region in question.

Although no definite attempt was made to check the effect of environmental conditions on the activities of the animals collected and studied, some evidence was obtained that pointed to possible restrictions

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along this line. This evidence suggests that the season during which this work was carried out was not the most favorable for collecting in this part of the State.

The entire collection was identified by the senior author at the United States Biological Survey laboratories. The nomenclature used is essentially that in Miller's List of North American Recent Mammals.¹

Some common names are those used in Anthony's Field Book.²

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CLASS MAMMALIA

SUBCLASS EUTHERIA

ORDER MARSUPIALIA

FAMILY DIDELPHIDAE

Didelphis virginiana virginiana Kerr.

OPOSSUM

No specimens of this genus taken, but tracks were observed on the banks of Clay Creek, 2 miles east and 1 mile south of Cherokee (west of the Cherokee Plain), on the banks of the Cimarron River south of Cleo Springs, and along Dog Creek and Cimarron River southwest of Waynoka. These animals evidently inhabit the wooded stream banks and are not uncommon. They are reported by the inhabitants of the region to be common enough to furnish hunters much amusement in the sparsely wooded country around Edith.

ORDER INSECTIVORA

FAMILY TALPIDAE

Scalopus aquaticus intermedius (Elliott).

MOLE

Runs, made by moles, were noted on the islands at the edge of Cherokee Plain, but trapping in them brought no results. Signs of moles were also seen at Cleo Springs, Waynoka, and Edith. The type locality for this subspecies is Alva, Woods County.

ORDER CHIROPTERA

FAMILY VESPERTILIONIDAE

Eptesicus fuscus fuscus (Beauvois).

BIG BROWN BAT

In the regions adjacent to the salt plains there are many caves. Many of them are small but a few are quite extensive, running for a mile or so and often connecting with numerous branches. These structures have been known in the past as "bat caves" by the local inhabitants because they supposedly sheltered great numbers of bats. Of the various caves visited and explored in Woods and Woodward counties only one showed any evidence of past habitation by a number of bats.

¹Miller, U. S. Nat. Mus. Bull. 128, 1924.

²Anthony, Field Book of North American Mammals, New York, 1928.

One specimen of the big brown bat, a male, was taken from a cave 6½ miles northeast of Freedom, Woods County.

Lasiurus borealis borealis (Müller).

RED BAT

One specimen, a female, was shot while flying over a water hole in a pasture in Woods County, 2 miles southwest of Waynoka. This bat, which lives in wooded regions, is probably not very common in this part of the State.

Corynorhinus rafinesquii pallescens Miller.

LUMP-NOSED BAT.

Fourteen specimens of this bat were taken from a cave 6 miles southwest of Freedom in Woodward County; one was collected from a cave 2 miles west of Edith, Woods County; and one from a cave 6½ miles northeast of Freedom in Woods County.

This bat seems to be rather common in this region. The cave from which the fourteen specimens were taken is known as the "Big Bat Cave" and is now an often-visited resort. It has been electrically lighted and equipped with steps and bridges and otherwise "improved." Considerable quantities of guano had accumulated at the mouth of this place and inward for a distance of 50 to 75 feet, giving evidence of extensive habitation in the past by bats. Those collected were the only ones seen during an afternoon spent exploring and hunting for them. They were well back in the cave and suspended from the ceiling in the characteristic bunch.

FAMILY MOLOSSIDAE

Tadarida mexicana (Saussure).

MEXICAN FREE-TAILED BAT

Ten specimens of this bat were taken at the Edith Plain. They were shot while flying over the northern edge of the Plain.

Much interest is attached to this collection inasmuch as these bats seemed to be active only when environmental conditions were favorable. They were observed flying after the atmosphere had cooled following a local shower. The flight was in one direction, from southeast to northwest, and a return was never observed. Great numbers flew across the Plain but only a few came low enough to be in gun range. When the temperature rose, after four days, the flight ceased.

ORDER CARNIVORA FAMILY PROCTONIDAE

Procyon lotor lotor (Linnaeus).

RACCOON

Indications of the presence of raccoons were observed on the Cimarron River bank near Cleo Springs, and one specimen was seen in captivity at a road camp on Highway 64, 6 miles east of Edith. This animal was reported as having been captured at a point approximately 15 miles east of Edith, Woods County, along the same highway. Raccoons do not stray far from water and are found in the salt-plains region only among the trees along the stream banks. They are not very plentiful in this part of the State but are reported as being hunted by the inhabitants and occasionally taken.

FAMILY MUSTELIDAE

Spilogale interrupta (Rafinesque).

SPOTTED SKUNK OR CIVET

The skull of one civet was collected on the south bank of the Salt Fork River, 9 miles east and 3 miles north of Cherokee. One was seen on a road 2 miles west and 1 mile north of Edith. These animals are found through this entire region where any sort of shelter is available.

Mephitis mephitis varians Gray.

STRIPED SKUNK

A skull of the striped skunk was collected from the gypsum hills 2 miles west of Edith. Local residents report this form as being abundant.

FAMILY CANIDAE

Canis latrans nebracensis Merriam.

COYOTE

It is not unusual to hear the quite characteristic call of the coyote any place in central and western Oklahoma. This was a common experience during the summer of 1930. An individual 200 yards out on the Salt Plain was seen by the senior author near the camp 2 miles west of Edith, where it was attracted by chickens near the edge of the Plain. At this locality, Mr. Weidman told the senior author that late in the summer coyotes sometimes kill his chickens, but that otherwise they do no damage. He claims that when the maize gets high enough for their cover, coyotes lie in waiting for chickens in the early morning along the edge of the field, and that he has had as many as ten killed by one animal in one morning. He adds that by keeping his chickens enclosed until 11 A. M. he has had no loss. Indications of the presence of coyotes were observed in many places during the season. On top of the Glass Mountains, the senior author examined three coyote feces, two of which contained only wood rat remains, the third showing fur, skull fragments, and other bones of a black-tailed jack rabbit.

ORDER RODENTIA

FAMILY SCIURIDAE

Citellus tridecemlineatus arenicolor Howell.¹

STRIPED GROUND SQUIRREL

Striped ground squirrels are not abundant in the salt-plains region. They are found in dry, sandy areas in the open prairie. They generally occur in colonies but only small groups were observed. Seven specimens were taken on the south edge of the Cherokee Plain and one specimen was taken and a few others observed in the prairie-dog "town" west of Orienta.

Cynomys ludovicianus ludovicianus (Ord).

PRAIRIE-DOG

Several prairie-dog "towns" still exist in the regions around the salt plains. Eight specimens were collected, one from a colony that contained about 70 mounds and possibly 300 inhabitants 6 miles east and 4 miles south of Cherokee, and seven from a "town" 3 miles west of Orienta. The

¹Howell, Six New North American Ground Squirrels, Proc. Biol. Soc. Washington, vol. 41, 1928.

latter colony covered several hundred acres and included more than 5,000 animals. A small colony is located three miles west of Edith on the north edge of the Edith Plain. This was observed but only one skull was collected.

Sciurus niger rufiventer Geoffroy.

WESTERN FOX SQUIRREL

Fox squirrels are fairly common in parts of northern Oklahoma where there are trees. Specimens were taken near Waynoka, and individuals were seen at Cleo Springs. The junior author shot fox squirrels north of the Cherokee Plain near the Salt Fork River in the spring of 1931. Fox squirrels inhabit a small grove near Edith, but it is doubtful if they occur much farther west.

FAMILY GEOMYIDAE

Geomys breviceps llanensis Bailey.

POCKET GOPHER

Pocket gophers are very common in this region of Oklahoma. Although they are rarely seen, their presence is evident by extensive "workings" found wherever the soil is fairly moist and suitable for tunneling. Specimens were taken from near the Cherokee Plain, Cimarron River bank near Cleo Springs, and the Cimarron River bank near Waynoka.

FAMILY HETEROMYIDAE

Perognathus flavus flavus Baird.

BAIRD'S POCKET MOUSE

These diminutive mice are probably well distributed in this region, and although every effort was made to catch them only four specimens were taken at the Edith Plain. These were captured on the higher ground well on top of the gypsum hills that form the northern border of the plain. In every instance the specimens were taken in traps set out from any cover and in three cases on top of barren rocks. All attempts to trap near small holes and under bushes that gave evidence of being the typical habitat of pocket mice met with failure.

Perognathus hispidus paradoxus Merriam.

KANSAS POCKET MOUSE

This is a much larger mouse than *P. flavus*, but the two occur, in this region, in the same general locality. Three specimens of this species were taken from the same place as those of *flavus* except that they were captured nearer water and in a small canyon rather than on top of the hills.

Dipodomys ordii richardsoni (Allen).

KANGAROO RAT

This is one of the most common rodents of northern Oklahoma. It is variously known as the sand rat, pocket rat, jerboa, and jumping rat. These animals are found wherever the soil is suitable for easy digging and sufficient vegetation exists for an adequate food supply. Kangaroo rats are important members of the fauna of the salt plains "islands," achieving the position of a dominant.

They live in an extensive system of tunnels, each system having several openings, and radiating from the tunnel mouths are found well-

worn surface runs. Several animals may inhabit a single tunnel system, as many as six having been taken from one place.

Food is procured from near-by plants, the seeds being gathered and stored. Evidently these animals need very little water, since the dry sand areas they inhabit afford but a meager supply. An analysis of the pocket contents of two individuals collected on an island of the Cherokee Plain revealed *Hosackia americana* and *Paspalum stramineum* as being two seeds gathered, while traces of *Cyperus Schweinitzii* and *Geranium carolinianum* were also found.¹

FAMILY CRICETIDAE

Onychomys leucogaster breviauritus Hollister.

GRASSHOPPER MOUSE

Grasshopper mice, while rarely seen, are relatively common rodents in the salt-plains region. They are nocturnal, live in the abandoned shelters of larger burrowing animals, and lead a more or less solitary existence. The sandy localities explored generally contained these rodents.

These mice are classed as helpful animals inasmuch as their food consists chiefly of animal matter. Vegetable matter, in the form of seeds, constitutes but 11 per cent of their food. They eat grasshoppers, beetles, crickets, and other insects, and also, rarely, small reptiles and mammals. A plentiful supply of food is available in the salt-plains region, grasshoppers being especially abundant in these arid localities.²

Reithrodontomys albescens griseus Bailey.

HARVEST MOUSE

Only one specimen of the harvest mouse was collected during the summer of 1930. This was taken on the western edge of the Cherokee Plain. During the spring of 1931 the junior author took another specimen on the northeastern border of the same plain. Examination, in the field, of the contents of some owl pellets collected by another member of the party at Edith, revealed a skull of this species. Evidently these mice are generally distributed through the region, but it is impossible to estimate just how plentiful they are.

Peromyscus maniculatus osgoodi Mearns.

WHITE-FOOTED MOUSE, DEER MOUSE

Deer mice are the most prevalent rodents of the salt-plains region, and are found in considerable numbers in almost any habitat there. On June 6, one female, with four young about 10 days old, was taken from under a log on the east side of the Cherokee Plain, about 50 yards from the south bank of Salt Fork River. The young were being nourished at the time of capture and the mother appeared to be in good condition, although what she was subsisting on it was impossible to see. Several specimens were taken on the islands bordering the Cherokee Plain; the banks of the Cimarron River, where many kinds of shelter were available, proved a prolific collecting ground. These mice inhabit trash piles, burrows of varying sizes which they probably had appropriated, and rocky ledges along the stream banks. Some specimens were collected from the

¹Analyzed and identified by Leon H. Kelso, U. S. Dept. Agric., Bur. Biol. Survey.

²Bailey and Sperry, Life History and Habits of Grasshopper Mice, Genus *Onychomys*. U. S. Dept. Agri. Tech. Bull. 145, 1929.

barren tops of the hills on the north bank of the Cimarron at the Edith Plain. Many were trapped that were too badly damaged to preserve.

Peromyscus leucopus aridulus Osgood.

BADLANDS DEER MOUSE

One specimen of this species was taken on the sand dunes in Woods County, 3 miles southwest of Waynoka. This establishes the range of this form in this part of the State.

Sigmodon hispidus texanus (Audubon and Bachman).

TEXAS COTTON RAT

Three specimens of the cotton rat were obtained during the summer of 1930. These rodents evidently prefer stream banks bordered by tall grass which affords them shelter and food. This type of habitat is not available except in limited areas and so it is possible that the salt plains mark the approach of the western limits of their range. One specimen was taken on the western edge of the Cherokee Plain and two taken on the north bank of the Cimarron River south of Cleo Springs. Farther down the Cimarron at Guthrie the junior author observed extensive runs of cotton rats and has taken as many as four in a single night with a small trap line.

Neotoma micropus micropus Baird.

BAIRD'S WOOD RAT

The wood rat is widely distributed through northwestern Oklahoma and is found wherever a suitable habitat obtains. These rats prefer rocky hillsides or ledges of bluffs, where they seek shelter in the crevices and under larger stones. The first wood rats taken by this expedition were from the Glass Mountains in Major County. A typical habitat exists there, many suitable shelters being available. Other specimens were collected from the hills bordering the Cimarron at the Edith Plain, where similar conditions prevail.

Ondatra zibethica cinnamomina (Hollister).

MUSKRAT

The muskrat is widely distributed in this part of Oklahoma. No specimens were taken but runs were seen and a skull fragment collected. A muskrat swimming in a water hole in a pasture near Waynoka was seen by the senior author.

ORDER LAGOMORPHA

FAMILY LEPORIDAE

Lepus californicus melanotis (Mearns).

BLACK-TAILED JACK RABBIT

Jack rabbits are very common in the salt-plains region. They are important members of the fauna of the Cherokee Plain, and many were seen on the islands that border this region. Jack rabbits were often observed in the open salt plain running from one island to another. These rabbits are common in the sage brush along the Cimarron near Waynoka and also plentiful on the open prairie near the Edith Plain. They do not here assume the proportions of a pest as they do in some other parts of their range.

Sylvilagus floridanus alacer (Bangs).

OKLAHOMA COTTONTAIL RABBIT

Cottontails, although not so plentiful as jack rabbits, are still abundant in western Oklahoma. They were observed many times, and two specimens and some skulls were collected. Another species, *Sylvilagus auduboni neomexicanus* Nelson, is said to occur in this region of the State, but no specimens were collected.

ORDER ARTIODACTYLA

FAMILY CERVIDAE

Odocoileus virginianus macrourus (Rafinesque).

PLAINS WHITE-TAILED DEER

A few white-tailed deer are yet found in the black-jack oak forests along the Cimarron River. They are reported from time to time and are protected by state law. Presumably they belong to the above subspecies.