

Article V.—ON MAMMALS COLLECTED IN BEXAR COUNTY AND VICINITY, TEXAS, BY MR. H. P. ATTWATER, WITH FIELD NOTES BY THE COLLECTOR.

By J. A. ALLEN.

The Museum has recently received from Mr. H. P. Attwater, of San Antonio, Texas, about 400 specimens of mammals, collected chiefly in the vicinity of San Antonio, in Bexar County, but including many from Kerr County. The specimens represent 37 species, on which Mr. Attwater contributes valuable field notes, and also important information on 10 other species found now or formerly in the vicinity of San Antonio. These are mainly the larger Carnivores and the larger game animals, as the Deer, Bison, etc., which are all now rapidly disappearing from the State. It hence becomes desirable to place on record the notes on their former status contributed by Mr. Attwater.

I am also indebted to Mr. Attwater for the following sketch of the topographic and other features of the region, and for interesting notes on the effect upon animal and plant life of the severe and long-continued droughts that periodically visit this portion of Texas.

CHARACTER OF THE REGION.—Bexar County is on the line of junction of two regions of diverse topographic character, and is thus faunally a point of special interest, forming, as it does, about the eastern limit of various western forms, and the western limit of various eastern forms of animal and plant life. At about this point also various northern forms find their southern, and various southern forms their northern limit of distribution.¹ The following somewhat detailed account of the region is from Mr. Attwater's MS. notes.

“The city of San Antonio has an altitude of 680 feet above sea level, and is situated about 150 miles northwest of Rockport and

¹ Cf. Attwater, *The Auk*, Vol. IX, 1892, pp. 229, 230.

Corpus Christi, on the Gulf coast. For about 50 miles inland from these points the country is flat, but gradually becomes more rolling in Bee County, this character increasing till Bexar County is reached, where, directly north of San Antonio, the first elevation begins, and the country becomes rough and broken, the underlying rock being a soft cretaceous limestone. This elevation extends northward from San Antonio across the State, and also westward to the Rio Grande. The counties north and west of Bexar are much cut by erosion, which has formed terraced hills, covered with boulders, and deep valleys or cañons with steep rocky sides. In direct contrast with this rough region is the lower and more level country, beginning directly south of the city and extending to the mouth of the Rio Grande. The soil, south of this dividing line in Bexar County, is more or less sandy, with what is known as chocolate land (a mixture of reddish clay and sand) along the streams, while north of this line it is black, waxy, and mixed more or less with stones and gravel.

“The San Antonio River, a good sized stream, rises two miles north of the city, in some large springs which flow from the limestone. The Medina River, joined by the Leon, runs through the southern part of the county, and unites with the San Antonio River fifteen miles south of the city. Both the Medina and the Leon are dry most of the year, but water is always to be found in large pools and deep water-holes along their courses.

“The old settlers inform me that formerly the country around San Antonio, away from the streams, was open prairie, but now where it is not in cultivation it is covered with a thick growth of mezquit trees, and in some places with dense growths of thorny bushes and cactuses (*Opuntia*). The entire region north and south of San Antonio is well wooded, and next to the mezquit the prevailing growth on the upland is live oak, post oak and hackberry, with pecan, cottonwood, willow, elm, box-elder, sycamore, mulberry and cypress along the streams and creeks.

“Two miles south of the Medina River there is a long stretch of light sandy soil, extending into the adjoining counties, which is covered with a heavy growth of black oak and hickory. This particular locality is similar in character and supports the same growth of weeds as the sandy soil in Aransas County, on the coast.

“The mountain region north and west of San Antonio is mostly covered with spanish oak, shin oak and dwarf live oak, with much red cedar (*Juniperus*) scattered in places along the ridges and hillsides, often forming almost impenetrable ‘brakes.’

“Many varieties of smaller trees, shrubs, vines, etc., grow throughout this region, along the creeks and ravines, and in the river bottoms, producing fruit, berries, etc., which provide an unlimited food supply for the wild animals. Good crops of the following are produced almost annually in a wild state: Wild grapes (several varieties), mulberries, dewberries, hackberries, barberries (*Berberis trifoliata*), cherries, plums, persimmons, acorns (many varieties), pecan nuts, walnuts, and hickory nuts. In addition to these and many other kinds of nuts and edible berries, there are numerous varieties of weeds which yield large quantities of seed, such as the wild sage (*Croton*) and sunflowers, and a host of other weeds, the seeds of which are eaten by rats, mice, pocket mice, kangaroo rats, etc.

“Most of the specimens sent were collected at odd times, during the last two years, and nearly all of them from two localities in this county, one of these places being around our house, three miles south of the city, and the other on Mr. John Watson’s ranch, on the Medina River, about fifteen miles southwest of San Antonio, where I have made a number of trips to collect and hunt animals. I was particularly fortunate in having the assistance of Mr. Watson and his sons, who generally accompanied me, and who sent me many specimens, and furnished much valuable information.

“I also received much assistance from Mr. Gustave Toudouze, a good hunter and taxidermist, who also lives on the Medina River, and who had a fine collection of the large animals at the New Orleans Exposition in 1884. I have also had the advantage of being acquainted with Mr. David Menck, the proprietor of the Zoölogical Gardens in San Antonio, who owns a fine collection of live animals, and who has furnished me much useful information.

“Several trips were made to Kerr County, where some of the specimens sent were taken. They were caught at the ranch of my friend, Mr. Howard Lacey, on Turtle Creek. Mr. Lacey, besides having hunted deer and large animals for a number of

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years, is a careful and reliable observer. I am indebted to him for many favors, and his note-book, which he placed at my disposal, afforded me much interesting and authentic information.

“EFFECT OF DROUGHTS ON ANIMALS.—Southwestern Texas is subject to periodical droughts, which render agricultural pursuits very uncertain, and, I am convinced, have a great influence on the lives of the animals here, especially the mice and rats which live above ground or have their nests and hiding places close to the surface.

“Several wet and rainy seasons are generally followed by several dry ones. In 1889, 1890 and 1891 there were good rains in the early part of the year, and fine crops were raised. In these years small animals of several kinds seemed very much more common than in 1892, 1893 and 1894, which were dry years—and especially 1894—during which period a severe drought prevailed all over this section of the State. In 1894 no small grains were raised, and the corn crop was almost a total failure in this county. We had fine rains in 1895, and a splendid crop of small grains and corn matured, and some small animals have of late become much more common, especially since the end of July, 1895. I have recently met with Harvest Mice and Sigmodons in localities where I know they were not to be found last year; and both these species have very recently been reported to me from other points as being noticed the first time for several years.

“In dry seasons the cattle eat off the weeds and grasses, leaving the ground bare, but with the heavy rains in the early part of 1895 the whole country became covered with a dense growth of vegetation, which afforded a hiding place to the small animals and protection from their enemies; besides providing them with an extra supply of food, and much more favorable conditions generally for their existence.

“These conditions do not affect the Pocket Gophers, Moles and Pocket Mice so much as they do the Mice, Rats, Rabbits, etc., whose homes and nests are mostly on or above the ground. When Rats, Mice and Rabbits are common, Skunks and other larger animals are noticeably more numerous.”—H. P. A.

1. ***Didelphis marsupialis virginiana* (Kerr).** OPOSSUM.—Represented by 7 specimens, all from the Medina River bottoms, about 15 miles south of San Antonio. Two of the specimens have the dark coloration, wholly black feet, black basal portion of the tail, and dusky eye stripe characteristic of Rockport, Corpus Christi, and Brownsville specimens;¹ the others are quite like the ordinary northern (*virginiana*) style of this animal.

“Common, but generally met with along rivers and creeks. Black Opossums are occasionally met with, but not as often as at Rockport, on the coast. They eat all kinds of wild berries and fruits, and are especially fond of mustang grapes and persimmons. They also eat lizards and anything in the way of meat they can find. Mr. Lacey says that his dogs have often ‘treed’ them in the carcasses of dead cattle, and that they make the inside of a dead cow their temporary abode so long as there is anything left on the bones worth picking.”—H. P. A.

2. ***Didelphis marsupialis californica* (Bennett).** TEXAS OPOSSUM.—Two specimens, as stated above—Medina River, Jan. 10 and Dec. 31.

3. ***Tatusia novemcincta* (Linn.).** NINE-BANDED ARMADILLO.—Although no specimens were sent, the following notes are entitled to record, as this animal is likely to be soon exterminated in the more settled parts of Texas.

“I have records of the capture of the Armadillo from many points north, south and west of San Antonio. Mr. Lacey reports it from Burnet County, 150 miles north of San Antonio, and one was killed this summer (1895) on his ranch in Kerr County. They are occasionally sent to the Zoölogical Garden alive, but do not live long in confinement.”—H. P. A.

Mr. Attwater also sends newspaper clippings recording the capture of specimens in Kendall and Gillespie Counties, north of San Antonio, during 1894.

¹ Cf. this Bulletin, VI, 1894, p. 168.

4. **Dorcelaphus virginianus** (*Bodd.*). VIRGINIA DEER.—“Deer are still common in Bexar County, and are not as liable to be exterminated here as in other parts of the State, east and north of San Antonio. The immense pastures, enclosed with barbed wire fences, afford them great protection—the fences, sometimes miles in length, preventing hunting parties from leaving the public highways. The almost impenetrable stretches of chaparral thickets also afford them shelter, even when hunters’ camps are located among them.

“Formerly, when the country was unsettled, and before the influx of market hunters, the deer, according to the old settlers, could be seen feeding in the daytime, but now they commence to feed about half an hour before sunset, and lie down soon after sunrise. They thus have apparently changed their habits as the country has become more settled.”—H. P. A.

5. **Dorcelaphus hemionus** (*Raf.*). MULE DEER ; BLACK-TAILED DEER.—“The extreme eastern limit of the range of the Black-tailed Deer is west of Edwards County. I have heard of their being killed in Val Verde County, but they are rare east of the Pecos River.”—H. P. A.

6. **Antilocapra americana** *Ord.* ANTELOPE.—“Formerly the Antelope ranged eastward in Texas to within 100 miles of San Antonio and southward along the Rio Grande, but they are not now found so far south in this State. According to Dr. J. B. Taylor—to whom I am indebted for valuable information about the range of this Antelope—there are still about 100 on his ranch in the northwest corner of Sutton County, which he thinks is now about the southeastern limit of their range. A few scattered bunches may still be found eastward to Menard County. A straight line running west from Sutton County, Dr. Taylor thinks, will mark their present southern limit. Another line drawn from Sutton County slightly west of north to Amarillo in Potter County will, he believes, mark their present eastern limit in Texas, although a few may straggle further east.”—H. P. A.

7. **Bison bison** (*Linn.*). AMERICAN BISON.—In May and June, 1894, reports¹ came from San Antonio, Texas, of the discovery of a herd of about 40 to 50 wild 'Buffalo' in Val Verde County, Texas, which were so circumstantial as to lead many to believe in the reputed discovery. Later² the number had increased to 60, and the herd had left the fertile valleys of Val Verde County and, passing into the valley of the Rio Grande, followed up that stream till they found a convenient crossing place and passed over into Mexico. An expedition which had been organized, with headquarters at San Antonio, for the purpose of 'rounding up' the herd and bringing it into captivity, was therefore indefinitely postponed. Apropos of the foregoing, the subjoined notes from Mr. Attwater, a resident of San Antonio, and an enterprising naturalist as well, become of special interest.

"A year or so ago a herd of Wild Buffalo was reported seen in Val Verde County, 150 miles west of San Antonio, between Devil's River and the Rio Grande. Since then a number of hunters have searched for them, but so far as I know no sign of them has been seen. Many people do not believe the report. If it was correct, it is strange that they have not turned up somewhere since, or at least been heard from in some way.

"Reliable persons tell me that 1886 was the last year for Wild Buffalos in western Texas, and I think it is safe to say there are none in Texas to-day in a wild state. There are several herds in captivity on large ranches in northwestern Texas.

"I send a dorsal vertebra and rib from a mounted Buffalo now in my collection. It was caught when a little calf in a wild state in 1883, in Borden County, at the head of the Colorado River. It was raised by a common cow, and castrated when two years old. It grew to a large size, and was exhibited at the State Fair two years ago. It weighed 3506 lbs., stood 6 feet 4 inches high, and was 10 feet long. It died in 1893, and then came into my possession."—H. P. A.

• Later Mr. Attwater wrote me, on the authority of Dr. J. B. Taylor, one of the most prominent stockmen in western Texas,

¹ 'Buffalo in Texas' (signed 'O. C. G.'). *Forest and Stream*, XLII, p. 421, May 19, 1894; and *ibid.*, p. 510, June 16, 1894.

² 'The Texas Buffalo Herd.' *Ibid.*, XLIII, p. 377, Nov. 3, 1894. From the 'San Antonio Express' of Oct. 6, 1894.

and whose headquarters are in San Antonio, that "the Val Verde Buffalo herd was only a myth." The report appears to have been originally started as a 'joke,' but for a time seems to have been believed in by some of those who were prominent in giving it currency.

8. *Dicotyles angulatus* Cope. TEXAS PECCARY.—No specimens were sent, but Mr. Attwater reports a mounted example in his collection, and contributes the following notes.

"Not often met with now near San Antonio, but still common in the chaparral region south and west of San Antonio. Mr. Lacey reports that they were formerly common in Kerr County, but are seldom seen there now.

"Ten years ago there was a great trade in skins and hides of wild animals in San Antonio, and the prices paid by dealers were much higher than now. Hides of the 'Havelina,' as the Peccaries are called here, were in demand, and wagon loads of them could be seen at the depots and commission warehouses. I am informed by Messrs. Cohen & Co. that their firm handled over 30,000 'Havelina' hides in one season, eight years ago. The highest price paid then was 80 cents for a No. 1 hide. They were shipped east, and most of them went to Europe, the skins being used for gloves and the hair for brushes. The price paid now is about 30 cents, with few coming in, and last season's stock still on hand. A ranchman in Zavalla County told me that in 1886 'Havelina' hides were currency in that part of the State. At a store at Luma Vista, in the same county, a small skin would be returned over the counter with a certain quantity of tobacco, etc., in exchange for a large skin.

"They thrive in captivity. A pair in the Zoölogical Garden have bred there for the last six years, bringing their young at any season of the year, and having from one to three at a time.

"The nature of the Peccary seems to have toned down considerably from its old-time ferocity. Formerly, it is said, they knew no fear, but the few herds I have met with showed a very different disposition, being intent only on flight. Probably, however, where they have not been relentlessly persecuted by hunters they still retain their former spirit and bravery."—H. P. A.

9. *Lepus merriami* Mearns. RIO GRANDE JACKRABBIT.

Lepus callotis BAIRD, Mam. N. Am. 1857, p. 590 (nec Wagler; Texas references only).

Lepus callotis, var. *callotis* ALLEN, Mon. N. Am. Roden. 1877, p. 350 (Texas references only).

Lepus callotis ALLEN, Bull. Am. Mus. Nat. Hist. VI, 1894, p. 169. (Rockport and Corpus Christi, Texas.)

Lepus melanotis ALLEN, *ibid.* p. 348 (the Rockport, Texas, specimens only).

Lepus merriami MEARN'S, Proc. U. S. Nat. Mus. XVIII, 1896, No. 1075, p. — (page 2 of 'advance' sheet, issued March 25, 1896).

All of the 15 (11 adult and 4 young) Jackrabbits from the vicinity of San Antonio are referable to *Lepus merriami*, recently described by Dr. Mearns (l. c.), as are also the specimens recorded by me from Rockport and Corpus Christi, Texas, provisionally under the name *Lepus callotis*, and later referred in part to *L. melanotis*. Several of the specimens, however, are wholly without black on the nape, and have little or no black at the base of the ears; other examples show more or less black on these parts, grading into those with a large black nape patch and a broad area of black at the base of the ears. This variation is hard to explain, as it is apparently not due to age, sex, or season. The gray-naped specimens prove, on comparison, easily separable by general features of coloration from *L. melanotis*, aside from the presence of good cranial differences.

The collector's measurements of these specimens are as follows, total length and length of tail being taken *to the end of the tail hairs* instead of to the end of the caudal vertebræ. The hairs extend about 25 to 30 mm. beyond the tail vertebræ.

Cat. No.	Sex.	Date.	Length.	Tail.	Hind foot.	Weight.
11861	♀ ad.	Nov. 22.	620	108	127	5 lbs. 12 oz.
11860	♀ ad.	" 29.	626	102	133	5 " 14 "
10314	♀ ad.	Feb. 13.	615	104	131	5 " 12 "
10315	♀ ad.	" 15.	558	95	131	4 " 0 "
10317	♀ ad.	April 17.	604	114	133	7 " 0 "
10316	♂ ad.	June 19.	622	127	131	—
11859	♂ ad.	Jan. 10.	620	109	130	5 lbs. 12 oz.
11862	♀ ad.	Nov. 8.	—	—	133	6 " 6 "
11857	♀ ad.	" 20.	648	127	133	7 " 0 "
11858	♀ ad.	Dec. 5.	622	108	133	7 " 0 "
11863	♀ ad.	" 28.	610	102	131	7 " 0 "

One of the young ones (March 4) is about one-fourth grown; the other three (Jan. 10, April 12, and July 6) are very young, apparently nurslings. A young Rockport specimen, taken Oct. 11, is only a few days old. A female taken Dec. 8 is labeled as containing one small embryo, and another taken Dec. 28, contained one large embryo. It is thus evident that the young are born at irregular intervals nearly throughout the year.

Mr. Attwater says Jackrabbits are "common everywhere, but less numerous in the broken country north of San Antonio than in the mesquit lands between San Antonio and the Gulf Coast." In winter they feed on the "tips of the mesquit and other thorny shrubs, and even on the leaves of the prickly pear cactus (*Opuntia*)." In winter he has measured their tracks in the snow showing leaps of 15 feet, and thinks "they would do even better than this when pursued by a hungry Coyote."

10. *Lepus sylvaticus bachmani* (*Waterh.*). TEXAS WOOD HARE.—Represented by 16 specimens, 13 of which are adult; the three young vary in age from 10 to 45 days, according to Mr. Attwater's memoranda on the labels. The series is not distinguishable from Rockport and Corpus Christi specimens. The collector's measurements of 10 adults (5 ♂♂ and 5 ♀♀) are as follows: Total length (to end of tail hairs), 409 (380-425); tail (to end of hairs), 55 (45-64); hind foot, 90.6 (85-95).

"Common everywhere, but much more numerous in the chaparral region south of Bexar County, than to the north of it. Two of the young ones are from a nest in our garden. The nest was discovered on July 19—a shallow hole in the ground under a tomato vine, six feet from the kitchen window. It was composed of strips of cedar bark and lined with rabbit fur. It contained three young ones apparently a day or two old. On July 25 their eyes were open. On July 27 one was taken from the nest and preserved as a specimen (No. 134). July 29 the two little ones that remained left the nest, being then about two weeks old. One of them was caught two days later in a steel trap set near the nest. During all this time the old rabbit was not seen. The only time she could have visited the nest was during the middle of the night. The garden was surrounded with what was sup-

posed to be a rabbit-proof fence. I never found where she went in and out. It was a very dry season, and vegetation was everywhere dried up except in this small garden. She evidently selected this so that the little ones would find something to eat. The whole affair was nicely arranged and very well managed for a rabbit."—H. P. A.

11. *Geomys texensis* Merriam. TEXAS GOPHER.—Represented by 11 specimens, 7 males and 4 females, collected about 15 miles south of San Antonio. Six adults measure as follows: Total length, 223 (203–237); tail vertebræ, 72 (60–79); hind foot, 27 (25.4–29). These measurements are slightly above those given by Dr. Merriam for his series from Mason County.

Mr. Attwater sends the following interesting notes on the range of Pocket Gophers in Bexar and adjoining counties:

"Pocket Gophers are found only in the sandy parts of the country. They are very common in the extreme southern and southwestern part of this [Bexar] county, their northern limit here being about eight miles south of San Antonio. From San Antonio northward for about 100 miles, or through Bexar, Bandera, Kendall and Kerr Counties, I have never found them. There may be some isolated colonies, if sandy tracts occur in the region embraced in these counties. Further north they will probably be first met with in Gillespie County, just north of the Perdenales River, for I have heard of gopher mounds being seen there. There is, therefore, apparently an area of nearly 100 miles in north and south extent where no Pocket Gophers exist."—H. P. A.

12. *Perodipus ordii* (Woodh.). ORD'S KANGAROO RAT.—Represented by 5 specimens, 1 male and 4 females, taken 18 miles south of San Antonio, Aug. 23–Sept. 18. A female taken August 23 contained "two small embryos."

"These beautiful little animals appear to be quite common in the sandy black oak region south of the Medina River in Bexar County. Their burrows seem to be most numerous in the poorest, sandy soil."—H. P. A.

13. *Perognathus paradoxus spilotus* Merriam. TEXAS POCKET MOUSE.—A series of 42 specimens, of which all but 8 are adult, seem practically indistinguishable from Rockport examples.

“Much more numerous in the sandy lands than in the black lands; prefer wild land to cultivated fields. Similar in habits to those found about Rockport [see this Bulletin, VI, 1894, pp. 173, 174]. They undoubtedly carry the dirt out of their burrows in their cheek pouches. When kept alive in confinement they become very tame and seem to like to be handled.”—H. P. A.

Two were sent alive by Mr. Attwater in May, 1895, to the Museum. One of them died in transit, after reaching New York; the other lived contentedly for weeks, in an open box covered with wire netting, but finally escaped. Mr. Attwater had had them two months before shipping them, during which time they fed readily on cane seed, oats and corn, but had received no water.

14. *Perognathus flavus* Baird. YELLOW POCKET MOUSE.—Represented by 26 specimens, 22 of which are fully adult, one is nearly adult, one is about half grown, and two are nurslings.

Two are from Kerr County, and the rest from the immediate vicinity of San Antonio. They were taken mainly between Feb. 25 and May 18, and Sept. 15 and Nov. 20. The two nursing young were taken May 18.

The nurslings are dusky gray above and pure white beneath, with a very narrow sharply defined deep fulvous lateral line, pale fulvous eye-rings and postauricular patches. A half-grown specimen is quite similar in coloration.

Two adults were received alive from Mr. Attwater, one of which is still living at the Museum, apparently in good health after being in captivity for ten months. He is furnished at frequent intervals with little quantities of bird seed, a part of which he eats at once and the remainder he carries into his burrow, working industriously till all is hidden away. Formerly he was given water, bread and a greater variety of food, but the mixed bird seed seems to supply all his needs. As he showed no desire for water, he has been offered none for the last eight months. He is quite tame, has a sleek well-kept coat, and appears to consider his lonely life well worth living.

“Very common, and, like the larger species (*paradoxus*), prefers the sandy land to the black soils, but, unlike *paradoxus*, prefers cultivated lands, and particularly old fields. They are often turned up by the plow in spring, and occasionally hoed up in summer. When turned out and kept alive a cold night will put them to sleep, so that they appear dead in the morning; but they soon recover animation when warmed up and resume eating. I have kept them alive for several months, feeding them with corn, oats, bran, etc. One lived for several months in a cage with a large *P. paradoxus*.”—H. P. A.

15. *Mus decumanus* Pall. BROWN RAT.—One specimen, ♂ ad., San Antonio, Jan. 27, 1894. Total length, 413; tail vertebræ, 209; hind foot, 51.

“Common in the city of San Antonio, but not as yet met with on the ranches.”—H. P. A.

16. *Mus musculus* Linn. HOUSE MOUSE.—Represented by 13 specimens, which present a wide range of variation in color. One (No. 10410), not fully adult, is of the clear gray color common to half-grown specimens of *Peromyscus* of the *leucopus* group. Another (No. 10412) is the reddest House Mouse I have ever seen from any locality, not excepting the red desert regions of Arizona. The color above is strongly reddish fawn, much varied with black, while the lower surface is reddish buff. Several others are nearly as red, while one or two depart little from the usual color of the House Mouse.

“The common House Mice are here often found away from houses and buildings, living in holes in the ground and in hollow trees.

“Inside a house, the organ is a place frequently selected by mice in which to make their nests, and they do not seem to mind the noise made by playing on the instrument. I believe that mice have ruined organs in thousands of houses in the United States, and that often when an organ gets ‘out of fix,’ and the trouble is not exactly known, that the cause may be found inside the case, curled up in a snug nest, a part of which has been gnawed from different parts of the interior of the instrument.”—H. P. A.

17. *Neotoma micropus* Baird. TEXAS WOOD RAT.—Represented by 23 specimens, of which 18 are adult and 5 young, taken in the vicinity of San Antonio, in January, February, July, August, October and November. They are not appreciably different from Rockport and Brownsville (Texas) specimens, and Mr. Attwater says they have the same habits.

“Common all over this region. The habits of the San Antonio Wood Rats are the same as those of the Wood Rats at Rockport. When caught in traps by the feet they immediately begin to eat off the limb that is held, and frequently escape in this way. No. 95 [Am. Mus. No. 10365] has both feet missing; the stumps were nearly healed when it was caught the second time in a steel trap. Mr. Watson says he has found a half a bushel of pecan nuts in a Wood Rat’s nest. Their nest piles are seldom found on the river bottom lands, but some are met with on the higher pecan lands near the river. Their favorite resorts, however, are the high dry chaparral region.

“These Wood Rats have a habit of stamping with their hind feet when annoyed or disturbed. On several occasions when setting traps for them at their holes I have heard the rats stamping inside. Also on one occasion I saw a rat thus stamping in our greenhouse while sitting in a corner.”—H. P. A.

18. *Neotoma mexicana* Baird. MEXICAN WOOD RAT.—Represented by 8 specimens—5 adults and 3 immature—taken on Turtle Creek, Kerr Co., March 12 and Dec. 10-14, 1895. This locality is doubtless on the eastern border of the range of this species, which here meets that of *M. micropus*. The latter is common about San Antonio, where *N. mexicana* has not been met with.

Most of the specimens were dug out from their holes, Mr. Attwater having found it difficult to trap them during his short excursion to the head of Kerr Creek, in Kerr County, where they were obtained, owing to their gnawing off their feet when caught, or being destroyed by predacious animals. He says:

“One of the rats was found under a pile of brush, on damp ground in a creek bottom, and was easily caught. The other

five [of the series taken in December] were found on high land—one on an oak ridge and four in a cedar brake—and had to be dug out of their retreats, from two to three feet below the surface, among rocks, at the end of passages six to ten feet long, leading gradually down from their nests.

“ All the nests were in heaps of rubbish piled up by the rats ; those in the cedar brake were heaped around cedar trees, and the nests were made in the hollows among the roots of the trees. These nests were composed of fine strips of cedar bark ; the nest in the creek bottom was made of grasses, leaves, and also cedar bark. Only one rat was discovered in each nest, but several nests were found in some of the heaps. The ‘rat heaps,’ or mounds of material which the rats pile up over their nests and retreats, average two feet high, and are composed of any kind of rubbish that comes handy, chiefly sticks, stones, and dry horse and cow manure. Like *N. micropus*, they also go into houses and barns on the ranches and build their homes. A favorite place is the corner of some old shed or ‘tumble-down’ shanty. One we found on Mr. Lacey’s ranch was constructed chiefly of stones and old pieces of board, with sticks and other rubbish, including shingles that had fallen from the roof. Some of the stones and pieces of lumber on the pile were quite heavy, and it seemed almost incredible that a rat could have carried them on to the pile. One of the heaviest things, on the top of this particular pile, was a piece of board, 14 inches by 10 inches, and weighing 2½ lbs. These rats, if permitted, will make their abodes under houses occupied by people, and, in the absence of cats and dogs, enter the house and become quite friendly, helping themselves to small articles to add to their pile. In one instance a tobacco pipe was one of the articles taken.

“ We found in some of the heaps large quantities of small green cedar boughs. These boughs are cut off the trees by Fox Squirrels, for the purpose of obtaining the cedar berries, which are more easily taken from the branches after they have fallen to the ground. In one of the underground passages at the nest on the oak ridge were found, stored away, about three dozen bunches of wild grapes ; also many acorns and black haws. In another nest in the cedar brake were about two dozen small mushrooms,

partly dry and shrivelled. All the heaps in the cedar brakes contained large stores of cedar berries, most of them with the outside pulp eaten off, and the seeds eaten out. When the very small size of the seed is taken into consideration, it is surprising what an immense amount of work is necessary before enough can be obtained for a meal, as probably a thousand would be required. One nest contained shells of nuts of the Mexican buckeye (*Ung-nadia speciosa*), although these nuts are reputed to be poisonous.

“The range of this rat in this part of Texas will probably be found to coincide with that of *Peromyscus attwateri*.”—H. P. A.

19. Sigmodon hispidus texianus (*Aud. & Bach.*). TEXAS COTTON RAT.—Represented by 22 specimens, taken mostly between September and February, and all at San Antonio except 2, which were taken at Mr. Lacey’s ranch in Kerr County. The San Antonio specimens have a decidedly grayer cast than those from the coast region of Texas.

Mr. Attwater’s notes, here following, show that these rats are subject to great variation in respect to abundance at the same locality in different years.

“After the great ‘Tramp Rat’ raid in 1889, referred to below, these rats gradually disappeared and for several years I lost sight of them entirely, and did not hear of any around San Antonio or in any other parts of Bexar County. It again came to my notice on Feb. 9, 1895, when a young one was taken on Mr. Lacey’s ranch, in Kerr County. It was next again noticed at San Antonio on August 17, 1895, when one was taken in a cactus patch not far from my house. This particular patch had been well trapped for Wood Rats for some time previously, and the Sigmodons must have come in from elsewhere. All the specimens now sent, [quite a large series,] were taken in this same patch, which is on high, dry land. They have also become common again in Kerr County. In a recent letter from Mr. Lacey (dated Jan. 26, 1896), he says: ‘The garden is full of ‘Tramps.’”

“In the year 1889, Sigmodons appeared suddenly in this [Bexar] county in great numbers, and were known as ‘Tramp Rats.’ Where they came from, or from which direction, I have

been unable to find out. Thousands first appeared about the rst of May, and were heard from in all the region for many miles round San Antonio. They were most numerous in the high, dry parts of the country, and were not noticed in the low lands along the rivers. They were very numerous all through the 'chaparral,' and made their nests with the Wood Rats (*Neotoma*) in the bunches of *Opuntia*, with a network of runways leading in every direction, through which they were often seen running in the daytime. They seemed to agree with the Wood Rats, but in the oat stacks and around the ranch buildings, the common Brown Rats fought, killed and ate them. Mr. Watson's boys killed over 100 in one afternoon in a brush fence, and for *several months* their cat used to bring in from 6 to 12 every night. He says that on one occasion, when the rats were thickest, they counted 38 which this cat had piled up in the wood-box during one night for the amusement of her kittens.

"The 'Tramp Rats' played particular havoc with all kinds of grain crops, and corn in particular, but they were not good climbers, and consequently the ears on leaning stalks suffered most. Some farmers lost half their corn crop, and in some instances small patches were entirely destroyed.

"During the winter of 1889 and 1890 Marsh Hawks were very numerous, no doubt attracted by the rats. The hawks were seen skimming over the fields in the daytime chasing the 'Tramps.' In 1890 and 1891 Short-eared Owls, on their way north in the month of March, stopped over to attend to the Sigmodons; in other years I have not noticed these owls during migration. Weasels and Little Striped Skunks were much more common than usual in 1890 and 1891, which I attribute to the same cause. Rattlesnakes and other snakes were seldom seen abroad, and when disturbed in their retreats, were found gorged with Cotton Rats. The large skunks and coyotes hunted them, and dogs, generally in the habit of killing rats and mice, and *shaking* them only, also ate them.

"The bulk of these rats stayed for about eighteen months. After the crops were gathered in 1890, they began to get scarce, and gradually disappeared during 1891. Whether they died out, or 'tramped' out, I am unable to say, but I am inclined to think

many of them migrated. Old settlers say they remember a similar invasion about the year 1854.

"No. 29 [=No. 10413, Am. Mus.] is one of the San Antonio 'Tramp' Rats taken Dec. 20, 1890. It appears similar to the Rockport specimens; perhaps a little lighter in color. I also sent several skins and nests at that time to Dr. C. H. Merriam, of the U. S. Department of Agriculture."

"Their nests, made of grass, and easily noticed, were placed on the ground in the middle of clumps of brush and bushes and at the roots of trees. Old stumps, hollow logs, and among weeds, along banks and fence-rows, were also favorite places. When disturbed they retreated into shallow holes in the ground, under the nests, and in these holes other nests were found. The rats were easily got at by digging, and from one to six usually found in a hole."—H. P. A.

20. *Peromyscus texanus* (Woodhouse). TEXAS WHITE-FOOTED MOUSE.—Mr. Attwater's collection contains 11 specimens of a small, short-tailed *Peromyscus*, which Dr. Mearns has kindly examined and identified as above. Seven of the specimens are adult and four are more or less immature.

"These were caught in traps set for Harvest Mice, around the same brush piles. I think they live in shallow holes under the brush piles."—H. P. A.

21. *Peromyscus canus* Mearns.

Peromyscus canus MEARN'S, Proc. U. S. Nat. Mus. XVIII, 1896, No. 1075, p. — (p. 3 of 'advance sheet,' issued March 25, 1896).

Represented by 30 specimens, collected chiefly in March, April and July, but a few were taken from October to February. About one-half are adult and the rest more or less immature. They differ chiefly in external features from large series of *P. mearnsii* from Rockport and Brownsville in having shorter and more hairy tails and rather smaller ears. Most of the specimens were taken in the vicinity of San Antonio, but three were collected on Turtle Creek, Kerr County, 75 miles northwest of San Antonio, where, however, the species, according to Mr. Attwater, is apparently not common.

“The White-footed Mice around San Antonio live mostly in holes in trees, and along the rivers in holes, caves, and crevices in the high banks and bluffs. Their nests are sometimes found in beehives, and frequently in old birds’ nests, those of the Cactus Wren and Yellow-headed Verdin being often selected, on account of their convenient shape. The mouse makes its nest usually of grasses, weed-stalks, and other soft material. The nest sent to you was found March 29, 1894, in a hole on the bank of the Medina River, and is made of white cotton rags chewed up. The favorite food of this species here is pecan nuts, acorns, corn, various kinds of grain and weed seeds. They store up pecan nuts in hollow logs and piles of cordwood in the river bottoms.”
—H. P. A.

22. *Peromyscus attwateri* ALLEN. ATTWATER’S CLIFF MOUSE.

Peromyscus attwateri ALLEN, Bull. Am. Mus. Nat. Hist. VII, 1895, p. 330.
(Published Nov. 8, 1895.)

In addition to the 14 specimens of this species already recorded (l. c.), 4 have been received since, taken by Mr. Lacey at his ranch in Kerr County, Nov. 15, 1895, and Jan. 7, 1896. Three are adult and the other about half grown. All are males. One of the adults has a small pectoral spot of bright fulvous, making two thus marked in a series of 18 specimens. Mr. Attwater states that Mr. Lacey captured one that was “solid bright chestnut all over the upper parts, and had a very plain breast spot,” but that unfortunately it was destroyed by a cat.

23. *Peromyscus (Baiomys) taylori* (Thomas). TAYLOR’S MOUSE.—Represented by 10 specimens, of which only 5 are adult, taken at Watson’s Ranch, 15 miles south of San Antonio, March 23, May 9 and 29, and Dec. 28. Also two nests. The adults are quite different from fall adults (Aug. 23–Oct. 15) from Brownsville, the pelage being longer and fuller and more varied with brown; but the difference is doubtless seasonal, as the Brownsville specimens are in the new and only partly-grown fall coat, the pelage being thinner and shorter and more plumbeous.

[April, 1896.]

"The specimens sent were taken under a pile of dry weeds and rubbish in an orchard, where the two nests sent were also found. There were several others with them, which escaped. The two specimens taken in March were kept alive till May 29. They were fed on sugar cane seed, oats, corn and bran. They used to drink water when I put it in the cage, but appeared to do just as well without it. The live one I sent you¹ never got any water.

"One of the nests sent was found by Mr. Watson while digging up a small pecan tree in the river bottom near his ranch. The nest was about a foot below the surface of the ground among the roots of the tree, and several passages led down into the ground, below the nest. In one of these holes a number of pecan nuts were found. The nest contained an old female and three half-grown young.

"This mouse evidently is likely to be met with in any locality, as I have found it in all kinds of country. It is not numerous, nor easily found, but one occasionally gets into traps which are set for *Perognathus*, *Peromyscus*, and *Reithrodontomys*. It is apparently evenly distributed, and not restricted, like some other small mammals, to certain kinds of places."—H. P. A.

24. *Reithrodontomys mexicanus intermedius* Allen.

RIO GRANDE HARVEST MOUSE.—Represented by 9 specimens, 6 of which were taken at or near San Antonio (May, August, January, February and March), and 3 at Turtle Creek, Kerr Co., (January and February). They do not differ appreciably from a September series from Brownsville, Texas, except that all but three (August specimens) are in softer, longer and much fuller pelage. Two of the August specimens differ from the rest of the series in rather more rufous coloration. One of these, a female, bears on the label: "Found, with three young, in a nest in a peach tree in Watson's orchard, August 23, 1895."

"I am inclined to think the Harvest Mice are not as common as they used to be, and Mr. Watson is of the same opinion. I used to come across them occasionally in 1889 and 1890 while hunting for birds' nests on the Medina River. They were

¹ This specimen was received in good condition, and lived in confinement for about two months, when it died. It subsisted chiefly on bird seed, which it preferred to bread. Water was placed in its cage at intervals, but it was not seen to drink.

found singly, in the daytime, in little round nests, made of fine grass, placed in the lower branches of small trees."—H. P. A.

25. *Reithrodontomys dychei* Allen. DYCHE'S HARVEST MOUSE.—Represented by 28 specimens, mostly more or less immature, taken at San Antonio, Dec. 13, 1895, to Jan. 23, 1896, except one, taken at the same locality Sept. 21, 1895. This species I have previously recorded (this Bull., VII, 1895, p. 236) from Mason, Mason Co., Texas. The present locality is within the range of *R. mexicanus intermedius*, both species occurring together in the same field at San Antonio, showing that their ranges overlap.

26. *Sciuropterus volans* (Linn.). FLYING SQUIRREL.—Mr. Attwater reports a single specimen taken on the Guadalupe River, 40 miles east of San Antonio.

27. *Sciurus niger limitis* (Baird). PECOS FOX SQUIRREL.—Watson's Ranch, Medina River, 15 miles south of San Antonio, Dec. 4, Jan. 10, June 22—8 specimens; Turtle Creek, Kerr County, May 23—1 specimen. The collector's measurements of 4 of the specimens (2 ♂♂, 2 ♀♀) as recorded on the labels are as follows: Total length (to end of tail hairs), 532 (483-555); tail to end of hairs, 280 (254-305); hind foot, 64.5 (63.5-66). They vary considerably in color, especially below, one (an old nursing female) having the whole ventral surface pale buffy white, and the outer edges of the tail bordered with the same tint; another is nearly pure white below; six others vary from pale buff below to deep orange. One is apparently albinistic, being brownish yellow above washed with gray, but of the usual orange buff below.

"Common everywhere in this region. Many of them are white beneath, and are said to be the younger animal, but I have taken young squirrels that were *not* white below."—H. P. A.

28. *Spermophilus grammurus buckleyi* (Slack). BLACK ROCK SQUIRREL.—Four specimens, Turtle Creek, Kerr County, Aug. 20, Nov. 15 and Dec. 4.

These specimens agree with Dr. Slack's description of his *Spermophilus buckleyi* (Proc. Acad. Nat. Sci. Phila., 1861, p. 314),

based on a distorted, flat furrier's skin from Pack-saddle Mountain, Llano Co., Texas, except that the area of black is rather larger and extends further back in two of the specimens, being continued in a broad band on to the base of the tail. The black is pure glossy black, as in Baird's *Spermophilus couchi*, described from two specimens from respectively Santa Catarina, Nuevo Leon, and Victoria, Tamaulipas (Proc. Acad. Nat. Sci. Phila., 1855, p. 332, and Mam. N. Am., 1857, p. 311), which were "entirely of a glossy black." In the Turtle Creek specimens the black merges into the gray of the sides, occupying nearly the whole of the dorsal aspect as far back as the middle of the back, where it gradually becomes restricted to the middle of the dorsal area, leaving the posterior third of the body mostly gray. Here, and on the ventral surface, however, the black basal portion of the pelage more nearly approaches the surface than in normal specimens of *grammurus*, imparting to these parts a darker general effect.

In general appearance this semi-black form of Rock Spermophile strongly suggests a melanism of *S. grammurus*, but its local and yet somewhat extended distribution in southwestern Texas seems to imply that it is not strictly comparable to the black phases so often met with in various species of *Sciurus*, it having a distinct geographic range where it occurs to the exclusion of the ordinary phase of *grammurus*. It is, however, quite variable in respect to the extent of the black area and the manner of its distribution, even in individuals taken at the same time and place. Apparently also the amount of black increases from the northern part of its range southward, becoming wholly black in *S. grammurus couchi* in the region south of the Rio Grande.

Respecting its distribution and habits in the region northwest of San Antonio, Mr. Attwater contributes the following :

"These Black Rock Squirrels are found in the cañons and ravines around the heads of the Medina and Guadalupe Rivers. The nearest point to San Antonio where I have heard of their being seen is on San Geronimo Creek, at Gallagher's Ranch, 25 miles northwest of San Antonio, where a single one was seen several years ago by Mr. Frank Edwards, an enthusiastic hunter and

close observer. This must have been a straggler, as I should not expect to find their regular range nearer than 60 miles northwest of San Antonio, near the northern border of Bandera County, nor to find them common till well into Kerr County. There is a colony at the head of Johnson Creek, a fork of the Guadalupe River, about 20 miles north of Kerrville. On May 9, 1895, I visited this locality with Mr. Lacey to procure specimens. We watched the cliff, where the squirrels live, for more than an hour from the opposite side of the cañon, during which time a dozen or more, of various ages, came out of the holes and crevices in the rocks. We peppered them with small bullets and coarse shot. Two or three were killed outright, and others were wounded, but we were obliged to leave them on the inaccessible ledges, and reluctantly returned without securing a single specimen. Some of the largest appeared very black, but some of the smaller ones were of a grayish color all over. The four specimens sent you are from the head of Turtle Creek in Kerr County, and were kindly obtained and prepared for me by Mr. Lacey.

“These Rock Squirrels are not generally distributed over the country, like the Tree Squirrels, but live in colonies, a dozen or more miles apart, and generally in some favorite cliff or cañon near the heads of the creeks that form the sources of the rivers. When occurring near ranches these squirrels do considerable damage to the gardens and cornfields. They are expert climbers, making their way up the perpendicular faces of cliffs with ease. Unless disturbed or alarmed their progress is slow and their movements are more like those of a creeping reptile than the lively skip of a squirrel. If they bounded swiftly from rock to rock there would be nothing to excite surprise, but when seen slowly crawling along the underside of an overhanging ledge of apparently smooth limestone one’s curiosity is excited, and you watch their movements with surprise. On being alarmed, however, they move with great quickness.

“This is the only Spermophile I have met with near San Antonio, Bexar County being apparently outside of the range of either *Spermophilus mexicanus* or *S. tridecemlineatus*. The former may occur not far from the southwestern border of this county, or on

the other side of the Medina River, 25 miles south of San Antonio, where *Perodipus* is found."—H. P. A.

29. *Cynomys ludovicianus* (Ord). PRAIRIE DOG.—“Bexar County is outside of the Prairie Dog region, but I saw one in a wild state on a ranch about twenty miles west of San Antonio in 1889. It made its burrow near the ranch, and was finally killed by hunters.”—H. P. A.

30. *Castor canadensis* Kuhl. BEAVER.—Mr. Attwater reports the Beaver as formerly found northwest of San Antonio, and states, on the authority of Mr. Lacey, that it is still found sparingly on the Little Llano and Perdinales Rivers. Mr. Attwater also sends a newspaper record of the capture of a specimen by a trapper near San Angelo, about April 10, 1895, weighing 82 pounds.

31. *Nyctinomus brasiliensis* Is. Geoffr. HOUSE BAT.—Represented by a series of 15 specimens, two of which are from Kerr County, and the rest from the immediate vicinity of San Antonio. Mr. Attwater says this is the most common of the Bats, and that it lives in holes and crevices in the roofs and walls of houses. He also contributes the following interesting note on Bat caves :

“Large bat caves are found in the rough limestone region north and west of San Antonio, particularly in Bandera, Medina, Uvalde, Edwards, and Kerr Counties. In some places a good business is done in gathering bat guano for the market. I visited one of these caves near the head of Turtle Creek in Kerr County. We entered the cave at night with lanterns, hoping to secure some bats. There were several hundred in sight flying about when we entered, but they quickly retreated into holes and cracks. We then tried to knock them down outside the cave with sticks and stones, but they all eluded us. There appeared to be two kinds of bats, one much larger than the other. The guano was about three feet deep on the floor of the cave. Although this was a comparatively small cave, we estimated that there were two hundred large sacks full in sight.”

32. *Atalapha borealis* (Müller). RED BAT.—One adult female, with three young, taken May 13, 1894.

"Quite common; found hanging to the branches of trees. The three young specimens in alcohol were found clinging to the nipples of the mother."—H. P. A.

33. *Atalapha cinerea* (Beauv.). HOARY BAT.—One specimen.

"Taken near Cubbra Springs, 18 miles west of San Antonio, by Mr. Steven Kearney, who found it hanging on a hackberry tree. He does not remember the exact date, but is certain it was in the early part of the summer of 1891."—H. P. A.

34. *Vespertilio* sp.?—Three specimens, San Antonio, March 12 and Oct. 11, 1895. Mr. Attwater reports the capture of still another specimen on Nov. 11, 1895, but the species does not appear to be common. It is a large form of the *lucifugus* group.

35. *Scalops texanus* Allen. TEXAS MOLE.—Two specimens from the vicinity of San Antonio are not distinguishable from Rockport specimens (see this Bulletin, VI, 1894, pp. 184-186).

"Not nearly so numerous as at Rockport. Found only in sandy soil. They do much damage in vegetable gardens by eating newly-planted seeds. I think the chestnut-orange shade is a feature of the adults, it being less marked, or even quite lacking, in young specimens."—H. P. A.

36. *Notiosorex crawfordi* Baird. CRAWFORD'S SHREW.—Represented by a single specimen, "found dead at entrance to a hole at the foot of a mesquit bush, on high land one mile east of San Antonio." Mr. Attwater also states in his notes: "In 1889 I caught several specimens of this Shrew in a hole I dug close to a pond. I have not met with any for several years, except the one here sent, and believe they are much less common than formerly, an opinion also shared by Mr. Watson."

Dr. Merriam also refers (North Am. Fauna, No. 10, Dec., 1895, p. 33) to a specimen received from Mr. Attwater collected at San Antonio in 1890.

37. *Ursus americanus* (Pall.). BLACK BEAR.—Represented by a single skull, from the head of the Nueces River.

“Black Bears are still found in localities at the head of the Nueces River, and in the Devil’s River region, where the immense and almost impenetrable cedar brakes afford them protection. Ten years ago they were common in parts of Bandera and Kerr Counties. Mr. Lacey informs me that at that time ‘Bear bacon’ was nearly always to be found at any of the ranches on Turtle Creek, and that it was almost impossible to raise hogs on account of Bears eating the young pigs.

“A pair of Black Bears have bred three times in the Zoölogical Gardens at San Antonio, each time bringing forth the young early in spring. There were three or four in each litter, about the size of rats, and they were eaten by the old ones each time.”—H. P. A.

38. *Procyon lotor hernandezii* (Wagler). RACCOON.—Two specimens, ♀ ad. and ♂ juv., from the vicinity of San Antonio.

“Common throughout this region, but most often met with along the rivers, where they live in the holes and crevices in the high bluffs. They are very fond of the fresh-water mussels, and eat lizards whenever they can catch them.”—H. P. A.

39. *Bassariscus astutus* (Licht). CIVET CAT.—Although not represented by specimens, Mr. Attwater contributes the following :

“More common in the rough country north and west of San Antonio. In captivity they become quite tame, and live comfortably; but I have not heard of their breeding in confinement. In a wild state they live principally on birds and mice, and are said to be expert mice catchers.”—H. P. A.

40. *Conepatus mapurito* (Gmel.). WHITE-BACKED SKUNK; BARE-NOSED SKUNK.—“I have heard of several being killed here, and Mr. Toudouze, a taxidermist, has a mounted specimen in his collection which was killed on the Medina River, in Bexar

County, and Mr. Lacey informs me that the species is still found in Kerr County, but that it is not common."—H. P. A.

41. *Mephitis mesomelas* Licht. TEXAS SKUNK.—Three specimens—a young female about one-quarter grown, Aug. 6, and an adult male, Aug. 16, 1895, from San Antonio. Also an adult male, "caught alive, when about half grown, seven miles south of San Antonio, and kept alive *for eighteen months*" at the San Pedro Springs Zoölogical Garden in San Antonio. Killed Nov. 19, 1895.

The first two specimens are similar to the series already described by me from Oklahoma (this Bulletin, VI, 1894, pp. 188, 189); the other is almost wholly white, but has the long broad tail and general proportions of the Oklahoma specimens. The whole head, except a broad median stripe and a transverse band in front of the ear, is black, as is also the whole throat and fore neck; the rest of the lower surface is white with narrow streaks and small patches of black, most prevalent toward the anal region. Above the only black on the body is a narrow median stripe extending from the middle of the back to the base of the tail, and black hairs, in ill-defined stripes over and posterior to the shoulders. The long hairs of the tail are white at base and terminally, most of them wholly white, but many have the middle third black. Of this specimen Mr. Attwater gives the following measurements: Length, 711; tail (to end of hairs), 375; tail vertebræ, 260; hind foot, 66. Weight, 3½ lbs., of which about one pound was fat.

On the skull the occipital and sagittal crests are well developed, although the animal was, from the above evidence, probably not more than two years old.

42. *Spilogale indianola* Merriam. INDIANOLA STRIPED SKUNK.—Two specimens, one "shot at night in the top of a mesquit tree," October 5, 1895, near the city; the other was taken on the Medina River, fifteen miles south of San Antonio. The white markings in both these specimens are pure white instead of creamy white, as is usually the case with specimens from the coast region of Texas (*cf.* this Bulletin, III, 1890, p. 219, and VI, 1894, p. 196).

“Not very common, but apparently more numerous in the rough country north of San Antonio than south of it. The Little Striped Skunks are known here as ‘hydrophobia skunks.’”—H. P. A.

At my solicitation Mr. Attwater kindly made inquiries as to the evidence in support of the belief that this species is especially subject to *rabies*, and hence dangerous to human life. As the results of his inquiries, he writes later that “I have as yet no authentic accounts of persons being bitten.” He heard of numerous cases, but could find no one having personal knowledge of such facts. He says: “I hear a good many ‘yarns,’ but as yet nothing reliable. Everybody believes their bite will cause hydrophobia, because everybody else says so, and knows some one who knew some one else that was bitten, etc., etc.”

43. *Putorius brasiliensis frenatus* (Licht.). BRIDLED WEASEL.—One specimen, ♂ ad., San Antonio, Feb. 12, 1891. Total length, 495; tail to end of hairs, 213; tail to end of vertebræ, 186; hind foot, 51.

“Not common, but occasionally met with in the chaparral and cactus lands, where Wood Rats, Rabbits and Quail abound. They were frequently met with around San Antonio during the great ‘Tramp Rat’ invasion of 1889-90.”—H. P. A.

44. *Taxidea taxus berlandieri* (Baird). MEXICAN BADGER.—One specimen, ♀ ad., San Antonio, March 2, 1895. “Weight, 14½ lbs.” The white dorsal stripe runs uninterruptedly from the nose to the base of the tail, but is considerably reduced in width over the shoulders.

“Badgers are common in places between San Antonio and the Rio Grande, but it is only during the last few years that I have heard of them in this county. The female sent was killed on March 2. It was run down at night by hounds, while cat hunting, 18 miles southwest of San Antonio. Its stomach contained the remains of a Pocket Mouse, a young Wood Rat, Lizards, etc.”—H. P. A.

45. *Canis lupus* (? *nubilus* Say). LOBO WOLF; TIMBER WOLF.—“Formerly common in Bexar County, but I have not heard of their occurrence here for several years. They are still found in the broken, hilly country northwest of San Antonio, particularly in Edwards County. They are more cautious than the Coyotes, and disappear as the country becomes more settled and traversed by railroads. They are much more dreaded by the sheep and goat-men than the Coyotes. Mr. Lacey says a Coyote kills sheep because he wants something to eat, but that a ‘Lobo’ kills them just for fun, and generally ‘lays out’ a dozen or two before he quits. The ranchmen always pay a larger reward for a Lobo than for a Coyote.

“Mr. J. Blackburn Miller, of Newburgh, N. Y., who spends much time hunting in Texas, with headquarters at San Antonio, and a good authority on Texas game, has made some interesting experiments crossing Coyotes and Lobos with some of his dogs. A setter bitch crossed with a male Coyote raised three pups, and a ‘Great Dame’ or Wulmer bitch crossed with a male Lobo had thirteen pups.”—H. P. A.

Since receiving the above, Mr. Attwater has sent me clippings from a newspaper report of the Fourth Annual Convention of the ‘Texas Live Stock Association,’ held in San Antonio, Jan. 14, 1896. In consequence of “the alarming increase of destructive animals in this State, especially the Loafer or Gray Wolf, and the consequent loss of our stock,” it was urged by Mr. Pryor, the President of the Association, that prompt action be taken to secure from the legislature a law “placing a bounty on this one class of depredators.” Other speakers referred to the serious loss of stock from the ravages of Wolves and Coyotes, amounting in some instances, it was claimed, to about 10 per cent. a year.

46. *Canis latrans* Say. COYOTE.—“Coyotes are common in Bexar County, and come to the outskirts of San Antonio during the night after chickens, etc. We have been favored with a number of visits from them during the present year. In Kerr County and adjoining counties they are the ‘thorn

in the side,' of the sheepmen. Mr. Lacey says the Coyotes of that region are different from the Coyotes of the prairies, being much larger. They are believed by the ranchmen to be a cross between the 'Lobo' (Wolf) and the Coyote. Two years ago, when the bounty act was in force, the regular 'Lobo' price was allowed for the large Coyotes of the rocky region to the north-westward of San Antonio.

"A pair of Coyotes in the Zoölogical Garden have bred for the last four or five years. The young are generally born in April, from four to nine in a litter. The male is nearly black; the female of the ordinary color. The young are about half black and half gray, with generally more black ones than gray, *i. e.*, three out of five are black."—H. P. A.

47. *Vulpes fulvus* (Gmel.). RED FOX.—Mr. Attwater in his manuscript notes having made reference to the occurrence of this species in Texas, and to the fact of its probable recent introduction from the East, led me to ask for further information on the subject. With his usual readiness to supply information whenever obtainable, he wrote me under date of Dec. 18, 1895, as follows:

"Enclosed is a communication from Mr. T. H. Brown, Secretary of Texas Fox Hunters' Association, Waco, Texas, in reply to my letter to Mr. Seley, to whom I wrote asking for some information in regard to the Red Foxes, mentioned in my last letter. I trust the information will be interesting. It is certainly satisfactory to get authentic and reliable accounts of such circumstances direct from those who first introduced the animals, thereby establishing reliable data for future reference, and I am pleased to think we have been able to do so with so little trouble. You can retain the letter, as I have taken notes from it," etc.

Mr. Brown's letter here follows, and is so detailed and explicit, and so well covers the essential facts of the introduction of Red Foxes into Texas for sporting purposes, that it will take its place in the natural history literature of Texas as a document of permanent historic interest.

OFFICE OF T. H. BROWN, }
County Clerk, McLennan Co., }
WACO, TEXAS, *December 9, 1895.* }

H. P. ATTWATER, ESQ., San Antonio.

My Dear Sir :—I have just been handed a letter by Mr. Seley from you desiring information in regard to "Red Foxes," and will take pleasure in giving you such information as I have. Yes, sir, there is a Texas Fox Hunters' Association, with Dr. John D. Rogers, of Galveston, as President, and myself as Secretary. I was the first to introduce "Red Foxes" into this part of the State. We had exchanged our old time native hounds or, as are usually called, "Pot Lickers," for the Walker dogs from Kentucky, and the Gray Foxes proved themselves no match for these dogs, only being able to run from twenty to forty-five minutes ahead of them. Having the dogs, it became necessary to get game that would give them a respectable race. Accordingly in 1891 I imported from Kentucky and Tennessee 10 Red Foxes and placed them among the Bosque Brakes about four miles above where it empties into the Brazos River. They gradually scattered over a large area of country. The next spring (1892) I again brought in 23 more reds from the older States, planting 13 of them again among the Bosque Brakes and 10 of them on White Rock Creek on the east side of the Brazos River. These foxes afforded us some fine sport, but they too gradually scattered, only a few remaining in the neighborhood of their adopted home, some wandering off through Bosque and Erath Counties. The next spring I only succeeded in getting two reds from the East and planted these on the Bosque, and they remained and are still affording fine races. In the spring of 1895 I again planted 5 reds on the river near Lovers' Leap, where the waters of all the Bosques mingle with the waters of the Brazos. Some of the bluffs here are 300 feet high, and have a great many caves in them, and these last foxes seem well satisfied with their new home. Occasionally I hear of a Red Fox in various parts of this (McLennan) County, and I am satisfied that within a few years they will be as numerous here as in the old States.

I understand that Messrs. Eli and James Rosborough and Capt. T. H. Craig, all of Marshall, Harrison County, some ten or fifteen years since planted quite a number of reds in that, the eastern, part of the State, and occasionally they find them where they have located off some twenty or thirty miles from where originally turned loose.

Dr. John D. Rogers has, I think, during the spring of 1895, planted some six or eight on his Brazos Bottom farms in Brazos and Washington Counties. I would suppose that in all there have been at least 100 Red Foxes imported and planted in the State.

Hoping this information will assist you in your work,

I remain most respectfully,

T. H. BROWN.

48. *Urocyon cinereo-argenteus* (Müll.). GRAY FOX.—

“Gray Foxes are not very common, and are found generally away from the river bottoms; and in the more heavily timbered parts of the country south of San Antonio. They are perhaps more at home in the broken country north of San Antonio. They are fond of grapes, persimmons, wild cherries, black haws, etc., and are said to eat melons. They are good climbers. Mr. Lacey informs me that his hounds sometimes tree them, and that they go to the tops of the highest trees. He remembers one or two occasions when the fox was ‘the highest part of the tree.’

“While we were camped out in the rough country west of Turtle Creek in Kerr County, last December, I had a good opportunity for becoming familiar with the note or noise made by these little foxes. They approached our camp-fire after dark, and from a respectful distance gave vent to their surprise or disgust. From the shape of this beautiful little animal I should certainly have expected to hear some kind of a sharp, ringing bark, like the howl of a small dog or a coyote, but was surprised to hear a hoarse kind of noise, repeated slowly several times with short intervals, more like the coarse note of some bird of prey than the bark of a fox. In fact, at first I took it to be the note of some kind of owl or night bird, with which I was unfamiliar, but Mr. Lacey was well acquainted with it.”—H. P. A.

49. *Lynx texensis* Allen.¹ TEXAS LYNX.—Two specimens, as follows: No. 10,311, ♂ ad., Watson’s Ranch, Medina River, 15 miles south of San Antonio, May 9, 1894; No. 10,310, ♂ ad. (a flat skin), same locality, Feb. 14, 1895. These specimens measure respectively as follows: No. 10,311, length, 913; tail, 190; hind foot, 190; weight, 18¾ lbs. No. 10,310, length, 935; tail, 197; hind foot, 188.

From Mr. Attwater’s extended notes on this species, I extract the following:

“The Lynx, or Short-tailed Wild Cat, is common all over this region, but not as numerous as formerly. Its home is among the ravines and dry gullies which run into the creeks and rivers,

¹ *Lynx rufus*, var. *maculatus*, AUD & BACH. N. Am. Quad., II, 1851, 259, pl. xcii. (Not *Felis (Lynx) vulgaris maculatus* KERR, An. Kingd., I, 1702, No. 297.)
Lynx texensis ALLEN, Bull. Am. Mus. Nat. Hist., VII, p. 188, June 20, 1895.

where the land is broken and cut into holes and fissures by heavy rains, and the whole covered with a tangled growth of thorny brush, cacti, yuccas, and small trees, forming a labyrinth which presents to the intruder a thousand thorns at every step, penetrated only by cattle paths leading to water, and where a man found traveling on foot would be considered either an escaped lunatic or a fugitive from justice. Here the Wild Cats used to share the premises with Peccaries, but the latter have been killed out in this county, and their only neighbor now is the rattlesnake.

“Wild Cats are often seen in the daytime, lying on ledges along the river bluff, and on horizontal limbs of trees sunning themselves. Mr. Watson once saw a Wild Cat lying in the water on the Medina River, cooling itself after having been run by dogs. Their food consists chiefly of Wood Rats, Rabbits and Quail. They steal many turkeys and chickens from the ranches, and kill goats and young pigs. On skinning a Wild Cat, the legs, head, neck, etc., are often found to be covered with cactus thorns, where they have accumulated under the skin in large quantities, the cats no doubt obtaining most of the rats, etc., by pouncing on them in their retreats among the bunches of *Opuntia*.

“I have had the pleasure of hunting Wild Cats with Mr. Otto Braubach, a neighbor of Mr. Watson, who has a pack of hounds trained to hunt cats, and have obtained some interesting information from him in regard to their habits. Mr. Braubach hunted Wild Cats for the bounty several years ago, and in less than twelve months, commencing about September, 1892, killed 85 of these cats. They were nearly all killed in a cattle ‘pasture’ formed by the fork of the Medina and Leon Rivers about twelve miles southwest from San Antonio. A number of other Wild Cats were killed during the same time by other hunters in the same neighborhood. It generally took the hounds about three hours to tire a cat out and ‘tree’ it or corner it in a cave, and one was once run into the river by the dogs and killed there. The cats would not take to trees or holes on *dark nights*, but kept dodging around in chaparral thicket till they were run down.

“Mr. Lacey reports them common in Kerr County, and from a high place on the side of a cañon he once saw an old one dodging the dogs by following around *after* the hounds that were trailing it among the thickets below him. These cats are often taken while

young and raised as pets, and become very much attached to their owners. They occasionally breed in confinement."—H. P. A.

50. *Felis concolor* Linn. PANTHER; MEXICAN LION.—Represented by two skulls and a kitten, which died in the Zoölogical Garden at San Antonio.

"Not as scarce as the Jaguar in the country west of San Antonio, but they are fast becoming killed out. Mr. Otto Braubach saw one on the Medina River in this (Bexar) county two years ago, and Mr. Lacey reports one on Turtle Creek, Kerr County, one year ago. These are the only recent trustworthy records I have.

"The pair of which I sent you the skulls died here in the Zoölogical Garden from having been poisoned. They had given birth to two litters of kittens, of four each—the first, April 4, 1891, the second, June 4, 1892. The period of gestation was observed to be 96 days. They were about six years old."—H. P. A.

51. *Felis onca* Linn. JAGUAR.—"Rare east of the Nueces River, but still taken occasionally in the chaparral thickets in the counties bordering the Rio Grande. Said to have formerly occurred in this (Bexar) county."—H. P. A.

52. *Felis pardalis* Linn. OCELOT; LEOPARD CAT.—"Common in the vast chaparral thickets between San Antonio and the Rio Grande, but now seldom discovered near San Antonio. Three years ago Mr. Otto Braubach's hounds treed a Leopard Cat near the fork of the Medina and Leon Rivers. This is the only recent authentic record I have for the occurrence of this animal in Bexar County. Mr. Lacey informs me that they are still met with rarely in Kerr County."—H. P. A.

The following species was accidentally omitted in its proper place (p. 57).

53. *Lepus aquaticus attwateri* Allen. ATTWATER'S SWAMP HARE.

Lepus aquaticus attwateri ALLEN, Bull. Am. Mus. Nat. Hist. VII, 1895, p. 327. (Published Nov. 10, 1895.)

There is nothing to add to the account of this species already published (l. c.).