

PRELIMINARY DIAGNOSES OF NEW MAMMALS OF THE
GENERA SCIURUS, CASTOR, NEOTOMA, AND SIGMODON,
FROM THE MEXICAN BORDER OF THE UNITED STATES.

By EDGAR A. MEARNS, M. D.,
Assistant Surgeon, United States Army.

THIS is the seventh of a series of papers giving preliminary descriptions of the new mammals collected on the recent survey of the boundary between Mexico and the United States.¹ Detailed descriptions, with illustrations of the new forms and comparisons with their allies, will appear later, in the report on the collections made by the International Boundary Commission.

SCIURUS FOSSOR ANTHONYI, new subspecies.

ANTHONY'S GRAY SQUIRREL.

Type.—No. 60928, U.S.N.M. (Collection International Boundary Commission). Skin and skull. Adult female, from Campbell's ranch, at Laguna, San Diego County, California. Collected by Doctor Edgar A. Mearns, June 10, 1894. Original number, 3642.

Description of type.—In winter pelage. Above gray, very faintly suffused with yellowish brown on the back. Tail gray above, the hairs very broadly annulated with black and tipped with white; tail below, tricolor, grayish mesially, then broadly banded with black, and edged with white. Feet mixed yellowish brown, gray, and black, the latter predominating on the toes. Ears scantily coated with grayish hair, the color changing to tawny ochraceous at base externally. Cheeks gray, mixed with white. Under parts, inner side of limbs, and orbital circle, white. Length, 540 mm; tail vertebrae, 270; ear from crown, 28 length of hind foot, 79.

Remarks.—The form of *Sciurus fossor* Peale, found in the interior region of southern and Lower California, is not, as has been supposed, the *Sciurus fossor nigripes* of Bryant. It lacks the strong yellowish-brown suffusion on the back, and the dusky of the crown; instead of

¹Proc. U. S. Nat. Mus., XVII, 1894, pp. 129-130; XVIII, 1895, pp. 444-447, 551-565; XIX, 1896, pp. 137-140; XX, pp. 457-461, 467-471.

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being darker than *Sciurus fossor* (typical), is much paler, as well as somewhat smaller. Mr. Bryant described¹ a very dark form of *S. fossor*—the subspecies *nigripes*—inhabiting the redwood belt of the coast region of California, south of San Francisco, from specimens taken in San Mateo County. Through the courtesy of Mr. F. W. True and Doctor J. A. Allen I have been able to compare topo-types of *Sciurus fossor nigripes* with the present form, and with true *Sciurus fossor* from the Sierra Nevada and other mountains of northern California and Oregon north as far as the Columbia River, with the result that three distinct geographic phases of *S. fossor* are recognized. The typical form is large, without reddish-brown on the back or blackish feet, and the caudal hairs are so thickly ringed with black that there is no distinctly tricolored pattern to the under surface of the tail. Its coloration is darker than that of the present form and paler than in *S. fossor nigripes*. Named in honor of Mr. A. W. Anthony, of San Diego, California.

CASTOR CANADENSIS FRONDATOR, new subspecies.

BROAD-TAILED BEAVER.

Type.—No. $\frac{20750}{35883}$, U.S.N.M. (Collection International Boundary Commission.) Adult male, from the San Pedro River, Sonora, Mexico, near monument No. 98 of the Mexican boundary line. Collected by Doctor Edgar A. Mearns and Mr. F. X. Holzner, October 24, 1892. Original number, 2151.

Description of Type.—Larger than the beaver of Canada, paler and different in coloration, with a much broader tail. Above russet, changing to chocolate on the caudal peduncle above, and to burnt sienna on the feet; toes reddish chocolate. Below grayish cinnamon, brightening to ferruginous on the under side of the caudal peduncle. Sides wood-brown, enlivened by the tawny-olive color of the overhair. Length 1,070 mm.; length of tail, measured from anus, 360; length of bare portion of tail, 290; width of bare portion of tail, 125; height of ear from crown, 31; height of ear from anterior base, 35; distance from tip of nose to eye, 68; from tip of nose to ear, 125; nose to occiput, 165; length of manus, with claw, 82; length of pes, with claw, 185. Weight, 62 pounds avoirdupois. Skull, 133 by 99.

Remarks.—The beaver of Canada and the northeastern United States is of a beautiful glossy bay on the upper surface, paling to chestnut on the head and rump. The under surface is seal brown. Sometimes the color is still darker, the back being blackish brown, the caudal peduncle burnt amber, and the under side of head vandyke brown. The feet are seal brown. I have examined thirty three skulls and a larger number of skins of this race of the beaver from Arizona and Sonora. In old males the total length reaches 1,130 mm.; and the bare and scaly por-

¹ Proc. Cal. Acad. Sci., 2d ser., II, 1889, p. 25.

tion of the tail measures 285 by 155. Adult males weigh 60 pounds and upward; females 40 to 50 pounds.

Cranial characters.—The skull of the European beaver (*Castor fiber*), which is readily distinguishable from that of the Canadian beaver (*C. canadensis*) by its slender build, lengthened nasal bones, and elongated rostral portion, presents still greater differences when compared with the beaver of Arizona and Sonora. There being at present no forest connection between the habitats of *Castor fiber* and *C. canadensis* in their respective geographic ranges, and consequently no continuity of habitat, there can be no question as to their specific distinctness. The skull of *C. canadensis frondator* differs from that of *C. canadensis* (typical) in being much larger, with more spreading zygomata.

Geographical range.—This form occupies the southern interior area of North America, ranging north from Mexico to Wyoming and Montana.

NEOTOMA CUMULATOR, new species.

COLORADO RIVER WOOD RAT.

Type.—No. 60348, U.S.N.M. (Collection International Boundary Commission.) Skin and skull. Adult male from old Fort Yuma, San Diego County, California. Collected by Doctor Edgar A. Mearns, April 2, 1894. Original number, 3473.

Description of type.—Upper parts grayish fulvous, thickly lined with black-tipped hairs, changing to gray on the limbs, and ochraceous-buff on the sides. Tail rather long-haired, almost black above, and white below. Feet, a small patch at base of ear, and whole under surface of body white. Ears scantily clothed with gray and black downy hairs on concave surface, and on posterior two thirds of convex surface; anterior third of convex surface coated with longer black hairs. Whiskers long, reaching to shoulder; their color, mixed black and white. Orbital area dusky. Length, 403 mm.; tail vertebrae, 188 (to end of hairs, 197); ear above crown, 24.5; ear above notch, 30.5; distance between eyes, 18; diameter of eye, 8; length of longest whisker, 75; distance from tip of nose to eye, 25; to center of pupil, 31; to ear, 46; to tip of ear, 81; to occiput, 56; to end of outstretched hinder extremity, 292; fore limb, from olecranon process to end of claws, 54; length of fore foot, 22; longest claw of fore foot, 3.1; hind limb, from knee-joint to end of claws, 76; length of hind foot, 37; longest claw of hind foot, 4.7.

Remarks.—This is one of the largest of the round-tailed wood rats. The coloration is similar to that of *N. intermedia* Rhoads, but is paler than the typical form, and darker than the desert phase (*N. intermedia venusta*). The tail is more sharply bicolored, nearly black above, and quite heavily coated with rather long hair. It requires no comparison with any of the neighboring forms, but is closely related to *N. leucodon*, recently described by Doctor Merriam, from San Luis Potosi, Mexico, and extends the range of the *leucodon* group to within the United

States. The skull is large, measuring 47.5 by 23 mm. in extreme dimensions. The general shape is suggestive of that of *N. leucodon*. It has the same prominent premaxilla, ending posteriorly well behind the nasals. The skull is lower and more convex antero-posteriorly than that of *N. leucodon*, with the brain-case much more flat. It is more angular throughout, with zygomatic arches standing out more squarely anteriorly. The interparietal bone is less quadrate, being wider, and more pointed posteriorly; and the nasal bones differ markedly in having a prominent swelling anteriorly, which gives the pair a distinctly spatulate form, as in *Sigmodon hispidus eremicus* from the same region.

SIGMODON HISPIDUS PALLIDUS, new subspecies.

EASTERN DESERT COTTON RAT.

Type.—No. $\frac{2}{3} \frac{0.1}{5} \frac{0.3}{4} \frac{0.3}{4}$, U.S.N.M. (Collection International Boundary Commission). Adult male, from the left bank of the Rio Grande, about 6 miles above El Paso, Texas, and opposite the initial monument of the Mexican boundary. Collected by Doctor Edgar A. Mearns and Mr. F. X. Holzner, February 19, 1892. Original number, 1461.

Description of type.—Smaller than *Sigmodon hispidus texianus*, with the ears relatively and actually larger. Color much paler and grayer, the brown color being replaced by gray. Above buffy gray, finely mixed with black, producing a finely-blended grizzle. Feet grayish white. Under surfaces pure white. Tail dusky brownish above, grayish white on sides and below. Length, 242 mm.; tail to end of vertebrae, 103 (to end hairs, 108); height of ear from crown, 14 (from notch, 19.5); length of head, 37; length of hind foot, 30.

Geographical range.—This subspecies is known only from the chain of old lake basins along the course of the Upper Rio Grande, in the Eastern Desert Tract.

SIGMODON HISPIDUS EREMICUS, new subspecies.

WESTERN DESERT COTTON RAT.

Type.—No. 60319, U.S.N.M. (Collection International Boundary Commission). Skin and skull. Adult male, from Cienega Well, 30 miles south of monument No. 204, Mexican boundary line, on the left bank of the Colorado River, in Sonora. Collected by Doctor Edgar A. Mearns and Mr. F. X. Holzner, March 24, 1894. Original number, 3367.

Description of type.—General aspect yellowish gray. The usual black bands of the hair composing the outer coating are pale brown in this desert race, and the almost colorless tips of the longest hairs produce a peculiar haziness. Along the sides, but especially on the rump, there is a strong ochraceous tinge. Under surface white, but with pale gray underfur showing between the white-tipped over-hairs. Feet grayish white. Tail scantily haired, not distinctly blackish above. Length, 280 mm.; tail to end of vertebrae, 128 (to end of hairs, 133);

ear from crown, 15; length of hind foot, 34. Skull measuring 20.5 by 35 mm. in extreme dimensions. The nasals are expanded into a spatulate extremity, as in the *Neotoma* of the same region. This form, though as pale as that of the Eastern Desert, described above, may be instantly distinguished by its yellowish instead of grayish coloration, and by the spatulate terminal enlargement of the nasal bones.

Geographical range.—Found near the waters of the lower Colorado River, in the Western Desert Tract.