

DESCRIPTIONS OF TWO NEW GRAY FOXES.

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The United States National Museum contains numerous specimens of small gray foxes from Central America, south of the Isthmus of Tehuantepec. These represent two hitherto undescribed species, one from the arid tropical coast of Yucatan, the other from the humid tropical region of Guatemala and Chiapas. To the kindness of Mr. D. G. Elliot I owe the opportunity to compare these animals with the type of *Urocyon fraterculus*, the property of the Field Columbian Museum. Dr. C. Hart Merriam has placed at my disposal the Mexican and Guatemalan gray foxes in the Biological Survey collection. I publish this paper here by permission of the Secretary of the Smithsonian Institution.

Urocyon parvidens sp. nov.

Type ♂ (skin and skull), No. $\frac{11}{3} \cdot \frac{429}{762}$, United States National Museum, collected at Merida, Yucatan, by A. Schott. Original number 385.

General characters.—Most like *Urocyon fraterculus* (Elliot),¹ from San Felipe, Yucatan, but teeth smaller, tail shorter, and color more fulvous.

Color.—Fur of body composed of two kinds of hair, one short, dense, and woolly, the other long, stiff and sparse. Except in the whitish areas where they are pale to base, the hairs of the under fur are cinereous through lower third, then creambuff or pinkish buff to tip. The long hairs are whitish at base (conspicuously paler than the bases of the under fur) gradually shading to dark brown near middle; the tip black. Between the black tip and the brown median area is a conspicuous white ring, the base of which is level with the tips of the under fur. The varying combinations of the buff of the under fur and the white rings and black tips of the longer hairs give the dorsal surface its color. On the head the under fur, here darkened to tawny ochraceous, and the white rings

¹ *Urocyon cinereo-argentatus fraterculus* Elliot, Field Columbian Museum Publication 11, Zoölogical Series, i, No. 3, p. 80, May, 1896.

are most conspicuous. From ears to base of tail the black and white predominate, producing a clear gray, blackening irregularly along median line and very faintly tinged with buff. On the sides the buff becomes more conspicuous and slightly darker, and on the sides of the belly both white and black practically disappear. Chin, upper side of muzzle and posterior half of upper lip dusky. Cheeks, sides of muzzle, throat and median line to base of tail buffy white. Inner sides of thighs and area between them white. Bases of ears, area behind ears, on sides of neck and across chest ochraceous buff. Distal half of ears duller than base. Inner surface buffy white. Outer sides of front legs and posterior surface of hind legs ochraceous buff. Anterior surface of hind leg and dorsal surface of pes buffy white. Soles and palms ochraceous buff. Tail gray with a black dorsal stripe and tip and ill-defined ventral buffy area.

Skull.—The skull is exactly similar to that of *Urocyon fraterculus*. It therefore needs no comparison with that of any of the members of the *cinereoargenteus* group.

Measurements of skull of type:² greatest length, 102; basal length, 94.4; basilar length, 92; palatal length (median), 47; nasals (median), 30; zygomatic breadth, 53; interorbital breadth, 20.4; breadth across postorbital processes, 30.4; greatest breadth of brain case, 40.6; mastoid breadth, 36.4; greatest depth of brain case, 33.6; space between audital bullæ, 5.6; upper tooth-row (exclusive of incisors), 41; mandible, 74; mandibular tooth-row (exclusive of incisors), 46.

Teeth.—The teeth of *Urocyon parvidens* are uniformly much smaller than in *U. fraterculus*, but the differences are most conspicuous in the first molar and the second, third and fourth premolars. The greatest diameter of the crown of the first molar in three specimens of *U. parvidens* is respectively, 8.8, 8.8 and 8.6. In the type of *U. fraterculus* it is 10.6. The greatest diameter of the crown of the carnassial in three skulls of *U. parvidens* is 9.2,

² The skull of the type of *U. fraterculus* measures: greatest length, 101; basal length, 93; basilar length, 91; palatal length (median), 48; nasals (median), 31; zygomatic breadth, 53.6; interorbital breadth, 19.6; breadth across postorbital processes, 30; greatest breadth of brain case, 40; mastoid breadth, 37.4; greatest depth of braincase, 31; space between audital bullæ, 6; upper toothrow (exclusive of incisors), 44; mandible, 74; mandibular tooth row (exclusive of incisors), 48.6.

9.4 and 9.2. In the type of *U. fraterculus* it is 11. The second and third premolars in *U. fraterculus* are long and crowded, while in *U. parvidens* they are narrow and widely spaced. The height is about the same in each. The length of each of these teeth including cingulum equals or exceeds the height in *U. fraterculus*, but is much less than the height in *U. parvidens*. In this respect *U. parvidens* resembles the members of the *cinereoargenteus* group. In the mandibular teeth the differences are of the same kind, but somewhat less defined. Length of first lower molar 9.2 in *U. parvidens*, 10.6 in *U. fraterculus*.

Measurements.—Type:³ Total length, 720; tail vertebræ, 240; hind foot, 95; ear from meatus, 51; ear from crown, 46. Average of four specimens including the type: Total length, 722; tail vertebræ, 222; hind foot, 93; ear from meatus, 50; ear from crown, 46 (all from dry specimens).

Specimens examined.—Four, all from the type locality.

General remarks.—*Urocyon fraterculus* and *U. parvidens* form a group readily distinguishable from the relatives of *U. cinereoargenteus* by their slender feet and relatively larger and more inflated audital bullæ. The bullæ in these small skulls are much larger than in members of the *cinereoargenteus* group of approximately the same size, and fully equal to those of the largest forms. They are more abruptly elevated above level of basioccipital (when skull is held upside down) and the outer anterior face slopes away much more abruptly. They are placed more closely together than in the members of the *cinereoargenteus* group. In a specimen of *U. littoralis*, only 193 in greatest length, the space between the bullæ is 8.4, and in the other forms this relative spacing is maintained.

Urocyon guatemalæ sp. nov.

Type adult ♂ (skin and skull), No. 76,723, United States National Museum (Biological Survey Collection); collected at Nenton, Guatemala, December 16, 1895, by E. W. Nelson and E. A. Goldman. Original number 8,801.

General characters.—Most like *Urocyon littoralis* Baird from the Santa Barbara Islands, California, but color darker and richer. Carnassial tooth more robust than in *U. littoralis*. Audital bullæ

³ The type of *U. fraterculus* measures: total length, 750; tail vertebræ, 290; hind foot, 95 (from skin).

slightly more inflated than in the other members of the *cinereo-argenteus* group.

Color.—Type specimen in unworn winter coat. Quality of fur and arrangement of color bands as in *U. parvidens* and the other members of the genus. Dorsal surface clear gray formed by the nearly equal mixture of the black tips and white subterminal rings of the coarse hairs. Under fur pale creambuff, appearing at surface only when hair is disarranged. Top of head tinged with tawny. On the sides the black tips are less conspicuous than on the back, and the buff of the under fur appears distinctly at the surface. Belly ochraceous buff except along median line and between hind legs, where it is dull white. Base of ear and area behind ear tawny ochraceous; this area extending back to front leg, but much suffused with gray except on and close to ear. Distal half of ear thickly sprinkled with dusky hairs which considerably dull the ochraceous. Inner surface of ear whitish. Muzzle, upper lip and chin dark brown. Cheek between eye and lip, and region beneath the ochraceous area under ear dull white, continuous with white of throat. Dorsum of manus and pes a coarse dark grizzle of black, white and tawny. Inner side of hind leg white; outer and posterior side dull ochraceous. Palms and soles dull ochraceous. The gray of the sides of the belly extends down the front of the fore leg to join the gray of the foot. Outer surface of foreleg dull ochraceous. Tail gray heavily shaded with black. A broad, black dorsal stripe and conspicuous black tip. Under side of tail dull ochraceous. Specimens in worn pelage are less gray than the type, and the tawny areas are brighter and more extensive.

Skull —The skull of *Urocyon guatemalæ* closely resembles that of *U. littoralis*, but averages slightly larger. It is much smaller, however, than that of the ordinary gray fox of Mexico north of the Isthmus of Tehuantepec. Zygomata slightly less flaring than in *U. littoralis*. Audital bullæ slightly larger and closer together than in *U. littoralis*, their longitudinal diameter greater relatively to their transverse diameter. The whole surface of the bulla is more evenly rounded than in other members of the *cinereoargenteus* group; in this respect showing an approach to *U. fraterculus* and *U. parvidens*. Compared with that of *U. parvidens* the skull of

Urocyon guatemalæ is considerably larger, while the audital bullæ are actually as well as relatively smaller.

Measurements of skull of type.—Greatest length, 111; basal length, 101; basilar length, 98; palatal length (median), 51.4; nasals (median), 33; zygomatic breadth, 60; interorbital breadth, 21.4; breadth across postorbital processes, 33; greatest breadth of brain case, 44; mastoid breadth, 40; greatest depth of brain case, 33; space between audital bullæ, 8; upper tooth row (exclusive of incisors), 46; mandible, 81; mandibular tooth row (exclusive of incisors), 51.

Teeth.—The teeth closely resemble those of *Urocyon littoralis*, but are more robust. This is particularly noticeable in the first molar and the carnassial, the crown of the latter is nearly a millimetre shorter and broader than in *U. littoralis*. All the teeth are larger than in *U. parvidens*, though they are of essentially the same form.

Measurements.—Type: total length, 830; tail vertebræ, 327; hind foot, 128. Average of four specimens from near type locality (including type): total length, 827; tail vertebræ, 328; hind foot, 120. A specimen from Tumbala, Chiapas: total length, 786; tail vertebræ, 300; hind foot, 111.

Specimens examined.—Ten, from the following localities: Guatemala—Nenton, 3; Jacaltenango, 1; exact locality unknown, 5; Chiapas—Tumbala, 1.

General remarks.—Mexico north of the Isthmus of Tehuantepec is inhabited by gray foxes of large size and pale color, which resemble *Urocyon cinereoargenteus scottii* Mearns. These animals are replaced south of the Isthmus by *U. fraterculus* and *U. parvidens* in the arid tropical region of Yucatan, and by *U. guatemalæ* in the humid tropical region of Guatemala.



Miller, Gerrit S. 1899. "Descriptions of Two New Gray Foxes." *Proceedings of the Academy of Natural Sciences of Philadelphia* 51, 276–280.

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