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COMMITTEE OF PUBLICATION.

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BULLETIN
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Article I.—ON MAMMALS FROM YUCATAN, WITH
DESCRIPTIONS OF NEW SPECIES.

By J. A. ALLEN and FRANK M. CHAPMAN.

During a brief stay at Chichen-Itza, Yucatan, March 3-23, 1896, the junior author collected the few mammals forming the basis of the present paper, numbering 43 specimens, and representing 11 species. Two of the species and one subspecies appear to be undescribed, and the others are of special interest on account of the dearth of literature relating to the mammals of the Yucatan peninsula. A few additional species observed but not contained in the collection are also included in the following paper.

The absence of surface streams and the comparatively arid character of the country about Chichen-Itza have been described in a previous paper.¹ During the dry season water can be obtained only from natural wells or 'cenotes,' which, except in certain localities, are by no means common. The vegetation

¹ Notes on Birds observed in Yucatan. By Frank M. Chapman, Bull. Am. Mus. Nat. Hist., Vol. VIII, pp. 271-290.

about these cenotes is rich and varied, in strong contrast to the scrubby second-growth of the surrounding country. These wells therefore attract animals of many kinds, and traps were at once set about them in the expectation of securing small mammals. The Black Rat (*Mus rattus*) was, however, the only species caught, and its abundance doubtless accounts for the apparent absence of other Muridæ at these cenotes.

The only special papers known to us relating to the mammalian fauna of Yucatan are Mr. Oldfield Thomas's 'List of Mammals obtained by Mr. G. F. Gaumer on Cozumel and Ruatan Islands, Gulf of Honduras' (P. Z. S., 1881, p. 129), enumerating five species from Cozumel, five from Ruatan, and one each from Bonacca and Meco Islands, making altogether 11 species; and Mr. D. G. Elliot's enumeration (Field Columbian Museum, Zoölogy, I, 1896, pp. 80-81) of six species collected by Mr. H. H. Brown at San Felipe and Rio Lagotos (*lege* Lagartos) on the northern coast of Yucatan. In the 'Biologia Centrali-Americana,' Mammals (1879-'82), reference is made by Mr. Alston to 14 species in the Boucard Collection, collected by Mr. Gaumer in Yucatan. These are nearly all additional to those collected by Mr. Chapman, and are, under the current names of to-day, as follows:

- Sturnira lilium* (E. Geoffroy). Biol., p. 208.
- Felis eyra* Desm. Biol., p. 64.
- *Urocyon cinereo-argenteus* (Müll.).¹ Biol., p. 67.
- Nasua narica* (Linn.). Biol., p. 75.
- Putorius frenatus* (Licht.). Biol., p. 78.
- Galictis barbara* (Linn.). Biol., p. 79.
- Spilogale*, sp. indet. Biol., p. 83.
- "*Cariacus toltecus* (Sauss.)." Biol., p. 117.
- Sciurus yucatanensis* (Allen). Biol., p. 125.
- "*Geomys hispidus* Le Conte." Biol., p. 160.
- Synetheres mexicanus* (Kerr). Biol., p. 170.
- Dasyprocta punctata* Gray. Biol., p. 172.
- Tatusia novemcincta* (Linn.). Biol., p. 189.
- "*Didelphis virginiana* Kerr." Biol., p. 196.

¹ Recently distinguished by Mr. D. G. Elliot as *Urocyon cinereo-argentatus fraterculus* (Field Columb. Mus., Zoöl., Vol. I, No. 3, May, 1896, p. 80, ex San Felipe, Yucatan).

Yucatan is also the source of the *Cervus yucatanensis* Hays (Ann. Lyc. N. Y., X, 1874, p. 218, pl. x), referred by Alston to *C. toltecus*. Also specimens of a small Hare, from Merida, Yucatan, have been referred to *Lepus sylvaticus aztecus* Allen (this Bull., III, No. 1, Apr., 1891, p. 191; also Elliot, *l. c.*, p. 80).

I. *Artibeus perspicillatus* (Linn.). Four specimens of a species of *Artibeus* from Chichen-Itza do not appear separable from specimens from other parts of Mexico and the West Indies, which we have heretofore referred to *A. carpolegus* Gosse.¹

It is evident that a number of well-marked forms are covered by the term *Artibeus perspicillatus* (Linn.), as commonly used. Having an abundance of specimens from Cuba and Jamaica, and from various parts of Mexico and Trinidad, it seems desirable to attempt to decide whether or not any or all of them should be referred to the Linnæan *A. perspicillatus*.²

An examination of the literature of the subject shows that *Vespertilio perspicillatus* Linn. rests on the following basis. In the tenth (1758) edition of the 'Systema Naturæ,' from which the name *perspicillatus* must date, no characters are given beyond an indication that the species was a tailless leaf-nosed bat from America. The citations are: (1) Syst. Nat., 7th ed., 1748; (2) Mus. Adolphi Frederici, 1754; (3) Seba, Mus., 1734, who gives a short general description of a leaf-nosed bat, without specifying any locality; (4) Edwards, Birds, 1751, who gives a figure and a description of a leaf-nosed bat, which he says "was brought from Jamaica, by Mr. Harper, Surgeon, late of Plastow, Essex;" (5) Sloane, Jamaica, 1725, who briefly refers to a leaf-nosed bat as found in Jamaica, which Edwards supposes is the same as that he figures (Edwards, pl. cci, fig. 1).

Linnæus's *Vespertilio perspicillatus* must therefore be considered as based on Edwards and Sloane, as the other references are vague and practically meaningless. This definitely fixes the type locality of the species as Jamaica, and makes it clear that the species was the tailless leaf-nosed bat described later by Leach

¹ Cf. this Bulletin, III, No. 1, June, 1890, pp. 170-173, 181; VI, 1894, p. 341.

² On the so-called *Artibeus perspicillatus* from the Island of Trinidad, see the following paper in this volume relating to Trinidad mammals.

(1822) as *Artibeus jamaicensis*, and still later by Gosse (1851) as *Artibeus carpolegus*. It seems therefore certain that whatever the various forms of South American bats referred commonly to *perspicillatus* may be, the name is at all events strictly applicable to the Jamaican form, the synonymy of which will stand as follows :

***Artibeus perspicillatus* (Linn.).**

- ? *Vespertilio, Americanus, vulgaris*, SEBA, Loc. Rer. Nat. Thes. I, 1734, p. 90, pl. lv, fig. 2.
Vespertilio, rostro, appendice auriculæ forma, donato, SLOANE, Nat. Hist. Jamaica, II, 1725, p. 330.
Bat from Jamaica, EDWARDS, Nat. Hist. Birds, IV, 1751, p. 201, pl. cci, upper fig.
Vespertilio perspicillatus LINN. Mus. Adol. Frid. 1754, 7 (ex SEBA and EDWARDS).
Vespertilio perspicillatus LINN. Syst. Nat. ed. 10, 1758, p. 31 (ex SEBA, SLOANE and EDWARDS); *ibid.* ed. 12, 1766, p. 47.
Artibeus perspicillatus CHAPMAN, Bull. Am. Mus. Nat. Hist. IV, 1892, p. 316 (Cuba).
Artibeus jamaicensis LEACH, Trans. Linn. Soc. XIII, 1822, p. 75; DE SAUSSURE, Rev. et Mag. de Zool. 1860, p. 428 (Mexico); ALLEN, Bull. Am. Mus. Nat. Hist. III, 1890, p. 173 (Porto Rico and Virgin Gorda).
Artibeus carpolegus GOSSE, Nat. Soj. in Jamaica, 1851, p. 271, pl. vi, fig. 5; ALLEN, Bull. Am. Mus. Nat. Hist. III, 1890, pp. 173, 181 (Mexico); CHAPMAN, *ibid.* VI, 1894, 341 (Florida).

A series of nearly 30 specimens from Jamaica, in alcohol, presented by Mr. Francis C. Nicholas, includes 10 old adults, and about 20 more or less immature, ranging in age from half-grown to full-grown young. They agree in color with the Yucatan specimens, and practically in size, when corresponding ages are compared. The fore arm averages 56 (54-57) mm. in length, as against 59 (57-62) mm. in a selected lot of very old Jamaican specimens.

A series of 60 Cuban specimens, mostly in alcohol, collected by Mr. Frank M. Chapman (*cf.* this Bull., IV, 316), average still smaller than the Yucatan specimens, the fore arm averaging in 31 females 55 (52-58) mm., and in 20 males 54.5 (52-56) mm. The range in color covers the whole range of variation in this respect shown by specimens from Yucatan and other localities in southern Mexico. In each series the females are found to average slightly larger than the males.

Dr. Dobson (Cat. Bats Br. Mus., 1878, p. 519) says: "Two longitudinal white streaks on the head are generally well-defined in all full-grown individuals, and also a white patch on each shoulder at the point of origin of the antebrachial membrane," in contrast with *A. planirostris*, in which these marks are generally absent. In none of the hundred or so examples of *A. perspicillatus* before us from Jamaica, Cuba and Mexico, is a white shoulder-patch present, and generally the head-stripes are either absent or so nearly obsolete as to be traced with difficulty; in a few only are they readily apparent.

Although the chambers of the numerous ruined temples and caverns in the limestone at Chichen-Itza offered excellent hiding places for these bats, they were apparently uncommon, not more than six being observed.

2. *Nasua narica* (Linn.).—A single specimen, a very old male, with the pelage much bleached.

Two other individuals of this species were observed playing about in the branches of small trees, showing surprising agility in their movements.

3. *Sciurus yucatanensis* (Allen).

Sciurus carolinensis var. *yucatanensis* ALLEN, Mon. N. Am. Roden. 1877, p. 705.—Merida, Yucatan.

Sciurus yucatanensis ELLIOT, Field Columbian Museum, Zoölogy, I, 1896, p. 80.

The present series of 4 adult specimens (2 males, 2 females) enables us to properly characterize this fine species, originally described by the senior author as a 'var.' of *S. carolinensis*. Through the kindness of Mr. F. W. True, Curator of Mammals, U. S. National Museum, we have before us the three specimens on which *yucatanensis* was originally based. The skulls are still in the skins, as left by the collector.

The four specimens from Chichen-Itza, taken March 7-18, and the three from Merida, measure as follows: ¹

¹ The first four in the table are from Chichen-Itza, the last three are from Merida. The measurements of the latter are from skins, and are transcribed (reduced to mm.) from Mon. N. Am. Roden., p. 711, Table XX.

		Head and Body.	Tail Vertebrae.	Tail to end of Hairs.	Total Length.	Hind Foot.	Ear.
Am. Mus.,	12033, ♀	230	230	307	537	55	30
"	12034, ♀	240	222	297	537	55	
"	12035, ♂	225	195	267	492	55	30
"	12036, ♂	218	222	287	506	55	23
Nat. Mus.,	8502, ♂	254	184	235	489	53	
"	8505,	229	190	241	470	50	
"	8503, ♀	267	216	267	534	53	

Sciurus yucatanensis differs from *S. carolinensis* externally in many important points, and still more strikingly in cranial characters. While similar in size and general proportions, the tail is much broader and heavier, and the ears are much narrower and more pointed, being scarcely more than half the breadth of the ears in *S. carolinensis*. The pelage is long, coarse, and harsh, instead of short, soft, and woolly, as in *S. carolinensis*, and everywhere lacks entirely the strong fulvous suffusion that pervades the pelage of *S. carolinensis*; also the brownish yellow dorsal area and lateral line, so characteristic of the latter. In *yucatanensis* the hairs of the dorsal surface are broadly *blackish* plumbeous at base, then broadly ringed with pale buffy gray, or soiled whitish, and conspicuously tipped with black, and the underfur is sparse. In *carolinensis* the underfur is abundant; the pelage is *grayish* plumbeous at base, and the hairs are ringed with dusky, tawny, black and white, successively from the base outward, with many hairs wholly black or wholly fulvous, or black crossed by a broad bar of fulvous.

The tail in *S. yucatanensis* is black above, the hairs broadly ringed in the middle and tipped with grayish white; below is a broad median area of grayish white, the hairs for the basal two-thirds being mainly of this color with two narrow bars of black; a broad band of black bounds the central area, and the hairs are finally tipped rather narrowly with whitish. In the tail of *carolinensis* there is much less black, the grayish white central area is replaced by tawny, and the hairs are broadly tipped with clear white.

In *S. yucatanensis* the skull (not before available for examination) is remarkably short and broad, the length of the facial portion being especially reduced, and the dorsal convexity of the parietal region is much depressed, in comparison with *S. caroli-*

nensis. Premolars $\frac{2}{2}$, as in *carolinensis*. The skull is smaller than in specimens of *carolinensis* of corresponding age, as shown by the following measurements of each: No. $\frac{1}{8}\frac{2}{4}\frac{3}{4}$, ♀ ad., Chichen-Itza; No. $\frac{1}{8}\frac{0}{0}\frac{7}{1}$, ♀ ad., Frogmore, S. C.: Total length, 53, 59.5; basal length, 45, 47.5; length of nasals, 16.5, 20; least inter-orbital breadth, 18, 17.5; greatest zygomatic breadth, 32, 34; mastoid breadth, 24, 23.5; length of palatal surface, 23, 26; length of tooth row (crown surface), 9, 10.

Obviously, from the above comparison of the two forms, *S. yucatanensis* has no very close relationship to *S. carolinensis*.

These Squirrels were common at Chichen-Itza, and were daily seen 'budding' in the small, leafless trees.

4. *Peromyscus affinis* (Allen).

Hesperomys (Vesperimus) affinis ALLEN, Proc. U. S. Nat. Mus. XIV, 1891, 195.—"Barrio, Tehuantepec [=State of Oaxaca], Mexico."

Eleven specimens, of which 3 are in the cinnamon brown pelage of the old adults, 6 in the brownish gray pelage of young adults, and 2 in the clear gray pelage of the two-thirds grown young, are apparently referable to this species, agreeing well in size, color and proportions with the three specimens on which *P. affinis* was originally based (*cf.* Allen, *l. c.*). Most of the 'young adults' are females that have apparently suckled young, though still in the gray pelage, and fully equal in size the 'old adults' in the brown pelage. As none of the specimens shows any yellowish cast on the ventral surface, the yellowish tint mentioned in the original description of *affinis* as present in two of the specimens is doubtless due, as conjectured by both Dr. Coues and the describer (*l. c.*) to soiling.

The types of *affinis* came from Barrio, near Oaxaca. If the present specimens are correctly referred to this species, its range extends northeastward to northern Yucatan.

Peromyscus affinis bears some resemblance to *Peromyscus mearnsi* and *P. canus*; it is, however, somewhat smaller, with a shorter hind foot and more naked tail, and in adult pelage is much browner above, the back being strong cinnamon brown, instead of drab gray, as in *canus*.

The 7 adults (3 males, 4 females) from Chichen-Itza measure as follows: Total length, 162 (150-172); tail vertebræ, 72 (69-75); hind foot, 18.6 (17-19.5); ear, 14.7 (14-15).

Since writing the above we have been able through the kindness of Mr. F. W. True, Curator of Mammals, U. S. National Museum, to compare the three specimens on which *Peromyscus affinis* was originally based with the series from Chichen-Itza here referred to *affinis*, and fail to see any tangible differences between the two series.

5. *Peromyscus yucatanicus*, sp. nov.

Above fulvous, strongly varied with black-tipped hairs over the middle area of the back, passing into a well-defined clear fulvous lateral line; below white, the fur plumbeous at base; outer surface of limbs like the adjoining parts of the dorsal area; fore feet white to above the wrists; hind feet white to base of tarsus; ears large, brownish, naked; tail naked, nearly unicolor, slightly lighter below.

Total length (of type), 210; tail vertebræ, 100; hind foot, 22; ear, 20. Five additional specimens measure as follows: Total length, 204 (190-210); tail vertebræ, 97 (93-101); hind foot, 21 (19.5-22); ear from notch, 18 (17-20).

Skull.—Anterior portion of interorbital region markedly depressed medially; a well-developed supraorbital ridge extends to the posterior border of the parietals; posterior palatal border slightly depressed, with a minute median spine; postpalatal opening with parallel sides, not expanded anteriorly; audital bullæ large. Total length, 31; basal length, 25; least interorbital breadth, 5; greatest width of brain-case, 12; length of nasals, 12.

Type, No. ~~18001~~¹⁸⁰⁰¹, ♂ ad., Chichen-Itza, Yucatan, March 17, 1896; Frank M. Chapman.

This species is based on 6 specimens, taken March 15-27, all adult, four of them being breeding females. They are all, however, in gray pelage, except the type, which is in the 'old adult' fulvous pelage. The gray specimens all show a faint wash of fulvous on the sides, with traces of a fulvous lateral line, as yet not well defined.

Peromyscus yucatanicus differs from *Peromyscus aztecus* (De Saussure) in its naked and unicolor tail, but appears to resemble it in size and proportions. It also appears to agree essentially in size and proportions with *P. gymnotis* Thomas (Ann. & Mag.

Nat. Hist. (6), XIV, Nov., 1894, p. 365), from "Guatemala," and in the nakedness of the ears and tail, but to differ from it in color and in cranial characters.

6. *Reithrodontomys mexicanus gracilis*, subsp. nov.

Above yellowish brown, slightly varied over the median area with blackish tipped hairs, passing into fulvous brown on the sides, and becoming clear fulvous where the coloration of the dorsal area joins the pure white of the lower surface; upper surface of fore feet whitish, of hind feet soiled white. Ears large, brownish, naked on both surfaces; tail brown, unicolor, naked except towards the tip, where the annulations are still distinctly visible through the very short hairs.

Total length (of type, ♀ ad.), 165; tail, 98; hind foot, 16; ear (from notch), 13. Another specimen, ♀ ad., measures: Length, 154; tail, 90; hind foot, 16; ear, 14.

Skull (unfortunately imperfect). Total length, 20 (?); greatest width of brain-case, 10; least interorbital breadth, 3; length of nasals, 7; length of upper tooth row, 3.

Type, No. $\frac{18018}{1411}$, ♀ ad., Chichen-Itza, March 10, 1896; Frank M. Chapman.

This delicate little Mouse differs from true *R. mexicanus* in its smaller size and naked ears and tail, and somewhat paler coloration. The ears are relatively larger, and the length of the hind foot is 16 mm. as compared with 19–20 mm. in true *mexicanus*.

This subspecies is represented by 4 specimens, one of which is an adult breeding female, another is practically adult, and the other two are just acquiring the fulvous tint on the sides.

7. *Sigmodon hispidus toltecus* (*De Saussure*).—Three specimens, about one-third grown, are provisionally referred to this subspecies.

8. *Mus rattus* Linn.—Common about the cenotes; to the exclusion of other Muridæ.

9. *Heteromys gaumeri*, sp. nov.

Size large. General color of dorsum dusky or dark smoky gray, mixed with fulvous, paler and more fulvous on the sides, with a broad bright orange-ochraceous lateral line extending from the side of the nose to the base of the tail,

and sharply separating the dorsal from the ventral surface; ventral surface and fore and hind feet white; outer surface of fore limbs bright orange ochraceous, inner surface white; outer surface of hind limbs like the back, inner surface white; soles 6-tuberculate, hairy from the heel to the posterior tubercle; ears dusky, narrowly edged with white, thinly covered on both surfaces with short hairs; tail dusky above, grayish white below, slightly crested and tufted at the tip, but in general so thinly haired that the annulations are distinctly visible.

The pelage of the middle of the dorsal surface, from the crown to the base of the tail, forming a broad median area, consists of a dense covering of thick, grooved spines, black apically and whitish toward the base, mixed with slender, bright orange-ochraceous hairs; laterally the spines become gradually thinner, paler, and more like rigid hairs. Along the middle of the back the pelage consists almost wholly of stiff, grooved spines, with no, or only the slightest, admixture of ochraceous hairs, the quantity of these hairs varying much in different individuals.

Total length of type (δ ad.), 292; tail vertebræ, 162; hind foot (with claw), 32; ear from notch, 14.5. Two adult females measure respectively as follows: Total length, 260, 265; tail vertebræ, 140, 142; hind foot, 30, 34; ear from notch, 15.5, 16.

Skull of adult δ (No. $\frac{18888}{10488}$), greatest length, 37; basal length, 31; greatest breadth, 16; interorbital breadth, 10.5; nasals, length, 16; interparietal, breadth, 11, length, 6; diastema, 10; palate, 20; crown surface of upper tooth series, 5.

Type, No. $\frac{18888}{10488}$, δ ad., Chichen-Itza, Yucatan, March 17, 1896; Frank M. Chapman.

This species is based on 7 specimens, 2 males and 5 females, taken at Chichen-Itza, March 11–20, 1896. Two of the females are not fully adult, being still in the rather soft pelage of the young, the dorsal pelage consisting of rather stiff blackish hairs, without spines, scantily mixed with softer, pale yellowish hairs; the lateral line is paler and narrower than in the adult, in one specimen, and obsolete in the other.

Heteromys gaumeri is one of the largest species of the group; though smaller than *H. anomalus*, it is larger than either *H. alleni* or *H. bulleri*. In general coloration it appears to resemble most nearly *H. bulleri*, but it has the ears rimmed with white, and the soles hairy and 6-tuberculate, instead of naked and 5-tuberculate. From *H. pictus* it differs in much larger size, and in the nasals and premaxillaries terminating posteriorly on the same line, instead of "the premaxillaries surpassing the nasals by 1.5 mm.," as in *pictus*.¹

¹ Oldfield Thomas, in lit., Oct. 26, 1896.

Named in honor of Dr. George F. Gaumer, of Izamal, Yucatan, to whom we are so largely indebted for our knowledge of the Yucatan fauna and flora.

10. *Heterogeomys torridus* Merriam.—A single two-thirds grown specimen of *Heterogeomys* is provisionally referred to *H. torridus*.

Gophers were particularly common at the bottoms of dry cenotes, where the soil was much deeper than over the general surface of the country. They were also common in little earth-filled hollows in the forest. During the winter they are said to be comparatively inactive. Lack of suitable traps prevented the capture of additional specimens.

11. *Dasyprocta punctata* Gray.—A single specimen was recognized but not captured.

12. *Cælogenys paca* (Linn.).—A skull of this species was found at the entrance to a cavern which penetrated the walls of a cenote, and there were numerous signs of the presence of a large mammal, doubtless of this species.

13. *Lepus sylvaticus aztecus* Allen.—Two individuals were observed, but neither was secured.

This subspecies was originally based on specimens from the Isthmus of Tehuantepec, to which examples from Merida, Yucatan, were also referred (this Bulletin, III, No. 1, 1890, p. 191). We have also had an opportunity to examine the specimens referred to this form by Mr. Elliot (Field Columb. Mus., Zool., I, p. 80), collected at San Felipe.

14. *Mazama*, sp. ind.—Deer were common about Chichen, judging from the signs observed and reports of the Indians, but none were observed alive, although their flesh was often served at table at the hacienda.

This is probably the species described and figured by Hays under the name *Cervus yucatanensis* (Ann. Lyc. New York, X, 1874, p. 218, pl. x), but whether the same as De Saussure's *Cervus*

toltecus (Rev. et Mag. Zool., 1860, p. 247, pl. xv, fig. 1) to which it has been referred, we are by no means assured. According to Hays, however, it "is found throughout Yucatan and the southern part of Mexico."

15. *Dicotyles tajacu* (Linn.).—Signs of Peccaries were seen, and the animals were said by the natives to be common. A semi-domesticated individual, about one year old, was kept as a pet at the hacienda.