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# Annotated Checklist of Mammals of the Yucatán Peninsula, México. IV. Carnivora, Sirenia, Perissodactyla, Artiodactyla

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# OCCASIONAL PAPERS

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#### **ANNOTATED CHECKLIST OF MAMMALS OF THE YUCATAN PENINSULA, MEXICO. IV. CARNIVORA, SIRENIA, PERISSODACTYLA, ARTIODACTYLA**

HUGH H. GENOWAYS AND J. KNOX JONES, JR.

This is the fourth in a series of papers (see Jones *et al.*, 1973, 1974a, 1974b) dealing with the systematics and distributional status of mammals on the Yucatán Peninsula of México. A fifth publication, in which zoogeographic patterns will be summarized, is contemplated. The present contribution lists 24 native species belonging to the orders Carnivora (18 species), Sirenia (one), Perissodactyla (one), and Artiodactyla (four). Among the carnivores there are one canid, six procyonids, six mustelids, and five felids, whereas the Artiodactyla is represented by two families (Tayassuidae and Cervidae), each with two species.

*Procyon pygmaeus* and *Nasua nelsoni*, both known only from Isla Cozumel, are endemic to the peninsular region. Eight species are represented by subspecies currently thought to be limited to the Yucatán Peninsula. Included among these is *Dicotyles tajacu*, represented by one subspecies restricted to the peninsular mainland and another that occurs only on the Isla Cozumel. The paucity of specimens of most taxa herein recorded underscores the fact that their systematic relationships are poorly understood.

The Yucatán Peninsula as treated in this series of papers includes the Mexican states of Campeche and Yucatán, and the Federal Territory of Quintana Roo; physiographically the peninsula also includes portions of Guatemala and British Honduras. The Recent mammals of the Mexican part of the peninsula were treated in an early work by Gaumer (1917) and sub-Recent faunas were studied by

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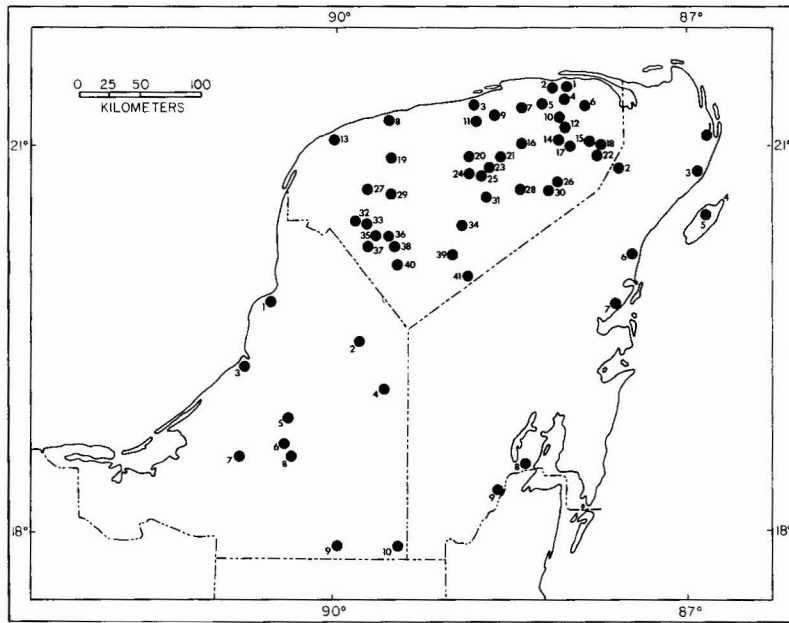


FIG. 1.—Map of Yucatán Peninsula showing location of place-names mentioned in text. CAMPECHE: 1, Campeche; 2, Dzibalchén; 3, Champotón; 4, Xkanjá; 5, Yohaltun; 6, Apazote; 7, Escárcega; 8, Laguna Silvituc (42 km. E Escárcega); 9, Laguna Chumpich (103 km. SE Escárcega); 10, Laguna Alvarado (65 km. S, 128 km. E Escárcega); Encarnación and La Tuxpeña were not exactly located. QUINTANA ROO: 1, La Vega; 2, Pueblo Nuevo X-Can; 3, Puerto Morelos; 4, Cozumel Island; 5, San Miguel; 6, Tulum; 7, Vigía Chico; 8, Chetumal; 9, San Antonio; Dos Cocos was not exactly located. YUCATAN: 1, Río Lagartos; 2, San Felipe; 3, Silam; 4, Loché; 5, Panabá; 6, Cenote Kú; 7, Uxbay; 8, Progreso; 9, Buctzotz; 10, Kikil; 11, Temax; 12, Tizimín; 13, Sisal; 14, Calotmul; 15, Yot Cenote; 16, Cenotillo; 17, Pocoboch; 18, Chem Cenote; 19, Mérida; 20, Izamal; 21, Tunkas; 22, Nabalám; 23, Yaxcach; 24, Kántunil; 25, Tzalam; 26, Valladolid; 27, Chocholá; 28, Chichén-Itzá; 29, Chablé; 30, Tekom; 31, Yaxcabá; 32, Calcehtok; 33, Muna; 34, Xbac; 35, Yokat; 36, Ticul; 37, Uxmal; 38, Oxkutzcab; 39, Peto; 40, San Anselmo; 41, Esmeralda; Pocohohc (may be misspelling of Pocoboch), Suquilá, Yalahau, and Yohnicté were not exactly located.

Hatt *et al.* (1953). The physiography and vegetation of the region have been described previously by Duellman (1965, 1966), Jones *et al.* (1973), Klaas (1968), and Paynter (1955).

Many specimens reported in this paper were collected in the summer of 1962 by a field party under the direction of W. E. Duellman and also by a survey team, led by J. K. Jones, Jr., that collected terrestrial vertebrates and their ectoparasites under a contract (DA-49-

193-MD-2215) from the U.S. Army Research and Development Command. Also, Percy L. Clifton, field representative of the Museum of Natural History, The University of Kansas, obtained mammals on the peninsula from mid-December 1962 to June 1963.

Specimens listed below that are housed in the Museum of Natural History at The University of Kansas carry no institutional designation. Other institutions from which specimens were examined are the National Museum of Natural History, Washington, D.C. (USNM), and the British Museum (Natural History) (BM). All measurements are in millimeters. Most place-names mentioned in text are located on the accompanying map (Fig. 1).

## ANNOTATED LIST OF SPECIES

### ORDER CARNIVORA

#### Family CANIDAE

#### ***Urocyon cinereoargenteus fraterculus* Elliot, 1896**

##### Gray Fox

*Specimens examined* (21).—CAMPECHE: Apazote, 3 (USNM) Champotón, 1; 7 km. N, 51 km. E Escárcega, 2; 7½ km. W Escárcega, 65 m., 3; La Tuxpeña, 3 (USNM); Yohaltun, 2 (USNM). QUINTANA ROO: La Vega, 2 (USNM); Puerto Morelos, 2 (USNM). YUCATAN: "Yucatan," 3.

*Additional records* (Gauger, 1917:200, unless otherwise noted).—YUCATAN: Actun Xbyc, 1½ km. SW Calcehtok (Hatt *et al.*, 1953:69); Calotmul; Chablé; Chichén-Itzá (G. M. Allen, 1906:108; Ingles, 1959:402); Esmeralda (Hatt and Villa-R., 1950:232); Izamal; Loché; Mérida (Alston, 1879-82:68; Miller, 1899:276); Pocoboch; Progreso; Río Lagartos; San Anselmo; San Felipe (Elliot, 1907:418); Silam; Suquilá; Temax; Tunkás; Uxmal; Xbac; Yaxcach.

The gray fox is one of the most common carnivores occurring on the Yucatán Peninsula. The species first was recorded from there by Alston (1879-82:68) under the name *Vulpes virginianus*. Elliot (1896:80-81) described the currently recognized subspecies, *U. c. fraterculus*, based on specimens from San Felipe, Yucatán. Later, Miller (1899:276) described *Urocyon parvidens* on the basis of four specimens from Mérida; however, *parvidens* now is considered indistinguishable from *fraterculus*.

Evidently gray foxes occur in most available habitats on the peninsula. We have specimens taken in dense forest 7 km. N and 51 km. E Escárcega, and from the transition zone between quasi rainforest and dry deciduous forest 7½ km. W Escárcega. Many of the earlier records are from regions of xerophytic forest in the northern part of the peninsula.

External measurements of an adult male from 7 km. N and 51 km. E Escárcega are: total length, 763; length of tail, 280; length of hind

foot, 109; length of ear, 57. Cranial measurements of this same male, a young adult male from 7½ km. W Escárcega, and an adult female from the first locality are, respectively: condylobasal length, 100.1, 97.8, 95.4; zygomatic breadth, 56.2, 52.9, 51.7; interorbital constriction, 19.5, 18.5, 17.7; postorbital constriction, 27.0, 23.4, 24.1; mastoid breadth, 37.9, 38.1, 35.7; length of maxillary toothrow, 42.9, 41.5, 40.5; palatal length, 50.4, 47.3, 45.8.

#### Family PROCYONIDAE

##### **Bassariscus sumichrasti campechensis** (Nelson and Goldman, 1932)

##### Cacomistle

*Specimens examined* (7).—CAMPECHE: Apazote, 2 (USNM); La Tuxpeña, 5 (USNM).

*Additional records* (Gauger, 1917:209, unless otherwise indicated).—YUCATAN: Buena Vista Xbac (Nelson and Goldman, 1932:487); Chem Cenote; Nabalám; Peto; Pocoboch; Xbac; Yot Cenote.

We obtained no cacomistles in the course of our field investigations. Earlier workers (Gauger, 1917; Nelson and Goldman, 1932) recorded this species at several localities in the states of Campeche and Yucatán and it probably is widely distributed on the peninsula.

The subspecies *campechensis* was named by Nelson and Goldman (1932:486-487) on the basis of its small size. Cranial measurements of the holotype (adult male, USNM 108291), another male from Apazote, and two adult males and two adult females from La Tuxpeña are, respectively: condylobasal length, 84.2, 80.2, 82.9, 83.3, 76.7, 75.4; zygomatic breadth, 59.7, 52.8, 48.0, 61.0, 49.0, 48.0; interorbital breadth, 18.4, 15.6, 15.4, 17.1, 15.9, 15.2; postorbital breadth, 12.1, 13.8, 15.4, 14.0, 16.5, 18.5; mastoid breadth, 39.9, 37.0, 35.6, 39.4, 35.2, 36.2; length of maxillary toothrow, 32.5, 30.4, 31.2, 32.7, 30.3, 29.3; palatal length, 38.0, 36.3, 36.6, 36.8, 34.6, 33.5.

##### **Procyon lotor shufeldti** Nelson and Goldman, 1931

##### Raccoon

*Specimens examined* (6).—CAMPECHE: 5 km. S Champotón, 10 m., 1; La Tuxpeña, 3 (USNM). YUCATAN: 13 km. WSW Sisal, 1; Chichén-Itzá, 1 (USNM).

*Additional records* (Gauger, 1917:211, unless otherwise indicated).—YUCATAN: Actun Spukil, 4½ km. SSW Calcehtok (Hatt *et al.*, 1953:69); Buctzotz; Calotmul; Chem Cenote; Loché; Nabalám; Panabá; Pocoboch; Tekom (Hershkovitz, 1951:559); Uxmal; Xbac; Yaxcach.

The subspecies *shufeldti*, which was described from La Tuxpeña, Campeche, by Nelson and Goldman (1931a:17), is thought to occur throughout the Yucatán region excepting on Isla Cozumel, which is occupied by *Procyon pygmaeus*. We have no information on con-

ditions under which specimens examined by us from the peninsula were obtained.

The cranium of the individual from 5 km. S Champotón was deformed between the orbits, probably as the result of an old injury. Also the first, upper molar on the left side was missing; the second molar on that side had been forced to the inside of the toothrow and lacked a crown. Labial to the second molar were two small teeth that occupied its normal position. The first of these consisted of two cusps, whereas the second was single-cusped, larger, and greatly worn.

Cranial measurements of the holotype of *shufeldti* (adult male, USNM 177546) and a young adult female from near Sisal (nasal sutures still evident) are, respectively: condylobasal length, 118.5, 106.4; interorbital breadth, 26.8, 21.4; postorbital breadth, 25.7, —; mastoid breadth, 64.4, 57.6; length of maxillary toothrow, 45.0, 40.4; palatal length, 73.4, 63.9.

***Procyon pygmaeus* Merriam, 1901**  
Cozumel Island Raccoon

*Specimens examined* (6).—QUINTANA ROO: 3½ km. N San Miguel, Isla Cozumel, 1; Cozumel Island, 5 (USNM).

A subadult male of this raccoon was shot on 8 August 1962 from a coconut palm situated along the beach 3½ km. N San Miguel. Two other individuals were seen in the same tree. *Procyon pygmaeus* differs from the mainland *Procyon lotor shufeldti* in being markedly smaller, both externally and cranially, and in certain cranial details as described by Merriam (1901a) and Goldman (1950). As noted earlier by Jones and Lawlor (1965), our specimen possesses a large bregmatic at the juncture of the parietal and frontal bones.

Measurements of the holotype (subadult male, USNM 108511), a subadult male from San Miguel, and a young adult female are, respectively: total length, 667, 645, 665; length of tail, 230, 230, 250; length of hind foot, 90, 96, 97; condylobasal length, 93.5, 93.1, 91.8; zygomatic breadth, 58.7, 59.4, 60.7; interorbital breadth, 19.4, 19.3, 19.7; postorbital breadth, 24.5, 25.3, 25.1; mastoid breadth, 45.2, 44.2, 44.8; length of maxillary toothrow, 35.5, 35.4, 35.4; palatal length, 57.4, 57.8, 56.4. The specimen from San Miguel weighed 2171 grams.

***Potos flavus chiriquirensis* J. A. Allen, 1904**  
Kinkajou

*Specimens examined* (7).—CAMPECHE: Dzibalchén, 1; 7 km. N, 51 km. E Escárcega, 3; La Tuxpeña, 1 (USNM). YUCATAN: 8 km. N, 10 km. W Tizimin, 2.

*Additional record.*—CAMPECHE: Xkanjá (Gaumer, 1917:219).

The three specimens from east of Escárcega were shot from large trees in quasi rainforest by P. L. Clifton on 18 and 19 December 1962. Clifton saw several more individuals in this area. The specimens from Dzibalchén and Tizimín were obtained by natives in areas of relatively dense forest.

Recently, Kortlucke (1973) studied morphological variation in Mexican and Central American specimens of *Potos flavus* and regarded three subspecies as recognizable in that region. All kinkajous from the Yucatán Peninsula were assigned by her to *P. f. chiriquensis*, with *P. f. campechensis* (type locality at La Tuxpeña, Campeche) relegated to synonymy under that name. We have followed this arrangement.

External measurements of an adult female from 7 km. N and 51 km. E Escárcega are: total length, 944, length of tail, 454; length of hind foot, 100; length of ear, 40. Cranial measurements of two adult males from Yucatán and two adult females from Campeche are, respectively: condylobasal length, 81.7, 81.0, 83.5, 87.8; zygomatic breadth, 60.9, 57.8, 60.4, 60.7; interorbital breadth, 19.6, 18.4, 21.1, 19.8; postorbital breadth, 20.5, 20.4, 19.7, 18.2; mastoid breadth, 45.4, 43.8, 47.2, 47.1; length of maxillary toothrow, 25.0, 23.3, 24.4, 25.9; palatal length, —, —, —, 42.1.

#### ***Nasua nasua yucatanica* J. A. Allen, 1904**

##### Coati

*Specimens examined* (18).—CAMPECHE: Apazote, 1 (USNM); 5 km. S Champotón, 2; Encarnación, 2; 7 km. N, 51 km. E Escárcega, 1; 103 km. SE Escárcega, 1; Yohaltun, 1 (USNM); near Yohaltun, 1 (USNM). QUINTANA ROO: La Vega, 1 (USNM); Pueblo Nuevo X-Can, 10 m., 2; Puerto Morelos, 1 (USNM). YUCATAN: Chichén-Itzá, 4 (USNM).

*Additional records* (Gaumer, 1917:217, unless otherwise indicated).—QUINTANA ROO: Dos Cocos; San Antonio; Tuloom [=Tulum]. YUCATAN: Buctotz; Calotmul; Chablé; Chocholá (Ingles, 1958:403); Kikil; Loché; Panabá; Peto; Pocooho; Silam; Tizimín; Tzalam; Xbac; Yaxcach; no specific locality (Alston, 1879-82:75).

The coati is widespread and relatively abundant on the Yucatán Peninsula. The only specimen for which we have natural history data is an adult female from 7 km. N and 51 km. E Escárcega, which was one of approximately 10 individuals that P. L. Clifton found feeding in a large tree. Clifton remarked in his notes that coatis were abundant in that area. The two individuals from Pueblo Nuevo X-Can are a juvenile male and female that were obtained on 30 July 1962. The male had a total length of 516 and weighed 516 grams, whereas the female measured 497 and weighed 440.5 grams.

*N. n. yucatanica* was described by J. A. Allen (1904) based upon specimens from Chichén-Itzá, Yucatán. This name generally has been applied to coatis from throughout the Yucatán Peninsula (with the exception of those from Cozumel Island, which is inhabited by a distinct species, *N. nelsoni*), but the systematic status of mainland peninsular populations is in need of review. From *N. nelsoni*, *N. n. yucatanica* can be distinguished easily by its much larger size and generally more massive skull. In condylobasal length, for example, specimens of *yucatanica* are approximately 20 millimeters longer than those of *nelsoni* (see account of *nelsoni* for additional measurements). Because of this marked difference in size, we favor retention of *nelsoni* as a distinct species. We follow Cabrera (1958) in use of the specific name *nasua* for mainland coatis.

External and cranial measurements of four adult males and three adult females of *N. n. yucatanica* are, respectively: total length, 1450, 1130, 1115, 1125, 1050, 990, 1011; length of tail, 460, 572, 568, 575, 518, 485, 503; length of hind foot, 108, 105, 109, 107, 104, 99, 95; condylobasal length, 120.0, 121.3, 126.4, 116.4, 117.0, 112.0, 112.0; zygomatic breadth, 74.0, 66.9, 72.4, 69.8, 61.7, 58.8, 56.4; interorbital breadth, 28.0, 28.1, 26.9, 26.4, 24.7, 24.5, 23.5; post-orbital breadth, 26.8, 25.5, 23.2, 26.8, 27.4, 26.9, 27.9; mastoid breadth, 48.5, 47.3, 46.6, 44.6, 41.8, 40.6, 41.8; length of maxillary toothrow, 48.0, 47.5, 47.9, 47.0, 48.5, 45.1, 46.4; palatal length, 77.2, 77.8, 81.7, 75.3, 74.8, 73.8, 72.0.

***Nasua nelsoni* Merriam, 1901**  
Cozumel Island Coati

*Specimens examined* (7).—QUINTANA ROO: 3½ km. N San Miguel, Isla Cozumel, 1; Cozumel Island, 6 (USNM).

*Nasua nelsoni*, originally described by Merriam (1901*a*), is endemic to Isla Cozumel. According to residents of the island, this species is common in the vicinity of San Miguel. Several were seen at night and in early morning by our party. The one specimen we obtained was an adult female with well-developed mammae, indicating probable recent lactation.

Jones and Lawlor (1965:416) maintained the full specific status of this insular taxon because of its strikingly smaller size as compared with *Nasua nasua yucatanica* of the adjacent mainland.

External measurements of an adult male and two adult females are, respectively: total length, 765, 741, 720; length of tail, 340, 332, 330; length of hind foot, 81, 76, 78; length of ear, —, 35, —. Cranial measurements of the holotype (adult male, USNM 108520), another



adult male, and four adult females (the first being the individual from 3½ km. N San Miguel) are, respectively: condylobasal length, 99.6, 97.3, 96.3, 93.4, 99.5, 97.3; zygomatic breadth, 60.6, 56.7, 50.3, 48.8, 50.9, 50.7; interorbital breadth, 22.4, 20.9, 20.4, 20.4,—, 20.9; postorbital breadth, 23.5, 23.6,—, 25.1, 25.1, 25.4; mastoid breadth, 41.5, 38.2, 36.7, 35.0, 35.9, 37.1; length of maxillary toothrow, 41.6, 37.1, 38.1, 37.3, 38.8, 39.5; palatal length, 65.0, 60.2, 62.7, 59.2, 63.8, 62.3.

Four specimens in the Museum of Natural History at The University of Kansas, received from G. F. Gaumer and labeled as from Cozumel Island, are clearly representative of the mainland *Nasua nasua yucatanica* (see Jones and Lawlor, 1965:418).

#### Family MUSTELIDAE

#### ***Mustela frenata perda* (Merriam, 1902)**

#### Long-tailed Weasel

*Specimen examined* (1).—YUCATAN: 6 km. N Tizimín, 1.

*Additional records* (Gaumer, 1917:237, unless otherwise indicated).—QUINTANA ROO: 15 km. NNE Chetumal (Ramírez-Pulido and Phillips, 1971:145). YUCATAN: Actun Spukil, 4½ km. SSW Calcehtok (Hatt *et al.*, 1953:70); Calotmul; Chem Cenote; Chichén-Itzá (Hall, 1951:369); Chochohá (Alston, 1879-82:78); Izamal; Loltun, 5 km. SW Oxkutzcab (Hatt *et al.*, 1953:70); Silam; Tekom (Sanderson, 1941:261); Temax; Tizimín; Tzalam; Xbac.

Our specimen, an adult male, was purchased by P. L. Clifton on the morning of 28 April 1963 from a native. Testes of this individual measured 10 in length; no molt was evident. Other mammals obtained by Clifton in the same area included *Heteromys gaumeri*, *Sigmodon hispidus*, *Peromyscus yucatanicus*, *Ototylomys phyllotis*, *Conepatus semistriatus*, and *Odocoileus virginianus*.

Hall (1951:369) assigned to *M. f. perda* all peninsular specimens of this weasel available to him. Ramírez-Pulido and Phillips (1971), however, suggested that a specimen from 15 km. NNE Chetumal resembled the subspecies *nicaraguae*. We believe it prudent to follow Hall until more material is available from the southeastern part of the peninsula. Measurements of our specimen are as follows: total length, 510; length of tail, 206; length of hind foot, 54; length of ear, 26; condylobasal length, 54.5; zygomatic breadth, 28.0; interorbital constriction, 11.4; postorbital constriction, 7.1; mastoid breadth, 25.1; length of maxillary toothrow, 15.1; palatal length, 23.2.

***Eira barbara senex* (Thomas, 1900)**

## Tayra

*Specimens examined* (4).—CAMPECHE: Dzibalchén, 1; 7 km. N, 51 km. E Escárcega, 1; 51 km. E Escárcega, 1. QUINTANA ROO: Puerto Morelos, 1 (USNM).

*Additional records* (Gauger, 1917:234, unless otherwise noted).—QUINTANA ROO: Vigía [=Vigía Chico]. YUCATAN: Calotmul; Chem Cenote; Nabalám; Senotillo [=Cenotillo]; Tizimín; Xbac; "Yucatan" (Alston, 1879-82:79); Yohnicte.

This species is an agile climber and a good swimmer. The three specimens in The University of Kansas collection are from forested areas in the southern part of the peninsula, but several of Gauger's earlier records are from northern Yucatán. P. L. Clifton found the specimen from 7 km. N and 51 km. E Escárcega dead along the road from Escárcega to Chetumal. The road in this area traversed dense quasi rainforest at an elevation of 200 feet. Another specimen from east of Escárcega was purchased from natives in an area of dense forest. The specimen from Dzibalchén also was obtained from natives. Clifton's camp there was in an area of low, thorn forest, but stands of tall trees were located only a few kilometers to the south.

The specimen in the National Museum from Puerto Morelos is a juvenile female that was taken on 1 April 1901. None of the permanent canines or premolars was present in this specimen nor had the molars erupted. Condylbasal length of this individual is 90.5.

Cranial measurements of a young adult male (Dzibalchén) and an unsexed adult (probably a female based on its small size) from 7 km. N and 51 km. E Escárcega are: condylbasal length, 111.5, 103.8; zygomatic breadth, 66.2, 63.9; interorbital constriction, 24.4, 25.4; postorbital constriction, 24.5, 24.1; mastoid breadth, 53.0, 49.5; length of maxillary toothrow, 32.2, 29.5; palatal length, 56.5, 50.0.

***Galictis allamandi canaster* Nelson, 1901**

## Grisón

*Specimens examined* (2).—QUINTANA ROO: "Cozumel Island," 1. YUCATAN: Tunkas, 1 (USNM).

*Additional records* (Gauger, 1917:235, unless otherwise indicated).—YUCATAN: Buctzotz; Chem Cenote; Chichén-Itzá (Hatt, 1938:335); Senotillo [=Cenotillo]; Tzalam.

The original description of this mustelid (Nelson, 1901) was based on a live individual in the possession of General F. Canton, Governor of Yucatán. Nelson viewed the specimen at the residence of the governor and recorded a detailed description of the coloration and external characteristics. Nelson also talked with Indians near Tunkas

who had captured the animal and presented it to the governor. The specimen was later presented to the U.S. National Museum by Governor Canton (Poole and Schantz, 1942:63).

This species apparently is rare on the Yucatán Peninsula as only three specimens are known to have been deposited in museum collections. Insofar as we know, none of Gaumer's localities of record is represented by specimens. Hatt (1938:335) reported seeing a live grison in the market at Mérida. All known records are from the northern part of the peninsula.

The one specimen listed as examined from Cozumel Island was sent to The University of Kansas by G. F. Gaumer, who reported that it and several other mammals in the same collection were from Cozumel. Jones and Lawlor (1965:417-418), however, have given reasons for questioning this geographic origin for many of Gaumer's specimens presently in the collection at Kansas.

We have examined the holotype (USNM 159562) in the National Museum. The specimen, an adult male, consists of a museum skin and a skull that is missing the posterior portion of the braincase and has broken zygomatic arches. Available cranial measurements for the holotype are as follows: interorbital breadth, 22.7; postorbital breadth, 21.6; mastoid breadth, 51.8; length of maxillary toothrow, 27.3; palatal length, 46.6.

***Spilogale putorius yucatanensis* Burt, 1938**  
Spotted Skunk

*Specimens examined*.—None.

*Additional records* (Gaumer, 1917:231, unless otherwise indicated).—QUINTANA ROO: Tuloom [=Tulum]; Vigía. YUCATAN: Actun Spukil, 4½ km. SSW Calcehtok (Hatt *et al.*, 1953:70, cave deposit); Calotmul; Chablé; Chichén-Itzá (Van Gelder, 1959:321); Izamal; Mérida; Panabá; Río Lagartos; Temax; Tizimín; Tunkas; Tzalam; Uxmal; Valladolid; Xbac; Yaxcach; "Yucatan" (Alston, 1879-82:83).

Although no specimens of this species were obtained during our field work on the peninsula, previous records would seem to indicate that this small skunk is widespread in the region. Most of these are based, however, on animals obtained early in this century and spotted skunks may be rare on the Yucatán Peninsula at present.

*S. p. yucatanensis* was originally described by Burt (1938) on the basis of two specimens from Chichén-Itzá. Van Gelder (1959) recognized this subspecies as endemic to the peninsular region.

***Conepatus semistriatus yucatanicus* Goldman, 1943**

## Striped Hog-nosed Skunk

*Specimens examined* (3).—QUINTANA ROO: La Vega, 1 (USNM). YUCATAN: 6 km. N Tizimín, 2.

*Additional records*.—YUCATAN: Izamal (Gaumer, 1917:229); Mérida (Goldman, 1943b:90); near Muna (Ingles, 1959:405); Tekom (Hershkovitz, 1951:562); Temax (Gaumer, 1917:229).

This species has been reported from several localities on the peninsula, but little is known of its natural history there. Our two specimens from north of Tizimín were brought to P. L. Clifton by natives on the morning of 29 April 1963. Vegetation in the general area consisted of scrub tropical deciduous forest interspersed with cultivated fields. One of the specimens from Tizimín is an adult male (testes 15 in length), whereas the other is a skull of a young adult of unknown sex.

The subspecific relationships of hog-nosed skunks from the Yucatán region are in question. Goldman (1943b) described the subspecies *yucatanicus* on the basis of specimens from Quintana Roo (La Vega, type locality), Yucatán, and Guatemala. He distinguished it from *conepatl* by its longer tail and from *trichurus* by its smaller size and lighter dentition. Later, Hershkovitz (1951) reported specimens from Yucatán and British Honduras under the name *C. s. conepatl*. We here use the name *yucatanicus* pending acquisition of additional specimens of this species from Middle America. External measurements of the adult male from 6 km. N Tizimín are: total length, 544, length of tail, 162, length of hind foot, 74, length of ear, 29. Cranial measurements of this specimen and the holotype (adult male, USNM 108502) from La Vega, Quintana Roo, are, respectively: condylobasal length, 71.1, 75.2; zygomatic breadth, 47.4, 48.2; interorbital breadth, 21.5, 23.1; postorbital breadth, 18.5, 19.6; mastoid breadth, 40.9, 41.4; length of maxillary toothrow, 22.3, 23.5; palatal length, 30.5, 33.0.

***Lontra longicaudis annectens* (Forsyth Major 1897)**

## Southern River Otter

Evidently the only record of a river otter from the Yucatán Peninsula is a specimen taken in a small river 40 mi. W Mérida, which was reported by Hershkovitz (1951:561). We follow van Zyll de Jong (1972) in use of the generic name *Lontra* for New World river otters. Additionally, he allied otters from southern México and Central America, formerly known under the specific name *annectens*, with

otters from northern South America and applied the specific name *longicaudis* to this complex.

Family FELIDAE

***Felis onca goldmani* Mearns, 1901**

Jaguar

*Specimens examined* (5).—CAMPECHE: Dzibalchén, 1; 51 km. E Escárcega, 1; La Tuxpeña, 2 (USNM). QUINTANA ROO: 71 km. W Chetumal, 1.

*Additional records* (Gaumer, 1917:168, 175, unless otherwise indicated).—CAMPECHE: Campeche (Ingles, 1958:406); Yohaltun (Nelson and Goldman, 1933:235). YUCATAN: Buctotz; Calotmul; Chablé; Chem Cenote; Cenote Kú; Loché; Nabalám; Panabá; Suquilá; Tizimín; Uxbay; Uxmal; Xbac; Yalahau; Yohnicté.

The three specimens in the collection of The University of Kansas were purchased from natives by P. L. Clifton in the first half of 1963. The specimen from 51 km. E Escárcega was shot by a native on 14 February at a waterhole in a heavily forested area. Nothing is known of the conditions of the capture of the other two animals, which probably also were taken in areas of dense forest.

Two of the specimens examined are adult males and the other three are adults of unknown sex (including two from the USNM). An unsexed skull from 71 km. W Chetumal (KU 93833) exhibits some deformation in the postorbital region and of the postorbital processes. This situation appears to have resulted from a wound, which subsequently healed.

An adult male from Dzibalchén is somewhat larger in some measurements of cranial length than are specimens of *goldmani* reported by Nelson and Goldman (1933) in their review of the jaguars, approaching *F. o. centralis* of Central America in this regard. The other adult male, from 51 km. E Escárcega, compares favorably in mensural characters with other specimens of *F. o. goldmani*. Cranial measurements of these two specimens, respectively, are: condylobasal length, 223, 215; zygomatic breadth, 159.0, 163.7; interorbital constriction, 43.7, 47.8; postorbital constriction, 44.9, —; mastoid breadth, 99.2, 101.1; length of maxillary toothrow, 74.7, 74.9; palatal length, 97.1, 94.4.

***Felis concolor mayensis* Nelson and Goldman, 1929**

Mountain Lion

*Specimens examined* (3).—CAMPECHE: 7 km. N, 51 km. E Escárcega, 1; 103 km. SE Escárcega, 1. QUINTANA ROO: Pueblo Nuevo X-Can, 10 m., 1.

*Additional records* (Gaumer, 1917:181, unless otherwise noted).—YUCATAN: Chem Cenote; Nabalám; Cenote Kú; Suquilá; Tzalam; Uxmal; Xbac; "eastern

Yucatan" (based on a specimen in the zoological park in Mérida, Ingles, 1959: 407).

Our three specimens were purchased from natives in well-forested areas. Clifton described the area 103 km. SE Escárcega as the tallest and most luxuriant forest that he had seen on the peninsula. The specimen from Pueblo Nuevo X-Can is a juvenile female, still in spotted pelage, which was obtained on 31 July 1962.

An unsexed adult (probably a male based upon its large size) from 7 km. N and 51 km. E Escárcega had the following cranial measurements: condylobasal length, 170.3; zygomatic breadth, 131.8; interorbital constriction, 38.2; postorbital constriction, 45.2; mastoid breadth, 71.2; length of maxillary toothrow, 58.5; palatal length, 72.4. Young and Goldman (1946) distinguished *F. c. mayensis* from other subspecies of puma by its smaller size. Our specimen is larger than the adult male holotype of *mayensis* and also larger than an adult male of *F. c. costaricensis* from Costa Rica. It is, however, considerably smaller than males of other Mexican subspecies, such as *azteca* and *stanleyana*, to the north. Seemingly, the taxonomic status of southern Mexican and Central American pumas is in need of re-evaluation.

***Felis pardalis pardalis* Linnaeus, 1758**

Ocelot

*Specimens examined* (1).—CAMPECHE: 65 km. S, 128 km. E Escárcega, 1.

*Additional records* (Gauger, 1917:176, unless otherwise noted).—CAMPECHE: Campeche (Goldman, 1943a:377); La Tuxpeña; Champotón (Goldman, 1943a: 377). QUINTANA ROO: Tuloom [=Tulum]. YUCATAN: Actun Jih, 3 km. SW Ticul (Hatt *et al.*, 1953:70); Actun Spukil, 4½ km. SSW Calcehtok (Hatt *et al.*, 1953:70); Buctzotz; Calotmul; Chem Cenote; Peto; Suquilá; Tekom (Hershkovitz, 1951:564); Tizimín; Tzalam; Xbac.

The one specimen examined was obtained in the early morning of 25 February 1963 by P. L. Clifton. The animal first was sighted while lying in tall grass at the edge of a laguna. Most of vegetation in the area was tall, dense forest. The specimen proved to be an old adult male, which appeared to be in poor health. The right front foot was badly infected and the animal had been shot on at least one previous occasion. Examination of the skull revealed that the teeth were heavily worn; the first two upper incisors on both sides were missing as were the P3 and P4 on the right side (excepting that the large root of P4 was still in place).

Cranial measurements of the old male (KU 93835) are as follows: condylobasal length, 133.5; zygomatic breadth, 100.7; interorbital

constriction, 26.8; postorbital constriction, 31.3; mastoid breadth, 61.1; length of maxillary tooththrow, 43.8; palatal length, 52.9.

***Felis wiedii yucatanica* Nelson and Goldman, 1931**

**Margay**

*Specimens examined* (2).—CAMPECHE: 42 km. E Escárcega, 1; 103 km. SE Escárcega, 1.

*Additional records* (Gaumer, 1917:179, unless otherwise indicated).—YUCATAN: Calotmul; Mérida (Goldman, 1943a:383); Nabalám; Uxbay; Yot Cenote; northern Yucatán (Pocock, 1941:369).

Our two specimens of this small cat are unsexed skulls obtained from natives. Both specimens are from areas of dense quasi rainforest, but earlier records would indicate that this species occurs also in deciduous scrub forest.

The subspecific name *yucatanica* was originally proposed for a skin alone (holotype) from Mérida, Yucatán, and a subadult from Tecpactán, Chiapas, by Nelson and Goldman (1931b:304). This subspecies has been reported to differ from others of the species by its paler buffy-gray color and details of cranial and dental anatomy (Goldman, 1943:383). Cranial measurements of our two specimens (in the order listed above) are: condylobasal length, 83.5, 86.0; zygomatic breadth, 56.8, 61.3; interorbital breadth, 16.5, 16.0; postorbital breadth, 29.7, 30.1; mastoid breadth, 38.0, 40.7; length of maxillary tooththrow, 26.4, 27.5; palatal length, 33.3, 33.3.

***Felis yagouaroundi fossata* Mearns, 1901**

**Jaguarundi**

*Specimens examined* (3).—CAMPECHE: La Tuxpeña, 2 (USNM). QUINTANA ROO: 81 km. W Chetumal, 1.

*Additional records* (Gaumer, 1917:187, 190, unless otherwise noted).—QUINTANA ROO: northern Quintana Roo (Ingles, 1958:407). YUCATAN: Calotmul; Cenotillo; Kikil; Mérida (Mearns, 1901:150); Nabalám; Panabá; Pocoboch; Tizimín; Uxbay; Xbac; Yohnicté; unspecified locality (Alston, 1879-82:64).

The one specimen in The University of Kansas collection was purchased from a native who shot the animal as it attempted to kill a chicken in front of his home. Vegetation of the general area was dense quasi rainforest. One of the specimens from La Tuxpeña was the red color phase, as was the individual from Quintana Roo, whereas the other from La Tuxpeña was in the black phase.

*F. y. fossata* was described by Mearns (1901), with holotype from Mérida, Yucatán. We use this name provisionally until a systematic review can be undertaken of this species.

External measurements of an adult female from La Tuxpeña are: total length, 1032; length of tail, 443; and length of hind foot, 120. Cranial measurements of this specimen and those of another adult female from 81 km. W Chetumal are, respectively: condylobasal length, 87.0, 95.7; zygomatic breadth, 59.7, 63.9; interorbital breadth, 18.0, 16.1; postorbital breadth, 31.0, 27.8; mastoid breadth, 37.6, 39.1; length of maxillary toothrow, 27.8, 30.3; palatal length, 33.8, 36.9.

ORDER SIRENIA

Family TRICHECHIDAE

**Trichechus manatus manatus** Linnaeus, 1758

Manatee

We are unaware of any museum specimens of this aquatic mammal from the Yucatán Peninsula. Gaumer (1917:28) recorded numerous general references to the species occurring along the coasts of Campeche, Quintana Roo, and Yucatán. One specific place he mentioned was the Río Hondo, which forms the border between Quintana Roo and Belice. Jones and Lawlor (1965:416) stated that local residents of Isla Cozumel reported manatees observed occasionally along the west coast of the island and that they were common along the adjacent coast of Quintana Roo. This species may be expected to occur in any of the bays, lagoons, and larger rivers along the coast of the peninsula.

ORDER PERISSODACTYLA

Family TAPIRIDAE

**Tapirus bairdii** (Gill, 1865)

Baird's Tapir

*Specimen examined* (1).—CAMPECHE: 103 km. SE Escárcega, 1.

*Additional records*.—YUCATAN: Actun Lara, 3 km. SW Yokat (Hatt *et al.*, 1953:72, cave deposit); Kántunil (Gaumer, 1917:43).

Our single specimen of this tapir is a skull from an individual of unknown sex that was brought to P. L. Clifton by natives on 6 January 1963. The area southwest of Escárcega is one of dense quasi rainforest with numerous lagunas. It is evident from the paucity of records for this species that it is not common on the peninsula and probably never has been.

Cranial measurements of our specimen are: condylobasal length, 392; zygomatic breadth, 185.5; interorbital breadth, 92.5; postorbital



breadth, 74.0; length of maxillary toothrow (P1-M2), 122.0; palatal length, 215; length of mandibular toothrow (p2-m2), 107.0.

ORDER ARTIODACTYLA

Family TAYASSUIDAE

**Dicotyles tajacu**

Collared Peccary

All specimens of this species obtained by our field parties were purchased from natives. Based upon our records and those of earlier workers, *D. tajacu* evidently occurs throughout the peninsula and occupies most available habitats. Another peccary, *Tayassu pecari*, also occurs on the peninsula and, judging from available specimens, the two kinds are about equally abundant in the region. They have been taken together at many localities.

We follow Woodburne (1968) in use of generic name *Dicotyles* for the collared peccary, and recognize two subspecies (*yucatanicus* and *nanus*) in the peninsular region. The characteristics and distribution of these are discussed below.

**Dicotyles tajacu yucatanensis** (Merriam 1901)

*Specimens examined* (9).—CAMPECHE: 13 km. S Champotón, 10 m., 1; Dzibalchén, 1; 42 km. E Escárcega, 1; 103 km. SE Escárcega, 3. YUCATAN: Tekom, 1 (BM); Tunkas, 1 (USNM); "Yucatan," 1.

*Additional records* (Gaumer, 1917:63, unless otherwise indicated).—QUINTANA ROO: La Vega (Goldman, 1926:49); Tuloom [=Tulum]. YUCATAN: Actun Coyok, 3½ km. SSE Oxkutzcab (Hatt *et al.*, 1953:72, cave deposit); Actun Lara, 3 km. SW Yokat (Hatt *et al.*, 1953:72, cave deposit); Actun Spukil, 4½ km. SSW Calcehtok (Hatt *et al.*, 1953:72, cave deposit); Calotmul; Chichén-Itzá (G. M. Allen, 1906:107); Esmeralda (Hatt and Villa-R., 1950:237); Nabalám; Peto; Río Lagartos; San Anselmo; Temax; Ticul (Hatt, 1938:337); Tizimín; Xbac; Yaxcach.

This subspecies was originally described by Merriam (1901c) on the basis of specimens from Tunkas and Chichén-Itzá. Some subsequent authors, Hatt and Villa-R. (1950:237), Hershkovitz (1951:566), and Hall and Kelson (1959:997), assigned peninsular specimens (from Esmeralda, Tekom, and La Vega, respectively) to the subspecies *nelsoni*. Although there is some geographic variation in color in the available material from the region, we find no justification for recognition of more than one subspecies on the mainland of the Yucatán Peninsula.

Cranial measurements of the adult male holotype from Tunkas (USNM 108282), an unsexed specimen from 42 km. E Escárcega,

and an unsexed specimen from Dzibalchén are, respectively: condylo-basal length, 193, 198, 193; zygomatic breadth, 94.2, 93.9, 93.4; interorbital breadth, 48.6, 48.0, 47.8; postorbital breadth, 56.4, 56.7, 55.4; length of maxillary toothrow, 63.3, 62.2, 63.2; palatal length, 133.1, 146.0, 144.0; length of mandibular toothrow, 66.7, 68.9, —.

**Dicotyles tajacu nanus** (Merriam, 1901)

*Specimens examined* (2).—QUINTANA ROO: Cozumel Island, 2 (USNM).

*Additional records*.—QUINTANA ROO: San Miguel, Isla de Cozumel (Gaumer, 1917:65).

This subspecies, which is confined to Isla Cozumel, was originally described by Merriam (1901a:102) as a distinct species. Its status remained unchanged until Hershkovitz (1951:566-567) reduced it to a subspecies of *tajacu* and questioned the distinctness of *nanus* from the mainland *yucatanensis*. Hershkovitz based his action principally on Gaumer's (1917:65-66) suggestion that this peccary probably was introduced onto the island by natives. Gaumer also stated that peccaries from the region surrounding San Miguel were small as the result of hunting pressure, which he claimed allowed individuals to survive no more than three years. Gaumer believed that peccaries elsewhere on the island reached the size of those on the adjacent mainland.

We have been unable to find any extant specimens to support Gaumer's claim. Also it should be remembered that some specimens of other species that Gaumer recorded as having come from Isla Cozumel did not originate from there (Jones and Lawlor, 1965:417-418). The two extant specimens of which we are aware are much smaller than collared peccaries from the adjacent mainland. The magnitude of the differences between these two taxa is similar to that reported previously in this paper between the two species of *Nasua*. This leads us to question Hershkovitz's earlier action of reducing *nanus* to subspecific rank. However, until more specimens are available from Cozumel and the status of peccaries from the island better understood, we retain *nanus* as a subspecies of *D. tajacu*.

Cranial measurements of the adult male holotype (USNM 108516) and an adult female are, respectively: condylobasal length, 183.5, 180.5; zygomatic breadth, 99.3, 88.3; interorbital breadth, 45.2, 41.4; postorbital breadth, 51.0, 51.3; length of maxillary toothrow, 51.5, 53.8; palatal length, 121.0, 122.6; length of mandibular toothrow, 56.2, 58.1.

**Tayassu pecari ringens** Merriam, 1901  
White-lipped Peccary

*Specimens examined* (9).—CAMPECHE: Apazote, 2 (USNM); 42 km. E Escárcega, 1; 51 km. E Escárcega, 1; 123 km. E Escárcega, 1; 103 km. SE Escárcega, 2. QUINTANA ROO: 86 km. W Chetumal, 2.

*Additional records* (Gaumer, 1917:67).—QUINTANA ROO: Dos Cocos; Tuloom [= Tulum]. YUCATAN: Buctzotz; Calotmul; Izamal; Loché; Peto; San Anselmo; Silam; Suquilá; Tizimín; Tunkas; Xbac; Yaxcach; Yohnicte.

All of the specimens in the collection of The University of Kansas except the one from 123 km. E Escárcega were purchased from natives. The remaining specimen was shot as it crossed a road in an area of dense forest. All of our recent records for this species are from the more mesic southern part of the peninsula, although Gaumer's (1917) earlier reports indicate that it once occurred throughout the region.

The subspecies *ringens* originally was described by Merriam (1901c) on the basis of an adult female from Apazote, Campeche. The name now (Hall and Kelson, 1959:997) is applied to populations in southern México and northern Central America.

Cranial measurements of the holotype (USNM 108279), an adult male topotype, and two unsexed skulls (103 km. SE Escárcega and 86 km. W Chetumal) are, respectively: condylobasal length, 253, 239, 242, 244; zygomatic breadth, 111.6, 108.0, 111.5, 107.8; interorbital breadth, 63.0, 58.8, 65.5, 64.5; postorbital breadth, 72.0, 70.8, 75.7, 74.8; length of maxillary toothrow, 77.3, 73.4, 77.6, 74.0; palatal length, 191.5, 173.8, 178.3, 179.8; length of mandibular toothrow, 83.4, 81.1, 85.7, 81.4.

Family CERVIDAE

**Odocoileus virginianus yucatanensis** (Hays, 1872)  
White-tailed Deer

*Specimens examined* (15).—CAMPECHE: 7 km. S Champotón, 1; 7 km. N, 51 km. E Escárcega, 1; 7½ km. W Escárcega, 65 m., 1; 42 km. E Escárcega, 1; 103 km. SE Escárcega, 1; La Tuxpeña, 5 (USNM). YUCATAN: 6 km. W Tizimín, 2; Tunkas, 3 (USNM).

*Additional records* (Gaumer, 1917:73, 79, unless otherwise indicated).—QUINTANA ROO: Dos Cocos; Tuloom [= Tulum]; Vigía. YUCATAN: Actun Coyok, 3½ km. SSE Oxkutzcab (Hatt *et al.*, 1953:73, cave deposit); Actun Has, 3½ km. WSW Yokat (Hatt *et al.*, 1953:73, cave deposit); Actun Lara, 3 km. SW Yokat (Hatt *et al.*, 1953:73, cave deposit); Actun Spukil, 4½ km. SSW Calcehtok (Hatt *et al.*, 1953:73, cave deposit); Actun Xkyc, 1½ km. SW Calcehtok (Hatt *et al.*, 1953:73, cave deposit); Buctzotz; Calcehtok (Hatt, 1938:337); Calotmul; Chablé; Chichén-Itzá (G. M. Allen, 1906:107); Esmeralda (Hatt and Villa-R., 1950:238); Izamal; Loltun, 5 km. SW Oxkutzcab (Hatt *et al.*,

1953:73, cave deposit); Nabalám; Panabá; Peto; Pocoboch; Río Lagartos; San Anselmo; Silam; Temax; Tzalam; Uxmal; Xbac; Yaxcabá; Yaxcach; Yokat (Hatt, 1938:337); no specific locality (Alston, 1879-82:117).

All of the specimens in The University of Kansas collection were taken by natives and subsequently purchased from them. Most were obtained in areas of relatively dense forest, which may be one of the few habitats in which white-tailed deer have been able to escape heavy hunting pressure. A male taken 7½ km. W Escárcega on 13 July 1962 still had the spotted pelage characteristic of juveniles on the shoulders and flanks. No other reproductive information is available for our specimens.

The white-tailed deer of the Yucatán Peninsula long have been considered a distinct subspecies; however, their relationship to other races of *O. virginiana* is poorly documented. We have retained the use of *yucatanensis* for all white-tailed deer from the peninsula awaiting a detailed study of deer from this region.

Cranial measurements of two adult males from La Tuxpeña and one from 6 km. N Tizimín followed by the same number of adult females from each locality are, respectively: condylobasal length, 243, 244, 226, 226, 224, 227; zygomatic breadth, 104.8, 108.7, 92.4, 94.1, 103.0, 90.0; interorbital breadth, 59.2, 59.5, 54.9, 54.0, 55.5, 49.5; postorbital breadth, 65.4, 68.9, 60.3, 57.3, 59.5, 55.0; length of maxillary toothrow, 66.1, 68.2, 67.5, 69.2, 65.3, 66.6; palatal length, 149.3, 145.8, 141.2, 148.4, 143.0, 149.3; length of mandibular toothrow, 72.0, 73.6, 73.6, 77.4, 71.9, 73.4.

#### ***Mazama americana pandora* Merriam, 1901**

##### **Red Brocket**

*Specimens examined* (10).—CAMPECHE: Apazote, 1 (USNM); Dzibalchén, 3; 42 km. E Escárcega, 2; 103 km. SE Escárcega, 1; La Tuxpeña, 1 (USNM). QUINTANA ROO: 86 km. W Chetumal, 1. YUCATAN: Tunkas, 1 (USNM).

*Additional records* (Gaumer, 1917:83, unless otherwise indicated).—CAMPECHE: Apazote. QUINTANA ROO: Tuloom [=Tulum]. YUCATAN: Actun Xkyc, 1½ km. SW Calcehtok (Hatt *et al.*, 1953:73, cave deposit); Buctzotz; Calotmul; Chichén-Itzá (Hatt, 1938:337); Nabalám; Peto; San Anselmo; Tizimín; Tzalam; Xbac.

All our specimens of this brocket deer were purchased by P. L. Clifton during his work on the peninsula. All we have examined (including specimens taken in January, February, March, and June) were adults except two, both collected on 5 June. These were judged to be subadults because the last molar had not yet erupted. This deer is generally secretive and evidently inhabits areas of dense forest and brush.

The subspecies *pandora* originally was described by Merriam (1901*b*) as a distinct species. It was thus regarded until Hershkovitz (1951) reduced it to subspecific rank under the name *Mazama gouazoubira pandora*. Hershkovitz considered *pandora* to be a brown brocket because of its small size and generally brownish coloration. However, Hershkovitz (1966:743) later concluded, and we agree, that *pandora* is a subspecies of the red brocket, *Mazama americana*, which occurs elsewhere in southern México and Central America.

Cranial measurements of three adult males from Tunkas (holotype, USNM 108273), 42 km. E Escárcega, and 86 km. W Chetumal are, respectively: condylobasal length, 173.5, 169.4, 161.5; zygomatic breadth, —, 74.8, 76.2; interorbital breadth, —, 39.4, 42.9; postorbital breadth, 51.7, 49.0, 49.5; mastoid breadth, 61.3, 61.4, 55.7; length of maxillary tooththrow, 49.5, 50.7, 50.1; palatal length, —, 108.2, 100.1; length of mandibular tooththrow, 56.4, 56.2, —. Cranial measurements of four adult females from La Tuxpeña, Apazote, 103 km. SE Escárcega, and Dzibalchén are, respectively: condylobasal length, 161.5, 171.3, 160.9, 161.5; zygomatic breadth, 75.1, 79.9, 77.7, 72.8; interorbital breadth, 37.9, 38.2, 37.5, 38.5; postorbital breadth, 46.9, 47.1, 48.0, 49.9; mastoid breadth, 54.7, 60.4, 56.4, 59.6; length of maxillary tooththrow, 49.7, 51.6, 51.4, 50.0; palatal length, 102.0, 108.3, 103.7, 102.0; length of mandibular tooththrow, 56.6, 58.2, 59.2, 57.3.

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