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MAMMALS FROM GUATEMALA AND BRITISH HONDURAS

BY
ADOLPH MURIE

ANN ARBOR, MICHIGAN
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July 15, 1935

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FREDERICK M. GAIGE

Director of the Museum of Zoology

UNIVERSITY OF MICHIGAN
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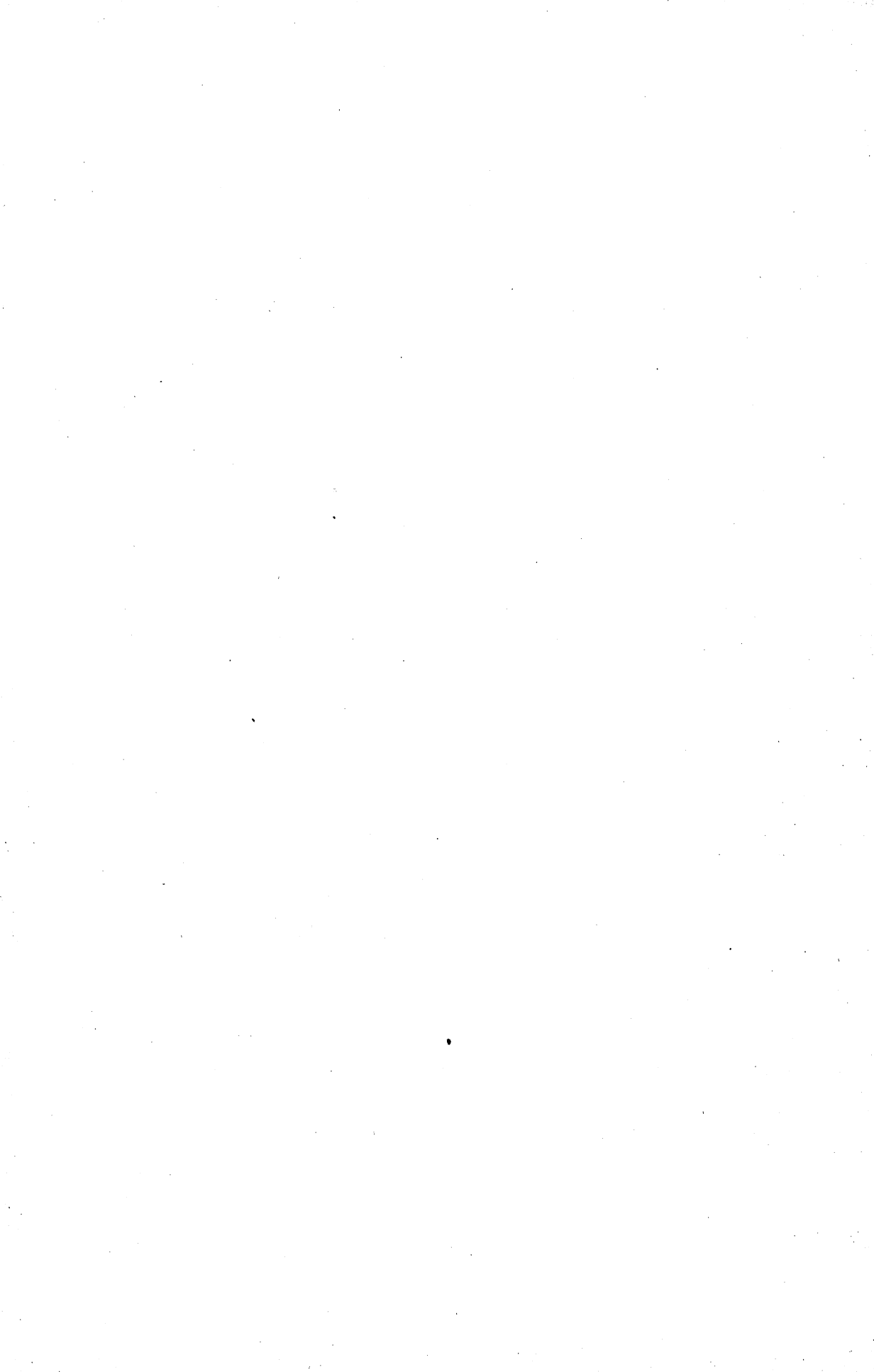
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MAMMALS FROM GUATEMALA AND BRITISH HONDURAS

The first Museum of Zoology Expedition to Guatemala arrived at Belize, British Honduras, January 26, 1931. Professor H. H. Bartlett, botanist, and Dr. Josselyn Van Tyne, ornithologist, were my companions on the expedition. C. Wythe Cooke, geologist from the United States Geological Survey, was with us part of the time. Our purpose was to make a biological study at Uaxactun, in the Department of Petén in northern Guatemala, where the Carnegie Institution of Washington has been excavating Mayan ruins since 1925.

At Belize we were met by Monroe Amsden, the agent of the Carnegie Institution, who in a most efficient manner arranged transportation and aided us in many ways during our sojourn in the region. The prolongation of the rainy season, with resulting wet and almost impassable trails, prevented us from proceeding at once to Uaxactun. The delay, however, was to our advantage for it enabled us to work in other localities and still have sufficient time to make extensive collections at Uaxactun.

While waiting for transportation to El Cayo, the first lap of our journey to Uaxactun, Van Tyne and I spent about two weeks collecting on the outskirts of Belize. On February 9, our party, with Amsden, embarked for El Cayo on a river launch towing two long pitpans loaded with our outfit and other freight. After three days of travel up the Belize River, over several rapids and through many shallow channels, we reached El Cayo, a village in western British Honduras, about one hundred and thirty-five miles by river from Belize.

Since we could not proceed to Uaxactun for several weeks due to the general delay resulting from the continued rains, we decided to collect on some of the interesting pine ridges near El Cayo. Mules for transportation were engaged, enabling Van Tyne and me to set out for the Mountain Pine Ridge, twelve miles south of El Cayo, the day after our arrival. Due to the general inefficiency of the muleteers a short day's journey was negotiated in a day and a half, and we arrived at our camp site February 14.¹ Here we were later joined by Bartlett and Cooke. The pine ridge country, with its park-like aspect, was a most delightful place to work in spite of black flies which became quite noticeable on certain days.

On March 9, we returned to El Cayo to collect until we left for Uaxactun,

¹ During our stay at this site we were close to the old camp of M. F. Blancaneaux, the Frenchman who made numerous collections for Salvin in British Honduras. Much of Blancaneaux's material came from this area, and his camp itself was situated on the northern edge of the Mountain Pine Ridge.

March 23. After four days of mule travel through rain forest, we arrived there at the well-organized Carnegie Institution camp. We were provided with most comfortable quarters and ideal working conditions due to the efforts of Ledyard Smith, leader of the 1931 excavation party, and to Monroe Amsden. We collected at Uaxactun until May 21, when we left for El Cayo where we arrived four days later. At the Belize River we loaded our outfit into a waiting launch and the following day arrived at Belize.

This paper is mainly devoted to an annotated list of the mammals collected at Belize, El Cayo, Mountain Pine Ridge, and Uaxactun. It is based on seven hundred and twelve specimens taken on the trip and fifty-six specimens collected at El Cayo by Tom Mendes after my departure from the country. Two or three forms which were not collected, but whose tracks alone were seen, are included in the annotated list. More work in the region would add many additional forms to the list.

I am indebted to Monroe Amsden and Ledyard Smith of the Carnegie Institution of Washington for their coöperation at all times during the course of the field work, to P. W. Shufeldt for his many favors, and to the authorities of the United States Biological Survey and the National Museum for the use of the material in their care. Special acknowledgments are due E. A. Goldman, A. H. Howell, and H. H. T. Jackson of the United States Biological Survey for assistance in making identifications. I am indebted to Tom Mendes, a native of British Honduras who assisted me for six weeks, for his untiring efforts in the field. The expedition was greatly benefited by the careful planning and foresight of F. M. Gaige, Director of the Museum of Zoology, University of Michigan, who is in charge of the Museum of Zoology biological investigations in the Mayan area.

The map, compiled and drawn by Dr. L. C. Stuart, is based primarily on Mr. H. Wadell's map (unpublished) of the Petén and on Mr. P. W. Shufeldt's map of northeastern Petén.² Additional data were secured from Mr. O. A. Taintor of La Libertad, whose long experience in Petén enabled him to make corrections and additions. The map was then recorrected by Mr. P. W. Shufeldt, and I believe that it now shows rather accurately the major features of the region.

PHYSIOGRAPHY AND CLIMATE

British Honduras and the Department of Petén in northern Guatemala lie within the humid tropical zone and for the most part are covered with a rain forest. In British Honduras there are a number of pine and oak savanna areas and a few mountains which rise to an elevation of about four thousand feet. The Petén is a low lying plain, slightly hilly, whose elevation is for the most part less than one thousand feet above sea-level.

² Published in part in C. W. Cooke, "Why the Mayan Cities of the Peten District, Guatemala, were abandoned," *Journ. Wash. Acad. Sci.*, 21, 13, 1931: 283-287, figure.

There are two distinct seasons, a wet and a dry; the wet season extends from late May to late January, the dry season from January to June. During our stay in 1931, rains occurred occasionally throughout the dry season. After our arrival on January 26, it rained on the following days:—January 26, 27, 28, 29, 30; February 8, 9, 10, 15, 20, 22, 25; March 2, 9, 12, 13, 18; April 4, 5, 11, 22, 23, 28; May 19, 20. The showers were light except on the dates italicized, when it rained quite hard. On April 11, it rained all day.

COLLECTING METHODS

Mammals in general appeared to be scarce in all the regions visited. Hunting at night with a powerful spotlight yielded but one or two opossums, a long-tailed cat, and eight kinkajous, although my hunter and I were out with the light a number of times. During the day we occasionally saw a few squirrels and howler and spider monkeys.

For hunting any of the large game animals such as deer, peccaries, or jaguars the natives use a shotgun and shells loaded with BB or heavier shot. The animals are generally seen at close enough range to make the shotgun effective. I found that a twenty-gauge served very well for all kinds of game, although a rifle would have been useful in shooting monkeys from the upper branches of the tall trees.

For trapping small mammals, snap-traps and Sherman live-traps were used. The live-traps worked very well, and the animals secured generally remained alive and unmolested by ants. Although specimens taken in snap-traps were often partially devoured by ants, as a rule a large proportion were in good enough condition to be made into satisfactory skins. The snap-traps were used in conjunction with the live-traps at times when it was desirable to have a large number of traps set. A few steel traps netted several opossums, but none of the other larger forms.

A method of bat collecting which was entirely new to me was discovered at Uaxactun by Van Tyne³ in the course of netting birds. A linen trammel net, about forty feet long and six feet high, which Oliver L. Austin, Jr., of the United States Biological Survey had loaned Van Tyne, proved very serviceable for capturing bats. When set, the net was stretched between two trees the proper distance apart, with the bottom staked along the ground. First, however underbrush and branches were cleared away so as not to become entangled in the net, and to allow for a trail in attending it. For a time the net was set in the forest about one hundred yards from the clearing and later moved to within a few yards of the clearing in a dense growth of

³ See Josselyn Van Tyne, "The trammel net as a means of collecting bats," *Journ. Mammalogy*, 14, 1933: 145-146.

saplings. Bats were caught in both situations. They were caught in all parts of the net, several at its very base, only a few inches from the ground. Practically every bat had its mouth full of net which was often so badly chewed that it required much mending.

Between April 14 and May 14 inclusive, fifty-five bats of five species were captured in the net. None of these species were secured in any other manner. The largest catch was made on April 17, when sixteen bats of two species were taken. On another occasion, although only five bats were caught, they represented four species.

The following bats were taken in the net: *Glossophaga soricina leachii*, one, *Carollia subrufa*, two, *Artibeus jamaicensis yucatanicus*, eight, *Artibeus nanus*, forty-three, and *Desmodus rotundus murinus*, one.

ECOLOGY

Insufficient work was done for the presentation here of a detailed discussion of the ecological communities. I shall give, however, a brief description of the different localities in which I collected, with such notes as I have on mammalian distribution.

Belize.—Belize is entirely surrounded by swamps. The soil in the swamps is wet and muddy with scarcely any ground cover. There are a few wet pastures, where the underbrush and many of the larger trees have been cleared away, which support a growth of closely grazed grass. Some of the shore line and most of the keys are covered with mangrove.

Didelphis and *Metachirops* were abundant in the region and raccoons were fairly common, judging by their tracks. I trapped for eight nights in this locality using both steel and snap-traps. Six *Didelphis* and eleven *Metachirops* were taken in the steel traps. Those visited by raccoons had already been sprung, either by a crab or an opossum, with the result that no raccoons were taken. Two squirrels (*Sciurus yucatanensis baliolus*), seen in a pasture, were both secured. A *Tamandua*, purchased from a native, was said to have been taken three miles from Belize.

No small terrestrial rodents of any kind were secured. Their absence here is probably due to the flooding of much of the region during the rainy season.

I spent a day on a pine ridge, ten miles up the Belize River, where I saw several deer tracks and a number of runways in the sedges probably made by *Oryzomys*.

Mountain Pine Ridge.—There are a number of extensive areas in British Honduras, supporting a growth of pine (*Pinus caribaea*) and oak, which are commonly known as pine ridges. In places some of these ridges occur at sea-level, but generally they are found at higher elevations.

From El Cayo to the Mountain Pine Ridge, twelve miles south of El

Cayo, the terrain rises gradually from an elevation of two hundred and fifty feet above sea-level, to an elevation of about fifteen hundred feet. The trail from El Cayo to the Mountain Pine Ridge winds over many hills through a heavy rain forest, from which it abruptly emerges from the shadows into a park-like region of widely spaced pines.

The underlying rock of the Mountain Pine Ridge is composed of granite and some slate. The soil is gravelly and shallow and in many places bed-rock crops out on the surface. The trees consist principally of tall pines, with here and there a clump of scrub oak, the latter seeming to occur where the soil is more sandy in nature. Sedges form a sod over most of the ridge. A few scattered palmettos grow near the streams, at the heads of draws, and in wet places caused by seepage. The ridges are cut up by numerous ravines which flatten out toward their sources. The clear creeks in places flow rapidly over a bedrock bottom to form many falls and deep pools. Where the streams flow more quietly they are bordered by marshy areas supporting a growth of tall sedges and herbs.

Most of the mammals found on the pine ridge really belong to the rain forest fauna. There are three forms, however, which, according to my trapping records, seem to be restricted to the pine ridge, *Cryptotis micrura*, *Reithrodontomys gracilis*, and *Oryzomys couesi pinicola*. *Sigmodon*, plentiful on the pine ridge, was also common in the clearings at El Cayo and Uaxactun. A specimen of *Molossus aztecus* was found in the stomach of a bat falcon shot on the pine ridge. Of course the falcon may have captured the bat elsewhere. As pointed out later, the opossums of the pine ridge and vicinity differ in several respects from those taken at Belize and Uaxactun.

Cryptotis, *Reithrodontomys*, and *Oryzomys couesi pinicola* are rather closely restricted to a marshy habitat found bordering streams. The vegetation of this habitat consists mainly of tall sedges and herbs. In places the ground is quaggy and partially flooded. The three *Reithrodontomys* secured and three of the four *Cryptotis* were taken in a marsh. The fourth *Cryptotis* was taken among some palmettos at the head of a draw.

Sigmodon did not occur in the marsh proper, but a number were taken in the tall sedges bordering the marsh and in the sedges bordering the parts of the streams where no marsh existed. Specimens were also found in the sedges on the slopes and tops of the ridges.

Collections were made on the Mountain Pine Ridge from February 13 to March 9. Mammals in general were scarce. The following forms were either taken, seen, or their tracks noted.

<i>Didelphis mesamericana tabascensis</i>	<i>Molossus aztecus</i>
<i>Metachirops opossum pallidus</i>	<i>Nasua narica narica</i>
<i>Cryptotis micrura</i>	<i>Felis concolor mayensis</i>

<i>Heterogeomys hispidus yucatanensis</i>	<i>Pecari angulatus yucatanensis</i>
<i>Reithrodontomys gracilis</i>	<i>Odocoileus thomasi</i>
<i>Oryzomys couesi pinicola</i>	<i>Mazama sartorii cerasina</i>
<i>Sigmodon hispidus saturatus</i>	<i>Tapirella dowii</i>

The Mountain Pine Ridge is surrounded by rain forest which in some places supplants the pines abruptly, in others more gradually. In the latter circumstance there is a transition area between the pine ridge and the rain forest. Transition areas apparently occur where the soil is of an intermediate character—too poor to support a rain forest and too rich to enable the pines to compete with some of the rain forest vegetation. These areas differ, therefore, in composition according to the richness of the soil, but are of a more scanty and open nature than the rain forest. As the soil becomes poorer rain forest plants drop out until the soil will support only pines. The area near our camp on the Mountain Pine Ridge was not very well defined, and differed but slightly from the typical rain forest. In places it followed streams short distances into the pine ridge, carrying with it a few *Oryzomys alfaroi alfaroi*.

Oryzomys a. alfaroi and *Heteromys* were fairly abundant in this intermediate situation. The one specimen of the climbing rat, *Tylomys*, was taken near the bank of a creek which separated the transition from the pine ridge area.

The mammals of the transition area are about the same as those of the rain forest except for the probable absence of monkeys. I found no form restricted to the area, but *Oryzomys alfaroi alfaroi* was much more abundant there than anywhere else, only two of this species being taken at Uaxactun and none at El Cayo.

El Cayo.—After returning to El Cayo from the Mountain Pine Ridge on March 9, collections were made until March 26. Much of the land along the river and in the immediate vicinity of El Cayo has been cleared, but tracts of virgin forest still exist. Traps set in the rain forest across the river from El Cayo yielded nothing, although some of the traps had been sprung. Van Tyne shot a *Sciurus deppei vivax* in this forest. Extensive trapping in a plantation yielded but four *Sigmodon* and some *Heterogeomys*. The pocket-gophers were common in the plantations and, according to one of the natives, became numerous enough at times to menace the crops. Many of the mammals were scarce near El Cayo, probably because of the persistent hunting by the natives. During two nights of hunting with a light on the Belize River, I saw but one *Didelphis* and two *Metachirops*.

The Duck Run Pine Ridge lies about five or six miles from El Cayo. The trees of the part of this ridge visited by me are principally scrub oaks, differing in this respect from the Mountain Pine Ridge where pines are

dominant. About a hundred traps set in the sedges yielded but seven *Sigmodon*. Several raccoon tracks were noted, and according to natives armadillos were common. I saw no squirrels in the oaks, but Tom Mendes, my hunter, informed me that at certain seasons squirrels moved into the region to feed on the acorns.

Adjacent to this pine ridge is a rather broad belt transitional toward rain forest, with vegetation more sparse than that found in the similar area near the Mountain Pine Ridge. Two *Heteromys* and several *Didelphis* were taken here. The latter species was unusually plentiful.

An extensive area, consisting almost exclusively of cohune palms and known locally as a "cohune ridge," lies near the transition area. The cohune ridges apparently occur throughout the rain forest. The soil consists of a heavy black mud, apparently very deep, and there is scarcely any ground cover. A number of agouti and armadillo tracks were noted, and in places there were well-worn trails used by both of these forms. A number of *Sciurus deppei vivax* were seen feeding on the nuts of palms. A few cougar tracks were seen in the soft mud. A number of snap-traps and live-traps set in the cohunes yielded nothing.

Uaxactun.—About sixty-five miles in a northwesterly direction from El Cayo is Uaxactun. The land in general is hilly except in the logwood swamps or *bajos* where it is quite level. At Uaxactun there are at least three major habitats, rain forest, *bajo* swamp, and clearing. These habitats are rather comprehensive and could undoubtedly, for our purpose, be profitably subdivided if there were more information on the distribution of the mammals.

The rain forest is here considered as a single unit although it is obviously not of uniform composition. To illustrate: my hunter, when trying to secure specimens of *Mazama*, hunted on what he called "bread-nut ridges," evidently a distinct type of rain forest in which bread-nut is abundant. The rain forest at Uaxactun is about the same as that at El Cayo. In many places there is but little underbrush. Scattered throughout the rain forest there are numerous water holes or *aguadas*, resulting from an accumulation of water during the wet season. As the dry season advances many of them dry up. There are so many *aguadas* that there is no concentration of mammals at any of them.

The following mammals were either secured or their tracks noted in the rain forest at Uaxactun.

<i>Didelphis mesamericana tabascensis</i>	<i>Glossophaga soricina leachii</i>
<i>Metachirops opossum pallidus</i>	<i>Carollia subrufa</i>
<i>Saccopteryx bilineata centralis</i>	<i>Artibeus jamaicensis yucatanicus</i>
<i>Peropteryx canina canina</i>	<i>Artibeus nanus</i>

<i>Desmodus rotundus murinus</i>	<i>Heteromys desmarestianus desmarestianus</i>
<i>Tadarida yucatanica</i>	<i>Oryzomys couesi couesi</i>
<i>Nasua narica narica</i>	<i>Oryzomys alfaroi alfaroi</i>
<i>Potos flavus campechensis</i>	<i>Ototylomys phyllotis phaeus</i>
<i>Tayra barbara senex</i>	<i>Dasyprocta punctata yucatanica</i>
<i>Urocyon parvidens</i>	<i>Cuniculus paca nelsoni</i>
<i>Felis onca goldmani</i>	<i>Pecari angulatus yucatanensis</i>
<i>Felis pardalis pardalis</i>	<i>Tayassu pecari ringens</i>
<i>Felis glaucula yucatanica</i>	<i>Odocoileus thomasi</i>
<i>Felis concolor mayensis</i>	<i>Mazama sartorii cerasina</i>
<i>Alouatta palliata pigra</i>	<i>Tapirella dowii</i>
<i>Ateles pan</i>	<i>Tamandua tetradactyla mexicana</i>
<i>Sciurus deppei vivax</i>	<i>Dasyppus novemcinctus mexicanus</i>
<i>Heterogeomys hispidus yucatanensis</i>	

The trail from El Cayo to Uaxactun passes through several extensive *bajos*, one of which is perhaps five miles in width. The vegetation of these swamps consists of small trees and shrubs, more or less scrubby in nature. During the rainy season the *bajos* are often flooded with several feet of water. According to the natives, the mammals at this season move to the higher ground, returning again as the dry season advances. For this reason some forms, such as deer, can be hunted more successfully during the wet season when game is concentrated on the higher ground. *Aguadas* in the *bajos* are, no doubt, more permanent than those on high ground. Some of these *aguadas* were populated with several species of fishes which would indicate that they were connected with a river during the rainy season. An *aguada* near Uaxactun was swarming with several species of fishes which, as the water evaporated, all died. Cats and opossum frequented this *aguada*, to feed on the fish, no doubt, as well as to drink.

None of the rodents except the squirrel, *Sciurus d. vivax*, were taken in an extensive *bajo* near Uaxactun although traps were set for the smaller rodents for several nights. There probably is very little invasion of the *bajo* by small rodents at any time. During the wet season the terrestrial forms would be drowned.

At Uaxactun where the land has been cleared to serve as a pasture for the mules, there is an extensive, rank, grassy area. *Sigmodon* is exceptionally numerous throughout the clearing as well as in a near-by plantation. Apparently, it is confined to the clearings for not one was taken in the forest. *Oryzomys c. couesi* was also taken throughout the clearing, but was more numerous in the buildings and in the area near an *aguada*. Only two were taken in the forest, one along a trail, the other at an *aguada*. *Sigmodon* and *Oryzomys c. couesi* were the only species taken in the clearing.

ANNOTATED LIST OF MAMMALS

Except for the skunk, jaguar, and tapir, specimens were secured of all the fifty-one forms here listed. No manatees were collected, but some of the bones were gathered on one of the keys near Belize.

In many instances specimens are not typical of any described forms, yet are not enough different to be recognized as new, at least not until more material is available. For example the single specimen of *Urocyon* is far from typical of any of the Yucatan foxes which it approaches, and the three *Reithrodontomys* taken are somewhat darker than typical specimens from Yucatan. Additional material will clear up the status of many of the forms now somewhat uncertain.

The nomenclature followed is that of G. S. Miller, Jr.⁴ A few forms described since his list are included. The common name is followed by the local name in parenthesis. The Mayan names appearing in the annotated list, italicized, were supplied by Professor H. H. Bartlett. Where two names are given for the same animal, the second is the expanded form of the first, which is the root form.

Didelphis mesamericana tabascensis Allen

Opossum, (Zorro), *ah och: zic och*

A total of twenty-four specimens of *Didelphis* were taken from the following localities: Belize, six; Uaxactun, eight; Mountain Pine Ridge, four; pine ridge, five miles north of El Cayo, six. The specimens from the two pine ridges tend to be similar, but differ in several subspecific characters from specimens taken at Belize and Uaxactun, which also tend to be similar.

The pine ridge specimens differ from those from Uaxactun and Belize in shape of nasals, amount of black on the tail, and ratio of tail length to body length. All of the skulls from the two pine ridges have nasals pointed posteriorly; of the five skulls from Belize, three have truncated nasals and two somewhat pointed nasals, and all of the skulls from Uaxactun have more or less truncated nasals. In all of the pine ridge skins only the proximal one-third of the tail is black, while, with one exception, one-half to two-thirds of the tail is black in the skins from Uaxactun and Belize. The tail of the one exception is black for but one-third of its length. The pine ridge specimens have a proportionately longer tail than the specimens from Uaxactun and Belize as shown by the following average tail ratios obtained by dividing tail length by body length: tail ratio of Mountain Pine Ridge specimens, 112; tail ratio of specimens from pine ridge five miles north of El Cayo, 100; tail ratio of specimens from Belize, 87; tail ratio of

⁴ "A List of North American Recent Mammals, 1923," *U. S. Nat. Bull.*, 128, 1924: i-xvi, 1-673.

specimens from Uaxactun, 88. The specimens from Uaxactun and Belize average a little larger in size than those from the pine ridges. One-half of the specimens from each of the pine ridges is in the black phase; all of the specimens from Uaxactun and Belize are in the grey phase.

The differences between the two series of opossums discussed above are probably as great as those existing between some of the recognized forms. More material from the region may show that the opossum associated with the pine ridge is subspecifically distinct from that found in the rain forest. It seems best, until more is known, to refer both series to the same subspecies, *tabascensis*, although the specimens from the pine ridge approach *yucatanensis* in various characters.

Skins taken in February showed some wear on the pelage, but were in much better conditions than those taken later in the spring. The most ragged and worn pelages were taken in late April and in May; in some of the skins secured at this time many of the guard hairs are missing. All opossums taken were fat. The tail, ears, and body were generally infected with many ticks.

Nine of the eleven females taken carried young in the pouch, each young attached to a teat. The records are tabulated below:

Number	Locality	Date	Number in Litter	Total Length of Young
63000	Pine ridge, 12 miles south of El Cayo	Feb. 15, 1931	8	9 mm.
63001	"	Feb. 19, 1931	7	
63002	"	Feb. 28, 1931	7	75 mm.
63003	"	March 3, 1931	5	18 mm.
63149	Pine ridge, 12 miles north of El Cayo	March 14, 1931	9	90 mm.
63557	Uaxactun	April 10, 1931	14	112 mm.
63558	"	April 21, 1931	17	15 mm.
63562	"	May 14, 1931	10	20 mm.
63564	"	May 14, 1931	11	200 mm. (Eyes open)

Metachirops opossum pallidus (Allen)

Opossum, (Comadreja), *kan ah tzilih och*

Eleven specimens were trapped in the swamps and wet pastures near Belize. Numerous tracks indicated that the animals were abundant in this region. Three of the four specimens from the Mountain Pine Ridge were taken along a stream about one-fourth mile from the edge of the pine ridge. In the sedges of the pine ridge, especially near the streams, were numerous well worn trails about five inches wide, which were apparently made by these opossums. Many of the trails led from one ground burrow to another. At the end of one of the burrows, about fifteen inches from

the entrance, I found a nest ten inches in diameter, composed of dry sedges. Only one *Metachirops* was trapped along these trails although a number of steel traps were set. This individual, a male, was secured at the entrance to one of the burrows.

At El Cayo one specimen was taken. Two others were seen at night, one among the branches of a small tree overhanging the river, the other on the bank of the river.

Only three specimens were taken at Uaxactun. One of these was captured in a steel trap set near a snap-trap which had been robbed on two successive nights.

Four of the nine females carried young in the pouch as follows: No. 1439, from Belize, February 6, carried five young of 22 mm. (total length); No. 1719, from Uaxactun, March 29, carried four young of 20 mm.; No. 1777, from Uaxactun, March 31, carried seven young of 55 mm.; No. 2133, from Uaxactun, May 9, carried seven young of 151 mm.

Two earthworms were found in the stomach of a specimen taken near Belize.

All of the opossums captured were quite fat.

An opossum was found in the stomach of a spectacled owl (*Pulsatrix perspicillata saturata*) taken near Yaloch.

Cryptotis micrura (Tomes)

Shrew

Four specimens of this wide ranging form were captured on the Mountain Pine Ridge. Three of the shrews were taken in a marsh, and one at the head of a draw containing a few scattered palmettos. A vase found in the ruins at Uaxactun contained skeletal remains of one hundred and four of these shrews as determined by counting the mandibles, which were quite well preserved. The vase may have formed a natural trap for the shrews, or possibly they were placed there by the Mayas as part of some ceremony. None were trapped at Uaxactun although a special effort was made to secure them.

Rhynchiscus naso priscus G. M. Allen

Mexican Long-nosed Bat

Twenty-six specimens of this bat were taken along the Belize River in the vicinity of El Cayo. Along the upper reaches of the Belize River these bats, in groups ranging from six to thirty individuals, were noted on the under side of sloping trunks and root buttresses of large trees growing at the water's edge. A few were observed on the sheltered part of logs caught in snags, and a group of seven was found near the entrance of a shallow limestone cave facing the water. Generally these bats rested about

six feet from the surface of the water. In the course of thirty miles along the Belize River they were noted on twenty different trees, and undoubtedly there were many which escaped observation. None were seen on the lower reaches of the river. When frightened, a group would fly off together and alight on a near-by tree similar to the one vacated. Both sexes were found together on the same tree. During the night several of these bats were noted resting on tree trunks.

Of thirteen females examined, eight contained a single embryo each, and one, shot March 20, had a 41 mm. young attached to it. Six females taken March 10 each contained one embryo, the embryos ranging in size from 8 mm. to 24 mm. in length. On March 20, a 24 mm. embryo was found in a female and a 20 mm. embryo in another.

Saccopteryx bilineata centralis Thomas

Greater White-lined Bat

At Uaxactun, eleven females and three males were taken from well-lighted rooms in two of the Mayan temples. At Tikal eight specimens were captured in a well-lighted room at the top of a temple two hundred feet high. Five of the six females secured March 28, each contained one 8 mm. embryo. Two females taken on May 8 each contained an 18 mm. embryo.

Pteropteryx canina canina (Wied)

Dog-like Bat

Nineteen bats of this species, thirteen females and six males, were shot as they hung from the walls of the rather well-lighted rooms in one of the ruins at Uaxactun. A few of the bats hung from some palm thatching, barely out of the direct sunlight, at one of the entrances to the rooms.

Six of the eight females skinned contained one embryo each, and one carried a young. On March 27, a captured female contained a 20 mm. embryo, another, a 14 mm. embryo, another, a 7 mm. embryo. On March 31, a female was taken with one young, and another female with a 12 mm. embryo; on April 11, two females each contained one 15 mm. embryo.

Glossophaga soricina leachii (Gray)

Leach's Long-tongued Bat, (Leaf-nosed bats), *zots: ah zots*

At Uaxactun a female was taken in the bird net on May 2.

Carollia subrufa (Hahn)

Short-tailed Bat

Two females were secured at Uaxactun in the bird net, one on May 2, and the other on May 11.

Artibeus jamaicensis yucatanicus Allen

Bat

On the morning of April 17, seven males and a female were taken in the bird net at Uaxactun.

Artibeus jamaicensis palmarum Allen and Chapman

Bat

Two specimens were secured by a native on a cohune ridge near El Cayo. Apparently they were shot as they hung from a palm.

Artibeus nanus Andersen

Bat

Forty-three specimens, nineteen females and twenty-four males, were taken in the bird net at Uaxactun. Seven of the twenty specimens skinned are greyish in color, the others are brownish. The sagittal crest of the grey individuals is not as well developed as it is in the brown individuals; this indicates that the grey coat is a subadult pelage. The amount of vaulting in the skull is variable and apparently is due to individual variation and not to age difference. A female taken April 15 contained a 30 mm. embryo.

The specimens were taken from April 14 to May 23.

Desmodus rotundus murinus Wagner

Mexican Vampire Bat

A single specimen was taken in the bird net at Uaxactun on May 2. A horse tethered in the clearing at Uaxactun was attacked apparently by one of these bats, for in the morning one of its shoulders was covered with blood. At Tikal, a bat, presumably of this species, alighted on Professor Bartlett during the night. His sudden start frightened it away. According to the natives this bat is rather common in the region.

Tadarida yucatanica (Miller)

Free-tailed Bat

In a dark attic above a pool room in El Cayo, I collected twenty-five of these bats. There were probably one hundred and fifty of them in the attic. At Uaxactun on April 17, a female was taken just at dusk on the porch of the main building; on May 13, another female which flew into the kitchen during the evening was secured. No embryos were found in the eleven females skinned.

Molossus nigricans Miller

Black Mastiff Bat

At El Cayo four females were found hidden under the rafters in the same attic in which a number of *Tadarida yucatanica* were taken.

Molossus aztecus Saussure

Aztec Mastiff Bat

Remains of this bat were found in a bat falcon, *Falco albigularis albigularis*, which I secured on the Mountain Pine Ridge, February 16, 1931.

Procyon lotor shufeldti Nelson and GoldmanRaccoon, (Mapachin), *ah cululu*

A subadult female was secured at El Cayo. E. A. Goldman, who has examined the specimen, states that it is similar to *shufeldti* from Campeche, but differs enough in certain characters to suggest the possibility of a new form occurring in the region. More material would be desirable to determine its exact status.

In the swamps at Belize, raccoon tracks were common. On several occasions crabs caught in traps set for raccoon were eaten by raccoons. A few tracks were noted on the cohune and pine ridges five miles north of El Cayo. No sign of them was seen at Uaxactun. Natives stated that the animal is often taken in cornfields when the corn is in the milk.

Nasua narica narica (Linnaeus)Coati, (Pisote), *ah chiic*

A skeleton of a coati, apparently eaten by some carnivore, was picked up on Mountain Pine Ridge. Six specimens were secured and a few others seen at Uaxactun. On March 26, a female was shot from a group of five or six which climbed ten or fifteen feet up a tree at our approach. After the one was killed the others jumped to the ground and hurried away. A band of the same number was noted later; these individuals behaved in a similar manner. Two of the specimens secured were adult males, both of which were alone when shot. The natives believe that there are two species, one of which is always found in groups and the other singly. The explanation for their view lies in the fact that the old males are generally alone.

The stomach of the male taken April 28 contained palm seeds, fruit pulp, and the remains of an immature rat, species unidentified. The stomach of a male taken May 3 was distended with wild figs. The animal's tail was infected with four screw worms. A female taken April 15 carried four thinly haired embryos of 15 mm. All of these animals were quite fat.

Potos flavus campechensis Nelson and GoldmanKinkajou, (Night-walker), *ah ciuitz*

The specimens are near *campechensis*, but are not typical. Eight specimens were secured and another seen at Uaxactun. One was taken by a

native on March 28, and later a group of seven, feeding on fruit, were shot on a single night by a native hunting with a spotlight. Five of the seven were females. Since some of them were immature they varied considerably in size, the largest weighing nine pounds, the smallest two and one-half pounds. At El Cayo one of the natives kept a kinkajou as a pet.

Tayra barbara senex (Thomas)

Tayra, (Bush dog), *upek il kaax : zanhol*

Near Uaxactun a nine pound female, which had been treed by dogs, was shot by one of the natives. In its stomach were the remains of a squirrel; the intestines were full of fruit pulp. The last lower molar on both sides is absent. The natives in this region are quite familiar with the tayra, which is not infrequently seen.

Conepatus sp.

Skunk, (Zorrillo), *ah pay*

Although I saw no sign of any skunks, Tom Mendes had seen the pole cat at El Cayo. Doctor Patterson stated that, on one occasion, skunks had taken up their abode under his house at El Cayo.

Urocyon parvidens Miller

Grey fox, (Gato monte), *uah miz il kaax*

The specimen taken agrees quite well with the description of *parvidens*, but in some characters approaches *fraterculus*. About ten o'clock one morning while passing down a dry creek bed I heard guttural growls issuing from the bordering shrubbery a little distance ahead. In a short time the growling ceased and a fox walked out on a log which had fallen across the creek. I shot the fox. Its stomach was nearly empty, containing only a large beetle and a small amount of Sapodillo (*Achras zapota*) fruit. On several occasions the caretaker at Uaxactun saw a fox attacking his chickens. Once a mangled chicken was recovered and on one or two other occasions the fox made away with a chicken. Mr. Shufeldt stated that foxes met along the trail appeared absolutely fearless.

Measurements: total length, 722 mm.; tail length, 268 mm.; hind foot length, 105.4 mm.; weight four and one-half pounds.

Felis onca goldmani Mearns

Jaguar, *balum*

Many scratchings, which my hunter stated were made by jaguars, were noted along the trails. On the evening of May 8, my hunter met a jaguar a few yards from the edge of the clearing at Uaxactun, just as he was starting to hunt with a spotlight. He fired at it with the shot gun as it

came around a curve in the trail about fifteen yards away. The wounded animal jumped through the brush and disappeared. We followed the bloody trail for over a quarter of a mile, but the bleeding stopped, and we were unable to continue the pursuit. We put some untrained dogs on the trail, but they showed no inclination to follow it. The caretaker at Uaxactun lost a dog or two during our stay, a loss attributed by him to the jaguar. The native hunters are as a rule not afraid of the animal; they hunt it with shot guns loaded with large shot.

Felis pardalis pardalis Linnaeus

Ocelot

One specimen was secured from a native at El Cayo. A young ocelot captured early in March at Uaxactun was kept as a pet by Ledyard Smith for over a month. Judging from the number of signs, the ocelot is common at Uaxactun. On April 20, I found several tracks, which were probably those of the ocelot, at an *aguada* in which numerous fish were dying because of the gradual evaporation of the water.

Felis glauca yucatanica Nelson and Goldman

Long-tailed Cat

On the night of April 7, a female was shot by a native on one of the trails near Uaxactun. It contained a 125 mm. embryo, sparsely covered with short hairs.

The specimen agrees quite well with the type of *yucatanica* except that the spots are darker in color.

Measurements: total length, 905 mm.; tail length, 370 mm.; foot length, 120 mm.; ear from notch, 51 mm.; weight (including embryo), seven and one-half pounds.

Felis concolor mayensis Nelson and Goldman

Cougar, (Red Lion), *ah coh*

A skull of this species was found along the trail near Uaxactun, and Professor Bartlett secured two skins for me at El Cayo. At Tikal, about twelve miles from Uaxactun, I saw a cougar as it jumped to the ground from a tree trunk. The following day Professor Bartlett saw one in a tree in the same locality. Tracks which I concluded were those of this animal were common on the Mountain Pine Ridge. At the edge of the pine ridge a guide met one on the trail, and the mule which he was leading became frightened, kicked him, and bolted. Early one morning at Uaxactun some of the workers saw a cougar near one of the ruins. Evidently it is common in the whole region.

Alouatta palliata pigra LawrenceBlack Howling Monkey, (Mono Negro), *ah baatz*

Howlers were not seen or heard until we arrived at Uaxactun. Here they were heard almost daily, generally early in the morning and in the evening, but often at other times during the day. Twelve specimens were taken, six of each sex. On the afternoon of April 2, I shot a lone male howler which was moving slowly along the limb of a tree. On April 23, my hunter saw a band of five, two rather young females, another female with a nursing young, and an adult male. The females and the young one were secured. The young howler was kept alive for four days when it became sick and was killed. A wound in one of its arms may have contributed to its continued weakening. It weighed one and one-half pounds. On May 4, a group of five were seen, three of which were secured, two males and a female. Van Tyne secured a male later in the day in the same place.

On May 9, I observed two females, a male, and a young animal about one-third grown. The male had been roaring for two hours a short distance from camp. When I approached, the group was feeding on the leaves of a bread-nut tree (*Brosimum alicastrum*). In feeding they reached slowly for a branch, pulled it to them, and browsed on the leaves. All their movements were slow and deliberate. Occasionally the male, standing with all four feet together and leaning forward, would roar loudly, concluding each time with a number of short guttural growls. As soon as I was seen the male roared at me a number of times. After I shot one of them, they became silent and moved cautiously about in the higher limbs where I had difficulty in seeing them.

My hunter stated that these monkeys are very fond of the leaves and fruit of the bread-nut tree. The stomach of a female taken April 8 was filled with its leaves and fruit.

Specimens taken in May were not as fat as those taken in April. The largest male weighed twenty-four and one-half pounds, the largest female fourteen and one-half pounds.

One embryo 90 mm. long, exclusive of tail, was found in the female taken April 8.

Ateles pan SchlegelSpider Monkey, *ixtucha : maax*

At Uaxactun I saw two lone monkeys of this species, and three bands, four in one and about ten in each of the other two. My hunter saw two or three bands besides these. Four females and three males were secured for specimens. A male, two females, and a quarter grown young were seen together on March 26. A female, perturbed at our presence, moved to a

limb almost overhead, grasped a branch in her hand, and shook it vigorously up and down. After making some swinging jumps she repeated the performance. Occasionally these monkeys uttered a sort of squealing squawk. On March 27, by squeaking through my fingers, I attracted the attention of a lone individual travelling rapidly through the tree tops. After watching me for a time it broke off some branches and dropped them. In travelling through the trees these monkeys break off many dead limbs. Three specimens taken April 28 were thinner than those taken a month earlier. My hunter stated that the monkeys always became thin towards the end of the dry season. The stomach of a male taken April 28 contained sapodillo, *Achras zapota*, and "give and take," *Acanthorrhiza moccine*, fruit. The largest male taken weighed eighteen pounds, the largest female fifteen and one-half pounds.

Sciurus deppei vivax Nelson

Squirrel, *ah cuuc*

One specimen was taken in the transition area bordering the Mountain Pine Ridge, four on a cohune ridge near El Cayo, and fifty-seven at Uaxactun. There is but little variability in the series, all agreeing closely with *vivax* from Campeche. In one specimen there is an extension of the greyish wash on the shoulders. It continues forward over the neck for some distance, posteriorly to the middle of the body, and dorsally to the middle of the back. At the Mountain Pine Ridge three or four of these squirrels were seen in the transition area. A number were seen on a cohune ridge three miles from El Cayo feeding on cohune nuts. None were seen on the pine ridge five miles north of El Cayo, but at certain seasons, according to my hunter, they invade the pine ridge to feed on the oak acorns. At Uaxactun the squirrel was not much in evidence; a large series was secured only by persistent hunting over a period of more than six weeks. Its chattering is seldom heard. This squirrel is undoubtedly more common than the number seen or heard would indicate.

A female taken April 6 contained three embryos of 20 mm.

Sciurus yucatanensis baliolus Nelson

Squirrel, *ah cuuc*

Two specimens were shot at Belize and three at El Cayo. After my departure my hunter sent me sixteen specimens taken near El Cayo. One of the specimens from Belize has a rusty cast to its coat, but the other specimen is typical of the subspecies. Three skins from El Cayo, two of which represent squirrels two-thirds grown, lack the vermiculation on the ventral side which all of the others have. None were seen at Uaxactun. Their absence there was somewhat surprising for Uaxactun lies between

El Cayo, where several of these squirrels were collected, and Campeche where the original specimens were taken.

Heterogeomys hispidus yucatanensis Nelson and Goldman

Pocket-Gopher, (Tuza), *as bah: uah bah il luum*

Eleven specimens which seem to be referable to *yucatanensis* were trapped. Three were taken in a strip of jungle reaching to the Mountain Pine Ridge, where they were fairly common. In a few places a row of mounds was found to extend as far as two hundred yards into the pines. At El Cayo, where this gopher was common in the plantations, six specimens were captured. At Uaxactun two specimens were taken in the forest, and a number of old mounds were noted. At the ruins, the mounds contained many large rocks.

A half-grown gopher from El Cayo has a white ring around the body in the region of the hips. Another from El Cayo has a short white streak to the right of the mid-dorsal line. All three gophers from the Mountain Pine Ridge have a short white streak on the back which occurs in the same region as the white ring described above. A number of the specimens have some white ventrally.

Heteromys desmarestianus desmarestianus Gray

Spiny Pocket Rat

Nine specimens were trapped in the transition area bordering the Mountain Pine Ridge and twenty-three in the rain forest at Uaxactun. They were generally found under logs and among roots of fallen trees. One was trapped in a pocket-gopher burrow. All of the animals were very fat. From the contents of the cheek pouches it appears that they feed to some extent on animal food. The pouches of a male, taken March 1, were full of oat meal used for bait, and those of another male contained a seed and a beetle. An immature female, taken April 27, had two small snails in one cheek pouch; in one of another animal there was a small nut. On February 25, four embryos of 18 mm. were found in a female, on March 1, four small embryos, on April 11, three embryos of 23 mm.

Reithrodontomys gracilis Allen and Chapman

Harvest Mouse

Extensive trapping on the Mountain Pine Ridge yielded but three specimens of this species. They were from a marshy area, two among the sedges partially flooded and the other on the edge of the wet area. The underparts of one of the specimens are white, of another, white with a slightly yellowish cast strongest across the chest, and the underparts of the third are rich yellowish. In body proportions and skull characters the specimens agree

with *gracilis*. The teeth of all are too worn for comparison. In color the specimens are darker and more reddish than *gracilis* from Yucatan. A. H. Howell⁵ states that a specimen from Yohaltun, Campeche, is darker than typical *gracilis*. Possibly further collecting would show that a darker form of *gracilis* occurs in northern Guatemala and Campeche.

Oryzomys couesi couesi (Alston)

Rice Rat, (Rat) *ah cho'*

Eighty-three specimens were taken at Uaxactun where the form was plentiful. It is not restricted to wet areas as is *Oryzomys couesi pinicola*. Several were captured at the margin of water holes, many in dry grassy areas in the clearing, two in the rain forest, and a large number in the buildings. Apparently this species climbs easily for it was often found in traps set on rafters. Embryos were found in eight of the twenty-one adult females as follows: March 29, one with four embryos of 9 mm.; one with five embryos of 30 mm.; April 6, one with one embryo of 28 mm.; one with four embryos of 18 mm.; one with three embryos of 17 mm.; April 7, one with five embryos of 10 mm.; April 24, one with five embryos of 22 mm.; May 16, one with six embryos of 8 mm.

Oryzomys couesi pinicola Murie

Rice Rat

Nineteen specimens of this rice rat were trapped on the Mountain Pine Ridge. The form, recently described as a new subspecies,⁶ is smaller than *couesi*, the skull is light and smooth, and the pelage is slightly thicker. It was found to be closely restricted to wet marshy areas bordering the small streams.

Oryzomys alfaroi alfaroi (Allen)

Rice Rat

Twenty-seven specimens were secured in the transition area adjacent to the Mountain Pine Ridge. They were generally caught in traps set beside logs or among the roots of fallen trees. At Uaxactun only two specimens were taken, both along the bank of a dry creek bed. The female, containing seven embryos of 14 mm., was of a pallid fawn color and had pink eyes.

Tylomys tumbalensis Merriam

Climbing Rat

One adult female was taken at the Mountain Pine Ridge in a live-trap set under a log on the transition side of a stream flowing between the

⁵ "Revision of the American Harvest Mice," *U. S. Dept. Agric., Bur. Biol. Surv., N. Amer. Fauna*, 36, 1914: 77.

⁶ Adolph Murie, "A New *Oryzomys* from a Pine Ridge in British Honduras," *Occ. Papers Mus. Zool., Univ. Mich.*, 245, 1932: 1-3.

transition area and the pines. Due to lack of specimens in our museums, little is known of the taxonomy of this genus. The specimen is provisionally referred to *tumbalensis* with which it agrees in having a much more slender skull than *nudicaudus*. In general size it is like *nudicaudus*, being smaller than typical *tumbalensis*. Measurements: total length, 422 mm.; tail length, 225 mm.; foot length, 37 mm.; ear from notch, 29 mm.; weight, 260 gr.

Ototylomys phyllotis phaeus Merriam

Fifteen specimens were collected under logs and among the roots of fallen trees at Uaxactun. One specimen was taken in a trap during the day. Five of the eight females trapped carried young. The litters are small, ranging from one to three, as the following data show: April 7, one with two embryos of 12 mm.; April 11, one with an embryo of 49 mm.; April 17, one with two embryos of 11 mm.; April 18, one with two embryos of 30 mm.; May 4, one with three embryos of 29 mm. The back and head of the embryo of 49 mm. is covered with a coat of short dark hair. The eyes are well developed and the eyelids, though closed, apparently were not stuck together. It appears that the newborn offspring of this species are decidedly precocious.

Sigmodon hispidus saturatus Bailey

Cotton Rat

Cotton rats were plentiful on the Mountain Pine Ridge and in the clearing at Uaxactun. A few were taken on a plantation at El Cayo. Fifty-seven specimens were taken on the Mountain Pine Ridge, one hundred and twenty-six at Uaxactun, four at El Cayo, and seven on a pine ridge five miles north of El Cayo. On the Mountain Pine Ridge they were found on the tops of the ridges as well as near the streams, but not in the marshes. Their habitat overlapped slightly that of *Oryzomys couesi pinicola*, but generally was restricted to areas not as moist as those where *pinicola* was found. At Uaxactun their presence in the grassy clearings was attested by many grass cuttings in the runways and under logs. None were trapped in the rain forest. Females carrying embryos were taken from February 15 to May 1. Two females contained two embryos each, fifteen contained three embryos each, five contained four embryos each, four contained five embryos each, and one contained six embryos.

Rattus rattus rattus (Linnaeus)

Black Rat

One specimen was taken at Belize, and six at El Cayo.

Rattus rattus alexandrinus (Geoffroy)

Roof Rat

One specimen was secured at Belize, and twelve in the buildings at El Cayo.

Mus musculus musculus Linnaeus

House Mouse

Two specimens were taken in a house at Belize, and two at El Cayo.

Dasyprocta punctata yucatanica GoldmanAgouti, *ah tzu*

One specimen was secured at Uaxactun, and two at El Cayo by my hunter. These specimens differ but slightly from *yucatanica* to which they are here referred. Early in the morning of March 14, I saw one run across a trail near El Cayo. Six or seven were seen or heard at Uaxactun. On two occasions an agouti was heard squealing as it sped away through the forest. The natives are very fond of the meat and often hunt the animal with dogs.

Cuniculus paca nelsoni (Goldman)Paca (Gibnot, Tepisquite), *haleh : uhleh il kaax*

One specimen was secured at Uaxactun by an Indian hunting with dogs, and my hunter took another at El Cayo. It is much hunted by the natives and now appears to be rather scarce in the vicinity of El Cayo.

Pecari angulatus yucatanensis (Merriam)Collared Peccary, *citam*

On March 6, a band of eight or nine was seen. They were walking up a slope in the pines on the Mountain Pine Ridge. Two of them fought for several seconds, rolling over like a couple of dogs fighting. They scented me before I could approach near enough for a shot, and retraced their steps to the forest. Two males were secured at Uaxactun when dogs chased them into a small cave where they were shot. One weighed fifty pounds, live weight; the other, which still retained the milk incisors, weighed thirty-three pounds.

Tayassu pecari ringens MerriamWhite-lipped Peccary, (Warree), *keken : ukeken il kaax*

According to the natives, the white-lipped peccary is much more common, in the Uaxactun region, than the collared peccary. At noon, on April 1, a native shot three males and a female from a band of about thirty or forty which appeared at a water hole located in front of the workingmen's quarters. Three of them were already partially butchered when I arrived, but the skin of a male and all the skulls were secured. A male weighed sixty pounds, live weight. On May 3, a native shot a male and a female out of a drove of fifteen or twenty. He said there were several young of the year in the drove. The female secured, weighed sixty-two pounds without the entrails. The two well-haired embryos which she carried each

weighed two and one-half pounds. On April 1, I made a skin of a young one which had been kept in captivity for about two weeks. It weighed six and one-half pounds.

Odocoileus thomasi Merriam

White-tailed Deer, (Venado), *ceeh*

The specimens secured are provisionally referred to this species.

A few deer tracks were noted on the Mountain Pine Ridge and at Uaxactun, but no deer were seen in either place. The natives say that during the dry season the deer move to the *bajos*, and that during the rainy season when the *bajos* are flooded they move to higher ground. My hunter secured three adults and three fawns at El Cayo in June, after my departure. On the Mountain Pine Ridge many tracks were noted where the sedges had burned. Very likely the deer had visited this area to feed on the new growth of sedge following the burn.

Mazama sartorii cerasina Hollister

Brocket, ("Antelope," Cabro), *ah yuc*

The brocket was noted on several occasions. While photographing plants on the Mountain Pine Ridge about noon of March 2, Professor Bartlett watched one walking along a steep slope. He saw another brocket near a water hole at Uaxactun on April 3. At Uaxactun, my hunter wounded one on April 10, and, on April 1, a native shot a female which contained a well-haired embryo weighing one and three-fourths pounds. On May 4, I met a brocket on one of the trails near Uaxactun; on seeing me it ran about thirty yards and stopped. Approaching cautiously I shot it with a twenty-gauge shotgun as it started off through the small palms which all but hid it. It proved to be a yearling with antlers in the velvet. Its stomach was full of boton (*Inodes* sp.) nuts, and nuts and leaves of breadnut (*Brosimum alicastrum*).

Tapirella dowii (Gill)

Tapir, (Mountain Cow, Danta), *tzimin*

Tapir tracks were quite common on the Mountain Pine Ridge and a few were noted at Uaxactun and Tikal. None of the animals were seen.

Tamandua tetradactyla mexicana (Saussure)

Three-toed Anteater, *lutz*; *ulutz il kaax* : *cuhantib yaac zinic*

At Belize a native brought me a large male anteater which he had captured three miles from the town. One morning at Uaxactun, I shot a female as she scurried away from an ant hill she had ripped open. Her body was

covered with crawling ants, and I found the stomach to be distended with ants and their larvae. No others of this species were seen.

Dasypus novemcinctus mexicanus Peters

Four-toed Armadillo, *ah uech : uah uech il kaax*

Tracks of the armadillo were common on a cohune ridge four miles north of El Cayo, in places forming well-marked trails. A female brought in by a native on March 14, at El Cayo, contained four embryos, each about 100 mm. in total length. Another female was taken by an Indian at Uaxactun on April 7; she had been run down by his dogs. Bartlett noted a skeleton of this animal on a pine ridge five miles north of El Cayo.

Trichechus manatus Linnaeus

Manatee

On a key about one-half mile from Belize, I picked up a number of water-worn manatee bones. This key is said to have been formerly used for preparing manatees for market. The market master at Belize informed me that, although at one time they were often brought to market, of late only one or two are received during a year. A few manatees are said to occur in the Belize River.

PLATE I

FIG. 1. Camp on the Mountain Pine Ridge.

FIG. 2. A marshy area along a stream on the Mountain Pine Ridge. *Cryptotis*, *Reithrodontomys*, and *Oryzomys couesi pinicola* were taken in this type of habitat. March 5, 1931.



FIG. 1



FIG. 2

