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AMPHIBIANS, REPTILES AND MAMMALS FROM NORTH-CENTRAL CHIAPAS

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ABSTRACT

This paper reports on the amphibians, reptiles and mammals found along the high way from Tabasco south to Tuxtla Gutiérrez, Chiapas, in July 1969. For most species, ecological data are given and in some case critical remarks.

RESUMEN

Se colectaron y observaron diversas especies de anfibios, reptiles y mamíferos, en la región norte y central de Chiapas siguiendo la carretera que une Villahermosa, Tabasco con Tuxtla Gutiérrez, Chiapas, del 13 al 25 de julio de 1969. De la mayoría de las especies colectadas se hace un breve comentario, señalando el número de ejemplares capturados y algunos datos ecológicos.

North-central Chiapas is traversed by Mexican highway 195 which rises from near sea level to about 1975 m and extends for a distance of about 310 km from Villahermosa, Tabasco, southward to highway 190 at a point about 35 km eastward of Tuxtla Gutiérrez, Chiapas. Collections and observations of mammals, reptiles and amphibians were made July 13-25, 1969, along this transect, mostly at five places (see Figure 1 and Table 1). We acknowledge the cooperation of Dr. Rodolfo Hernández Corzo, Dirección General de la Fauna Silvestre, for granting scientific collecting permits; the Warren Fund of the MSU Museum, the MSU Development Fund, and the University Research Institute of the University of Texas at El Paso for financial assistance; and Mary Baker, Byron Baker, Gerald Schave and Rex Sohn for field assistance.

Collecting sites were at camps made along the road from the Tabasco-Chiapas border southward. Beyond Pichucalco the road leaves the lowland rain forest habitat to enter the mountains by following up the valley of the Río Pichucalco and then eastward to that of the Río La Sierra, a tributary of the Río Teapa. All of these streams are part of the drainage system of the Río Grijalva which empties into the Golfo de México north of Villahermosa. The road follows up the increasingly narrow canyons through areas in cultivation, pasture and second growth with gallery forest on the slopes to the cloudbathed ridge approximately 8 km SE of Rayón (= Rayón

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Mescalapa), where pine-oak highland beginning at about 1600 m replace the tropical vegetation. Southward beyond Jitotol tropical deciduous forest appears at approximately 1400 m and thorn forest at 850 m.

DESCRIPTION OF LOCALITIES VISITED

The collecting sites visited are included in four vegetation types (see Table 1), from lowland rain forest at 60 m elevation to cloud forest at 1675 m elevation, all localities studied being within the drainage system of the Río Grijalva.

Rain Forest. Two camps were made in this vegetation type. At 13 km ENE of Pichucalco, 60 m elevation, collections were obtained through the courtesy of the owner of Finca Padilla in banana and cocoa plantations; along a clear, fast-moving stream narrowly edged with tall forest trees; and in a fallow field, formerly in sugar cane, but allowed to grow up in dense tall grass. At 10 km S of Solusuchiapa, 395 m elevation, we camped by the side of the cascading Río La Sierra, where vertebrates were obtained in second-growth weeds and shrubs along the streamway and the roadway and in gallery forest on the steep canyon sides. The habitats at these two localities are judged to be in the Veracruz Biotic Province of Goldman and Moore (1955).

Cloud Forest. The camp at 6.5 km SE of Rayón [=Rayón Mescalapa], 1675 m elevation, was almost at the crest of the Gulf-facing slopes of the mountains in northcentral Chiapas. Here, poor visibility of low-hanging clouds and rain made field work dificult. The steep slopes were luxuriantly grown to dense tropical vegetation, with tree ferns being conspicuous. Most collections were made at the edge of the roadway and along steep trails which led to corn fields. Goldman and Moore (1945) would place this habitat in the Chiapas Highlands Biotic Province.

Pine-Oak Forest. At 10 km NNW of Jitotol, 1645 m elevation, our field party camped in cut-over pine-oak woodlands. Collections were obtained in dense second-growth, in riparian vegetation adjacent to a stream, and on slopes covered with stands of pine, oaks and sweetgum (*Liquidambar sp.*). Fields of corn and beans adjoined our collecting sites. This vegetation type is also within the Chiapas Highlands Biotic Province of Goldman and Moore (1945).

Tropical Deciduous Forest. At 8 km N of Berriozábal, 1065 m elevation, a collection was made at the site of an abandoned oil-drilling operation in a clearing within an extensive stand of tropical deciduous trees. Our campsite was 3.7 km beyond El Suspiro, a finca mentioned by Álvarez del Toro and Smith (1956) as 9 mi NW of Berriozábal. There were signs of some logging operations but little of the dense canopy of these tall trees seemed disturbed. Collections were obtained along the road, at the forest edge and under the canopy of the forest where ground vegetation was sparse on the rocky, leaf-covered terrain. Although this vegetation type is also within the watershed of the Río Grijalva, Goldman and Moore (1945) include it in their Tehuantepec Biotic Province, which they describe as extending eastward from the state of Oaxaca to include tropical environment along this river valley.

AMPHIBIA

Bolitoglossa mexicana. Several specimens of this salamander were found under logs with *Ninia sebae* in an open pine-parkland at 3 km NW of Jitotol, 1585 m. This habitat contrasted with

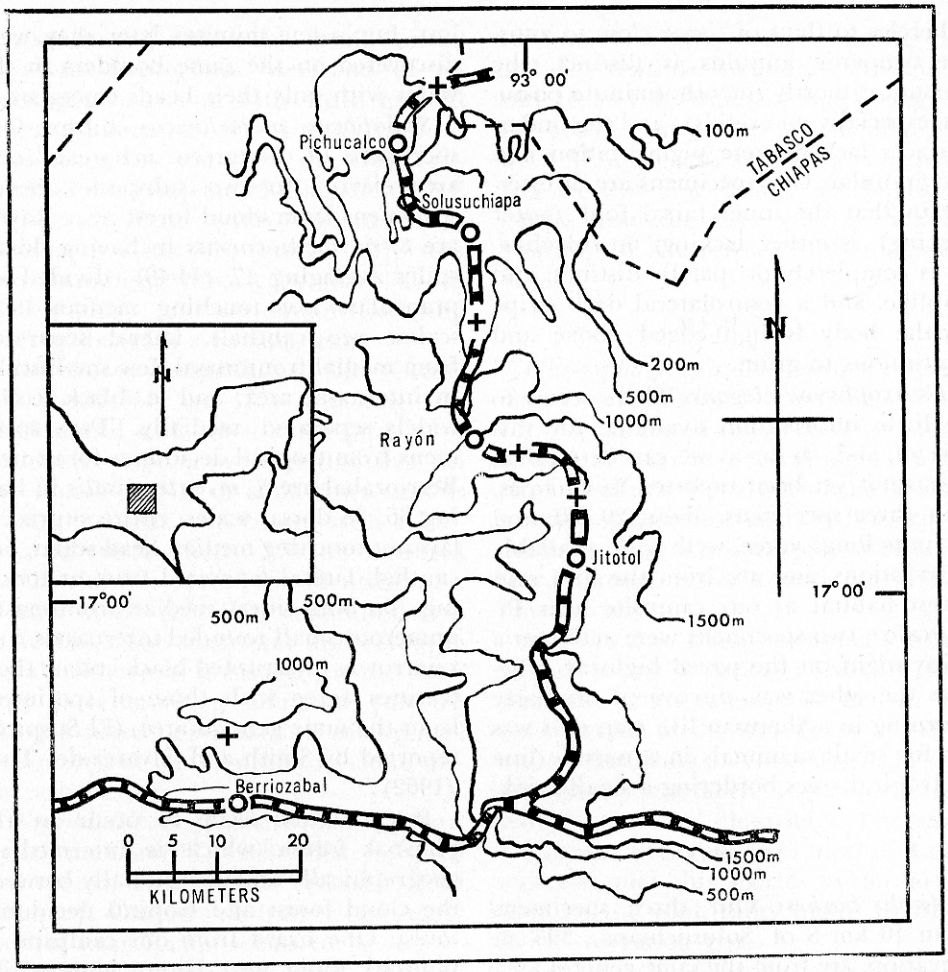

Figure 1. North-central Chiapas showing place names mentioned in text (circles) and collecting localities (crosses).

that at our nearby campsite at 10 km NNW of Jitotol, 1645 m, which had a dense understory of shrubs and fallen logs, and where no salamanders were found.

Bufo cavifrons. Occurring on Gulf-facing slopes of mountainous terrain in both rain and cloud forest, *B. cavifrons* seems most abundant at lower elevations in the rain forest. Of nine specimens, only one was obtained at our campside (near Rayón) in cloud forest, and most specimens had recently transformed; bufonid tadpoles, presumably of this species, were collected at our campsite near Solusuchiapa in rain forest.

Plectrohyla matudai. Five specimens from our campsite near Rayón in cloud forest were found at night close to or on the ground among tree roots and brambles along the sides of a mostly dry, sand-gravel stream bed. One female is 50 mm, whereas the largest of four males is 41 mm in snout-vent length. The spine of the pollex is simple, the snout is blunt-rounded with no vertical rostral keel, vocal sacs are present in males, tubercular postanal flaps vary from ridges of

tubercles to flaps of tissue close to anus, the tympanic annulus is distinct, the dorsum is mostly smooth (minute postules, especially on eyelids), and the undersurfaces lack discrete pigmentation and are granular. Our specimens are of interest in that the inner tarsal fold (outer lacking) is either lacking, or ridgelike, or is completely or partly distinct and flaplike, and a ventrolateral dark stripe on the body is light-edged above and continuous to groin.

Gastrophryne elegans. There seems to be little information available for this species, and, so far as we can determine, it has not yet been reported in Chiapas. Our three specimens, about 29, 30, and 31 mm long, agree well with available descriptions, and are from the lush rain forest habitat at our campsite near Pichucalco; two specimens were active in a rainy night on the paved highway, whereas the other was discovered in early morning in a Sherman live trap that was set for small mammals in a narrow line of tropical trees bordering a small creek.

REPTILIA

Anolis barkeri. Our three specimens from 10 km S of Solusuchiapa, 395 m elevation, are from the same general area as some mentioned by Meyer (1968), who summarized information for this little known species.

All three anoles (one male, two females) of this rather large semiaquatic species were collected in daytime from large boulders or from a small log-jam in waist-deep, rushing water of a moderately cascading stream in a small canyon. The lizards were wary, and when first startled (at least in mild fashion) did not enter the water but concealed themselves in the log-jam or in the shadows between closely set large boulders just above the splashing water. The two females were initially knocked into the water (shot with rubber bands) and were presumed lost, but a few minutes later they were discovered on the same boulders in the water with only their heads emergent.

Sceloporus malachiticus subsp. Our specimens of this green, arboreal lizard are referred to two subspecies. Seven specimens from cloud forest near Rayón are *S. m. taeniocnemis* in having dorsal scales averaging 47 (44-49), divided supraoculars not touching median head scales, two canthals, lateral separated from medial frontonasal, few small scales in internasal area, and a black collar widely separated medially. Two specimens from tropical deciduous forest near Berriozábal are *S. m. internasalis* in having 36, 38 dorsal scales, entire supraoculars not touching median head scales, one canthal, lateral separated from or touching (on both sides) median frontonasal, numerous small rounded internasals, and a narrowly interrupted black collar; these features agree with those of specimens from the same general area (El Suspiro) reported by Smith and Álvarez del Toro (1962).

Integradation seems to occur in the pine-oak forest, which is intermediate geographically and altitudinally between the cloud forest and tropical deciduous forest. One lizard from our campsite in pine-oak forest near Jitotol is most like *S. m. internasalis* in having 38 dorsal scales, entire supraoculars, numerous small rounded internasals, and a narrowly interrupted black collar; however, the specimen has two canthals as does *S. m. taeniocnemis.* Another from this same general area was identified as *S. m. taeniocnemis* by McCoy and Van Horn (1962); their reported locality is 8 mi N Pueblo Nuevo de Solistahuacán, whereas our campsite near Jitotol was about 2 km south of that village. *Sceloporus malachiticus* was not abundant at our campsite near Jitotol.

Ninia sebae sebae. Burger and Werler (1954:646) noted the widespread altitudinal range for this subspecies. Of our

ten specimens, nine were found under logs with *Bolitoglossa mexicana* in an open, pine-parkland with little ground cover, 3 kilometers NW Jitotol, 1585 m. The other was found in the Gulf lowlands at our campsite 13 kilometers ENE Pichucalco, 60 m; it was a gravid female measuring 242+56 (body+tail) mm and containing three eggs (each about 20 mm long), and was obtained on July 13 from beneath a banana trunk.

Rhadinaea hempsteadae. One female, 497 (body 360, tail 137) mm long, has 21-19 dorsal scale-rows, has a faint dark vertebral stripe, a white-dotted line on the fourth and fifth scale rows, and is mostly uniform rusty-brown with a butterscotch yellow belly. We are indebted to Charles W. Myers for identification of this snake (personal communication to Webb). The snake was discovered by Gerald Schave as it foraged in the overcast, early morning hours of July 19 along a mostly dry, narrow, sand-gravel stream bed at our campsite in cloud forest near Rayón.

Tropidodipsas fischeri Boulenger. Lynch and Smith (1966) first reported this species from Méxcio (Oaxaca and Chiapas). One female from cloud forest habitat near Rayón seems to be the second known specimen from Chiapas. The snake has an equal number (33) of black and pale gray bands on the body, and about 12 black and 13 pale gray bands on the tail (difficult to count owing to irregular fusion). One variant feature is the low number of infralabials (5-5); *T. fischeri* usually has seven infralabials. The snake was found on July 18 in an afternoon of intermitent light rain on a steep hillside under the trunk of a fallen tree fern on a loose mat of leaves and twigs into which the snake could have easily escaped.

Micrurus elegans. Two coral snakes were collected along shaded foot trails under dense canopy in tropical deciduous forest, 8 km N of Berriozábal, 1065 m. Our two females, having 213 and 215 ventrals, 31 and 33 subcaudals, and 16 and 19 triads of black rings on the body, seem to be intermediate between *M. e. elegans* and *M. e. veraepacis*, and are thus not unlike specimens reported from the same general area (El Suspiro) by Álvarez del Toro and Smith (1956).

MAMMALIA

Glossophaga spp. Only two specimens, one of each species, *G. commissarisi* and *G. soricina* (see Table 1), were caught in mist nets set for several nights in tropical localities. Both were from a banana-cocoa plantation near Pichucalco, in company with *Carollia perspicillata azteca, Carollia subrufa,* and *Sturnira lilium parvidens.*

Sturnira spp. The two species, *S. lilium parvidens* and *S. ludovici ludovici,* were captured in the same mist net in the steep canyon of the Río Teapa at 395 m near Solusuchiapa. Otherwise, the former species was taken at the collecting stations at lower elevations. The seven *S. ludovici* netted at 1675 m near Rayón indicates that this species is an active flyer on the cool, rainy nights in cloud forest vegetation type.

Artibeus spp. Three species were obtained; we acknowledge the assistance of William B. Davis in identifying specimens of *A. phaeotis* and *A. toltecus.* The smaller and paler *A. t. hesperus* was recorded from near Berriozábal along with *A. phaeotis,* while *A. t. toltecus* was identified from cloud forest habitat near Rayón. The large *A. jamaicensis* was captured only near Solusuchiapa.

Enchisthenes hartii. One of these attractive, brownish bats, a lactating female, was snared 19 July in a mist net set parallel to the roadway next to our camp in cloud forest habitat near Rayón. It was flying on a cold, rainy evening.

Sciurus deppei deppei. This small tree squirrel was found in the tall tropical

deciduous forest near Berriozábal. One was shot in early morning adjacent to camp. None was seen at any of the other camps in tropical forest areas.

Heteromys desmarestianus desmarestianus. Spiny pocket mice trapped at the three highland campsites are referable to the subspecies, *H. d. desmarestianus.* We found this rat to be least common in pine-oak habitat; only one specimen was secured there in company with *Peromyscus boylii* and *P. oaxacensis* near Jitotol. None of four females obtained was pregnant.

Oryzomys alfaroi. Seven of these rodents, taken in cloud forest near Rayón, are referable to the dark-colored *O. a. palatinus.* The animals were trapped in association with *Peromyscus zarhynchus* in heavy understory among rocks on wet-forested slopes. From the tropical deciduous habitat near Berriozábal, two *O. a. gloriensis* captured are paler in color and have smaller bullae, not unlike examples of *O. a. guerrerensis* Goldman from near Juchatengo in Oaxaca. One female from near Rayón contained three embryos on 19 July.

Oryzomys palustris couesi. Five rice rats were caught in a fallow field allowed to grow up in tall, coarse grass, as much as two meters high. The rodents entered Sherman live traps baited with rolled oats and set on the rather open ground under this grassy canopy. *Sigmodon hispidus saturatus* was also caught in this habitat. The field, formerly in sugar cane, bordered rain forest along a stream at the trapping area near Pichucalco. Two other rice rats of this species were taken in a similar grassy situation along the Río Teapa near Solusuchiapa.

Ototylomys phyllotis connectens. Single individuals of this tropical rat were captured in rain forest (near Solusuchiapa), in cloud forest (near Rayón) and in tropical deciduous forest (near Berriozábal). This occurrence in a variety of tropical habitats seems characteristic of the species, in accordance with the conclusions of Lawlor (1969). The specimens were taken in Sherman live traps baited with rolled oats and set on the ground either near rocks or in undergrowth in forested areas. Near Berriozábal, both *O. phyllotis* and *Tylomys nudicaudus* were caught in the same trap line and in similar habitat; no association of these rats has been reported previously. One *Ototylomys* kept alive preferred to eat sunflower seeds and rarely accepted fresh fruit; whereas captive *Tylomys* would eat both the seeds and fresh fruits with equal relish.

Reithrodontomys sumichrasti dorsalis. Four of these diminutive mice came from cloud forest habitat near Rayón and one from pine-oak forest near Jitotol. At 3 km NW of Jitotol, 1585 m in elevation, a female and four nursing young were uncovered from a grass nest under a log in a parklike stand of pine trees on 22 July. Ground cover here was sparse because of frequent burnings, probably purposely set for pasture improvement for cattle. Other vertebrates found under logs in this area included a salamander, *Bolitoglossa mexicana,* and small snake, *Ninia s. sebae.*

Peromyscus mexicanus. Four specimens from near Pichucalco and seven from near Solusuchiapa, both in rain forest habitat, are referable to *P. m. teapensis.* Eight from tropical deciduous forest near Berriozábal are assigned to *P. m. mexicanus.* The former two collections, in contrast to the latter specimens, are darker and more richly-colored and have skulls with more massive rostral areas and larger bullae. All of the animals were taken either near rocks or in shrub understory under the canopy of tropical forest. Four lactating females were captured near Pichucalco on 14 July; one female with two embryos came from near Solusuchiapa on 16 July.

Peromyscus oaxacensis. Nine of these handsome rodents were preserved in two

nights of trapping in pine-oak forest near Jitotol. The animals were taken in the same lines with *P. boylii,* which was at least as abundant, according to trapping success, as the larger *P. oaxacensis.* Single catches of *Heteromys desmarestianus* and *Reithrodontomys sumichrasti* indicated that these two rodents were either less numerous or less inclined to enter traps than the two *Peromyscus.* The animals came mostly from brushy, log-strewn cutover pine forest or from moist ravines containing luxuriant shrub understory and a variety of deciduous trees including oaks (*Quercus*) and sweetgum (*Liquidambar*).

Peromyscus zarhynchus. In three nights of trapping in cloud forest vegetation type near Rayón, we captured at least 40 of these large, dark mice; 19 were prepared as study specimens, 8 were caged to be kept alive and the remainder were released. The animals live on the steep-sided slopes near the summit of the north-facing and cloud-bathed mountains. Traps were set among large, moss-covered rocks under a dense canopy of tree ferns and other tropical vegetation of this moist forest habitat. This species dominated the catch which also included small numbers of *Heteromys desmarestianus, Oryzomys alfaroi, Ototylomys phyllotis* and *Reithrodontomys sumichrasti.* All of these rodents were caught during, and were presumed to be active in, severe rain storms, which occurred almost continually on each of the three nights at our trapping site. An old male with extremely worn teeth (especially the upper third molars) is dorsally grayish in overall appearance, as opposed to the normal deep blackish-brown of younger specimens. Conspicuous is a whitish mask extending from just anterior to the orbits posteriorly as a broad band to the base of the pinnae. Presumably the preponderance of whitish hairs is the result of aging. A female taken on 19 July contained two embryos.

Comments on Other Mammals. Micronycteris megalotis mexicanus Miller and *Carollia subrufa* (Hahn) were caught from under a road culvert at 1.5 km E of Ixtacomitán, 364 m elevation, a place in rain forest vegetation type between the collecting localities near Pichucalco and Solusuchiapa. A gray fox, *Urocyon cinereoargenteus orinomus* Goldman, and a marta, *Potos flavus dugesii* Villa, were shot at night with headlights in tropical deciduous forest near Berriozábal. At Clínica Yerba Buena, just north of Pueblo Nuevo Solistahuacán, a caged pocket gopher, *Heterogeomys hispidus* (Le Conte), was examined. This animal, which seemed quite tame, had been caught in a nearby cornfield in a clearing in the pine-oak forest.

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TABLE 1

VERTEBRATES FROM NORTH-CENTRAL CHIAPAS

SPECIES	Collecting Stations					
	vic. Pichucalco Rain Forest	vic. Solusuchiapa Rain Forest	vic. Rayón Cloud Forest	vic. Jitotol Pine-Oak Forest	vic. Berriozábal Tropical Deciduous Forest	
AMPHIBIA						
Bolitoglossa rufescens (Cope)	X					
Bufo cavifrons Firschein		X	X			
Bufo marinus (Linnaeus)	X					
Bufo valliceps Wiegmann				X		
Leptodactylus melanonotus (Hallowell)	X					
Eleutherodactylus mexicanus (Brocchi)			X		X	
Eleutherodactylus rhodopis (Cope)					X	
Eleutherodactylus rugulosus rugulosus (Cope)		X	X			
* *Hyla staufferi* Cope	X					
Hyla eximia Baird				X		
Plectrohyla matudai Hartweg			X			
Ptychohyla macrotympanus (Tanner)				X		
Smilisca baudini (Duméril & Bibron)	X					
Smilisca cyanosticta (Smith)					X	
Gastrophryne elegans (Boulenger)	X					
Rana pipiens Schreber				X		
REPTILA						
Kinosternon leucostomum Duméril & Bibron	X					
Anolis barkeri Schmidt		X				
Anolis breedlovei Smith & Paulson			X			
Anolis parvicirculata Álvarez del Toro & Smith					X	
Basiliscus vittatus Wiegmann	X	X				
Sceloporus malachiticus internasalis Smith & Bumzahem				X	X	
Sceloporus malachiticus taeniocnemis Cope			X	X		
Sceloporus taepensis Günther	X	X				
Sceloporus variabilis variabilis Wiegmann					X	
Xenosaurus grandis rackhami Stuart					X	
Lygosoma assatum taylori (Oliver)					X	
Ameiva undulata stuarti Smith	X					
Gerrhonotus moreleti temporalis Hartweg & Tihen			X			
Leptophis mexicanus mexicanus Duméril Bibron & Duméril	X					
Ninia sebae sebae (Duméril, Bibron & Duméril)	X					
Rhadinaea hempsteadae Stuart and Bailey			X			
Tropidodipsas fischeri Boulenger			X			
Micrurus elegans (Jan)					X	

MAMMALIA

Glossophaga commissarisi Gardner	X				
Glossophaga soricina leachii (Gray)	X				
Carollia perspicillata azteca Saussure	X				
Carollia subrufa (Hahn)	X				
Sturnira lilium parvidens Goldman	X	X			X
Sturnira ludovici ludovici Anthony		X	X		
Artibeus jamaicensis yucatanicus Allen		X			
Artibeus phaeotis (Miller)					X
Artibeus toltecus hesperus Davis					X
Artibeus toltecus toltecus (Saussure)			X		
Enchisthenes hartii (Thomas)			X		
Desmodus rotundus murinus Wagner		X			
Sciurus deppei deppei Peters					X
Heteromys desmarestianus desmarestianus Gray			X	X	X
Oryzomys alfaroi gloriaensis Goodwin					X
Oryzomys alfaroi palatinus Merriam			X		
Oryzomys palustris couesi (Alston)	X	X			
Tylomys nudicaudus nudicaudus (Peters)					X
Ototylomys phyllotis connectens Sanborn		X	X		X
Peromyscus mexicanus mexicanus (Saussure)					X
Peromyscus mexicanus teapensis Osgood	X	X			
Peromyscus oaxacensis Merriam				X	
Peromyscus zarhynchus Merriam			X		
Peromyscus boylii levipes Merriam				X	
Reithrodontomys sumichrasti dorsalis Merriam			X	X	
Sigmodon hispidus saturatus Bailey	X				X
Urocyon cinereoargenteus orinomus Goldman					X
Potos flavus dugesii Villa					X

* sight record only