MISCELLANEOUS PUBLICATIONS
MUSEUM OF ZOOLOGY, UNIVERSITY OF MICHIGAN, NO. 47

A CONTRIBUTION TO THE HERPETOLOGY OF THE ISTHMUS OF TEHUANTEPEC. IV

BY
NORMAN HARTWEG AND JAMES A. OLIVER

ANN ARBOR
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FREDERICK M. GAIGE
Director of the Museum of Zoology

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AN ANNOTATED LIST OF THE AMPHIBIANS AND REPTILES COLLECTED ON THE PACIFIC SLOPE DURING THE SUMMER OF 1936

INTRODUCTION

THE several University of Michigan–Carnegie Institution of Washington expeditions have made biological explorations in Yucatán, in Guatemala, and in British Honduras. Realizing the importance of supplementary collections from adjacent areas, Mr. Frederick M. Gaige, Director of the Museum of Zoology, University of Michigan, detailed us to study the herpetology of the Pacific slope of the Isthmus of Tehuantepec, in Oaxaca, Mexico.

We arrived at the village of Tehuantepec, Oaxaca, on June 23, 1936, and we made our headquarters there until September 1.

Most of our specimens were collected on the plains and hills within a radius of fifteen miles of Tehuantepec. A few specimens were taken at Salina Cruz, on the Pacific Ocean, and some were collected on the mountains. Many of our specimens from the mountains were obtained by natives. For brevity throughout this paper we have used the term "vicinity of Tehuantepec" to indicate all localities except the conspicuous mountain localities and Salina Cruz, which is on all maps of Oaxaca.

Novelties reported on in previous papers are mentioned again, with their bibliographic references.

We are indebted to many people who aided us in various ways: to Mr. F. M. Gaige for making the trip possible; to Señor Juan Zinser for courteous and helpful treatment and for granting federal collecting permits to us; to Mr. Wilbur Barker, an American resident in Tehuantepec, who sponsored us to the local authorities. For valuable suggestions and aid in the identification of our specimens, we sincerely thank Mrs. Helen T. Gaige, Dr. L. C. Stuart, and Mr. Joseph Bailey, of the Museum of Zoology, University of Michigan; Dr. Hobart M. Smith, of the Smithsonian Institution; Dr. E. H. Taylor, of the University of Kansas; Dr. E. R. Dunn, of Haverford College; Mr. L. M. Klauber, of the San Diego Natural History Society; and Dr. H. K. Gloyd, of the Chicago Academy of Sciences.

DESCRIPTION OF THE ISTHMUS

The Isthmus of Tehuantepec, comprising the eastern part of the states of Vera Cruz and Oaxaca, extends from the Gulf of Mexico to the Pacific

Ocean, most of it between 94° and 95° west longitude. The isthmus is divided into three parts. To the north are the Atlantic plains, in which the low, flat, swampy land on the coast gives way gradually to rolling plains. This first section is about ninety miles long and ascends from sea level to 325 feet. Here the intermediate or mountain zone is encountered, and elevations of 2000 to 4000 feet are attained, although the lowest pass is not much over 700 feet above sea level. This exceedingly rough mountain zone is about twenty-five miles across and is bordered by the third division, the Pacific plains, which at this extremity have reached the altitude of slightly over 300 feet. The width of the Pacific plains, from the edge of the mountains to the Pacific Ocean, is about twenty-five miles.

The Pacific plains, with the exception of a narrow strip on the coast east of Salina Cruz, are composed of the pre-Paleozoic (Ver Wiebe, 1925: Pl. 12) crystallines overlain by a very thin covering of Pleistocene deposits. Rising here and there from the flat, alluvial plains, which descend very gently to the sea, are rough hillocks, of irregular form, which attain altitudes of 700–1000 feet. These hillocks are probably all composed of gneiss, granite, crystallized slate, and limestone (Böse, 1905: 78). The port of Salina Cruz is shut in by two hills which join north of the village. To the east are some other isolated hills, at Huilotepec. There are no exposed rocks between Salina Cruz and the hills of Tehuantepec, nor between Tehuantepec and La Mixtequilla. A little to the west of La Mixtequilla is Quiengola Mountain, composed principally of crystalline limestone. At a distance, mountains may be seen west of Tehuantepec, but they are not a part of the isthmus.

The Pacific slope of the isthmus is an arid region; the rains come seldom, even in the wet season. Furthermore, the storms are very restricted in area. Salina Cruz, on the coast, receives much more rain than does Tehuantepec, only a few miles inland. During only one of the four rainstorms at Tehuantepec between June 23 and September 2 was there enough water deposited to remain as pools in depressions for a period of two days. Except for the freshened appearance of the vegetation, there was no evidence of the other rains a few hours subsequently.[1]

The data in Table I, though inadequate, at least indicate the pronounced degree of aridity in the immediate vicinity of Tehuantepec.

The vegetation of the Tehuantepec region consists mainly of spiny scrub and of many varieties of cacti, with a few large trees interspersed. The vegetation on Quiengola Mountain differs from that about Tehuantepec mainly by the greater abundance of trees and the consequent shading out of some of the smaller plants of the plains proper. Bromelias are present,

[1] One of the corn crops was a failure that summer. A group of perturbed Indians asked the local doctor if he thought the "culebreros" might be responsible for the pronounced evidence of God's displeasure.

TABLE I

CLIMATIC RECORDS OF TEHUANTEPEC AND SALINA CRUZ*

Month	Tehuantepec† 1906–10		Salina Cruz‡ 1921–29	
	Temperature, in Degrees Centigrade	Rainfall, in mm.	Temperature, in Degrees Centigrade	Rainfall, in mm.
Jan.	26.0	1	24.6	0
Feb.	25.8	47	25.1	1
March	27.6	6	26.3	0
April	28.9	1	27.6	9
May	26.0	24	28.2	81
June	28.4	104	26.6	374
July	27.7	112	27.7	69
Aug.	25.7	51	27.8	104
Sept.	27.1	34	26.5	282
Oct.	26.5	60	26.5	151
Nov.	27.1	0	25.9	9
Dec.	.....	0	25.2	3
Average	27.0		26.5	
Total		440		1083
Differentiation between the hottest and coldest month	3.2		3.6	

* From Sapper (1932: 62).
† Climatic formula, Koppen system: BShi.
‡ Climatic formula, Koppen system: Aw″i.

but are very scarce. Much of the plains area is given over to grazing and farming; irrigation is used extensively. Large coconut palms are frequently found on the borders of the large farms and along the irrigation ditches. The scarcity of decaying logs is amazing. Termites and other wood-destroyers are very common and perhaps account for this condition to a great extent. In the plains area it is almost impossible to find anything to "turn over," either logs or stones, except on the rough hillocks which rise from it.

GEOGRAPHY OF THE HERPETOFAUNA

Admittedly, our collection of reptiles and amphibians from the Pacific plains is far from being a complete representation but it is not as incomplete as a hasty comparison with published records might seem to indicate. There are listed in publications many forms which we believe do not exist on the southern slope; these probably inhabit the northern slope or the adjacent mountain areas. The term "Tehuantepec" in herpetological literature may mean: (1) the village and its environs, (2) the political district, or (3) the entire isthmus. Furthermore, we suspect that the terms "east Tehuantepec" and "west Tehuantepec" have been sometimes used to designate the Atlantic and Pacific slopes, which are actually on the north side and south side, respectively, of the isthmus.

In the study of the zoogeography of Middle America, the fauna of the Isthmus of Tehuantepec is of prime importance. The isthmus is not merely a narrow runway between two large, adjacent land masses. The climatic, topographic, and geologic differences of the three distinct areas comprising the isthmus are reflected in the nature of the fauna and of the flora. The geologic changes involved in the history of the whole isthmus certainly have had a profound effect not only on the animal life of the isthmus but on the animal life of the adjacent regions. As in Panama, there has been a crossing not only from east to west, but from north to south as well.

The scarcity of museum material with accurate, specific locality data, as well as the generalized nature of the information in herpetological reports concerning the area, causes us to hesitate in drawing zoogeographic conclusions at present. Nevertheless, we believe, on the bases of our own collection and of the none too reliable published records, that the Pacific slope of the isthmus is a distinct herpetofaunal area. The number of forms inhabiting the rather small region appears disproportionately large. The region is the apparent terminus of the range of some wide-ranging species; other widely-distributed forms subspeciate there.

The following forms are indicative of the distinctness of the area, either being restricted to it or ranging barely beyond its borders. Because we believe that it is hazardous at this time to use either negative evidence or the evidence offered in a number of publications listing animals from Tehuantepec, we are listing only those forms collected by us.

Ctenosaura quinquecarinata
Sceloporus edwardtaylori
Sceloporus variabilis smithi
Lepidophyma smithii
Thamnophis ruthveni
Symphimus leucostomus
Conophis viduus
Tantilla striata
Trimeresurus dunni

Until the kinds of reptiles and amphibians inhabiting the adjacent areas are better known, we prefer to withhold our postulates. It is our plan to investigate the herpetofauna of these important adjacent regions; then, perhaps, we shall have more concrete examples of what are now rather abstract indicators.

Annotated List of Species

Bufo coccifer Cope

Vicinity of Tehuantepec. U.M.M.Z.[2] No. 82122 (1)

Considering the apparent rarity of this species in Mexico and in Central America, it is not surprising that little is known concerning its habits.[3]

[2] University of Michigan Museum of Zoology.

[3] We wish to point out an irregularity in Kellogg (1932: 41). He gives the limits of the range of *coccifer* as Tehuantepec on the north and Costa Rica on the south, but, under

Our specimen, collected at night on the river flood plain, exhibits certain differences from Guerreran and Costa Rican specimens, namely, in coloration, in the less pronounced tuberculation, and in the smaller parotoid.

Wettstein (1934: 7) believes that perhaps *coccifer, canaliferus, marmoreus,* and *valliceps* are all subspecifically related. The presence (Kellogg, 1932) of all of these forms in Tehuantepec makes his conclusion hardly tenable.

Bufo marinus (Linnaeus)

Vicinity of Tehuantepec. U.M.M.Z. Nos. 82123–25 (4)

The number of specimens we collected is not a relative index of the abundance of this species. Pouring water into courtyard sewer drains never failed to send 3 or 4 specimens hopping into the street; this was especially effective if the water contained a little formalin. A common daytime habitat in the confines of the village is the sewer pipes which drain into the streets. A very common species in the Tehuantepec area.

Bufo marmoreus Wiegmann

Vicinity of Tehuantepec. U.M.M.Z. Nos. 82126–32 (39)

Very common; even more conspicuous than *B. marinus.* It was found in town-house patios, along river-seepage pools, and in and about the temporary rain pools. Our Tehuantepec specimens do not exhibit the dimorphism of color and tuberculation which is found in Colima specimens (Oliver, 1937: 2–4). There appears to be no difference in tuberculation. A few individuals have a tendency toward the difference in coloration, as in the Colima specimens, but it is not so pronounced.

Rhinophrynus dorsalis Duméril and Bibron

Vicinity of Tehuantepec. U.M.M.Z. Nos. 82133–35 (42)

Had we not collected on the nights of July 13 and 14, 1936, we would have no specimens of this species. An exceedingly hard rain filled the various hollows and depressions on the afternoon of the thirteenth. That night we secured 30 specimens. The next evening we secured 12 more from the rapidly disappearing pools. On the afternoon of the fifteenth the pools were completely dried up and no specimens could be found. We observed them clasping, and of course heard their nauseating singing, but could find no trace of eggs.

It is probable that in this vicinity *R. dorsalis* and certain other amphibian species do not lay eggs in the drier years. Possibly, more often, the eggs are laid, but the pools dry up before the tadpoles are transformed. It is evident that the seepage and evaporation could be balanced only by the

"Remarks," states that *coccifer* "has a rather extensive range on the Pacific slope of South America."

occurrence of fairly heavy rains at least every three or four days, for, during our stay of approximately three months in the height of the rainy season, only once did it rain enough to bring out *R. dorsalis,* and then the water disappeared before eggs were laid.

Engystomops pustulosus (Cope)

Vicinity of Tehuantepec. U.M.M.Z. Nos. 82136–39 (49)

Apparently, heavier rains are required to bring out *Rhinophrynus dorsalis* than are needed by *Engystomops pustulosus,* for the latter were found in numbers after a comparatively light rain on the night of August 21. The breeding song of *pustulosus* reminded us of the plaintive wail or cry of a very young, hungry dog. With each call there is an accompanying "convulsive" kick of the hind legs.

Leptodactylus labialis (Cope)

Vicinity of Tehuantepec. U.M.M.Z. Nos. 82141–42 (2)

One specimen was found at night on the edge of a seepage pool near the river; the other was found in the daytime at a semipermanent pond about 3 miles northeast of Tehuantepec.

Leptodactylus melanonotus (Hallowell)

Vicinity of Tehuantepec. U.M.M.Z. Nos. 82143–54 (49)

Unlike most of the other amphibians we secured, this species was very common in and about the permanent water sites such as the pools kept full by seepage from the Tehuantepec River. Only 1 specimen was taken from the rain pools during the 2 days (July 13 and 14) when they were filled.

Eleutherodactylus augusti (Dugés)

Mixtequilla Mountain. U.M.M.Z. No. 82155 (1)

A native brought in the only specimen of this genus which we secured. The species cannot be assigned with absolute certainty, because this specimen is rather desiccated and its features are consequently obscured and distorted. Its description best fits that of *augusti.*

Hyla baudinii Duméril and Bibron

Vicinity of Tehuantepec. U.M.M.Z. Nos. 82156–63 (39)

Common. Could nearly always be found at night along the river-seepage pools.

Hyla staufferi Cope

Vicinity of Tehuantepec. U.M.M.Z. Nos. 82164–68 (132)

Examples of this species were particularly abundant. They were found clinging to the tall grass around a semipermanent pond and on the leaves of bushes after a rain.

Microhyla usta (Cope)

Vicinity of Tehuantepec; San Pedro Mountain. U.M.M.Z. Nos. 82178–80 (5)

Of the 5 specimens, 4 were taken along river-seepage pools and the other at the base of San Pedro Mountain.

Rana pipiens Schreber

Vicinity of Tehuantepec. U.M.M.Z. Nos. 82169–77 (24)

Common about seepage pools of the Tehuantepec River.

Crocodylus acutus Cuvier

Vicinity of Tehuantepec. U.M.M.Z. No. 82181 (1)

The single specimen was taken in the Tehuantepec River. Although this species is apparently rare in the vicinity of Tehuantepec, we were told that it is abundant in the lagoons near the sea.

Staurotypus salvinii Gray

Vicinity of Tehuantepec. U.M.M.Z. No. 82182 (1)

The only specimen we were able to secure was found in a seepage pool of the Tehuantepec River.

Kinosternon cruentatum A. Duméril

Vicinity of Tehuantepec. U.M.M.Z. Nos. 82183–82238 (56)

Most of the specimens (42) were taken from seepage pools of the Tehuantepec River; the others (14) were all found within a radius of 3 miles from the village. They were particularly abundant in a very filthy watering hole near the outskirts of the village.

The band extending back from the eye is blood-red, in life. The senior author observed that in a series of 5 live specimens from Quintana Roo the band is yellow.

Geoemyda rubida (Cope)

Vicinity of Tehuantepec; San Pedro, Tres Cruces, and Mixtequilla Mountains. U.M.M.Z. Nos. 82239–69 (31)

Common on the rocky hillsides and in the rocky mountains near Tehuantepec.

One specimen was eating a large caterpillar when caught.

Phyllodactylus lanei Smith

Vicinity of Tehuantepec; Quiengola, San Pedro, and Ranchero Poso Río Mountains. U.M.M.Z. Nos. 82270–91 (67)

Very common both in the mountains and in the lowlands. Most of our

specimens were taken at night clinging to the sides of trees and on fence posts; some were found on rocks in shadowy caverns during the day.

We place these specimens in the *lanei* category provisionally.

Sphaerodactylus glaucus Cope

Vicinity of Tehuantepec; Quiengola Mountain. U.M.M.Z. Nos. 82292–82303 (56)

All except 3 of the specimens seem to be typical *glaucus;* the 3 each have a dark collar on the neck.

Coleonyx elegans Gray

Vicinity of Tehuantepec; Ranchero Poso Río and Mixtequilla Mountains. U.M.M.Z. Nos. 82304–8 (5)

All the local geckos are much feared for their supposedly venomous qualities, but this genus especially is abhorred. One specimen was found 2 feet underground in the crevices of adobe brick ruins.

We are unable to find any distinct differences between our series and specimens from Yucatán.

Anolis nebuloides Bocourt

Quiengola and San Pedro Mountains. U.M.M.Z. Nos. 82309–13 (25)

This form was never observed on the plains or smaller hills. Usually found clinging to the trunks and branches of trees.

Anolis sericeus Hallowell

Vicinity of Tehuantepec. U.M.M.Z. Nos. 82314–29 (23)

In contrast to *A. nebuloides, A. sericeus* was never observed at the higher elevations, but was taken only on the plains and on the smaller hills. Usually found in bushes and on the smaller trees.

Basiliscus vittatus Wiegmann

Vicinity of Tehuantepec. U.M.M.Z. Nos. 82330–43 (22)

Very common around irrigation ditches and water holes; rarely found far from water.

Iguana iguana rhinolopha Wiegmann

Vicinity of Tehuantepec. U.M.M.Z. Nos. 82344–47 (6)

Half-grown examples occasionally were found on the garbage heaps at the outskirts of the village.

Ctenosaura pectinata (Wiegmann)

Vicinities of Tehuantepec and Salina Cruz. U.M.M.Z. Nos. 82348–60 (15)

A common species. This lizard is a favorite food item of the natives

and is often seen in the markets of Tehuantepec and Salina Cruz. To make escape impossible, after the animal is secured by the natives, a digital tendon or two is severed in each foot; then the limbs are twisted over the animal's back and the tendons of the opposing feet are tied together, resulting in a very effective although undoubtedly torturous truss.

Ctenosaura quinquecarinata (Gray)

Vicinity of Tehuantepec; San Pedro and Mixtequilla Mountains. U.M.M.Z. Nos. 82361–77 (32)

This species was found mainly on rotting trees and on posts with hollow centers. It was well-nigh impossible to remove them from cavities in trees and posts, because of their habit of wedging their very spiny tails against the sides of the holes.

Most specimens were taken on the plains, although a few were from the mountains.

Uta bicarinata (A. Duméril)

Vicinities of Tehuantepec and Salina Cruz; Tres Cruces and Mixtequilla Mountains. U.M.M.Z. Nos. 82378–97 (54)

This common species was usually found in bushes or in small trees.

Sceloporus edwardtaylori Smith

Vicinities of Tehuantepec and La Mixtequilla. U.M.M.Z. Nos. 81819–39 (51)

Almost always found on the trunks of large trees; common.

Measurements of these specimens are given in an earlier paper (Hartweg and Oliver, 1937*a:* 7–8).

Sceloporus melanorhinus Bocourt

Quiengola and Tres Cruces Mountains. U.M.M.Z. Nos. 81816–18 (3)

Never observed on the plains. We have already discussed this species (Hartweg and Oliver, 1937*a:* 8).

Sceloporus siniferus Cope

Vicinity of Tehuantepec; San Pedro, Tres Cruces, and Quiengola Mountains. U.M.M.Z. Nos. 81840–59 (73)

Distinctly a plains form in the Tehuantepec region, occupying only the bases of the mountains on which it occurs. Very common. Data observed on these specimens are given in the above-mentioned paper (Hartweg and Oliver, 1937*a:* 6–7).

Sceloporus variabilis smithi Hartweg and Oliver

Quiengola, San Pedro, and Mixtequilla Mountains. U.M.M.Z. Nos. 81777–81815 (41)

The description and discussion of this handsome subspecies are given in the paper cited above (Hartweg and Oliver, 1937*a:* 1–5).

Phrynosoma asio Cope

Vicinities of Tehuantepec and Salina Cruz; San Pedro and Ranchero Poso Río. U.M.M.Z. Nos. 82398–82415 (46)

These lizards are common in the rough hills about Tehuantepec. The specimens (2) from the mountains at San Pedro were brought in by natives and were probably collected in the foothills.

Heloderma horridum (Wiegmann)

Quiengola and Mixtequilla Mountains. U.M.M.Z. Nos. 82416–18 (3)

Not common; never observed on the plains.

Lepidophyma smithii Bocourt

Quiengola Mountain. U.M.M.Z. Nos. 82419–22 (10)

This form was never observed in the plains habitats. All specimens were found in logs or in dark crevices or recesses in the rocks on Quiengola Mountain, where they are probably common, but not conspicuous.

Ameiva undulata (Wiegmann)

Rancheria Lamanga and Tres Cruces Mountains. U.M.M.Z. Nos. 81895–81904 (47)

The necessity of a revision of the *undulata* group is apparent. Data observed on our series have been recorded by Hartweg and Oliver (1937*b:* 7–8).

Cnemidophorus deppii deppii Wiegmann

Vicinities of Tehuantepec and Salina Cruz. U.M.M.Z. Nos. 81859–73 (44)

This strictly ground-inhabiting form is the most conspicuous reptilian inhabitant of the Tehuantepec Pacific plains. The observations made on this subspecies are recorded, and its relationships are discussed, in the above-mentioned paper (Hartweg and Oliver, 1937*b:* 1–3).

Cnemidophorus guttatus immutabilis Cope

Vicinities of Tehuantepec and Salina Cruz. U.M.M.Z. Nos. 81874–94 (54)

Usually is found with *deppii deppii* and superficially resembles it. This common, conspicuous lizard of the Tehuantepec area is compared with *d. deppii* and discussed in general in the paper referred to above (Hartweg and Oliver, 1937*b:* 3–7).

Gymnophthalmus sumichrasti (Cope)

Base of Quiengola Mountain. U.M.M.Z. No. 81905 (1)

Mentals, 1–2–2; ventrals, 29; dorsals (occiput to base of tail), 37; scales around middle of body, 13.

The capture of only 1 specimen of this species seems to indicate either great rarity or an overlooked habitat.

We have reported on this specimen (Hartweg and Oliver, 1937*b*: 8).

Mabuya mabouya mabouya (Lacépède)

Vicinity of Tehuantepec; Quiengola and Mixtequilla Mountains. U.M.M.Z. Nos. 82423–35 (35)

This form was obtained both in the plains and on the mountains, especially along the paths and ox roads on late afternoons.

Leiolepisma gemmingeri (Cope)

Tres Cruces Mountains. U.M.M.Z. No. 82436 (1)

The single specimen was brought in by a native. Scales around the middle of the body are in 26 rows.

Leptotyphlops bakewelli Oliver

Vicinity of Tehuantepec. U.M.M.Z. No. 82454 (1)

This specimen has already been reported on (Oliver, 1937: 17). It has 254 scales from rostral to spine.

Leptotyphlops phenops (Cope)[4]

Vicinity of Tehuantepec; San Pedro, Quiengola, and Ranchero Poso Río Mountains. U.M.M.Z. Nos. 82437–53 (18)

The junior author has examined and reported upon 29 specimens of so-called *albifrons* from the District of Tehuantepec and northern Chiapas (Oliver, 1937: 17–18). The range in scale counts of that series (232–56, occiput to spine) is embraced by the range exhibited by our own series of 18 specimens from the Tehuantepec area.

Sumichrast (1882: 282), with whose observations we agree, stated that this typhlopid is common on the isthmus.

We believe that the name *phenops* of Cope (1876: 128) should be retained until the species has been shown to be synonymous with *albifrons*. Among the series reported by the junior author (Oliver: 17–18) were 7 cotypes of *phenops* from the District of Tehuantepec; at that time, however, he was not aware that they were cotypes. Cope (1876: 128) was in error when he stated that the scales are in 13 rows. They are 14–14–14 in all

[4] Since the completion of this report the name *phenops* has been revived by another author (Smith, 1939: 28).

examples. The scales, occiput to spine, are 232–45, average 240. Gaige (1936: 298) has pointed out that the *albifrons* specimens (10) from British Guiana and Bolivia have 216–31 scales from occiput to spine, with an average of 222.5, which is below the range and average of the southern Mexico form. Gaige (1936: 298) reported 5 specimens from Yucatán whose scale counts from rostral to spine are 241–46; another specimen from Yucatán is recorded by the same author (1938: 297) as having 245 longitudinal dorsal rows. Schmidt and Andrews (1936: 168–69) have reported on 4 Yucatán specimens which have about 248 scales from snout to tip of tail. The ranges and averages, then, of the above-mentioned specimens are as follows:

Locality	Number of Specimens	Number of Scales, Occiput to Spine	
		Range	Average
Yucatán	10	241–48	246
Tehuantepec, Oaxaca, and northern Chiapas	29	232–56	247
The above localities combined	39	232–56	247
Bolivia and British Guiana	10	216–31	223

Some doubt is cast on the conclusion evident from the data in the accompanying table by the estimated scale count of an imperfect specimen from Cozumel Island. This specimen, U.M.M.Z. No. 78639, has an injured tail. The scale rows, occiput to spine, have been variously estimated to be between 225 and 230, inclusive. Nevertheless, we believe that the name *phenops* properly belongs to the northern representatives of the *albifrons* group.

Loxocemus bicolor Cope

Vicinity of Tehuantepec. U.M.M.Z. Nos. 82455–64 (11)

This interesting and secretive species was found only at night or on dark, cloudy days. All specimens were found on the plains.

Neither scale counts nor coloration seem to be of sexual significance. Abdominal scales are 252–63 (257); subcaudals, 38–44 (41); the dorsal scale rows, 31–33–27[5] in 8 specimens and 31–33–25 in 2; supralabials, 11/11 in 6 specimens, 10/10 in 4; infralabials, 13/13 in 8 specimens and 12/12 in 2; preoculars, constantly 1/1; postoculars, 3/3 in 8 specimens, 2/2 and 2/3 in 1 each, temporals irregular, such combinations as 1–3–4, 2–3–4, 1–2–3–4, 1–3–3–4, 1–3–4–4, and 1–3–4–5 being found. In the preserved specimens the pupil is round in 5 and vertically elliptic in 5.

[5] Throughout this paper unless otherwise noted the dorsal scale counts recorded are those taken on the neck, mid-body, and the posterior end. When 2 counts are given then the anterior and mid-body number of scales is the same. Thus 19–17 signifies 19–19–17, 17–13 signifies 17–17–13, etc.

Constrictor constrictor imperator (Daudin)

Vicinity of Tehuantepec; San Pedro Mountain. U.M.M.Z. Nos. 82465–68 (4)

The specimens have the following scale counts:

Sex	Abdominals	Subcaudals	Dorsals
♂	260	63	61–71–43
♂	248	57	61–75–41
♂	243	53	59–71–41
♀	252	54	59–73–39

Thamnophis ruthveni Hartweg and Oliver

Vicinity of Tehuantepec. U.M.M.Z. Nos. 82469–82510 (42)

This species is discussed and described by Hartweg and Oliver (1938: 1–4).

Masticophis mentovarius (Duméril and Bibron)

Vicinity of Tehuantepec; Ranchero Poso Río; San Pedro Mountain. U.M.M.Z. Nos. 82511–23 (13)

Fairly common in the plains area.

One specimen, when chased, climbed a tree with great speed.

The pattern of the adults is well described by Ortenburger (1928: 139–41), but he gives no description of the young aside from mentioning it in his key. If juvenile color pattern is of fundamental importance in indicating the relationships of the forms of *Masticophis,* then the relationships of *mentovarius* with the *flagellum* group are, to our minds, more remote than has been believed. The adults of *mentovarius* and *lineatus* resemble each other very closely, and the ranges of the 2 forms are nearly adjacent. It was on these bases that Ortenburger (1928: 140–41) reasoned that *mentovarius* was derived from *lineatus* and therefore belonged to the *flagellum* group.

Among the specimens of *mentovarius* which we collected on the Pacific slope of the Isthmus of Tehuantepec is a young one which still retains the juvenile pattern (U.M.M.Z. No. 82521); in addition to this specimen there is in the University of Michigan Museum of Zoology collection a juvenile from Campeche already reported on by Gaige (1936: 299). These 2 young exhibit a striped, longitudinal pattern—a striking contrast to the transverse banded pattern of juvenile *lineatus.* As noted by Ortenburger (1928), longitudinal stripes, though indistinct, may be present in adults. This longitudinal striping immediately suggests the *taeniatus* group. It should be recalled that *ruthveni,* one of the members of the *taeniatus* group, is striped only in the juvenile (Ortenburger, 1928: 43–48), although in the

other members of that group the longitudinally striped pattern is permanent.

If *mentovarius* belongs to the *taeniatus* group, then the *formenkreis* argument advanced by Stuart (1934: 3), to uphold his decision in placing *ortenburgeri* in the genus *Coluber* rather than in the genus *Masticophis,* is inapplicable.

Ortenburger (1928: 141), although considering *mentovarius* distinct, suggested: "It might be objected that the nine specimens called *mentovarius* in collections should be considered merely abnormal specimens of *lineatus*. . . ." We confirm his view that it is a tenable form, and that the juvenile patterns already discussed preclude the possibility of its being abnormal *lineatus.*

The summarized description of our Tehuantepec collection is as follows:

Number of Specimens	Sex	Abdominals	Subcaudals	Dorsal Scale Rows	Greatest Length in mm.		
					Body	Tail	Total
7	♀	196–202 (198)	104–11 (107)	17–13	1307	473	1780
6	♂	191–203 (196)	112–21 (117)	17–13	1579	495*	2074

* Part of tail lacking.

All the females possess 7 upper labials and 10 or 9 lower labials; 4 of the males have 7 upper labials; 2 have 8, with the fourth and fifth entering the orbit; the lower labials in the males vary from 9 to 11.

Salvadora lemniscata (Cope)

Vicinity of Tehuantepec. U.M.M.Z. Nos. 82525–37 (14)

These extraordinarily speedy snakes were frequently seen but were difficult to catch alive in the xerophytic scrub vegetation. One was captured while it was pursuing a *Cnemidophorus guttatus immutabilis.*

Number of Specimens	Sex	Abdominals	Subcaudals	Dorsal Scale Rows at Mid-body
7	♂	198–207 (202)	133–46 (139)	17
7	♀	200–208 (204)	129–38 (133)	17

In 2 specimens the upper labials are 8/9; in all others, 9/9. The lower labials vary from 10 to 12.

Drymobius margaritiferus (Schlegel)

Vicinities of Tehuantepec and Salina Cruz. U.M.M.Z. Nos. 82538–45 (8)

Number of Specimens	Sex	Abdominals	Subcaudals	Dorsal Scale Rows
4	♂	150–52 (151)	122–33 (128)	17–15
4	♀	145–51 (149)	108–17 (112)	17–15

Upper labials, 9; lower labials, 9–11. Largest specimens: ♀ (685 mm., body + 385 mm., tail), 1070 mm.; ♂ (608 mm., body + 349 mm., tail), 957 mm.

Dryadophis alternatus (Bocourt)

Vicinity of Tehuantepec; Tres Cruces, San Pedro, and Mixtequilla Mountains. U.M.M.Z. Nos. 82546–52 (7)

According to L. C. Stuart, the specimens of the Pacific slope of the Isthmus of Tehuantepec are intergrades between *Dryadophis alternatus alternatus* and *Dryadophis alternatus slevini.* He comments further on these specimens in his forthcoming revision of this genus. The scale counts of the 7 specimens secured by us are detailed as follows:

U.M.M.Z. Specimen Numbers	Sex	Supralabials	Infralabials	Preoculars	Postoculars	Temporals	Abdominals	Subcaudals	Dorsal Scale Rows
82546	♀	9	11	1	2	2–1–2 / 2–2	192	106	17–15
82547	♀	9	10/11	1	2	2–2	189	106	17–15
82548	♀	9	10	1	2	2–1–2	187	103	17–15
82549	♂	9	11	1	2	2–1–2	182	110	17–15
82550	♂	9	10/11	1	2	2–1–2 / 2–2	182	110	17–15
82551	♂	9	11	1	2	2–1–2	181	111	17–15
82552	♂	9	11/12	1	2	2–3–2 / 1–2–2	183	110	17–15

Largest specimens: ♀ (839 mm., body + 341 mm., tail), 1180 mm.; ♂ (868 mm., body + 351 mm., tail), 1219 mm.

Drymarchon corais melanurus (Duméril and Bibron)

Vicinity of Tehuantepec. U.M.M.Z. Nos. 82553–66 (16)

Number of Specimens	Sex	Abdominals	Subcaudals	Dorsal Scale Rows
5	♂	189–201 (196)	75–82 (77)	17–15
11	♀	193–200 (197)	69–79 (74)	17–15

The upper labials are 8 in all specimens except 1, which has 7; the lower labials are 8 in all but 2 specimens, which have 8/10 and 9/8. Largest specimens: ♂ (1855 mm., body + 386 mm., tail), 2241 mm.; ♀ (1665 mm., body + 330 mm., tail), 1995 mm.

Elaphe chlorosoma (Günther)

Quiengola and Mixtequilla Mountains. U.M.M.Z. Nos. 82569–70 (2)

Apparently rare, and probably absent in the low plains area of the Pacific slope.

Number of Specimens	Sex	Abdominals	Subcaudals	Dorsal Scale Rows
1	♂	251	122	29–33–21
1	♂	257	110 +*	29–35–21

* Tip of tail missing.

The upper labials number 9/8 and 8/9; the lower labials, 10/10 and 11/12.

Leptophis diplotropis (Günther)

Vicinities of Tehuantepec and Salina Cruz. U.M.M.Z. Nos. 82571–90 (20)

This species was quite common in the shrubby vegetation surrounding a semipermanent pond about 2 miles north of Tehuantepec.

Number of Specimens	Sex	Abdominals	Subcaudals	Dorsal Scale Rows
15*	♂	167–77 (173) [13]	134–61 (143) [11]	15–11 [10]; 15–13–11 [5]
5*	♀	175–80 (178)	134–42 (138) [3]	15–11 [4]; 15–13–11 [1]

* Of the males, 2 lack complete abdominals and 4 lack complete subcaudals. Of the females, 2 lack complete subcaudals.

The upper labials number 8 in all except 4 specimens, of which 1 has 8/9, 1 has 9/8, and 2 have 9/9. The lower labials are 11 in all except 3 specimens; these have 11/10, 12/12, and 10/10. All possess a loreal. The number of dorsal scale rows is 15, with 1 or 2 paravertebral rows keeled; the remaining rows are smooth.

Lampropeltis triangulum polyzona Cope

Vicinity of Tehuantepec. U.M.M.Z. No. 82591 (1)

The only specimen of this handsome snake which we secured was collected in a milpa about 2 miles north of Tehuantepec. This specimen, a male, has 7 supralabials, 9 infralabials, 227 abdominals, 59 subcaudals, dorsal scales 21–23–19, and yellowish annuli (17 + 5) 22.

Enulius flavitorques (Cope)

San Pedro Mountain; Ranchero Poso Río. U.M.M.Z. Nos. 82592–93 (2)

Both specimens are females and were collected in the mountains.

U.M.M.Z. Specimen Number	Supra-labials	Infra-labials	Pre-oculars	Post-oculars	Temporals	Abdomi-nals	Sub-caudals	Dorsal Scale Rows at Mid-body
82392	7	?	1	2	1–2	191	?	17
82393	7	8	1	2	1–2	192	97	17

In both, the collar is reduced to a spot on either side, just posterior to the seventh upper labial.

Ficimia publia Cope

Ranchero Poso Río. U.M.M.Z. No. 82594 (1)

The single male specimen was collected at night. Supralabials, 7; infralabials, 7; internasals, distinct; abdominals, 143; subcaudals, 36; dorsals, 17 at mid-body. There are 25 dorsal body spots and 8 spots on the tail.

Symphimus leucostomus Cope

Tres Cruces and Mixtequilla Mountains. U.M.M.Z. Nos. 82595–97 (3)

We considered ourselves fortunate in securing 3 specimens of this puzzling snake. The resemblance between *Symphimus leucostomus* and *Opheodrys mayae* is striking.

U.M.M.Z. Specimen Number	Sex	Supra-labials	Infra-labials	Pre-oculars	Post-oculars	Tem-porals	Abdomi-nals	Sub-caudals	Dorsal Scales at Mid-body
82595	♂	7	8	1	2	1–2	175	.....	15
82596	♂	7	8	1	2	1–2	177	122	15
83597	♂	7	8	1	2	1–2	176	.....	15

Geagras redimitus Cope

Quiengola Mountain. U.M.M.Z. No. 82598 (1)

The single male specimen was found in a dry, rotten log. It agrees closely with Cope's type (1876: 141–42). Supralabials, 5; infralabials, 6; preoculars, 1; postoculars, 1; temporals, 1–2; abdominals, 117; subcaudals, 28; dorsal scale rows, 15 at mid-body; anal divided. Length (180 mm., body + 26 mm., tail), 206 mm.

This snake contained several partially digested Coleoptera larvae in the digestive tract.

Trimorphodon biscutatus (Duméril and Bibron)

Vicinity of Tehuantepec. U.M.M.Z. Nos. 82599–82602 (4)

The 2 males and 2 females of this species give the following data:

Number of Specimens	Sex	Abdominals	Subcaudals	Dorsal Blotches
2	♀	269 [2]	72–86	31–36
2	♂	254–55	93–94	31–34

Supralabials, 9 (3), 10/9 (1); infralabials, 12 (2), 13/12 (2). Preoculars, 3; postoculars, 3 (3), 3/2 (1); dorsal scale rows, 25–27–17, 25–26–17, 25–25–17, and 23–25–17.

Imantodes gemmistratus Cope

Mountains in the vicinity of La Mixtequilla. U.M.M.Z. No. 82603 (1)

A single male specimen was collected. Supralabials, 9; infralabials, 10; preoculars, 1; postoculars, 2; temporals, 1–3; abdominals, 230; subcaudals, 134; dorsals, 17 at mid-body.

In a paper by the junior author (Oliver, 1937: 23) it was pointed out that specimens of *gemmistratus* from Yucatán and specimens of *gemmistratus* from the west coast of Mexico differ notably. Additional material of these forms has been examined since that date, and we now believe that they represent two distinct species. The name *gemmistratus* is applicable to the west-coast species. For the Yucatán specimens we revive Cope's name *tenuissimus* (1866: 317–18).

Species	Number of Specimens	Sex	Abdominals	Subcaudals
gemmistratus	3	♂	230–36 (234)	134–38 (136)
tenuissimus	4	♂	245–52 (249)	154–58 (156)
gemmistratus	12	♀	224–34 (226)	120–33 (126)
*tenuissimus**	3	♀	240–48 (244)	143–49 (146)

* We have not examined any ♀ specimens from Yucatán. The counts given here are those of Schmidt and Andrews (1936: 177–78).

Leptodeira mystacina Cope

Vicinity of Tehuantepec. U.M.M.Z. Nos. 82604–5 (2)

The 2 females of this species were collected at night. Our identification of these specimens has been verified by E. R. Dunn.

Number of Specimens	Sex	Abdominals	Subcaudals	Dorsals
2	♀	193–95	51 + – 64	19–17

Upper labials, 8; lower labials, 10; preoculars, 1; postoculars, 2; temporals, 1–2.

Leptodeira septentrionalis maculata (Hallowell)

Vicinity of Tehuantepec. U.M.M.Z. Nos. 82606–23 (18)
Commonly found near water at night.

Number of Specimens	Sex	Abdominals	Subcaudals	Greatest Length, in mm.		
				Body	Tail	Total
9	♂	172–79 (174)	71–79 (75)	519	131	650
9	♀	175–85 (180)	63–71 (66)	527	117	644

The dorsal scale rows are 21–23–17 in all of the males and in 6 of the females; the remaining 3 females have 21–25–17, 23–25–17, and 23–25–19. The supralabials are 8 in all except 1 specimen which has 8/9; the infralabials vary from 9 to 12, 10 being the most frequent number. Preoculars, 2, and postoculars, 2, in all specimens; temporals, consistently 1–2.

Manolepis putnami (Jan)

Vicinity of Tehuantepec; San Pedro and Tres Cruces Mountains. U.M.M.Z. Nos. 82624–37 (14)

Number of Specimens	Sex	Abdominals	Subcaudals	Greatest Length, in mm.		
				Body	Tail	Total
4	♂	169–73 (170)	74–82 (78)	429	140	569
10	♀	174–80 (177)	57–70 (65)	575	142	717

The supralabials are constantly 8; the infralabials are 10 in all except 1 specimen, which has 9; preoculars are 1 in all except 1, which has 2; the postoculars are 3 in 1 specimen and 2 in the remaining 13; the temporals are consistently 1–2–3. The dorsal scale rows are 19–15 in 13 specimens and 19–17–15 in 1, a male.

The females of this species are darker than the males. The chin and anterior ventral region of the females is usually black, and the lateral dark band is very pronounced. In males, the chin and anterior ventral area is only slightly darker than is the remaining ventral surface. The lateral band is faint. Several of the females collected contained well-developed eggs.

The recent use of the name *nasuta* for this species (Oliver, 1937: 24) instead of *putnami* (Boulenger, 1896: 120; and Cope, 1900: 1092) has resulted in several inquiries regarding the choice.

The difficulty arises in the interpretation of Article 35 in the International Code of Zoological Nomenclature. This article is somewhat ambiguous and should be amended to meet such a situation as is presented by this case. The synonymic data follow:

Liophis putnamii Cope 1862 (= *Dromicus cursor*)
Dromicus putnami Jan 1863 (= *Manolepis putnami*)
Tomodon nasutus Cope 1864 (= *Manolepis putnami*)
Manolepis nasutus Cope 1885 (= *Manolepis putnami*)
Manolepis putnami, used first by Boulenger 1896

Argument for using the name *putnami:* since the combination of *Dromicus putnami* had not been used in literature before the time of Jan's description (1863) the name *putnami* is available.

Argument for using the name *nasuta:* Since Cope's *Liophis putnamii* is referred in synonymies to *Dromicus, putnami* becomes a homonym and may not be resurrected. Thus the name *nasuta* is available.

Cope (1900: 1094) was aware of the confusion regarding the proper name. He states:

> There is some doubt as to the correct name of this species. The description of Jan in 1863 is scarcely sufficient to sustain his name, and in 1862 I described a species as *Liophis putnamii*—a species which belongs to the genus *Dromicus.* It was not, however, called *Dromicus putnamii* until after 1863.

Conophis viduus Cope

Vicinities of Tehuantepec and Salina Cruz. U.M.M.Z. Nos. 82638–53 (16)

Color of U.M.M.Z. No. 82853 (in life): Cream-white above with three dark brown bands; a lateral band on either side commencing on the posterior edge of the rostral and continuing to the tip of the tail; a median dorsal band commencing on the internasals and extending to the tip of the tail. Labials and under parts a clear cream-white.

The median band occupies the rows 9–10–9 and part of the adjacent rows 8 and 8.

The position of the lateral band was noted at 4 points: anteriorly (Ant), mid-body (Mid), at the point of the scale drop (Sc Drop), and posteriorly at about the tenth preanal ventral (Post). The extreme widths of the bands are given in terms of upper and lower limits, the numbers indicating that at least part of the row is involved.

	Lower Limit			
Number of Specimens	Ant	Mid	Sc Drop	Post
8	2	2	2	2
2	2	3	2	2
2	3	2	2	2
1	3	3	2	2
1	3	3	2	3
1	2	3	2	3
1	3	3	3	3

Upper Limit				
Number of Specimens	Ant	Mid	Sc Drop	Post
7	5	5	4	5
5	5	5	4	4
2	5	5	5	5
1	5	4	4	4
1	6	5	4	4

Number of Specimens	Sex	Abdominals	Subcaudals	Dorsal Scale Rows
9	♂	157–65 (161)	60–70 (64)	21–19–17 [1]; 19–17 [8]
7	♀	164–71 (167)	54–66 (59)	19–17 [4]; 19–15 [1]

The supralabials are consistently 7; the infralabials are 9 in all specimens except 1, in which they are 9/10. The preoculars are invariably 1; the postoculars, 2. The temporals are 1–2 in 13 specimens, 2–2 in 1 specimen, and 2–3 in 2 specimens.

Oxybelis acuminatus (Wied)

Vicinity of Tehuantepec; San Pedro and Tres Cruces Mountains. U.M.M.Z. Nos. 82654–55 (12)

Number of Specimens	Sex	Abdominals	Subcaudals	Dorsals
5	♂	192–204 (196)	179–86 (182)	17–13
7	♀	189– 97 (192)	172–84 (175)	17–13

The supralabials are 9 in all specimens except 2, in which they are 8/9 and 10; infralabials are 10 in all except 4, in which they are 10/11; preoculars, 1; postoculars, usually 2, but they are 1/1 in 1 specimen and 1/2 in 1 specimen; temporals, 1–2 in all specimens.

Coniophanes imperialis copei Hartweg and Oliver

Vicinity of Tehuantepec. U.M.M.Z. Nos. 82666–82721 (56)

Number of Specimens	Sex	Abdominals	Subcaudals	Dorsals
35	♂	127–33 (130)	72–80 (75)	19–17 [21]; 19–15 [14]
21	♀	130–41 (135)	65–75 (70)	19–17 [4]; 19–15 [17]

These specimens have already been reported on by Hartweg and Oliver (1938: 4–6).

Coniophanes piceivittis Cope

Vicinity of Tehuantepec. U.M.M.Z. Nos. 82722–27 (6)

Number of Specimens	Sex	Abdominals	Subcaudals	Dorsals
5	♂	162–168 (164)	82–91 (86)	25–23–21 [3], 25–23–19 [2]
1	♀	170	78	25–23–19

The supralabials and infralabials are constantly 8 and 10, respectively; preoculars, 2; postoculars, 2; temporals, 1–2. The largest specimen, a male, is (143 mm., body + 87 mm., tail) 230 mm. in length.

Tantilla rubra Cope

Vicinity of Tehuantepec. U.M.M.Z. No. 82728 (1)

The single specimen, a male, has the following scutellation: supralabials, 7; infralabials, 6; preoculars, 1; postoculars, 2; temporals, 1–1; abdominals, 158; subcaudals, 66; dorsal scale rows at mid-body, 15. Length, in mm. (271 mm., body + 81 mm., tail), 352.

Tantilla striata Dunn

San Pedro Mountain. U.M.M.Z. No. 82729 (1)

A female, which has the following measurements: supralabials, 7; infralabials, 6; preoculars, 1; postoculars, 2; temporals, 1–1; abdominals, 157; tail incomplete; scale rows at mid-body, 15.

Although our single representatives of this and the species listed next above show no differential in scale counts, they are easily distinguished on the basis of color and pattern. In *rubra:* the head is black; there is a white collar 2½ scales wide which also involves the posterior edge of the parietals; this is followed by a black collar of the same width dorsally, narrower on the sides; the rest of the dorsum is (in life) bright red. In *striata:* the head is dark brown; there is a postparietal light spot on either side; the dorsum is brown with 3 light stripes, of which 1 involves the vertebral and the adjacent halves of the paravertebral rows and 1 lateral light stripe extends along either side and involves the adjacent edges of scale rows 3 and 4.

Stenorhina degenhardti (Berthold)

Vicinity of Tehuantepec. U.M.M.Z. No. 82730 (1)

A single female was collected. Supralabials, 7; infralabials, 7; preoculars, 1; postoculars, 2; temporals, 1–2–3; abdominals, 180; subcaudals, 34. Dorsal scales at mid-body, 17.

Color in life, Indian red or earth red above on body and tail. Head above, the same color, except that frontal and parietals are darker. This color descends on sides, becoming gradually pink ventrally. Under surface

of tail, a reddish pink; anteriorly, on under surface of body, the reddish pink lightens until a very light pink has been obtained in the throat region, and still more anteriorly the scales are pure white. Upper and lower labials, pinkish white. A narrow black streak extends back from the eye on the upper edge of the fifth, sixth, and seventh upper labials. A middorsal black stripe, 1 scale wide, extends from the occipit to tip of tail, sharply defined on the body, and is progressively fainter on tail.

Trimeresurus dunni Hartweg and Oliver

Vicinity of Tehuantepec; San Pedro and Mixtequilla Mountains. U.M.M.Z. Nos. 82731–46 (16)

Number of Specimens	Sex	Abdominals	Subcaudals	Dorsal Scale Rows
5	♂	147–53 (151)	36–41 (38)	23–19
11	♀	147–58 (152)	30–36 (33)	23–19 [10] 23–21–19 [1]

The full description is found in a previous paper by Hartweg and Oliver (1938: 6–7).

Crotalus atrox Baird and Girard

Vicinity of Tehuantepec; Ranchero Poso Río, Limon and San Pedro Mountains. U.M.M.Z. Nos. 82747–52 (7)

The presence of this species in the Tehuantepec area presents a problem in distribution—a tremendous extension of range with no positive evidence available for explanation.

L. M. Klauber, to whom we sent the specimens for examination, found no constant differences in lepidosis. Color and pattern, except for a dark area on the first ventral or on the last central gulars, he found to be embraced within the variations exhibited by other specimens of this species. He pointed out that *Crotalus molossus nigrescens* and *Crotalus scutulatus* have recently been found to occupy a far greater range in Mexico than was previously thought possible.[6] And further, to quote from his letter:

> Since both of these species favor the same type of habitat as *atrox* this makes the *atrox* range extension appear more natural. Also, it will be noted from the maps appearing in the Key[7] that the *scutulatus* and *nigrescens* range extensions do not follow down the Mexican west coast, but rather the central plateau area.

If the question is one involving continuous range, then *atrox* occupies one or more of the distinct areas (Gulf or Pacific coasts and the central plateau) over a great area from which it has never been taken. Of these 3 areas the plateau seems to be the most plausible choice. The possibility

[6] Correspondence of L. M. Klauber, 1938.

[7] Klauber, 1936: 251, 255.

of the Tehuantepec population remaining as a relict of a once more widely spread form should not be overlooked.

U.M.M.Z. Specimen Number	Sex	Supra-labials	Infra-labials	Pre-oculars	Post-oculars	Abdomi-nals	Sub-caudals	Dorsals
82749	♂	15/15	16/16	2	3	181	27	23–25–19
82752	♂	16/16	17/17	2	3	179	27	23–25–21
82747	♀	15/15	17/17	2	3	185	23	23–27–21
82748	♀	16/16	16/16	2	2	185	21	23–25–19
82750	♀	14/14	14/14	2	3	184	24	23–25–19
82751	♀	16/16	16/16	2	3	184	20	23–27–21

Crotalus durissus durissus Linnaeus

Vicinity of Tehuantepec. U.M.M.Z. Nos. 82753–56

Our locality records indicate that *Crotalus d. durissus* is predominantly a plains form and that *Crotalus atrox* is a mountain form in the Pacific-Tehuantepec area.

U.M.M.Z. Specimen Number	Sex	Supra-labials	Infra-labials	Pre-oculars	Post-oculars	Abdomi-nals	Sub-caudals	Dorsal Scale Rows
82753	♂	15/15	16/16	1	3	181	31	25–29–19
82754	♂	14/14	16/16	1	2	184	29	25–29–19
82755	♂	16/16	17/17	1	3	177	32	25–29–21
82756	♀	14/14	17/17	1	4	183	26	25–29–19

REFERENCES

BÖSE, EMIL

1905 Reseña acerca de la geologia de Chiapas y Tabasco. Bol. Inst. Geol. Mexico, 20: 1–116.

BOULENGER, GEORGE A.

1896 Catalogue of the Snakes in the British Museum. London: British Museum. 3: i–xiv, 1–727.

COPE, EDWARD D.

1862 Synopsis of the Species of *Holcosus* and *Ameiva*, with Diagnoses of New West Indian and South American Colubridae. Proc. Acad. Nat. Sci. Phila., 1 and 2: 60–82.

1864 Contributions to the Herpetology of Tropical America. *Ibid.*, 3: 166–76.

1866 Fifth Contribution to the Herpetology of Tropical America. *Ibid.*, 4: 317–23.

1876 On the Batrachia and Reptilia of Costa Rica. Journ. Acad. Nat. Sci. Phila., (n.s.) 8 (2): 93–154.

1885 Twelfth Contribution to the Herpetology of Tropical America. Proc. Amer. Phil. Soc., 22: 167–94.

1900 The Crocodilians, Lizards, and Snakes of North America. Rept. U. S. Nat. Mus., 1898, pp. 153–1270.

GAIGE, HELEN T.

1936 Some Reptiles and Amphibians from Yucatan and Campeche, Mexico. Carnegie Inst. Washington Pub., 457: 289–304.

1938 Some Reptilian Records from Caves of Yucatan. *Ibid.*, 491: 297–98.

HARTWEG, NORMAN, AND JAMES A. OLIVER

1937*a* A Contribution to the Herpetology of the Isthmus of Tehuantepec. I. The Scelopori of the Pacific Slope. Occ. Papers Mus. Zool. Univ. Mich., 356: 1–9.

1937*b* A Contribution to the Herpetology of the Isthmus of Tehuantepec. II. The Teiids of the Pacific Slope. *Ibid.*, 359: 1–8.

1938 A Contribution to the Herpetology of the Isthmus of Tehuantepec. III. Three New Snakes from the Pacific Slope. *Ibid.*, 390: 1–8.

JAN, G.

1863 Elenco sistematico degli ofidi. Milan. Pp. vii + 143.

KELLOGG, REMINGTON

1932 Mexican Tailless Amphibians in the United States National Museum. Bull. U. S. Nat. Mus., 160: i–iv, 1–224.

KLAUBER, LAWRENCE M.

1936 A Key to the Rattlesnakes with Summary of Characteristics. Trans. San Diego Soc. Nat. Hist., 8 (20): 185–276.

OLIVER, JAMES A.

1937 Notes on a Collection of Amphibians and Reptiles from the State of Colima, Mexico. Occ. Papers Mus. Zool. Univ. Mich., 360: 1–28.

ORTENBURGER, ARTHUR I.

1928 The Whip Snakes and Racers: Genera *Masticophis* and *Coluber*. Mem. Univ. Mich. Mus., 1: i–xviii, 1–247.

SAPPER, KARL

1932 Klimakunde von Mittelamerika. Handb. Klimatol., 2 (H): 1–74.

SCHMIDT, KARL P., AND E. WYLLYS ANDREWS

1936 Notes on Snakes from Yucatan. Field Mus. Nat. Hist., Zool. Ser., 20 (18): 167–87.

SMITH, HOBART M.

1939 Notes on Mexican Reptiles and Amphibians. Field Mus. Nat. Hist. Zool. Ser., 24 (4): 15–35.

STUART, LAWRENCE C.

1934 Studies on Neotropical Colubrinae. IV. An apparently new Species of *Coluber* from Guatemala. Occ. Papers Mus. Zool. Univ. Mich., 284: 1–4.

SUMICHRAST, FRANCIS

1882 Contribución á la historia natural de México. 1. Notas acerca de una colección de reptiles y batracios de la parte occidental del istmo de Tehuantepec. La Natureleza, 5 (1880–81): 268–93.

VER WIEBE, WALTER A.

1925 Geology of Southern Mexico Oil Felds. Pan-Amer. Geol., 44 (2): 121–38, Pls. 12–13.

WETTSTEIN, OTTO

1934 Ergebnisse der österreichischen biologischen Costa Rica-Expedition 1930. Die Amphibien und Reptilien. Sitzungsb. Akad. Wissensch. Wien Mathem.-naturw. Klasse, Abt. I, Bd. 143, Hft. 1 und 2: 1–39.

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