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ABSTRACT

Seventeen species of the colubrid snake genus *Tantilla* are known to occur in Central America. The taxonomy and distribution of each species is discussed. The enigmatic lectoparatype of *Tantilla jani* and the holotype of *T. schistosa costaricensis* are shown to be specimens of *T. alticola. Tantilla cuniculator* is added to the herpetofauna of Central America (Belize). Distributional maps are provided for each species and geographical variation and ecological data are discussed, where pertinent. The status of *T. brevis* is briefly considered. The infraspecific taxonomy of *T. schistosa* is reviewed and no subspecies are recognized. A key for identification is provided to the Central American members of the genus. Geographic, altitudinal, and ecological distribution of the group is discussed.

INTRODUCTION

The genus *Tantilla* has traditionally been considered to contain species difficult of identification. This has principally been the case with the Latin American species. This view has a basis in reality due to the large number of nominal species, the considerable number of species known from one or few specimens, and the lack of a critical and comprehensive study of the species limitations in the genus. *Tantilla* is, indeed, a large genus. Its number of constituent species is surpassed only by those of *Atractus* in the Western Hemisphere, which reportedly number approximately 70 (Peters and Orejas-Miranda, 1970).

In writing this paper I have had several objectives in mind. My earlier work on the genus *Tantilla,* principally centered in Latin America, has demonstrated that this area, especially Central America, is currently the headquarters of some of the most pressing taxonomic problems within the genus, poorly-reviewed species, and species known from meager samples. Central America is, in fact, the second-most speciose area within the range of the genus. Of the 48 currently-recognized species of *Tantilla* (Wilson, 1982 and this paper), 17 occur from Guatemala and Belize south to Panamá. México harbors 26 species, South America 12, and the United States ten. Thus, this paper has been written with a view to: (1) defining the recognizable taxa known to occur in Central America and their geographic and ecological ranges; (2) resolving various taxonomic questions; (3) providing an additional bit of brick and mortar to the foundation of studies necessary to produce prior to the initiation of a projected study of the evolution and biogeography of the genus *Tantilla.*

METHODS AND MATERIALS

During the course of this study, I have examined 184 specimens of the 17 species of *Tantilla* occurring in Central America. In addition, in connection with systematic studies of some of these species (Wilson, 1970, 1974; Wilson, McCranie, and Porras, 1977; Wilson and Mena, 1980; Wilson and Meyer, 1971; Wilson and Villa, 1973), I have had access to data on another 301 specimens, which is included herein. I have examined type material of twelve of the 17 species herein reviewed (type material not examined or not available for the species *annulata, brevicauda,*

melanocephala, moesta, and *reticulata*). In addition, notes on and photographs of the holotypes of *T. moesta* and *T. brevis* were graciously provided by A. F. Stimson of the British Museum (Natural History). In reviewing the Central American species of *Tantilla,* I have examined all available material from throughout the range of the included species. Thus, for the majority of the species, the descriptions, distributional statements, and maps are based on the species as a whole. Two colleagues and I, however, have revised five of the 17 species (*jani, lempira, melanocephala, reticulata,* and *taeniata*). For those five species, therefore, I include below only abbreviated synonymies (including citations published after our revisions) and descriptions (referring only to papers in which complete descriptions may be found), and list only those specimens that have accrued since the above-mentioned revisions were completed. A table summarizing the critical characters of all included species is provided. In addition, I have mapped only the Central American portion of the range of the five previously-reviewed species. The remaining species are discussed in an expanded fashion. Discussion of the status of the lectoparatype of *Tantilla jani* and the holotype of *T. costaricensis* precedes the species accounts.

The species accounts (except those of species described herein) cover the following sequence of topics: synonymy; type material; type-locality; definition; description; distribution; geographic variation (if pertinent); ecological observations; remarks (if pertinent); locality records. The number of species examined is indicated in the last of the above-mentioned sections.

I have used the elevational categories of Stuart (1963), as follows: low elevations, 0-600 m; moderate, 600-1500 m; intermediate, 1500-2700 m.

Scale counts were made according to accepted methods, including the Dowling method for counting ventrals.

STATUS OF THE LECTOPARATYPE *TANTILLA JANI* (GÜTHER) AND THE HOLOTYPE OF *TANTILLA COSTARICENSIS* TAYLOR

In the original description of *Homalocranium jani (=Tantilla jani)* Günther (1895) listed two syntypes, one from "Guatemala" (BMNH 1946.1.8.68) and another from Matagalpa, Nicaragua (BMNH 1946.1.8.71). Smith (1942) subsequently designated the specimen from "Guatemala" as the lectotype (=lectoparatype) of this species. Apparently, Smith saw neither of the two specimens, having designated the Guatemalan specimen as lectoholotype on the basis of the agreement of the figure of it published by Günther (1895) with material Smith had seen from Chiapas and Oaxaca, México, and Guatemala but he did consider the two nonconspecific on the basis of Günther's description of the Nicaraguan specimen.

Wilson and Meyer (1971) examined both the lectoholotype and lectoparatype (*sensu* Smith, 1963) of *T. jani* and agreed with Smith's (1942) assignment of lectoholotype status to the Guatemalan specimen. They discussed the lectoparatype in some detail and pointed out several distinctions between it and material of *T. jani* they had examined but considered the status of the Nicaraguan lectoparatype as indeterminate at that time.

In 1954 Taylor described *Tantilla costaricensis* from a single specimen from Cervantes, Prov. Cartago, Costa Rica. This taxon was stated to be related to *T. schistosa* but differed by being more robust and in having a longer frontal and lateral head markings (pale pre- and postocular spots). A few years later, Smith (1962), in his revision of *Tantilla schistosa*, relegated *costaricensis* to the status of a subspecies of *T. schistosa*. Thus the situation has remained until this paper.

Determining the status of the lectoparatype of *Tantilla jani* and the holotype of *T. costaricensis* had to await the development of an understanding that a relatively obscure Colombian species, *T. alticola*, also occurred in Central America and that the known material of this taxom has been heretofore masquerading under the names *costaricensis, jani,* and *schistosa*. In 1977 Wilson, McCranie, and Porras identified a specimen of *Tantilla* from Costa Rica as *T. alticola*. During the examination of material for this study, I noted the resemblance of this specimen (LACM 125561) to the description of the lectoparatype of *Tantilla jani* (Günther, 1895; Wilson and Meyer, 1971; my notes). Later, I discovered another specimen (CRE 9830) from Costa Rica that agreed closely with the *jani* lectoparatype and LACM 125561. I had already examined or had notes (supplied by Donald E. Hahn and A. F. Stimson) on the syntypes of *T. alticola* and *Homalocranium coralliventre* (a synonym of *T. alticola*). Toward the latter part of this study, I found additional specimens of *T. alticola* misidentified as *T. schistosa* and discovered that the holotype of *T. schistosa costaricensis* (KU 30995) closely resembled other specimens tentatively identified as *T. alticola*.

In total, I have seen six specimens of *Tantilla* from Central America that appear to belong to the same taxon as the five known specimens of *T. alticola* from Colombia. Ten of these specimens have been directly compared to one another. Incidentally, the lectoparatype of *T. jani* (BMNH 1946.1.8.71) apparently came not from

Matagalpa, as stated by Günther (1895), but rather from Hacienda Rosa de Jericho (=Jericó), as indicated by Boulenger (1896) and the data accompanying the borrowed specimen. Hacienda Rosa de Jericó is near the city of Matagalpa in the Nicaraguan department of Matagalpa (fide Jaime Villa. pers. comm).

The comparison of all ten specimens has confirmed that all are conspecific and that the lectoparatype of *Tantilla jani* and the holotype of *T. schistosa costaricensis* are specimens of *Tantilla alticola*. All specimens agree in the following characteristics (Table 1): dorsum unicolor (pale to dark brown in color), except, in some cases, for a barely discernible, only slightly paler middorsal stripe confined to the middorsal row and extending the length of the body (excepting in one specimen in which it is not apparent on the posterior three-quarters of the body); (2) a complete nuchal band present, beginning on the posterior portion of the parietals and extending about one to one and one-half scales posterior to the parietals, thence laterad to cross the last supralabial (or posterior to that scale, in some cases); (3) most of internasals and prefrontals cream-colored (except in BMNH 1946.1.8.84, which was preserved in shed); (4) pre- and postocular pale spots well-developed; (5) dark nape band barely to well-discernable posterior to the pale nuchal band, grading into ground color of dorsum; (6) sharp demarcation between dorsal and ventral coloration.

Certain characters exhibit variability (Table 1). As indicated above, the dorsal ground color may vary from pale to dark brown. The two darkest specimens are from Costa Rica (CRE 9831, LACM 125561) but they are also the most recently collected. It is possible that some of the other specimens may have faded in preservative.

In one of the two specimens from Nicaragua (BMNH 1946.1.8.71) the barely discernible pale middorsal stripe is confined to the anterior fourth or so of the body and in another from Costa Rica (KU 30995) it is absent altogether; in most specimens, however, it extends the length of the body. The dorsum of the head is darkest (dark brown) in two specimens from Costa Rica (CRE 9831, LAC 125561) and palest (pale brown) in a specimen from Colombia (BMNH 1946.1.8.63).

Seven specimens have the postnasal and preocular scales in contact, two do not, and two show both conditions on either side of the head. Only one specimen (BMNH 1946.1.8.71) has the first pair of infralabials in medial contact; all others do not.

The number of ventrals is 128 to 145 ($\bar{x}$ =137.6) in males and 132 to 140 ($\bar{x}$ =135.8) in females. The number of ventrals appears to increase clinally from Nicaragua (128–134, $\bar{x}$ =131.0), through Costa Rica (132–142, $\bar{x}$ 136.0), to Colombia (134–135, $\bar{x}$ =140.0).

The number of subcaudals is 32 to 60 ($\bar{x}$ =51.8) in males and 42 to 57 ($\bar{x}$ =51.7) in females. Subcaudal counts may be lower in Central America (32–42, $\bar{x}$ =37.0, 2 spec., as opposed to 56–60 $\bar{x}$ =57.6, 5 spec.) but the sample sizes are too small to be sure. In addition, a male specimen from Nicaragua may have an incomplete tail (subcaudal count, 32).

In summary, it appears that the lectoparatype of *Tantilla jani* and the holotype of *Tantilla schistosa costaricensis* are actually specimens of *Tantilla alticola*. In

TABLE 1

Comparison of Pertinent Data on Available Specimens of *Tantilla alticola* (including the lectoparatype of *Tantilla jani* and the holotype of *Tantilla schistosa costaricensis*)

Character	BMNH 1946.1.8.71[1]	BMNH 95.4.29.9	LACM 125561	CRE 9830	KU 30995[2]	AMNH 17285	BMNH 1946.1.8.63	BMNH 1946.1.8.64	BMNH 1946.1.8.65[3]	BMNH 1946.1.8.83[3]	BMNH 1946.1.8.84[3]
Sex	Female	Male	Male	Female	Male	Male	Male	Male	Female (?)	Male (?)	Male (?)
Number of ventrals	134	128	133	132	142	137	145	144	140	134	137
Number of subcaudals	—	32	52+	42	—	—	58	57	57	60	56
Number of supralabials	7-7	7-7	6-7	7-7	7-7	7-7	7-7	7-7	7-7	7-7	7-7
Contact between preocular and postnasal	Yes	Yes	Yes	Yes/No	Yes	Yes	No	No	Yes	No/Yes	Yes
Medial contact of first pair of infralabials	Yes	No	No	No	No	No	No	No	No	No	No
Dorsal ground color	Pale brown	Brown	Dark brown	Dark brown	Brown	Pale brown	Brown	Pale brown	Brown	Brown	Brown
Pale middorsal stripe visible length of body	No, anterior one-fourth	Barely	No	Yes	No	Barely	Barely	Yes	?	?	Barely
Color of dorsum of head	Dark brown	Dark brown	Dark brown	Dark brown	Dark brown	Pale brown	Pale brown	Brown	Brown	Brown	Brown
Dark nape band discernible	Yes	Yes	Barely	Barely	Yes	Yes	Yes	?	?	?	Yes
Total length	—	140	—	192	—	—	327	125	260	277	248
Tail length	—	24	—	39	—	—	78	27	63	75	62
Relative tail length	—	0.171	—	0.203	—	—	0.239	0.216	0.242	0.271	0.250
Country of origin	Nicaragua	Nicaragua	Costa Rica	Costa Rica	Costa Rica	Costa Rica	Colombia	Colombia	Colombia	Colombia	Colombia

[1]Lectoparatype of *Tantilla jani*.
[2]Holotype of *Tantilla schistosa costaricensis*.
[3]Data supplied by Donald E. Hahn.

addition, several specimens misidentified as other Central American species are herein allocated to *T. alticola*. The known range of *T. alticola*, thus now extends from Nicaragua to Colombia (see account of *T. alticola* for additional information).

Tantilla alticola differs from *T. schistosa*, the species with which it is most frequently confused, as follows (condition in *T. schistosa* indicated in parenthesis): (1) most of internasals and prefrontals covered by prominent cream-colored marking (snout only slightly paler than remainder of dorsum of head, if at all); (2) pale pre- and postocular spots well-developed (preocular spot absent, postocular spot present or absent); (3) subcaudal counts relatively high, 42 to 60, x=55.06, excluding the probably abnormally low count of 32 (subcaudal counts relatively low, 24 to 42, x=34.8). Additional information is in the accounts of *T. alticola* and *T. schistosa*.

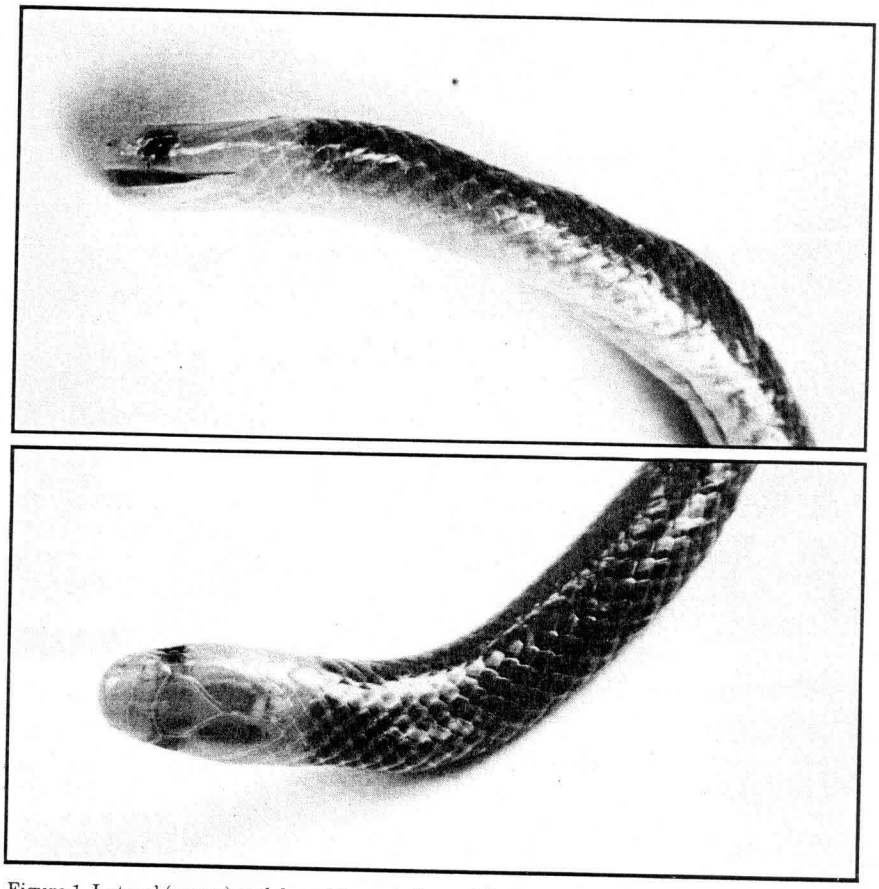

Figure 1. Lateral (upper) and dorsal (lower) views of the head of *Tantilla albiceps* (MCZ 20600 from Barro Colorado Island, Gatun Lake, Canal Zone, Panamá).

SPECIES ACCOUNTS

Tantilla albiceps Barbour

Tantilla albiceps Barbour, 1925: 156; Amaral, 1929b: 219; Smith, 1958: 224; Myers and Rand, 1969: 4; Peters and Orejas-Miranda, 1970: 293.

Holotype — MCZ 20600, collected by Thomas Barbour in February, 1925.

Type-locality — Barro Colorado Island, Gatun Lake, Canal Zone, Panamá.

Definition — A species of *Tantilla* with a uniform olive slate dorsum grading on the sides of the body to ivory white on the venter. The head and nape are ivory white, except for a dusky-colored ring aroung the eye (Table 2).

Description (Fig. 1) — *Tantilla albiceps* has an uniform olive slate dorsum (brown in preservative), this color grading into the ivory white coloration of the venter (cream in preservative) on the lowermost dorsal scale row. The head and nape to a point one and one-half scales posterior to the parietals are ivory white (cream in preservative), except for a dusky circle around each eye, both of which connect with two faint lines passing across the top of the head on either side of the frontal-prefrontal suture. There is dark flecking along the lateral edge of the ventrals.

The scutellation of the male holotype is as follows: postnasal and single preocular broadly separated by contact of the prefrontal and second supralabial; supralabials 7, with 3rd and 4th entering orbit; infralabials 6, with first four in contact with anterior chinshields, 4th largest, first pair broadly separated by contact of mental and anterior chinshields; postocular single; temporals 1+1, anterior one almost excluded from contact with postocular by parietal and fifth supralabial; dorsal scale rows 15 throughout; ventrals, 183 (Barbour's, 1925, count was 185); anal plate divided; subcaudals, 65 (Barbour's count was 62), tail apparently incomplete; ventrals + subcaudals, 248.

The total length is 212 mm and the tail length is 50 mm (undamaged lengths probably a few mm more). Relative tail length is approximately 0.236.

Distribution — Known only from the type locality (Fig. 2).

Ecological observations — Barbour (1925) mentioned that the only known specimen of this species was dug out of "a stump near the laboratory building" on Barro Colorado Island. Myers and Rand (1969) noted that this island, "formed by the dredging of the Panama Canal and the damming of the Chagres River in 1912," has a maximum elevation of 452 feet (=137.8 m) above Gatun Lake or 537 feet (=163.7 m) above sea level. The laboratory is "several hundred feet above the lake level" (R. W. Van Devender, pers. comm.). The island lies within the Tropical Moist Forest formation of Holdridge (1967).

Remarks — Barro Colorado is, undoubtedly, the best-collected locatity in Central America. Fifty-four years have elapsed since the holotype and only known specimen of *T. albiceps* was collected. Numerous investigators have sampled the herpetofauna since that time, yet no other specimen has "surfaced." Myers and Rand (1969) speculated that *T. albiceps* may have been extirpated from the island. But one

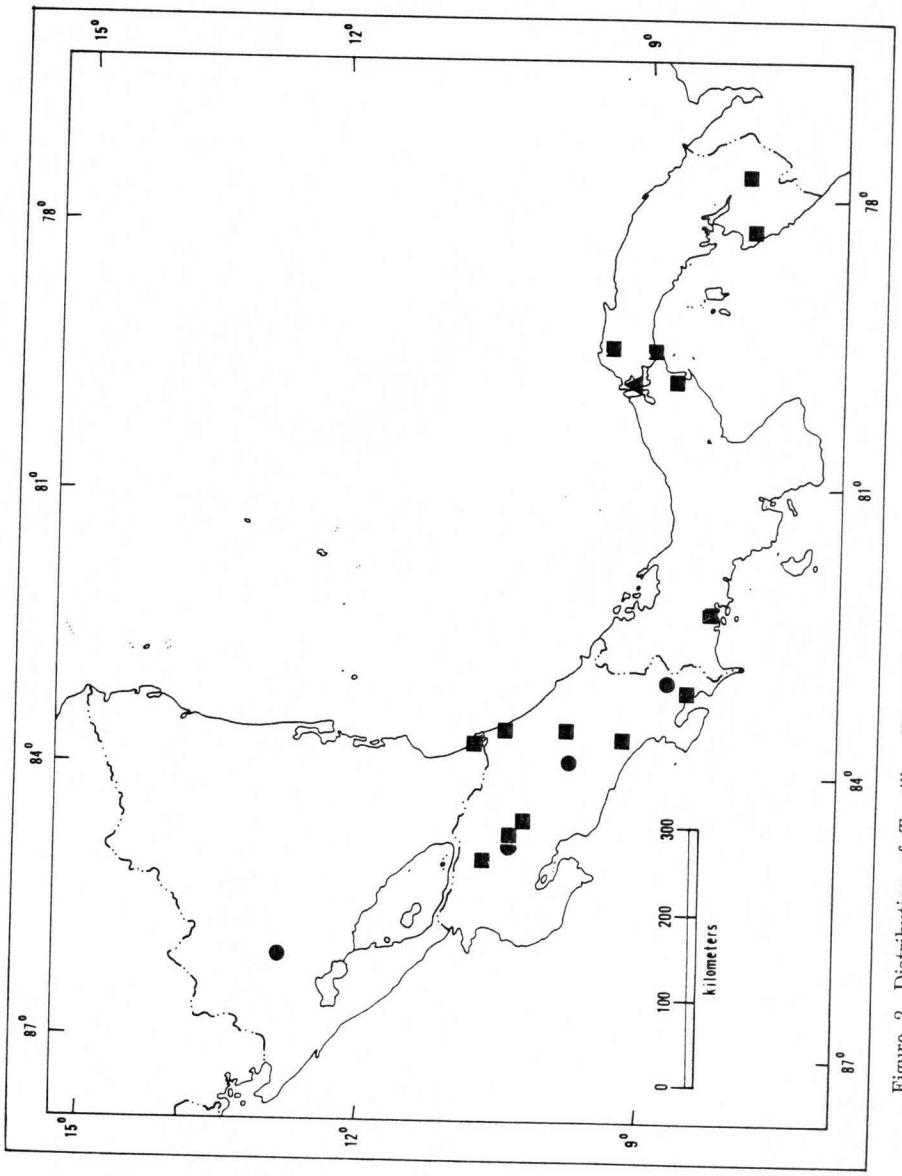

Figure 2. Distribution of *Tantilla albiceps* (triangle), *T. alticola* (circles), and *T. annulata* (squares).

wonders why it has not been found elsewhere is the relatively well-sampled Panama Canal Zone.

Tantilla albiceps is a peculiar species and differs in a number of striking ways from other members of the genus. Upon first examination of the holotype, one is struck by the relatively broad and flattened head and small eye. The shape of the head is reminiscent of that of some species of *Micrurus*. The combination of high ventral and subcaudal counts is otherwise seen only in the *planiceps* and *rubra* groups (Tanner, 1966; Smith and Werler, 1969) occurring in the southwestern United States and México. It possesses a single postocular, otherwise seen normally only in *T. calamarina* and *T. gracilis*. The pattern of *T. albiceps* is unique within the genus. On the other hand, *T. albiceps* exhibits the characteristics typical of the genus, viz., 15 smooth dorsal scale rows throughout, a divided anal plate, no loreal, paired subcaudals, and posterior grooved fangs on the maxilla. The holotype possesses 13 teeth on the right maxilla followed by a broad diastema and two shallowly-grooved fangs only slightly longer than the pre-diastemal teeth. It also possesses a hemipenis typical for the genus (insofar as is known), having a single sulcus, a basal portion with long spines and a distal portion with small spines. Additional coment on this species is reserved for a future paper on evolutionary relationships of the genus *Tantilla*.

Locality records (1 spec.) — PANAMÁ: Canal Zone — Barro Colorado Island (MCZ 20600).

Tantilla alticola (Boulenger)

Homalocranium jani Günther, 1895 (part).

Homalocranium fuscum: Boulenger, 1896: 220 (part —in error).

Homalocranium alticola Boulenger, 1903: 353.

Homalocranium coralliventre Boulenger, 1913: 1035 [syntypes, BMNH 1946.1.8.83-84 (formerly BMNH 1913.11.12.60-61); type locality, Peña Lisa, Río Condoto, ca. 91m, Depto. Chocó, Colombia.].

Tantilla alticola: Amaral, 1929a: 46, 1929b: 219, 1931: 93; Nicéforo María, 1942: 97; Daniel, 1949: 323, 1955: 75; Peters and Orejas-Miranda, 1970: 294; Wilson, McCranie, and Porras, 1977: 49.

Tantilla costaricensis Taylor, 1954: 766 (holotype, KU 30995; type locality, Cervantes, Prov. Cartago, Costa Rica).

Tantilla schistosa costaricensis: Smith, 1962: 16; Peters and Orejas-Miranda, 1970:297.

Syntypes — BMNH 1946.1.8.63-65 (formerly BMNH 98.10.27.7-9), collected by A. E. Pratt (date of collection unknown; accessioned 27 October 1898).

Type-locality — Santa Rita, north of Medellín, 9000 ft. (2743 m), Depto. Antioquia, Colombia.

Definition — A species of *Tantilla* with a brown to dark brown dorsum, with or without a slight paling of color on the middorsal scale row and rows 3 and 4 or 4 and

5. The head pattern consists of a pale snout to the level of the posterior portion of the prefrontals, a dark head cap followed by a pale nuchal band beginning on the posterior portion of the parietals and extending one to one and one-half middorsal scales posterior to the parietals. Pre- and postocular pale spots are present. The venter is cream to bright coral red. Ventrals and subcaudals range from 128 to 15 and 32 to 60, respectively (Table 2).

Description (Fig. 3) — *Tantilla alticola* has a brown to dark brown dorsum. Some specimens show a slight paling of color on the middorsal scale row and rows 3 and 4 or 4 and 5. The snout is cream to creamy tan to the level of the posterior portion of the prefrontals, followed by a dark head cap extending posteriorly to the posterior one-third or one-fourth of the parietals. The dark head cap of one of the syntypes of *Tantilla alticola* (BMNH 1946.1.8.63) is paled on the top of the head and is pale brown in color. The periphery of this area as well as the temporal area posterior to the pale postocular spot and anterior to the pale nuchal band are dark brown. The dark head cap is followed by a cream to creamy tan nuchal collar which extends one to one and one-half middorsal scales posterior to the parietals. There is a preocular and postocular pale spot separated by a subocular dark spot. The preocular pale spot may be confluent with the pale snout coloration or separated; in the latter case it occupies the postnasal and adjacent two-thirds of the first and second supralabials. The postocular pale spot occupies the posterior one-fourth to three-fourths of the fourth, all of the fifth, and the anterior three-fourths of the sixth supralabials, the lower postocular or not, and the anteroventral portion of the anterior temporal. The postocular pale spot is completely separated from the pale nuchal band by a lateral extension of the dark head cap. The chin is immaculate cream or with some dark pigment along the lingual border of the infralabials. The venter is immaculate cream (bright coral red in life in at least some specimens).

Variation in scutellation is as follows: postnasal and single preocular separated, barely separated, or in narrow contact; supralabials 6–7 ($\bar{x}$ =6.95), with 3rd and 4th entering orbit; infralabials 6, with the first four in contact with anterior chinshields, 4th largest, first pair separated by contact of mental and anterior chinshields or not; postoculars 2; temporals 1+1 or 1+1+1; dorsal scale rows 15 throughout; ventrals in males 128–145 ($\bar{x}$ =137.5), in females 132–140 ($\bar{x}$ =135.3); anal plate divided; subcaudals in males 32–60 ($\bar{x}$ =52.6), in females 42–57 ($\bar{x}$ =49.5); ventrals + subcaudals in males 160–203 ($\bar{x}$ =190.2), in females 174–197 ($\bar{x}$ =185.5).

Total length in snakes of all ages is 125–327 mm, and tail length is 24–78 mm. Relative tail length is 0.171–0.271.

Geographic variation — See discussion of the status of the lectoparatype of *Tantilla jani* and the holotype of *T. schistosa costaricensis*.

Distribution — Low to intermediate elevations (91-2743 m) of Nicaragua, Costa Rica, and northwestern Colombia (Fig. 2)

Ecological observations — No ecological data, other than elevation, are available for the specimens of *Tantilla alticola*. Information received from Norman J. Scott, Jr. (pers. comm.) concerning elevation (1200 m) and rainfall (ca. 4000 mm) in the area of collection of one of the Costa Rican specimens (LACM 125561) indicates

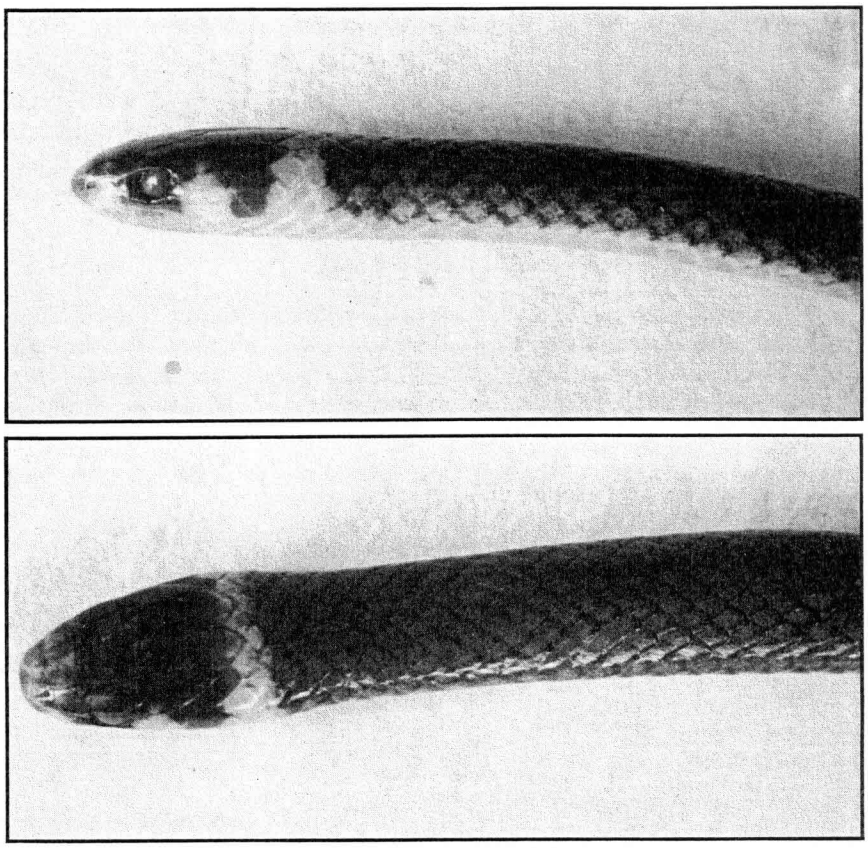

Figure 3. Lateral (upper) and dorsal (lower) views of the head of *Tantilla alticola* (CRE 9830 from 4.8 km NE Tilarán, Prov. Guanacaste, Costa Rica).

that the specimen was collected in the Subtropical Wet Forest formation of Holdridge (1967). Another Costa Rican specimen (CRE 9830) came from a locality in Subtropical Wet Forest at an elevation of 680 m. Data on the Colombian specimens indicate that they came from forest formations ranging from Tropical Moist Forest to Montane Rainforest. The single specimen from Nicaragua with relatively precise locality (BMNH 95.4.29.9) came from Matagalpa which lies in the Subtropical Moist Forest formation.

Remarks — The broad elevational range occupied by *Tantilla alticola* (91-2743 m) might make one question the conspecificity of the specimens from the low and high locatlities in Colombia. However, I have examined two of the three syntypes of *Tantilla alticola* and one of the two syntypes of *Homalocranium coralliventre* and can discern no differences among them of sufficient magnitude to warrant recognition of more than one species.

Locality records (11 spec.) — COLOMBIA: Depto. Antioquia — Santa Rita (BMNH 1946.1.8.63-65); Depto. Chocó — Peña Lisa, Río Condoto (BMNH 1946.1.8.83-84). COSTA RICA: Prov. unknown — San Carlos (AMNH 17285); Prov. Cartago — Cervantes (KU 30995); Prov. Guanacaste — 4.8 km NE Tilarán (CRE 9830); Prov. Puntarenas — 4 km SSW San Vito (LACM 125561). NICARAGUA: Depto. unknown — Hacienda Rosa de Jericho [=Jericó] (BMNH 1946.1.8.71); Depto. Matagalpa — Matagalpa (BMNH 95.4.29.9).

Tantilla annulata Boettger

Tantilla annulata Boettger, 1892: 419; Amaral, 1929b: 219; Dunn and Bailey, 1939: 19; Dunn, 1940: 119, 1954: 98; Taylor, 1949:209, 1951: 149, 1954:763; Mertens, 1956: 544; Smith, 1958: 224; Scott, 1969: 201; Peters and Orejas-Miranda, 1970: 294; Savage, 1973: 16, 1976: 18; Wilson and Villa, 1973: 93, Wilson, 1976: 42; Wilson, McCranie, and Porras, 1977: 50.

Homalocranium annulatum: Günther, 1895: 150; Boulenger, 1896: 217; Werner, 1909: 238.

Tantilla semicincta: Barbour and Amaral, 1928: 100 (in error).

Holotype — Presumably in the Natur-Museum und Forschungs–Institut Senckenberg, Frankfurt am Main (Boettger, 1892), but not listed by Mertens (1967).

Type-locality — "Nicaragua."

Definition — A species of *Tantilla* with black-bordered pale crossbars on a dark red ground color. The right and left portions of the pale crossbars are frequently separated and displaced from one another along the long axis of the body. The head pattern consists of a black head cap, covering all of the dorsum of the head except for the internasals and a portion of the prefrontals, with a complete or medially divided pale nuchal collar barely extending onto the posterior portion of the parietals and crossing the last supralabial. The dark head cap extends for a variable distance porterior to the pale nuchal band and may join or not with the black border of the first crossbar on the body to obliterate the first red body blotch. Ventrals and subcaudals range from 138 to 151 and 52 to 65, respectively (Table 2).

Description (Fig. 4 and 5) — *Tantilla annulata* has a reddish to dark red dorsal ground color with 11 to 16 ($\bar{x}$ =13.4) black-bordered pale crossbands on the body, 1 to 12 of which (7.1–92.3% of total band number, $\bar{x}$ =60.9% are interrupted medially and the two halves offset longitudinally from one another, and 3 to 8 ($\bar{x}$ =4.9) on the tail, none to 6 (0–83% of total band number, $\bar{x}$ =38.5%) interrupted medially. The first pale crossband is almost always complete, it may be followed by a broken band (8 of 19 or 42.1% of specimens examined). In some specimens, once the first broken crossband is encountered, all those that follow it are also broken (21.1% of specimens examined), but usually other complete bands are interspersed along the length of the body (78.9% of specimens examined). These complete bands, however, make up only 7.7–54.5% ($\bar{x}$ =25.2%) of those following the first few complete ones. Frequently, the last crossband on the body is complete (52.6% of specimens examined) and may be preceded by other complete bands. The pale

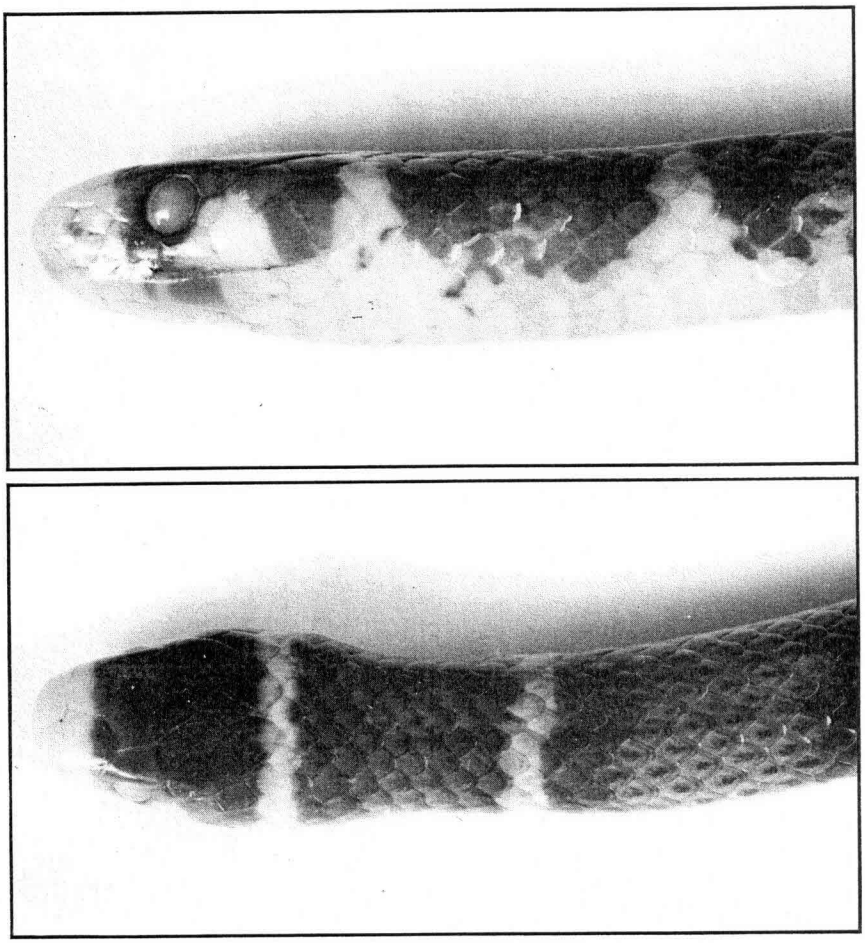

Figure 4. Lateral (upper) and dorsal (lower) views of the head of *Tantilla annulata* (CRE 3697 from nr. Bijagua, Prov. Alajuela, Costa Rica).

crossbands vary from two-thirds to one scale in length and the black borders from one-half to one and one-quarter scales in length. The ground color ranges from reddish to dark red (pale orange to reddish-brown in preservative), the darkness depending upon the degree of dark pigmentation of the scales in these areas. This dark pigmentation tends to be aggregated toward the middle of the scale, creating the impression of a diffuse and disjunct stripe down the center of the scale in some specimens. The dorsum of the head is very dark brown to black (in preservative), except for the pale snout, the color of which occupies the rostral (save for a variable amount of dark pigment on the center of the scale), internasals, anterior one-half to two-thirds of the prefrontals, nasal, first supralabial and the anterior half of the second supralabial, and the pale postocular spot, which covers the posterior half of

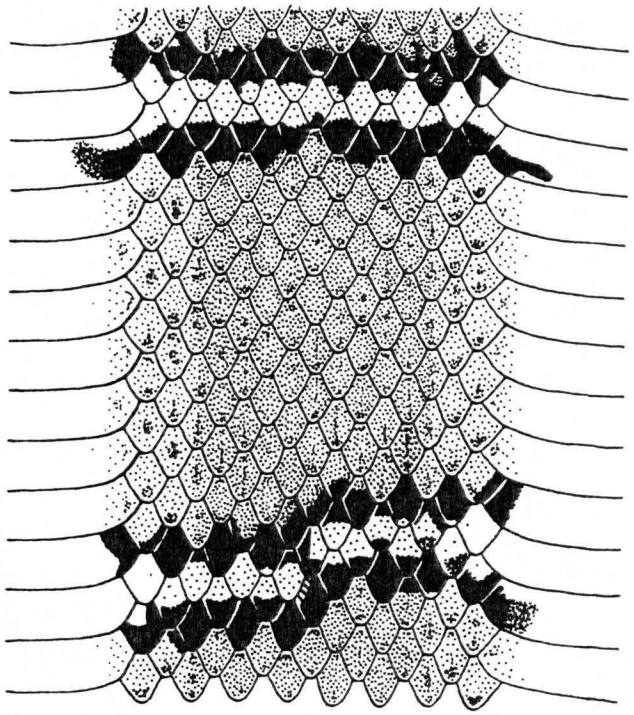

Figure 5. Dorsal color pattern of *Tantilla annulata* (CRE 6224 from Silencio de Tilarán, Prov. Guanacaste, Costa Rica).

the fourth supralabial, all of the fifth, and a small anterior portion of the sixth, as well as the posterior portion of the lower postocular and the anteroventral portion of the anterior temporal. The dark head cap is bounded posteriorly by a pale nuchal band, which may be complete (44.4% of specimens examined) or divided medially (55.6%). The pale nuchal band crosses the posterior tip of the parietals and extends laterally to cross the posterior portion of the last supralabial. The pale nuchal band is followed by a dark nape band, the posterior edge of which grades into the ground color of the dorsum. In some specimens (57.9%) there is little or no evidence of the first red band, inasmuch as the dark nape band is joined to the anterior black border of the first pale crossband. The chin is cream-colored with a dark blotch on the posterior portion of the third infralabial and most of the fourth. The venter ranges in color from cream to pink (bright red in life — R. W. Van Devender, per. comm.) and is immaculate, except the lateral edges, which are invaded by the dorsal coloration.

Variation in scutellation is as follows: postnasal and single preocular in contact or not, usually in contact; supralabials 7, with 3rd and 4th entering orbit; infralabials 6, with first four in contact with anterior chinshields, 4th largest, first pair separated by contact with anterior chinshields or not; postoculars 2; temporals 1+1 or 1+1+1 (one specimen has the last supralabial fused with the middle of three temporals on

the left); dorsal scale rows 15 throughout; ventrals in males 138–151 ($\bar{x}$ =144.7), in females 142–151 ($\bar{x}$ =145.3); anal plate divided; subcaudals in males 52–65 ($\bar{x}$ =58.6), in females 52–64 ($\bar{x}$ =57.4); ventrals + subcaudals in males 190–215 ($\bar{x}$ =203.0), in females 194–215 ($\bar{x}$ =202.9).

Total length in snakes of all ages is 150–562 mm and tail length is 33–125 mm. Relative tail length is 0.193–0.236.

Geographic variation — Panamanian specimens of *T. annulata* appear to have higher ventral and subcaudal counts in both males and females than do specimens from Costa Rica. Ventral counts for 7 male and 7 female Costa Rican specimens are 138–146 ($\bar{x}$ =143.0) and 142–148 (144.7), respectively; comparable figures for 3 male and 1 female Panamanian specimens are 147–151 (148.7) and 151. Subcaudal counts are (in the same order) 52–62 (56.8), 52–62 (56.4); 61–65 (63.0), 64. Material from other portions of the range is too limited for comparison.

Distribution — Low and moderate elevations of the Caribbean versant from extreme southeastern Nicaragua to central Panamá; also on the Pacific versant in Costa Rica, Panamá, and Ecuador (Fig. 2).

Ecological observations — Nothing is known of the biology of this species, beyond the fact that it is known from elevations ranging from sea level to 850 meters in the Tropical Moist Forest, Tropical Wet Forest, and Subtropical Moist Forest formations.

Remarks — The only specimen of this species, to my knowledge, to have only a portion of the body covered with black-bordered pale crossbands is the holotype (*fide* Taylor, 1951). All specimens I have examined and all others mentioned in the literature have these crossbands extending the length of the body and tail.

Dunn and Bailey (1939) mentioned a specimen of this species that measures 590 mm (presumably in total length), stating *T. annulata* to be the largest member of the genus. Wilson (1976), however, discussed a specimen of *T. semicincta* that measures 600 mm in total length and another with an incomplete tail that might measure about 608 mm were its tail complete. *Tantilla moesta* is another species growing to a large size. One specimen measured by me is 592 mm in total length. These three are the only species in the genus approaching or exceeding 600 mm in total length[1].

The specimen reported herein from Nicaragua (MPM 420) is the first from that country with definite locality data. The only other specimen of *T. annulata* known from Nicaragua is the holotype from an indefinite locality (Dunn and Bailey, 1939; Wilson and Villa, 1973).

Specimens examined (19 spec.) — COSTA RICA: Prov. Cartago — Turrialba (KU 25705, 30938-39, 34831,35547; MCZ 55045); Prov. Guanacaste — Finca de Porvenir de Tilarán, 650–700 m (CRE 6243B), Silencio de Tilarán (CRE 6224); Prov. Limón — Tortuguero (UF/FSM 10533); Prov Puntarenas — Golfito (KU 34832), Quebrada Coobo, 80–100 m (CRE 8773); Prov. San José — San Isidro del General (MVZ 36454). NICARAGUA: Depto. Río San Juan — Greytown (MPM

[1]Louis Porras (pers. comm.) informed me that he will report a specimen of *Tantilla rubra* that measures considerably in excess of 600 mm in total length, thus bringing the number of such species to four.

420). PANAMÁ: Prov. Chiriquí — Chiriquí (MPM 451); Prov. Colón — Cerro Bruja (MCZ 24927); Prov. Darién — NE slope Cerro Sapo, 820 m (KU 112493); Prov. Panamá — Cerro Campana (KU 112494).

Literature records — COSTA RICA: Prov. Cartago — between Peralta and Turrialba (Dunn and Bailey, 1939). PANAMÁ: Prov. Darién — Cana (Dunn and Bailey, 1939); Prov. Panamá — Panama City (Dunn, 1940).

Tantilla bairdi Stuart

Tantilla bairdi Stuart, 1941: 1, 1948: 82, 1950: 24, 1963:118; Peters and Orejas-Miranda, 1970: 294.

Holotype — UMMZ 89223, adult female, collected by L. C. Stuart, 17 May 1940.

Type-locality — Two km NE Finca Chichén (10 straight line km S Cobán) on Chamelco trail, ca. 1550 m, Depto. Alta Verapaz, Guatemala.

Definition — A species of *Tantilla* with a uniform brown dorsum, except for a complete cream-colored nuchal band that crosses the posterior portion of the parietal and one middorsal scale row and extends laterally to the pale color of the chin, passing posterior to the last supralabial. Ventral pale (red in life), this color sharply demarcated from that of the dorsum. The ventrals and subcaudals number 164 and 34, repectively, in the single known specimen (Table 2).

Description — *Tantilla bairdi* has a uniform brown dorsum, which color extends to the extreme lateral edges of the ventrals and is sharply demarcated from that of the venter. The dorsum of the head is about the same color as the dorsum of the body, gradually becoming slightly paler toward the snout. The anterior one-third of the internasals is cream, this color being almost confluent with that of the preocular pale spot. There is a small, round cream spot on the parietal at the point where that scale meets the frontal and supraocular. A cream-colored pale nuchal band is present, occupying the posterior portion of the parietals and the first small middorsal scale posterior to the parietals. Thence the nuchal band passes laterally over the posterior one-third of the posterior temporal and one-half of the scale posterior to it and posterior to the last supralabial where it widens slightly and becomes confluent with the cream color of the chin. The preocular pale spot is irregular in shape, covering the ventral half of the postnasal and the area around the suture between the first and second supralabials; it is narrowly confluent with the postocular pale blotch below the dark subocular blotch. The postocular pale blotch covers the posterior half of the lower postocular, anteroventral corner of the anterior temporal, the posterior two-thirds of supralabial 4, all of 5, and the anterior half of 6. The chin is cream with some brown mottling along the edge of the mouth and a brown spot on the edge of the fourth infralabial next to the chinshields. Stuart (1941) decribed the color of the venter as "pink, becoming darker posteriorly and turning to orange-red on the undersurface of the tail." The color has now faded to a uniform cream the length of the underside of the body.

The scutellation of the female holotype is as follows: postnasal and single preocular barely in contact on left side of head and separated on right; supralabials

7, with 3rd and 4th entering orbit; infralabials 6, with first four in contact with anterior chinshields, 4th largest, first pair separated by contact of mental and anterior chinshields; postoculars 2; temporals 1+1 on left and 1+1+1 on right; dorsal scale rows 15 throughout; ventrals, 164 (Stuart, 1941, gave a count of 163); anal plate divided; subcaudals, 34; ventrals + subcaudals, 198.

The total length is 333 mm and the tail length is 50 mm. Relative tail length is 0.150.

Distribution — Known only from the type locality (Fig. 6).

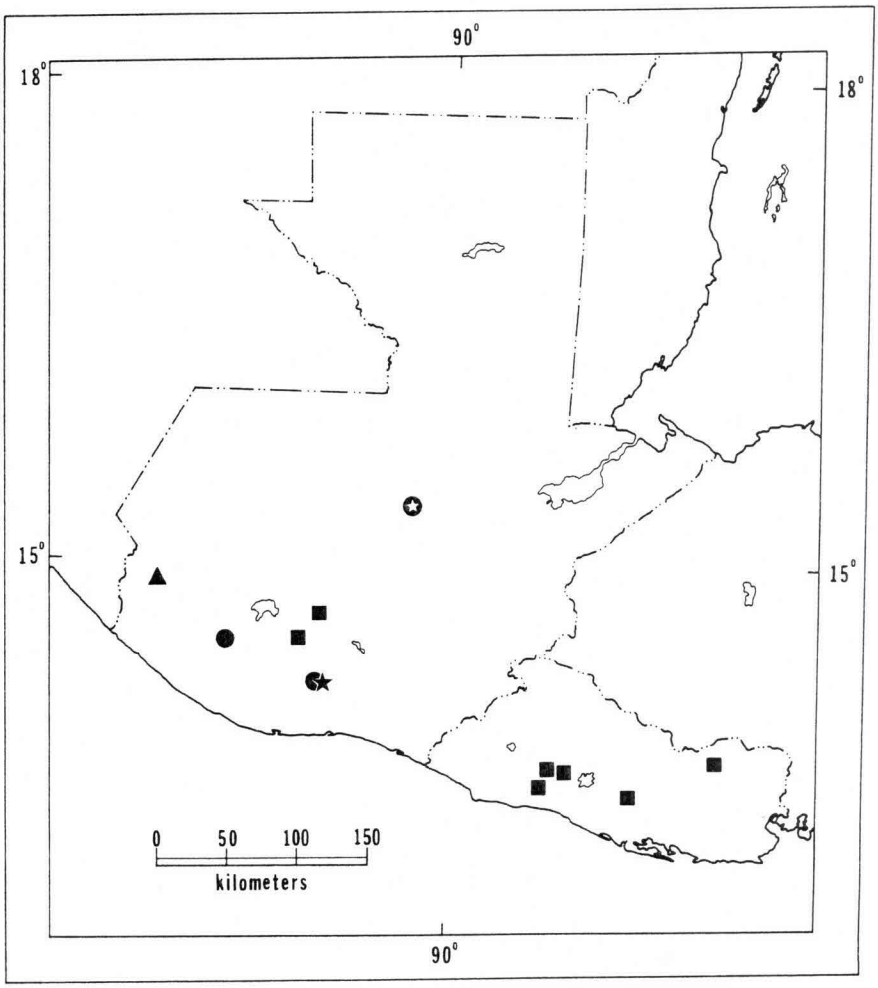

Figure 6. Distribution of *Tantilla bairdi* (star in circle), *T. brevicauda* (squares), *T. cuesta* (triangle), *T. excubitor* (star), and *T. jani* (circles).

Ecological observations — Stuart (1948, 1950) mentioned that the holotype of *T. bairdi* came from the "pine belt" or "pine life area." More specifically, it came from "broadleaf forest along streams" or gallery forest and was noted to be a member of the ground-litter community (Stuart, 1950).

Remarks — *Tantilla bairdi* remains known only from the holotype. Stuart (1941) stated that this species is "superficially close to *T. schistosa*, from which it differs in possessing more abdominals." Later in the same paper he pointed out that "its apparent relationship to *schistosa* is probably not phyletic, for the two occur side by side in the pine zone of western Alta Verapaz." Although the relationships of *T. bairdi* are not immediately apparent, it does not appear to be at all closely related to *T. schistosa*, which is a smaller, shorter-headed species with many fewer ventrals. Further comment on this question will be reserved for a future study.

Locality records (1 spec.) — GUATEMALA: Depto. Alta Verapaz — 2 km NE Finca Chichén (UMMZ 89223).

Tantilla brevicauda Mertens

Tantilla brevicauda Mertens, 1952a: 137, 1952b: 75, 1967: 90; Uzzell and Starrett, 1958: 342; Smith, Langebartel, and Williams, 1964: 77; Peters and Orejas-Miranda, 1970: 294; Wilson, 1970: 118; Van Devender and Cole, 1977: 11.

Holotype — SMF 43243, female.

Type-locality — El Grito, Finca Los Angeles, Cumbre de Jayaque, 1510 m, Depto. La Libertad, El Salvador, collected 12 November 1951 by A. Zilch.

Definition — A species of *Tantilla* with a tan through brown to grayish brown dorsum with a poorly-defined pale brown middorsal stripe and a tan lateral stripe occupying the upper half of row 3, all of row 4, and sometimes the lower portion of row 5. The head pattern consists of a pale nuchal band on a brown background, which does or does not cross the last supralabial. The posterior ventral and subcaudal surfaces are reddish orange. Ventrals and subcaudals range from 139 to 155, and 21 to 26, respectively (Table 2).

Description (Figs. 7 and 8) — *Tantilla brevicauda* has a tan through brown to grayish brown dorsum. There is a poorly-defined pale middorsal stripe present, confined to the middle of the middorsal scale row, which fades out on the posterior portion of the body. A pale lateral stripe is on the upper half of scale row 3, all of 4, and sometimes the lower portion of row 5 and is only slightly paler in color than the middorsal field but bounded above and below by brown to dark brown pigment. The area below the pale lateral stripe is variably pigmented with brown to dark brown. In some speicmens this area is almost completely dark brown, with only scattered pale flecks; in others dark pigment is principally restricted to scale row 3. Also, in the more darkly pigmented specimens, the dark pigment extends onto the lateral edges of the ventrals. The distribution of dark pigment in the middorsal field (the area between the middorsal and lateral pale stripe) suggests a darker stripe on each of the scale rows in the area. The dorsum of the head is brown with many, scattered paler flecks. A pale cream-colored nuchal band is present, with an anteromedial

extension that covers an area on either side of the parietal suture and may extend as far as the posterior tip of the frontal. This pale nuchal band may or may not cross the last supralabial and continue on to connect with the pale gular coloration. In specimens in which the nuchal band connects with the pale gular coloration there is evidence of a preocular pale spot on adjacent portions of the first and second supralabials, as well as, perhaps, a portion of the postnasal, and a postocular pale spot on adjacent portions of supralabials 5 and 6. In specimens in which the nuchal band does not extend to the gular region, the supralabials are virtually all brown to dark brown. The venter is cream-colored anteriorly and bright reddish orange on the posterior ventral and subcaudal surfaces.

Variation in scutellation is as follows: postnasal and single preocular[2] in contact or

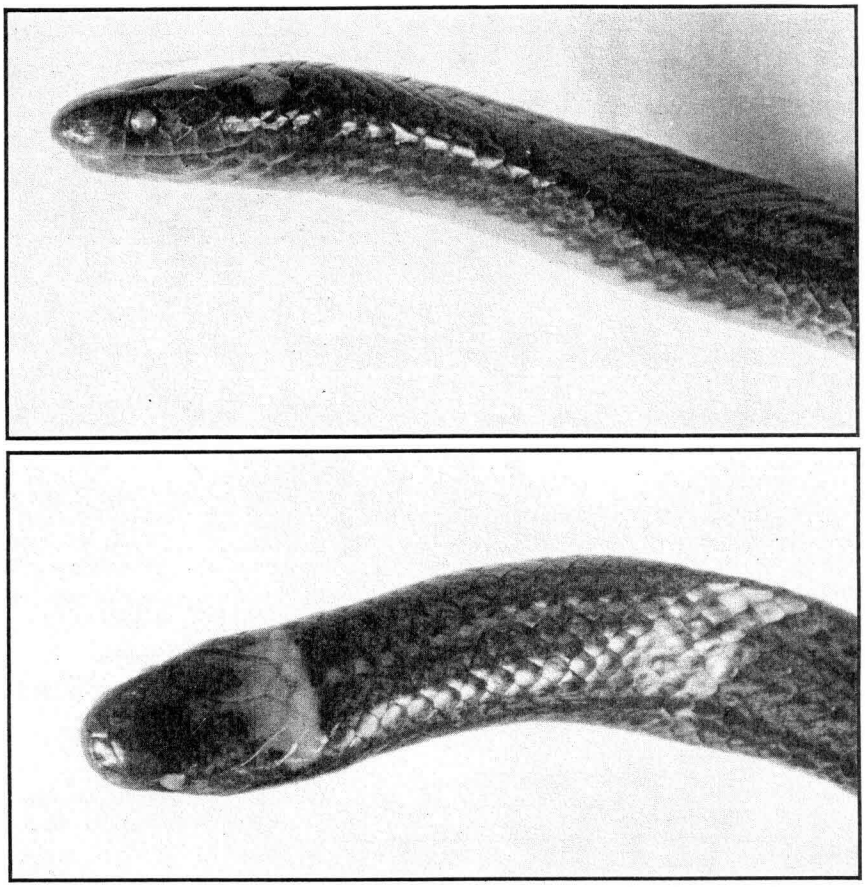

Figure 7. Lateral (upper) and dorsal (lower) views of head of *Tantilla brevicauda* (AMNH 71675 from San Pedro Yepocapa, Depto. Chimaltenango, Guatemala).

[2]In MVZ 40404 a small scale below the preocular is split off from the third supralabial on the right side of the head.

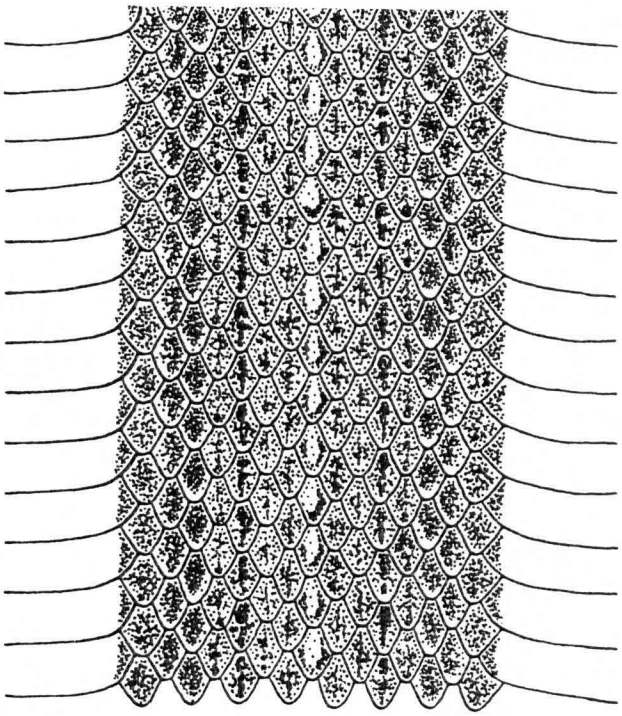

Figure 8. Dorsal color pattern of *Tantilla brevicauda* (AMNH 71675 from San Pedro Yepocapa, Depto. Chimaltenango, Guatemala).

not; supralabial 7, with 3rd and 4th entering orbit; infralabials 5 to 6[3], usually 6, when 5, there are three infralabials in contact with the anterior chinshields and the 3rd is largest, when 6, there are four in contact and the 4th is largest, first pair separated by contact of mental and anterior chinshields or not; postoculars 2; temporals 1+1; dorsal scale rows 15 throughout; ventrals in males 139–152 ($\bar{x}$ =145.2), in females 148–160 ($\bar{x}$ =152.0); anal plate divided; subcaudals in males 22–26 ($\bar{x}$ =24.0), in females 21–22 ($\bar{x}$ =21.5); ventrals + subcaudals in males 165–171 ($\bar{x}$ =169.2), in females 169.

Total length in snakes of all ages is 79–171 mm and tail length is 8–21 mm. Relative tail length is 0.099–0.129.

Geographic variation — Only a minor amount of geographic variation is seen in the small sample of this species available to me. Specimens from El Salvador all have the first pair of infralabials separated by contact of the mental and anterior chinshields, whereas those from Guatemala have the first pair of infralabials in broad contact.

[3]Mertens (1951a, b) mentioned that specimens comprising the hypodigm of *T. brevicauda* have 7 infralabials. I suspect a recheck will show that they actually have 6.

Distribution — Moderate and intermediate elevations in southcentral and northeastern El Salvador and south-central Guatemala (Fig. 6)

Ecological observations — Little direct information is available on this poorly-known species. Interpolated from the locality and elevational data, *T. brevicauda* occurs in vegetation types probably ranging from the Subtropical Dry Forest and Subtropical Moist Forest formations at the lower end of its elevational spectrum to the Lower Montane Moist Forest formation (of Holdridge, 1967) at the upper end. One specimen came from within loosely-packed earth, another from under a tree trunk, and a third from underneath a banana stalk on the ground.

Remarks — Wilson (1970) commented upon the relationships of this species, indicating that it shares resemblances with members of both the *taeniata* group (Savitzky and Smith, 1971b; Wilson and Meyer, 1971; Wilson , McCranie, and Porras, 1977) and the *schistosa* group (Smith, 1962). On the other hand, Van Devender and Cole (1977) compared this species to *T. brevis, T. canula,* and *T. vermiformis*. It appears to me now, after examinationn of some additional material, that *T. brevicauda* may be a diminutive member of the *taeniata* group. A more detailed analysis of this question is reserved for a future paper.

Specimens examined (6 spec.) — EL SALVADOR: Depto. San Salvador — 0.5 mi NW Instituto Tropical de Investigaciones Científicas (UMMZ 117289); Depto. Morazán — E slope Mt. Cacaguatique, 1280 m (MVZ 40403), N slope Mt. Cacaguatique, 1463 m (MVZ 40404). GUATEMALA: Depto. Chimaltenango — Quisaché, ca. 1750 m (CM 41711-12), San Pedro Yepocapa, ca. 1372 m (AMNH 71675).

Locality records — EL SALVADOR: Depto. La Libertad — El Grito, Finca Los Angeles, Cumbre de Jayaque, 1510 m (SMF 43243-44), Finca San José, Cumbre de Santa Tecla, 1200 m (SMF 43245); Depto. San Vicente — Finca El Carmen, E slope Volcan San Vincente, 1319 m (SMF 43246-47).

Tantilla canula Cope

Tantilla vermiformis: Cope, 1866: 126 (in error).

Tantilla canula Cope, 1875 (1876): 144, 1887: 83, 1892: 598; Trochel, 1877: 110; Amaral, 1929b: 220; Schmidt and Andrews, 1936: 180, 185; Andrews, 1937: 356; Smith, 1941: 115, 1942: 33, 35, 42, 1943: 474; Pearse, 1945: 221; Smith and Taylor, 1945: 137, 1950: 352; Stuart, 1958: 9, 11, 27, 1963: 118; Neill, 1960: 190; Cochran, 1961: 216; Barrera, 1963: 87; Duellman, 1965: 610; Peters and Orejas-Miranda, 1970: 294 (part); Müller, 1973: 18; Wilson, McCranie, and Porras, 1977: 52.

Homalocranium canulum: Günther, 1895: 153.

Homalocranium canula: Boulenger, 1896: 222; Phisalix, 1922: 322; Werner, 1925: 147.

Tantilla canula canula: Neill and Allen, 1961: 95; Smith and Taylor, 1966: 26.

Syntypes — USNM 24881–82, male and female, respectively.

TABLE 2

Critical Characteristics of the Species of *Tantilla* Occurring in Central America

Character	*T. albiceps*	*T. alticola*	*T. annulata*	*T. bairdi*	*T. brevicauda*	*T. canula*
Sample size[1]	1/—	8/3	10/9	—/1	5/2	8/13
Total length (in mm.)	212+	125-327	150-562	333	79-171	87-172
Tail length (in mm.)	50+	24-78	33-125	50	8-21	18-38
Tail length/total length ratio	0.236	0.171-0.271	0.193-0.236	0.150	0.099-0.129	0.130-0.235
Ventrals in males	183	128-145 (137.5)	138-151 (144.7)	—	139-152 (145.2)	103-109 (106.0)
Ventrals in females	—	132-140 (135.3)	142-151 (145.3)	164	148-160 (152.0)	107-114 (111.2)
Subcaudals in males	65+	32-60 (52.6)	52-65 (58.6)	—	22-26 (24.0)	38-44 (40.3)
Subcaudals in females	—	42-57 (49.5)	52-64 (57.4)	34	21-22 (21.5)	32-37 (34.1)
Ventrals & subcaudals in males	248+	160-203 (190.2)	190-213 (203.0)	—	165-171 (169.2)	144-151 (145.6)
Ventrals & subcaudals in females	—	174-197 (185.5)	194-215 (202.9)	198	169	139-149 (145.3)
Postnasal in contact with preocular	No	Yes or no	Usually	Yes or no	Yes or no	Usually
First pair of infralabials separated	Yes	Yes or no	Yes or no	Yes	Yes or no	Yes or no
Number of postoculars	1	2	2	2	2	2
Head pattern	Ivory white, with dusky circle around eye	Pale muzzle, dark head cap, and pale nuchal band	Pale muzzle, dark head cap crossed by pale nuchal band	Brown, slightly paler on snout, with pale nuchal band	Brown, with pale nuchal band	Slightly darker than dorsum with pale spots on snout & parietals
Dorsal body pattern	Uniform olive slate	Brown to dark brown with or without slight paling on middorsal row and rows 3+4 or 4+5	Red to dark red with black-bordered pale cross bands	Uniform brown	Tan to brown to grayish brown with poorly-defined pale middorsal stripe and pale lateral stripe on rows 3 and 4	Tan to brown with or without pale middorsal stripe
Ventral pattern	Uniform ivory white	Uniform cream to bright coral red	Immaculate pink to bright red	Immaculate pink grading to orange-red	Immaculate cream grading to bright red-orange	Immaculate cream

[1]Sample size given as no. of males/no. of females.

TABLE 2 (cont'd)

Critical Characteristics of the Species of *Tantilla* Occurring in Central America

Character	*T. cuesta* n. sp.	*T. cuniculator*	*T. excubitor* n. sp.	*T. jani*	*T. lempira*	*T. melanocephala*
Sample size	1/1	2/5	1/—	13/11	1/3	172/166
Total length (in mm.)	115-157	94-193	161	111-247	206-258	95-486
Tail length (in mm.)	18-26	19-38	30	18-50	38-43	15-140
Tail length/total length ratio	0.157-0.166	0.197-0.229	0.186	0.154-0.220	0.155-0.184	0.158-0.359
Ventrals in males	144	139-145 (142.0)	116	136-145 (141.3)	143	125-174 (145.1)
Ventrals in females	147	140-154 (146.8)	—	141-155 (149.1)	148-153 (150.3)	134-177 (148.1)
Subcaudals in males	47	53-55 (54.0)	34	39-50 (46.3)	49	41-92 (60.6)
Subcaudals in females	45	48-53 (49.8)	—	38-47 (42.3)	36-44 (38.6)	41-75 (55.5)
Ventrals & subcaudals in males	191	194-198 (196.0)	150	175-195 (187.7)	192	173-250 (205.8)
Ventrals & subcaudals in females	192	189-207 (198.8)	—	186-199 (190.9)	186-192 (189.0)	181-239 (211.7)
Postnasal in contact with preocular	Yes	Yes	Yes	Usually	Yes	Yes or no
First pair of infralabials separated	No	Yes	No	Usually not	No	Yes or no
Number of postoculars	2	2	2	2	2	Usually 2
Head pattern	Brown with pale snout marking and pale nuchal collar divided medially and laterally	Dark brown	Brown with pale snout marking and two pale nuchal spots	Brown with cream snout marking and usually complete pale nuchal collar	Brown with pair of small, indistinct nuchal spots located posterior to parietals	Pale to dark brown with pale nuchal band or nuchal spots and dark nape band
Dorsal body pattern	Dark brown with dark-bordered pale lateral stripe on rows 3 and 4	Dark brown with barely discernible pale lateral stripe on rows 3 and 4	Tan with sprinkling of dark pigment along anterior edge of each dorsal scale	Brown with pale middorsal stripe confined to middorsal row and pale lateral stripe on adjacent halves of rows 3 and 4; rows 5 through 7 with diffuse dark median stripe	Pale brownish gray with narrow, disjunct dark middorsal stripe and pale lateral stripe on rows 3 and 4	Tan to brown with or without dark middorsal stripe and pale lateral stripe
Ventral pattern	Cream with dark brown spot on edge of each ventral	Immaculate reddish orange	Immaculate cream	Immaculate cream	Immaculate cream	Immaculate cream

TABLE 2 (cont'd)

Critical Characteristics of the Species of *Tantilla* Occurring in Central America

Character	*T. moesta*	*T. reticulata*	*T. schistosa*	*T. taeniata*	*T. vermiformis*
Sample size	9/5	2/11	21/21	4/5	22/14
Total length (in mm.)	155-592	123-312	99-293	165-375	71-157
Tail length (in mm.)	31-107	27-73	15-53	40-87	8-23
Tail length/total length ratio	0.181-0.225	0.217-0.241	0.128-0.201	0.197-0.255	0.096-0.150
Ventrals in males	138-151 (145.8)	158-159 (158.5)	119-144 (132.6)	147-157 (151.8)	115-123 (119.6)
Ventrals in females	150-152 (151.3)	162-173 (166.6)	117-147 (135.3)	143-178 (162.3)	120-129 (124.2)
Subcaudals in males	53-62 (57.9)	60-67 (63.5)	32-42 (36.2)	63-67 (65.7)	23-28 (25.3)
Subcaudals in females	52-57 (54.4)	59-70 (63.0)	24-40 (33.4)	58-64 (61.3)	19-24 (21.0)
Ventrals & subcaudals in males	192-210 (203.4)	219-225 (222.0)	155-185 (168.9)	214-217 (215.7)	141-147 (144.5)
Ventrals & subcaudals in females	203-207 (205.0)	223-241 (229.8)	151-180 (169.1)	223-242 (230.0)	140-150 (144.7)
Postnasal in contact with preocular	Usually	Yes or no	Yes	Yes or no	Usually
First pair of infralabials separated	Yes	Usually	Yes	Usually	Yes
Number of postoculars	Usually 2	2	Usually 2	2	2
Head pattern	Dark brown to black with long pale nuchal band	Brown with cream snout marking and dark-outlined incomplete pale nuchal band	Usually same color as dorsum of body	Brown with pale snout marking and complete or divided pale nuchal band	Dark brown with pale blotches on parietals
Dorsal body pattern	Uniform dark brown to black	Multilineate in shades of brown with dark pigment on anterolateral portion of each scale of pale areas, presenting a reticulate appearance	Uniform pale to dark brown usually	Brown to dark brown with dark-outlined pale middorsal stripe occupying middorsal row and adjacent halves of paravertbral rows and pale lateral stripes on adjacent halves of rows 3 and 4	Pale brown to brown with poorly-defined dark middorsal stripe
Ventral pattern	Uniform dark brown to black	Cream with dark brown stripe on lateral edges	Immaculate cream to salmon red	Immaculate cream to reddish orange	Immaculate white to pale pink

Type–locality — "Yucatán," [México].

Definition — A species of *Tantilla* with a tan to dark brown (usually tan to pale brown) ground color, with or without a pale middorsal stripe, which, if present, may occupy as little as a spot on the anterior end of each middorsal scale or as much as the middorsal rows and adjacent halves of the paravertebral rows. The head pattern consists of pale marking on the snout and parietals (almost absent in darker specimens), which may be so extensive as to almost cover the entire top of the head. The temporal and postparietal region is usually a shade darker in color than the dorsum of the body. The venter is immaculate cream. Ventrals and subcaudals range from 103 to 114 and 32 to 44, respectively (Table 2).

Description (Figs. 9 and 10) — *Tantilla canula* has a tan to dark brown dorsal ground color (usually tan to pale brown), which pales on the lowermost dorsal scale rows and grades into the ventral color. Of 15 specimens examined in which the dorsal ground color could be determined, 13 were scored either as tan or pale brown, one as brown, and another as dark brown. A pale middorsal stripe is usually present (14 of 16 specimens in which this character could be determined), except in dark specimens. This stripe may consist only of discrete dots situated at the anterior end of each middorsal scale, occupy the middorsal row, or occupy as much as the middorsal row and adjacent halves of the paravertebral rows. This stripe is produced by an absence of dark reticulations on the middorsal row that are present on the remainder of the dorsal scales (Wilson, McCranie, and Porras, 1977). The head pattern basically consists of variously-sized pale spots on the snout and the parietals on a darker ground color. The ground color of the head is usually a shade darker than that of the dorsum of the body, which is caused by the presence of a greater amount and coalescence of the dark reticulations of pigment seen on the dorsum of the body. The pale marking on the snout, present on every specimen examined (except those too badly faded for a determination to be made), may be restricted to a small portion of the area of juncture of the internasals and prefrontals, but more often occupies the majority of those scales. There are no pre-

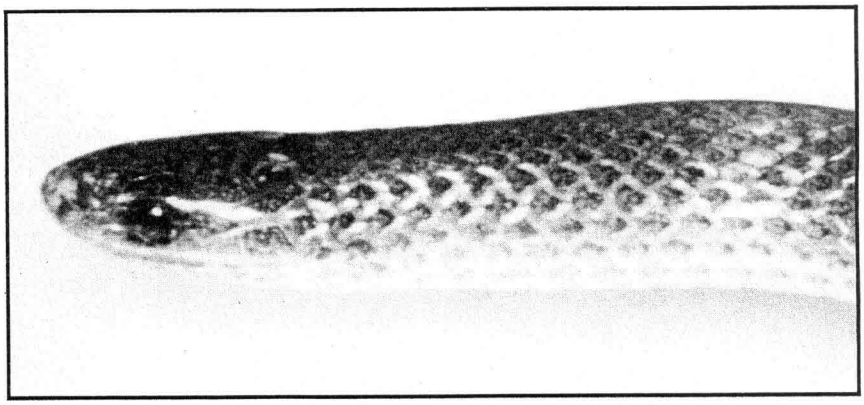

Figure 9. Lateral view of head of *Tantilla canula* (LSUMZ 33302 from 5 mi W Tulum, Quintana Roo, México).

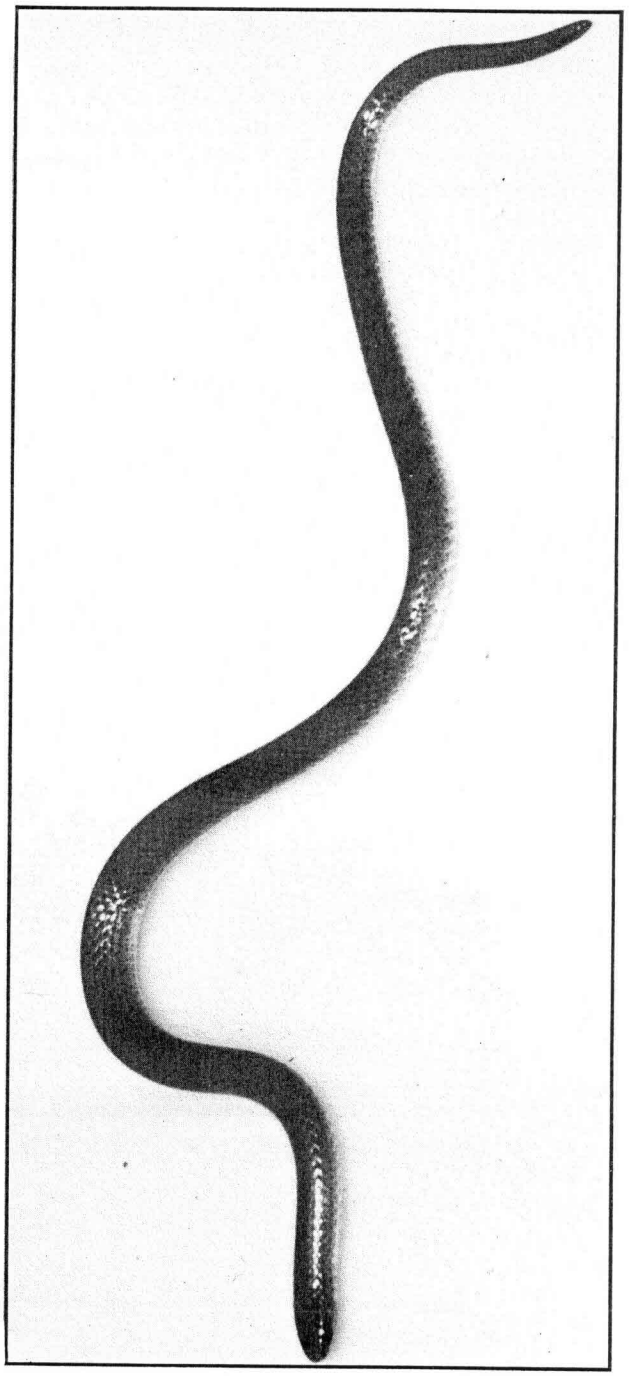

Figure 10. Dorsum of *Tantilla canula* (LSUMZ 33302 from 5 mi W Tulum, Quintana Roo, México).

or postocular pale spots. The pale markings on the parietals, seen on all specimens examined, occupy a variable amount of those scales and are outlined laterally by dark pigment located along the lateral edges of the parietals. In some specimens the snout and parietal spots almost join, although the intervening area is dotted with darker pigment. The venter is immaculate cream (in preservative), except on the lateral edges where the dorsal color invades. The infralabials are sprinkled with pale brown pigment.

Variation in scutellation is as follows: postnasal and single preocular separated or in contact (in contact on both sides in 17 of 20 specimens examined); supralabials 6 or 7, usually 7, with 3rd and 4th entering orbit; infralabials 6, with first four in contact with anterior chinshields, 4th largest, first pair separated by contact of mental and anterior chinshields or not (separated in 7 of 21 or 33.3% of specimens examined); postoculars 2; temporals 0+1 or 1+1 (in 3 of 21 specimens examined the anterior temporal is fused to the 6th supralabial on one or both sides); dorsal scales 15 throughout; ventrals in males 103–109 ($\bar{x}$ =106.0), in females 107–114 ($\bar{x}$ =111.2); anal plate divided; subcaudals in males 38–44 ($\bar{x}$ =40.3), in females 32–37 ($\bar{x}$ =34.1); ventrals + subcaudals in males 141–151 ($\bar{x}$ =145.6), in females 139–149 ($\bar{x}$ =145.3).

Total length in snakes of all ages in 87–172 mm and tail length is 18–38 mm. Relative tail length is 0.180–0.235.

Distribution — Low elevations of the Yucatán Peninsula in the Mexican states of Campeche, Quintana Roo, and Yucatán and the northern portion of the Guatemalan department of El Petén (Fig. 11).

Ecological observations — This species of *Tantilla* occurs in scrub forest and quasi-rainforest at elevations ranging from 5 to 238 meters. A specimen I collected in Yucatán came from beneath some old boards in town.

Remarks — There has been much confusion in the literature concerning the status of this species and its relationship to the nominal species *Tantilla brevis* (Günther). *Tantilla canula* was described by Cope in 1875 (although commonly cited as published in 1876, Neill and Allen, 1961, indicated that the paper in which the description appeared was published in November of 1875) on the basis of two specimens (USNM 24881–82), both of which I have examined. Günther described *Homalocranium breve* (=*Tantilla brevis*) in 1896 on the basis of a single specimen (now BMNH 1946.1.8.61) from "British Honduras" (now Belize). Neill and Allen (1961) indicated, on the basis of an analysis of the travels of the collector, Salvin, that the holotype probably came from somewhere along the Belize River.

The confusion concerning the relationships of these two forms has resulted from a paucity of material of both (*T. brevis* remains known only from the holotype), the fact that no one has directly compared material of *T. canula* to the holotype of *T. brevis*, and because material of a species in another closely-related genus, *Tantilla lintoni*, has been misinterpreted as either intergrades between *canula* and *brevis* (Stuart, 1958; Neill and Allen, 1961) or misidentified as *brevis* (Neill and Allen, 1961). This confusion was pointed out recently by Van Devender and Cole (1977). Wayne Van Devender, who is currently working on this problem, feels that *canula* and *brevis* are

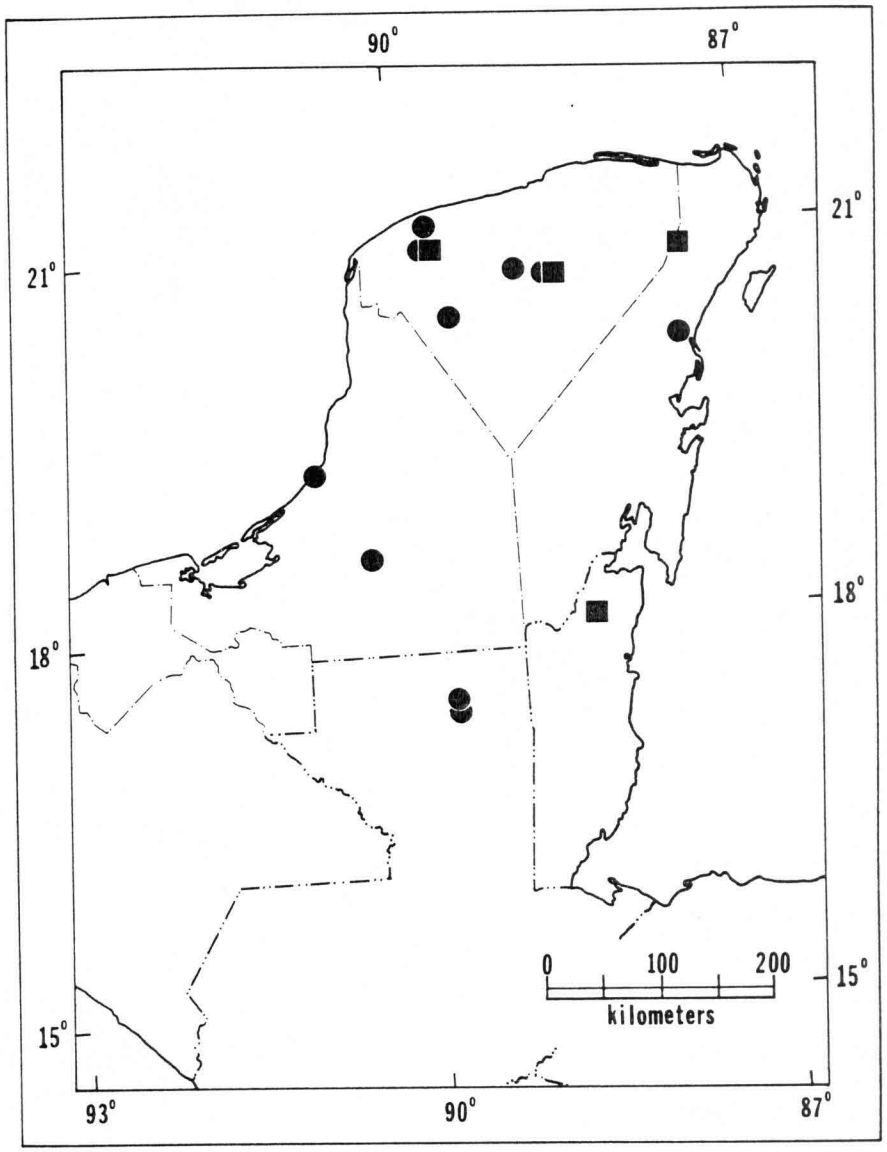

Figure 11. Distribution of *Tantilla canula* (circles) and *T. cuniculator* (squares).

different species, but that more material of *brevis* is needed before this question can be definitely answered (pers. comm.).

Tantilla canula and *Tantillita lintoni* may be distinguished from one another externally by many of the same characters Neill and Allen (1961) used to distinguish *canula* from *brevis*, inasmuch as the specimens that they identified as *brevis* are actually *Tantillita lintoni*. *Tantillita lintoni* has a brown to dark brown dorsum with no pale middorsal stripe and no pale spots on the head. The venter and dorsal color are sharply demarcated from one another. *Tantillita lintoni* also has a relatively broad head and stout body, whereas the head of *T. canula* is more pointed, both dorsally and laterally, and the body is more slender. In addition, *T. lintoni* has more subcaudals than does *T. canula* (51 to 56 in three specimens with complete tails examined by me as opposed to 32 to 44) and a longer tail (relative tail length 0.270–0.304 as opposed to 0.180–0.235). The maxillary teeth of *T. lintoni* (22–25) are more numerous than those of *T. canula* (15) (Smith, 1940, 1941). Neill and Allen (1961) stated that the first pair of infralabials are usually separated by the contact of the mental and anterior chinshields, whereas those of *brevis* (=*T. lintoni*) are in contact. The first pair of infralabials of *T. canula* are more commonly in medial contact than separated; those of *Tantillita lintoni* are usually in contact, but may also be separated (1 of 6 specimens examined).

On the basis of a comparison of the description of *Homalocranium breve* Günther, 1895, with the information herein presented on *Tantilla canula*, it is my suspicion that the holotype of *H. breve* is a specimen of *T. canula*. The status of this name will presumably be settled by R. W. Van Devender.

The presence of *Tantilla canula* in Guatemala has been based on the supposed *canula-brevis* intergrades reported by Stuart (1958) from Tikal and Uaxactún, Depto. El Petén, which are, in fact, *Tantillita lintoni*. However, I have examined two specimens of *Tantilla canula* from Tikal (UF/FSM 13849) and Uaxactún (AMNH 70936), which are easily distinguishable from the specimens of *Tantillita lintoni* (UF/FSM 13850; UMMZ 117905-08) I examined from Tikal. Thus, the two species are sympatric at Tikal, if not Uaxactún, which two localities are only a few kilometers apart.

Specimens examined (21 spec.) — GUATEMALA: Depto. El Petén— Tikal (UF/FSM 13849), Uaxactún (AMNH 70936). MÉXICO: Campeche — Centenario, nr. Silvituc[4] (LSUMZ 28597), 6 km SW Champotón, 5 m (KU 70894); Quintana Roo — 5 mi W. Tulum (LSUMZ 33302); Yucatán — no other data (USNM 24880-82), Dzibilchaltun (FMNH 36409-10), Mérida, Colonia Aleman area (USNM 194824), Pisté (CM 4918, LSUMZ 28598), Ticul, (AMNH 110055).

Literature records — MÉXICO: Yucatán — Chichén Itzá (Smith, 1942).

Tantilla cuesta, new species

Holotype — MVZ 146762, adult (?) female.

[4]Wilson, McCranie, and Porras (1977) mistakenly placed this locality in Quintana Roo and credited the specimen of *T. cuniculator* as a new record for that state. Centenario is actually in Campeche; subsequently, another specimen (LSUMZ 33302) was collected in Quintana Roo by Richard and Patricia Blaney.

Type-locality — Finca Santa Julia, 1.5 km E San Rafael Pie de la Cuesta, Depto. San Marcos, Guatemala, elevation 1050 m, collected 27 August 1977 by J. E. Cadle.

Definition — A member of the *Tantilla taeniata* group with a pale collar divided both medially and laterally, a dark brown dorsal ground color, no pale middorsal stripe, and a dark-bordered pale lateral stripe occupying the adjacent halves of dorsal rows 3 and 4 (Table 2).

Description of the holotype (Fig. 12 and 13) — An adult (?) female with 15 smooth dorsal scale rows throughout, 147 ventrals, divided anal plate, 45 subcaudals, ventrals + subcaudals 192, total length 157 mm, tail length 26 mm, and relative tail length 0.166.

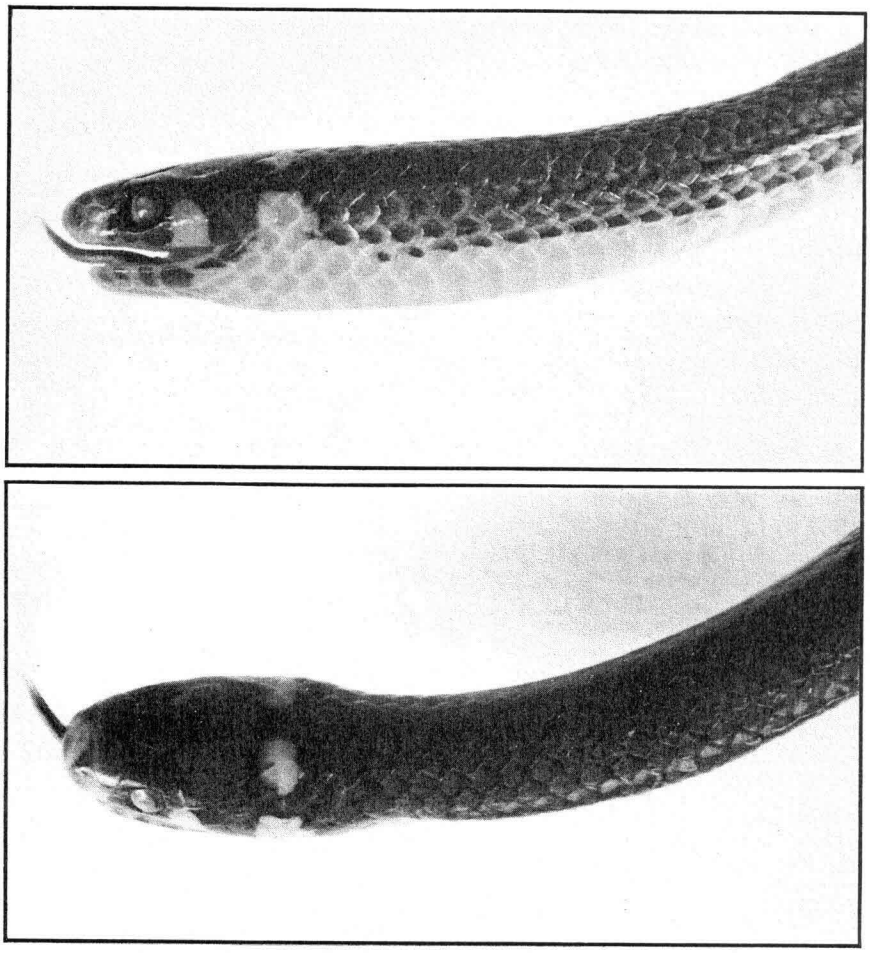

Figure 12. Lateral (upper) and dorsal (lower) views of head of *Tantilla cuesta* (MVZ 146762 from Finca Santa Julia, 1.5 km E San Rafael Pie de la Cuesta, Depto. San Marcos, Guatemala).

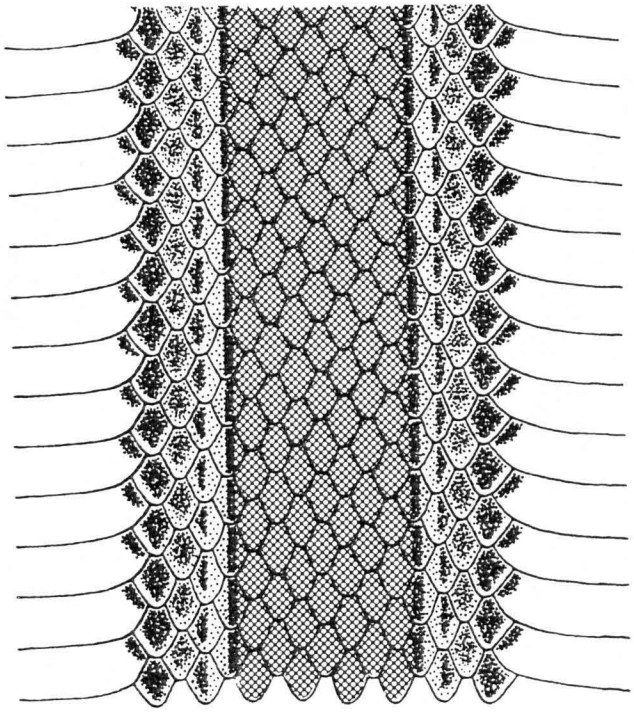

Figure 13. Dorsal color pattern of *Tantilla cuesta* (MVZ 146762 from Finca San Julia, 1.5 km E San Rafael Pie de la Cuesta, Depto. San Marcos, Guatemala).

Nasal completely divided, the posterior section in contact with the single preocular on both sides of the head; two postoculars, subequal in size; temporals 1 + 1, both elongate; supralabials 7–7, with the 3rd and 4th entering orbit, last one largest; infralabials 6–6, first four in contact with the anterior chinshields, 4th largest, first pair in broad mutual contact; anterior chinshields larger than posterior pair.

The dorsal ground color is dark brown. There is no indication of a pale middorsal stripe. A pale tan lateral stripe begins a few scales posterior to the pale head markings and continues posteriorly the length of the body, disappearing at about the mid-length of the tail. This pale lateral stripe occupies the adjacent halves of rows 3 and 4 and is bounded above and below by very dark brown pigment. The upper dark border of the pale lateral stripe gradually fades and blends in with the ground color on the posterior portion of the body. The upper two-thirds of the paraventral scale row is very dark brown, the lower portion is cream. The venter is cream and a very dark brown spot is present on the extreme lateral edge of each ventral scale for the length of the body.

The head is brown above. The snout is distinctly marked with a pale cream spot

occupying the outer edge of the rostral and the medial half of the internasals and boldly outlined by very dark brown pigment on the central portion of the rostral, most of the anterior nasal and the lateral portion of each internasal. The pale snout marking is confluent with a slightly darker tan band extending across the anterior one-fourth of the prefrontals and with the pale preocular spot. The pale nuchal collar is divided both medially and laterally, thus restricting a pair of cream-colored nuchal spots to the posterior tip of each parietal, the postparietal scale adjacent to both the parietal and the posterior temporal as well as small adjacent portions of the posterior temporal and two nuchal scales lying posterolateral to the postparietal scale. These pale nuchal spots are separated from one another medially by the space of the width of the first middorsal scale and each is separated laterally from a dorsal extention of the pale gular color (=the lower portion of the pale nuchal band) by a space equivalent to half the width of the scale posterior and adjacent to the last supralabial and the posterior temporal. On the lateral portion of the head a preocular pale spot is present, occupying all of the postnasal except the upper edge, which is dark brown, all of the first supralabial, and the anterior half of the second supralabial. The preocular pale spot is confluent anteriorly with the pale spot on the snout. It is separated completely from the postocular pale spot by a very dark brown subocular spot occupying the posterior half of the second supralabial, all of the third, and almost all of the fourth. The postocular pale spot occupies the posterior edge of the fourth supralabial, all of the fifth, and the anterior edge of the sixth, as well as the posterior half of the lower postocular and the anteroventral portion of the anterior temporal, and is completely separated from the lower portion of the pale nuchal band by a ventrolateral extention of the dark head cap. The chin is cream-colored with dark brown markings on the lingual half of the first, second, fifth, and sixth infralabials, the posterior half of the third infralabial, and the anterior two-thirds of the fourth infralabial. The venter is cream-colored and immaculate, except for the above-described dark lateral spots.

Paratype — MVZ 146763, a topotype.

Variation in the paratype — The paratype, an apparent juvenile male, was preserved while in shed. There is essential agreement in color and pattern between the paratype and the holotype, except that there is slightly more pale pigment on the head of the paratype. It appears as though the pale areas described on the head of the holotype are more extensive on the head of the paratype, except the pale nucahl spots, which are about the same size in both specimens. In addition, the dark brown spots on the lateral edge of the ventrals of the holotype are evident only as scattered flecks on the paratype.

The paratype had 144 ventrals and 47 subcaudals (ventrals + subcaudals 191) and all other aspects of scutellation are the same as in the holotype. The paratype has a total length of 115 mm, a tail length of 18 mm, and a relative tail length of 0.157.

Distribution — Known only from the type locality (Fig. 6).

Etymology — The name *cuesta* is from Spanish, meaning "hill, mount, or sloping ground," an allusion both to the name of the town nearest the type locality, (San Rafael Pie de la Cuesta) and to the fact that the type locality lies at the foot of the

slopes of the 4211 meter-high Volcán Tajamulco, the highest mountain in Central America.

Comparisons — The *Tantilla taeniata* group is now composed of nine species (Wilson and Meyer, 1971; Savitsky and Smith, 1971a; Wilson, McCranie, and Porras, 1977). The other eight species are *T. briggsi, T. cuniculator, T. flavilineata, T. jani, T. oaxacae, T. reticulata, T. striata,* and *T. taeniata*. Wilson and Meyer (1971) divided the *taeniata* group into two sections on the basis of dorsal color pattern. The *reticulata* section was characterized by having "a middorsal light stripe on the middorsal scale row and adjacent halves of the paravertebral rows, a dorsolateral dark stripe [=field] on row 6 and adjacent halves of rows 5 and 7, a lateral light stripe on row 4 and adjacent halves of rows 3 and 5, and a [ventro-] lateral dark stripe on adjacent halves of rows 2 and 3." The *taeniata* section was defined as having "a middorsal light stripe on the middorsal scale row and adjacent halves of the paravertebral rows except in *T. jani*, where this stripe is confined to the middorsal scale row, a dorsolateral dark stripe [=field] on rows 5 and 6 and adjacent halves of 4 and 7, and a lateral light stripe on adjacent halves of rows 3 and 4." Information recently published concerning three species of *Tantilla* requires a modification of the definition of the *taeniata* section (and group). These species are *T. briggsi* (Savitzky and Smith, 1971a), *T. cuniculator* (see Wilson, McCranie, and Porras, 1977), and *T. cuesta* (this paper). These three taxa all lack a middorsal stripe. The variously-developed pale lateral stripe in these species is located on the adjacent halves of rows 3 and 4, a character they share with *T. jani, T. striata,* and *T. taeniata* (the *taeniata* section of Wilson and Meyer, 1971). The *taeniata* section, therefore, may be redefined as a subgroup of the *taeniata* group characterized by the presence or absence of a variously-developed pale middorsal stripe and the presence of a variously-developed pale lateral stripe occupying adjacent halves of rows 3 and 4 on an otherwise tan to dark brown dorsal ground color. The pale nuchal collar may be complete, divided medially, or divided both medially and laterally (in the latter case the divisions between the resulting pale sections of the collar may be so broad so as to restrict the dorsal markings to spots, as in *T. cuesta* and *T. striata*).

The relationships of *Tantilla cuesta* lie with the members of the *Tantilla taeniata* group (in particular those species with the lateral stripe occupying adjacent halves of rows 3 and 4). The data in Table 3 illustrate the distinctions among the nine members of the *T. taeniata* group. As can be seen from this table there are six species possessing a pale lateral stripe on adjacent halves of dorsal scale rows 3 and 4 (the members of the *taeniata* section). The relationships of *Tantilla cuesta* to other members of the *taeniata* section are not readily apparent. *Tantilla cuesta* appears to represent a collage of characteristics of other members of the *taeniata* section. It resembles both *T. briggsi* and *T. cuniculator* in lacking a pale middorsal stripe, but differs from both in having the pale nuchal markings consisting of two spots, a well-developed pale lateral stripe extending the length of the body and boldly outlined above and below by dark pigment, and dark pigment on the lateral edges of the ventrals. It further differs from *T. briggsi* in lacking the division of the paraventral row into a dark upper and pale lower half and in having far fewer ventrals and subcaudals (144–147 and 45–47 as opposed to 172 and 68 in known specimens). The ventral and subcaudal counts of *T. cuesta*, however, are similar to those of *T. cuniculator*.

TABLE 3

Differential Characteristics of the Nine Members of the *Tantilla taeniata* Group

Characters	*T. briggsi*	*T. cuesta*	*T. cuniculator*	*T. flavilineata*	*T. jani*	*T. oaxacae*	*T. reticulata*	*T. striata*	*T. taeniata*
Middorsal pale stripe present	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Rows occupied by middorsal pale stripe, if present	—	—	—	Middorsal row and adjacent halves of paravertebral rows	Middorsal row	Middorsal row and adjacent halves of paravertebral rows	Middorsal row and adjacent halves of paravertebral rows	Middorsal row and adjacent halves of paravertebral rows	Middorsal row and adjacent halves of paravertebral rows
Dorsal ground color	Brown	Dark brown	Dark brown	Cream to pale tan	Brown	Brown	Pale brown to brown	Tan to brown	Brown to dark brown
Placement of pale lateral stripe	Adjacent halves of rows 3 and 4	Adjacent halves of rows 3 and 4	Adjacent halves of rows 3 and 4	Row 4 and adjacent halves of rows 3 and 5	Adjacent halves of rows 3 and 4	Row 4 and adjacent halves of rows 3 and 5	Row 4 and adjacent halves of rows 3 and 5	Adjacent halves of rows 3 and 4	Adjacent halves of rows 3 and 4
Condition of pale lateral stripe	Interrupted along middle of body	Well-developed, extending length of body	Barely discernible, but extending length of body	Well-developed, extending length of body	Well-developed, extending length of body	Well-developed, extending length of body	Well-developed, extending length of body	Well-developed, extending length of body	Well-developed, extending length of body
Pale lateral stripe bounded above and/or below by dark pigment	Yes, below	Yes, both	Yes, below and sometimes above	Yes, narrowly	Yes, narrowly	Yes, below	Yes, both	Yes, below	Yes, both
Paraventral scale row divided into dark upper and pale lower halves	Yes	No	No	No	No	No	No	No	Yes
Dark pigment on lateral edges of ventrals	No	Yes	No	No	No	No	Yes	No	No
Condition of pale nuchal markings	Collar divided medially	Collar reduced to two nuchal spots	Collar complete	Collar complete	Collar usually complete	Collar usually divided medially	Collar divided medially	Collar reduced to two nuchal spots	Collar usually complete
Pale nuchal markings cross last supralabial	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes
Ventrals in males	172	144	139-145 (142.0)	154-160 (157.0)	136-145 (141.2)	151-158 (153.8)	158-159 (158.5)	146-151 (155.4)	147-157 (151.8)
Ventrals in females	—	147	140-154 (146.8)	152-164 (159.0)	141-153 (148.5)	145	162-173 (166.6)	145-163 (153.8)	143-178 (161.6)
Subcaudals in males	68	47	53-55 (54.0)	51-52 (51.5)	39-50 (46.4)	46-52 (48.3)	60-67 (63.5)	33-42 (37.1)	63-67 (65.7)
Subcaudals in females	—	45	48-53 (49.8)	43-49 (46.0)	38-47 (42.3)	48	59-70 (63.0)	31-34 (33.1)	58-65 (62.0)
Maximum known total length (mm)	301	167	193	293	247	266	312	217	375

Tantilla cuesta resembles *T. striata* in having the pale nuchal markings reduced to two spots but differs in lacking a pale middorsal stripe, in having a darker dorsal ground color, in having dark pigment on the lateral edges of the ventrals, in having the pale markings on the lateral gulars (=the lower portion of the nuchal band) crossing the last supralabial, and in having more subcaudals.

Tantilla cuesta resembles *T. jani* in ventral and subcaudal counts but differs in lacking a pale middorsal stripe and a complete nuchal collar and in having the dark pigment on the lateral edges of the ventrals, as well as differing in more minor features. *Tantilla cuesta* differs from *T. taeniata* in having fewing subcaudals (and fewer ventrals than most specimens of *T. taeniata*), dark pigment on the lateral edges of the ventrals, and the nuchal band reduced to two spots and in lacking the division of the paraventral scale into dark upper and pale lower halves and a pale middorsal stripe. They resemble one another in dorsal ground color, in having the pale lateral stripe boldly outlined above and below with dark pigment, and in having the pale nuchal markings cross the last supralabial.

In summary, *Tantilla cuesta* shows a close relationship to no other member of the *taeniata* section of the *taeniata* group. Further comment on this must await the collection of additional material and study of characters other than those discussed herein.

Habitat notes — The holotype and paratype of *Tantilla cuesta* came from an elevation of 1050 m at the base of Volcán Tajamulco in an area within the Subtropical Wet Forest formation of Holdridge (1967).

Tantilla cuniculator Smith

Tantilla moesta cuniculator Smith, 1939: 32; Marx, 1958: 492.

Tantilla cuniculator: Smith, 1942: 33, 35, 42; Pearse, 1945: 226; Smith and Taylor, 1945: 137, 1950: 352; Duellman, 1965: 610; Savitzky and Smith, 1970: 22, 1971b: 11; Wilson, McCranie, and Porras, 1977: 52.

Holotype — FMNH 19408, juvenile female.

Type-locality — Mérida, Yucatán, México.

Definition — A species of *Tantilla* with a dark brown dorsum with a barely discernible pale lateral stripe on adjacent halves of scale rows 3 and 4 extending the length of the body. No pale middorsal stripe is present. The head is very dark brown with a pale orange-brown to ocher complete nuchal band involving the posterior tips of the parietals and a variable number of scales posterior to the parietals. The venter is reddish orange. Ventrals and subcaudals range from 140 to 154 and 48 to 53, respectively (Table 2).

Description — *Tantilla cuniculator* has a dark brown dorsum (may fade to tan in preservative) grading to a slightly paler brown on the first two dorsal scale rows. There is usually no evidence of a pale middorsal stripe (although MPM 7608 shows barely discernible evidence of one on the anterior portion of the body). A pale lateral stripe is present on the adjacent halves of dorsal scale rows 3 and 4 and extends the length of the body and tail, although it becomes less discernible posteriorly. The

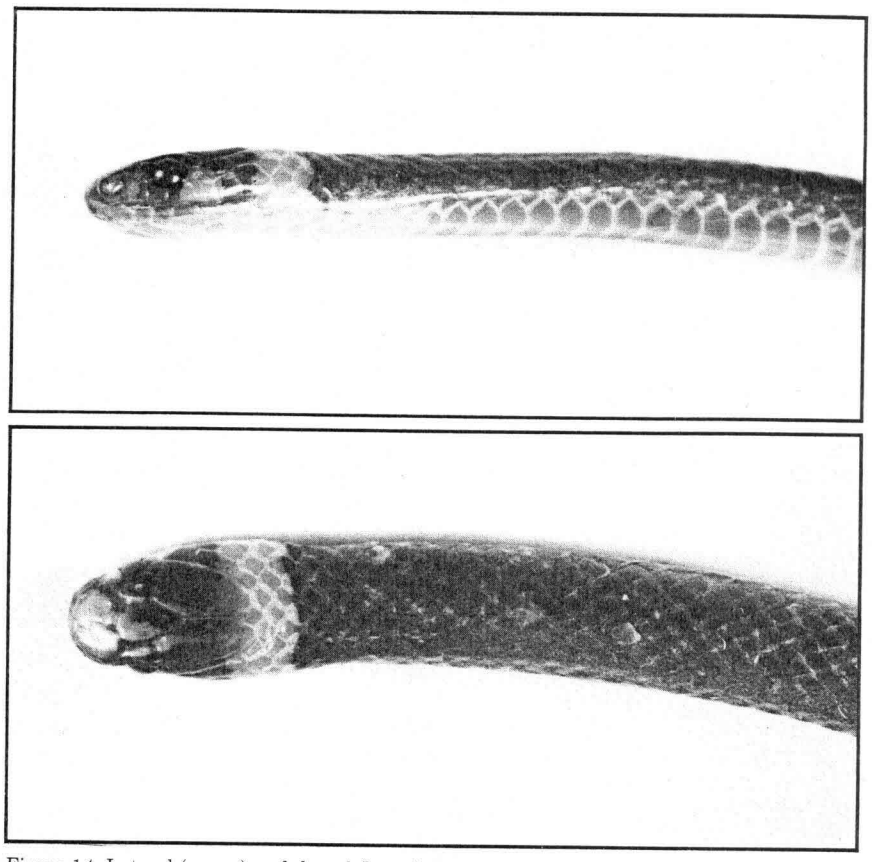

Figure 14. Lateral (upper) and dorsal (lower) views of head of *Tantilla cuniculator* (LSUMZ 28599 from the vicinity of Pueblo Nuevo X-Can, Quintana Roo, México).

lateral stripe is bounded below and sometimes above by dark pigment. The area of the dorsum below the pale lateral stripe is sometimes slightly darker than the middorsal area. The dorsum of the head is dark brown (with paler punctations) with a pale yellow-orange spot on the upper portion of the rostral, internasals, and prefrontals and a complete pale yellow-orange nuchal collar involving the posterior portion of the parietals and extending posteriorly to cover 2 to 2½ middorsal scales and laterally to cross the last supralabial. A postocular pale spot is present. The venter is reddish orange fading to cream in preservative.

Variation in scutellation is as follows: postnasal and single preocular in contract; supralabials 6 or 7, usually 7, with 3rd and 4th entering orbit; infralabials 6 or 7, usuallly 6, with first four in contact with anterior chinshields, 4th largest, first pair separated by contact of mental and anterior chinshields; postoculars 2; temporals 1+1; dorsal scale rows 15 throughout; ventrals in males 139-145 ($\bar{x}$ =142.0), in females 140-154 ($\bar{x}$ 146.8); anal plate divided; subcaudals in males 53-55

($\bar{x}$ =54.0), in females 48-53 ($\bar{x}$ =49.8); ventrals + subcaudals in males 194-198 ($\bar{x}$ =196.0), in females 189-207 ($\bar{x}$ =198.8).

Total length in snakes of all ages is 94-193 mm and tail length is 19-38 mm. Relative tail length is 0.197-0.229.

Distribution — Low elevations of the Yucatán Peninsula in the Mexican states of Yucatán and Quintana Roo and in the northern portion of Belize (Figure 11).

Ecological observations — Little is known of the ecology of this species beyond the fact that it has been collected in both thorn scrub forest and quasi-rainforest (Duellman, 1965). On 15 May 1980 I encountered a specimen of *T. cuniculator* in the quasi-rainforest at the Tikal ruins. It was crawling about on a path through the forest. This is the first indication of the occurrence of this species in Guatemala. The snake was released; Tikal is a national park.

Remarks — I report herein the first known males of this species (see Wilson, McCranie, and Porras, 1977, for a prior summary) and the first locality record for Central America (in Belize).

Locality records (2 spec.) — Only the locality data for the two males hitherto unreported are listed. BELIZE: Orange Walk District — Tower Hill (MPM 7608). MÉXICO: Yucatán — no other data (UCM 40619).

Tantilla excubitor, new species

Holotype — MVZ 88468, adult (?) male.

Type-locality — Finca El Salto, 2 km E Escuintla, Depto. Escuintla, Guatamela, elevation 305 m, collected in mid-March, 1969 by J. E. Woods.

Definition — A species of *Tantilla* with a uniform tan dorsum, two prominent, dark-outlined pale nuchal spots, and a low number of ventrals (116 in single known male specimen) (Table 2).

Description of the holotype (Fig. 15). — An adult (?) male with 15 smooth dorsal scale rows throughout, 116 ventrals, divided anal plate, 34 subcaudals, ventrals + subcaudals 150; total length 161 mm, tail length 30 mm, and relative tail length 0.186.

Nasal completely divided, the posterior section in contact with the single preocular on both sides of the head; two postoculars, subequal in size; temporals 1+1, both elongate; supralabials 7-7, with 3rd and 4th entering the orbit, last one largest; infralabials 6-6, first four in contact with the anterior chinshields, 4th largest, first pair in broad mutual contact; anterior chinshields larger than posterior pair.

The dorsal ground color is tan, with a sprinkling of dark pigment along the anterior edge of each dorsal scale. There is no indication of any stripes on the body. The venter is immaculate cream, except for some brown pigment narrowly edging the lateral portion of the ventrals.

The head is brown above with scattered small pale flecks on the supraoculars,

frontal, and parietals. An irregularly-shaped pale spot is present on the upper portion of the rostral, medial edges of the internasals, and the anteromedial portion of the prefrontals. Two prominent pale nuchal spots are present, each spot occupying the posterior tip of the parietal, the postparietal scale adjacent to both the parietal and posterior temporal, and the anterior edge of the postparietal scale immediately behind the posterior tip of the parietal. These pale nuchal spots are outlined with very dark brown pigment which more or less gradually fades into the surrounding ground color. The lateral portion of the head is dark brown (i.e., lacks the pale flecking of the dorsum of the head). There is a small preocular pale spot on adjacent portions of the first and second supralabials which is confluent with the postocular pale spot occurring on the posterior edge of the fourth, the fifth, and the anterior edge of the sixth supralabial, as well as the posteroventral edge of the lower postocular and the anteroventral edge of the anterior temporal. A dark spot is present on the middle portion of the fifth supralabial, thus reducing the amount of

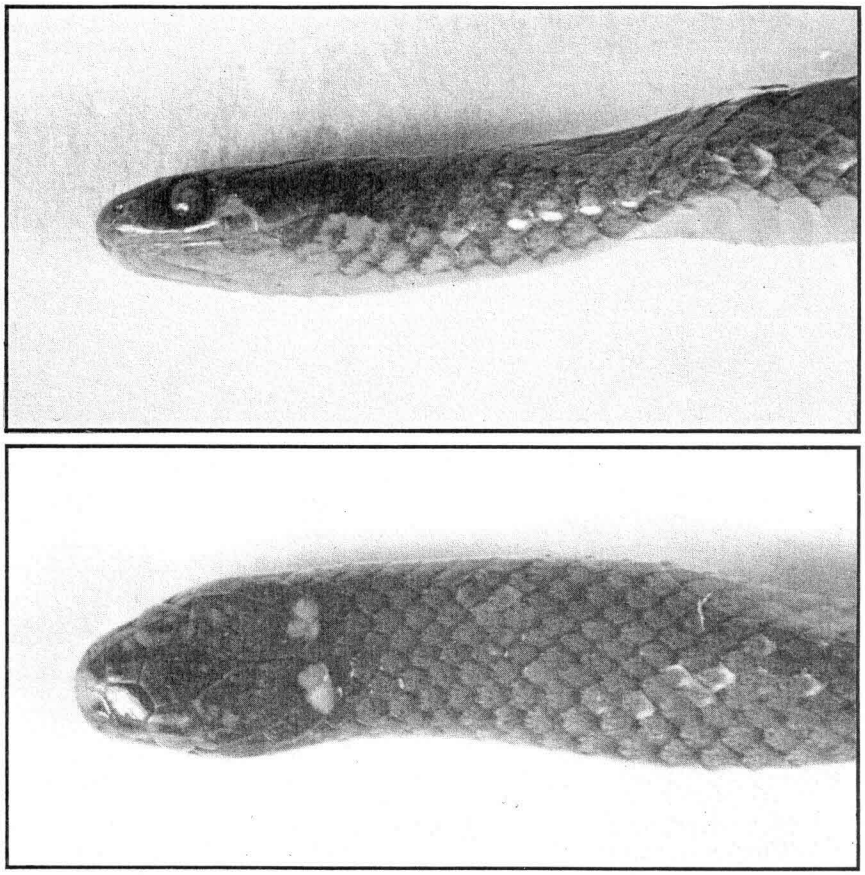

Figure 15. Lateral (upper) and dorsal (lower) views of head of *Tantilla excubitor* (MVZ 88468 from Finca El Salto, 2 km E Escuintla, Depto. Escuintla, Guatemala).

space occupied by the postocular pale spot. The chin is cream-colored with brown flecking on the lingual edges of the infralabials, which becomes more prominent posteriad.

Distribution — Known only from the type locality (Figure 6).

Etymology — The name *excubitor* is Latin for "sentinel" or "watchman," in allusion to its occurrence in an area frequently troubled by volcanic and earthquake activity.

Comparisons — *Tantilla excubitor* appears to be closely related to *T. canula,* a species restricted in distribution to the Yucatán Peninsula. They agree in having a low number of ventrals (116 in single specimen of *T. excubitor,* 103-114 in *T. canula*) and similar subcaudal counts (34 in *T. excubitor,* 32-44 in *T. canula*), pale markings on the snout and parietals, and the relative drabness of the dorsum. *Tantilla excubitor* may be distinguished from *T. canula* by the larger, more prominent pale nuchal markings distinctly outlined with dark pigment on all sides (small, relatively inconspicuous, and confined to the parietals in *T. canula*), the lack of a pale middorsal stripe (inconspicuously developed on the middorsal scale row or the middorsal row and adjacent halves of the paravertebral rows in all but the darkest specimens), the higher number of ventrals (the holotype of *T. excubitor* is a male with 116 ventrals; male *T. canula* have 103-109 ventrals), and the lower number of subcaudals (34 in male holotype of *T. excubitor*; 38-44 in male *T. canula*).

Habitat notes — The holotype came from a finca located just a few kilometers east of Escuintla within the valley of the rios Achiguate and María Linda, which connect the Las Vacas valley, in which lies Guatemala City, with the Pacific coastal lowlands of Guatemala and separates the southwestern and southeastern highlands. The elevation at this point is approximately 305 meters and the vegetation may be characterized as of the Tropical Moist Forest formation of Holdridge (1967).

Tantilla jani (Günther)

Homalocranium jani Günther, 1895: 148.

Homalocranium fuscum: Boulenger, 1896: 220 (part).

Tantilla fusca: Slevin, 1939: 411.

Tantilla jani: Smith, 1942: 36, 1943: 475; Smith and Taylor, 1950: 317; Peters and Orejas-Miranda, 1970: 295; Wilson, 1970: 118, 1974: 54; Savitzky and Smith, 1971a: 169, 1971c: 46; Wilson and Meyer, 1971: 23; Alvarez del Toro, 1973: 171; Wilson, McCranie, and Porras, 1977: 54, 55.

Tantilla janni: Beltrán, 1953: 132.

Holotype — BMNH 1946.1.8.68, adult female.

Type-locality — "Guatemala."

Definition — A species of *Tantilla* with a brown dorsum with a diffuse pale middorsal stripe confined to the middorsal scale row and a pale lateral stripe occupying adjacent halves of dorsal scale rows 3 and 4. The head pattern consists of

an usually complete pale nuchal band on a brown background, which does cross the last supralabial. Ventrals and subcaudals range from 136 to 155 and 38 to 50, respectively (Table 2).

Description — See Wilson and Meyer (1971) and Wilson, McCranie, and Porras (1977).

Distribution — "Low and moderate elevations of the Pacific versant from eastern Oaxaca, México to Guatemala" (Wilson and Meyer, 1971) (Fig. 6).

Specimens examined (4 spec.) — GUATEMALA: Depto. Suchitepequez — vic. Mazatenango (NMB 2114-16). MÉXICO: Chiapas — 1 km N jct. with México Hwy. 200 NE Tapachula on road to Unión Juárez (CAS 140961).

Tantilla lempira Wilson and Mena

Tantilla lempira Wilson and Mena, 1980: 25.

Holotype. — LSUMZ 26093, adult female.

Type-locality. — 41 km NW Tegucigalpa, Depto. Francisco Morazán, Honduras.

Definition. — A species of *Tantilla* with a pale brownish gray dorsum with a narrow, disjunct dark brown middorsal stripe confined to the middorsal scale row and a barely discernible pale lateral stripe on adjacent halves of rows 3 and 4 outlined below by a dark border. The head is brown above with a dark brown nape band and the pale nuchal band reduced to two spots at the posterolateral tips of the parietals and adjacent postparietals. The dark nape band is followed by a pale neck band. There is no dark lateral extension of the head cap between the postocular pale spot and the pale pigment on the lateral gulars. Ventrals and subcaudals range from 143 to 153 and 36 to 49, respectively (Table 2).

Description — See Wilson and Mena (1980).

Distribution — "Moderate elevations of the Pacific versant of Honduras" (Wilson and Mena, 1980) (Fig. 16).

Ecological observations — As pointed out by Wilson and Mena (1980), this species is restricted to *Pinus oocarpa* forest (Subtropical Moist forest formation of Holdridge, 1967).

On 31 May 1976 James R. McCranie, Louis Porras, and I found an additional specimen of *Tantilla lempira* 3.7 km N Zambrano, Depto. Francisco Morazán, at an elevation of 1450 meters. This locality may be the same as, but is surely very close to the locality for the holotype and one of the paratypes (41 km NW Tegucigalpa), since it is 2.4 km SE of kilometer marker 45 (=42.6 km NW Tegucigalpa on Honduras Hwy. 1). The specimen (LSUMZ 33602) came from within a rotten pine log in a relatively level pasture in a *Pinus oocarpa* forest in the Montaña de Comayagua.

A diligent search of the same spot in April of 1978 by Louis Porras and myself produced no specimens but we did find several shed skins of a *Tantilla* probably of this species beneath the bark of a rotting pine stump.

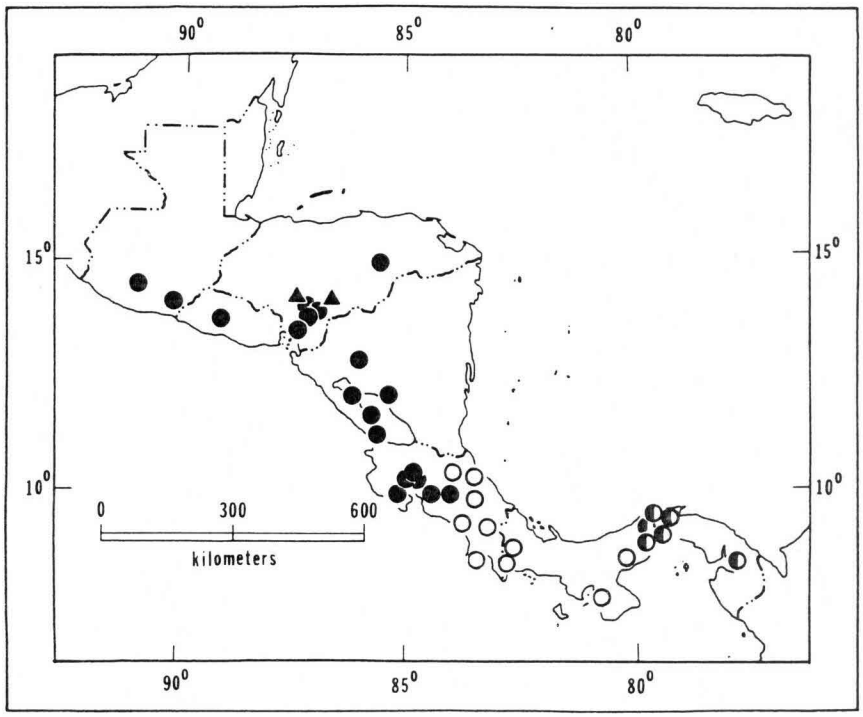

Figure 16. Distribution of *Tantilla lempira* (triangles) and *T. melanocephala* (circles). Closed circles refer to pattern A, open circles to pattern B, and half-filled circles to intermediates between the two.

Remarks — Inasmuch as *Tantilla lempira* is known from but a few specimens, it seems worthwhile to discuss the above-mentioned specimen in some detail. Color notes (in life while specimen was in shed) are as follows: dorsum brown with a dark brown middorsal stripe, dark stripe present on the lower half of row 3; dorsum of the head dark brown; pale nuchal band pale yellow; chin and throat pale cream, remainder of venter and underside of tail pink.

The specimen is a male with 143 ventrals and 49 subcaudals, preocular in contact with the postnasal, and the first pair of infralabials in medial contact. The specimen thus agrees well with the description of *T. lempira* given by Wilson and Mena (1980).

Specimens examined (1 spec.) — HONDURAS: Depto. Francisco Morazán — 3.7 km N Zambrano, 1450 m (LSUMZ 33602).

Tantilla melanocephala (Linnaeus)[5]

Elapomorphus mexicanus: Troschel, 1863: 634; Garman, 1884a: 31, 1884b: 89, 163; Strauch, 1884: 148, 171; Cope, 1887: 83; Hoffman, 1890: 1811; Werner, 1890: 57.

Homalocranium melanocephalum: Müller, 1865: 606.

Homalocranion melanocephalum; Dugès, 1878: 188.

Homalocranion melanocephalus: Velasco, 1891: 51 (in error).

Tantilla melanocephala: Nicéforo María, 1942: 97; Daniel, 1949: 323; Wilson and Mena, 1980: 26.

Tantilla armillata: Smith, 1942: 36; Meyer, 1969: 386; Scott, 1969: 204; Savage, 1973: 16, 1976: 18.

Tantilla ruficeps: Scott, 1969: 204; Savage, 1973: 16, 1976: 18.

Holotype — Not designated.

Type-locality — "America."

Definition — *Tantilla melanocephala* is a widespread and highly variable member of the genus. It is the only member of the *melanocephala* group (Wilson and Mena, 1980) occurring in Central America, other than *T. lempira.* As such, it differs from all other Central American species, except for *T. lempira*, in having a dark middorsal stripe on the middorsal scale row extending the length of the body and tail and a dark nape band (*T. vermiformis* has a dark middorsal stripe, but no dark nape band). Specimens of *Tantilla melanocephala* from Central America differ from *T. lempira* in having a tan to brown dorsal ground color (pale brownish gray in *T. lempira*) and in having a higher number of subcaudals (44 to 82 as opposed to 36 to 44 in *T. lempira*). Pattern type A of *Tantilla melanocephala* (see Wilson and Mena, 1980), the form most geographically proximate to the range of *T. lempira,* differs from it in having a uniform dark brown to black head (brown in *T. lempira*), pale nuchal band reduced to small pale spots confined to the posterior portion of the parietals (not well-defined and largely confined to scales posterior to the parietals), tan to brown ground color (pale brownish gray), middorsal dark stripe narrow but complete (narrow and disjunct), lateral extension of dark head cap usually present, separating the postocular pale spot from the pale pigment on the lateral gulars (usually absent), pale lateral stripe, if present, not bounded by dark pigment (bounded below by dark pigment), 155 to 177 ventrals (148 to 153), and 42 to 60 subcaudals (36 to 44). See

[5]Because the synonymy of this species is very lengthy, instead of including an abbreviated synonymy as for those other species I and others have reviewed or revised previously, I have included reference only to those papers that are not cited in the synonymy in the revision of the *melanocephala* group (Wilson and Mena, 1980).

Wilson and Mena (1980) for a diagnosis of *T. melanocephala*, distinguishing it from other member of the *melanocephala* group (Table 2).

Description — See Wilson and Mena (1980).

Distribution — "From near sea level to intermediate elevations along both versants from Guatemala throughout the length of Central America into South America as far south as southern Perú, Bolivia, northern Argentina, and Uruguay; also on the islands of Trinidad and Tobago" (Wilson and Mena, 1980) (Fig. 16).

Remarks — There are two pattern type of this species occurring in Central America (Wilson and Mena, 1980), one ranging along the Pacific versant from Guatemala to northwestern and central Costa Rica, and the other along the Caribbean versant from Nicaragua to western Panamá and Columbia. The two pattern types are distinguished from one another in the key in this paper (q.v.).

Specimens examined (20 spec.). — BRAZIL: Est. Ceara — Fortaleza (CAS 49306). COLOMBIA: in southern jungle along Río Putamayo (LACM 103719). COSTA RICA: Prov. Alajuela — 18 km W San Ramón (LSUMZ 28752), Surubres (MCZ 15285); Prov. Guanacaste — 2.7 km W Interamerican Hwy. toward Taboga, 30 m (CRE 9840), La Pacifica, 40-50 m (CRE 3558, 3602, 3721); Prov. Cartago — Prov. Cartago — Cartago (BMNH 71.11.22.31); Prov. Heredia — El Angel (UMMZ 137392), Río Frio, Standard Fruit Company, 10°20'N, 83°53'W, 101 m (UF/FSM 31523, 31686, 32113); Prov. Puntarenas — Las Cruces, 1200 m (CRE 8427). ECUADOR: Prov. Napo — Santa Cecilia, 340 m (KU 148394). HONDURAS: Depto. Choluteca — 1.0 km N Cedeño (LSUMZ 33574). NICARAGUA: Depto. Managua — Las Colinas, 5 km SE Managua (VW 78-384), vic. Managua, km 3 S of downtown (VW 78-318), km 13 on Carretera Sur, S of Managua (VW 77-214). PANAMÁ: no other data (TNHC 24407); Prov. Chiriquí — Progreso (UMMZ 58423). VENEZUELA: Est. Barinas — Hato "La Calzada de Paez," open savanna between Río Ticoporo and Cano el Oso (UF/FSM 40711).

Tantilla moesta (Günther)

Homalocranium moestum: Günther, 1863: 352, 1895: 152; Phisalix, 1922: 322.

Tantilla moesta: Cope, 1866: 126, 1876: 144, 1887: 83, 1892: 597, 1900: 1111; Amaral, 1929b: 221; Stuart, 1935: 8, 1958: 9, 11, 28, 1963: 119; Schmidt and Andrews, 1936: 180, 185; Schmidt, 1941: 480; Smith, 1941: 115, 1942: 33, 38, 41; 1943: 475; Pearse, 1945: 221; Smith and Taylor, 1945: 139, 1950: 318; Peters, 1953: 230; Barrera, 1963: 87; Peters and Orejas-Miranda, 1970: 293, 296.

Homalocranion moestum: Bocourt, 1883: 583.

Tantilla moestum: Stuart, 1934: 5.

Tantilla moesta moesta: Smith, 1939: 34.

Tantilla moestra: Müller, 1973: 13.

Holotype — BMNH 1946.1.9.74(formerly BMNH 64.1.26.119), female.

Type-locality — Depto. El Petén, Guatamala.

Definition — A species of *Tantilla* with a dark brown to black dorsum and venter. The head pattern consists of a long pale band covering a variable amount of the frontal and/or parietals and from 2 to 7 scales posterior to the parietals, thence extending laterally to merge with the pale color of the chin. Ventrals and subcaudals range from 138 to 152 and 52 to 62, respectively (Table 2).

Description (Figs. 17 and 18) — *Tantilla moesta* has a uniform dark brown to black dorsum and venter. Occasionally, the area around the vent may be paler. The head pattern consists of a long pale band. The anterior end ranges from the posterior tip of the frontal to the anterior edge of the parietals to the posterior tips of the parietals. The posterior edge ranges from the second to the seventh middorsal scale posterior to the parietals (in the latter case the posterior edge of the band forms an inverted V). The pale nuchal band continues laterally behind the eye covering supralabials 5 through 7 and sometimes from one-half to two-thirds of supralabial 4. Usually there are spots (often small) of dark pigment on supralabials 6, 5 and 6, or 5, 6, and 7. Thence it continues onto the chin usually covering all of it except for the outer edges of infralabials 1 through 4 or 5 and the mental (some specimens have no dark pigment on the chin) and usually extending posteriorly onto the venter from ventral 2 to 6 (considering as part of the pale pigment on the head those ventrals that are at least half covered with pale pigment — one specimen has no pale pigment on the ventrals).

Variation in scutellation is as follows: postnasal and single preocular separated, barely in contact, or (usually) in contact; supralabials 7, with 3rd and 4th entering orbit; infralabials 6, with first four in contact with anterior chinshields, 4th largest, first pair separated by contact of mental and anterior chinshields; postoculars 1 or 2, usually 2 (92.9% of specimens examined); temporals 1+1; dorsal scale rows 15 throughout; ventrals in males 138-151 ($\bar{x}$ =145.8), in females 150-152 ($\bar{x}$ =151.3); anal plate divided (single in 2 of 14 or 14.3% of specimens examined); subcaudals in males 53-62 ($\bar{x}$ =57.9), in females 52-57 ($\bar{x}$ =54.4); ventrals + subcaudals in males 192-210 ($\bar{x}$ =203.4), in females 203-207 ($\bar{x}$ =205.0).

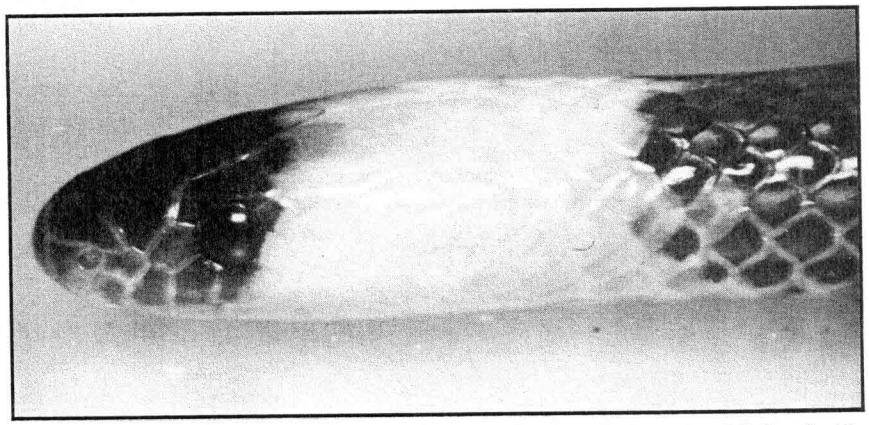

Figure 17. Lateral view of head of *Tantilla moesta* (LSUMZ 33299 from 18 mi S Felipe Carillo Puerto, Quintana Roo, México).

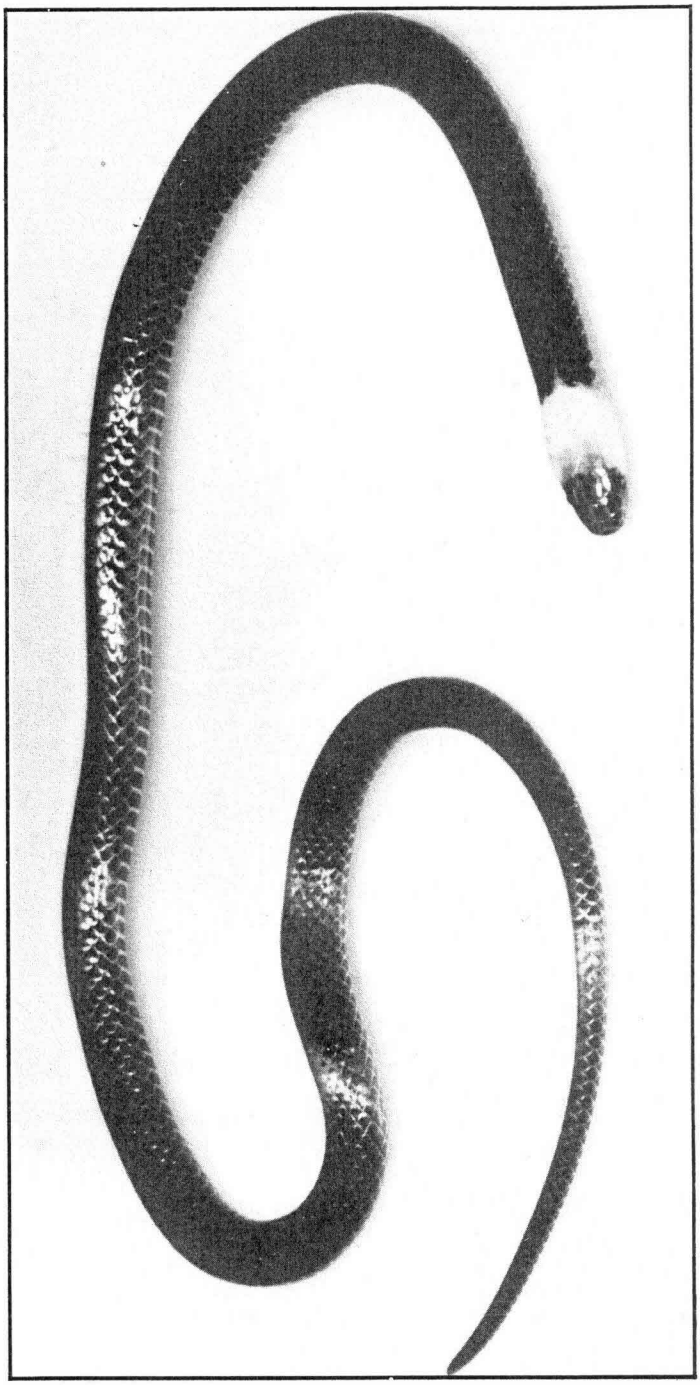

Figure 18. Dorsum of *Tantilla moesta* (LSUMZ 33299 from 18 mi S Felipe Carillo Puerto, Quintana Roo, México).

Total length in snakes of all ages is 155-592 mm and tail length is 31-107 mm. Relative tail length is 0.181-0.225.

Geographic variation — Seven specimens of this species from the Mexican states of Yucatán and Quintana Roo and seven from the department of Petén in northern Guatemala were available to me. Even though the sample is small and the geographic range of the species restricted, geographic variation is seen in the samples from México and in those from Guatemala.

Specimens from México have, on the average, a more extensive pale nuchal band than do those from Guatemala. In the Mexican portion of the range the anterior end of the band extends onto the posterior tip of the frontal (in all but one specimen) and occupies most of the parietals except for a portion ranging from as little as the anterior tips of these scales to as much as the anterior one-third of each scale. The posterior end of the band is often V-shaped and the tip of the V may extend as far posteriorly as the seventh middorsal scale or as near as the third middorsal scale ($\bar{x}$ =4.7 scales). In the Guatemalan segment of the range, however, the anterior end of the band usually does not extend onto the frontal (in all specimens except one) and occupies usually only the posterior one-third to one-half of the parietals but may only occupy the posterior tip of these scales (two specimens, MCZ 38591 and 55432, from the northernmost part of the Guatemalan section of the range, illustrate the pattern at the lower end of the character range seen in Mexican specimens). The posterior end of the band is usually straight and extends from 2 to 5 middorsal scales ($\bar{x}$ =3.1) posterior to the parietals.

Differences in the pattern on the side of the head between Mexican and Guatemalan specimens are not so marked. Most of the Mexican specimens have only the anterior portion of the fourth supralabial marked with dark pigment and only a small spot (or none) on the sixth supralabial, whereas the Guatemalan specimens usually have most or all of the fourth supralabial covered with dark pigment and larger spots occupying the area of the sixth, fifth and sixth, or fifth, sixth, and seventh supralabials near the labial border.

The number of anterior ventrals covered with pale pigment (using the criterion indicated above) in Mexican specimens ranges from none to 6 ($\bar{x}$ =3.1) and in Guatemalan specimens from 1 to 3 ($\bar{x}$ =1.9).

Ventrals average more and subcaudals fewer in México than in Guatemala (Table 4).

Distribution — Low elevations of the Yucatán Peninsula in the Mexican states of Yucatán and Quintana Roo and the northern portion of the Guatemalan department of El Petén (Fig. 19).

Ecological observations — *Tantilla moesta* inhabits the thorn scrub forests of the outer portion of the Yucatán Peninsula and also occurs south into the savanna and quasi-rainforest of the central Peten region of Guatemala. Beyond the comment made by Stuart (1958) that a specimen of this snake "was found under a rotting log in the forest," nothing is known of the ecology of this species.

Remarks — Those specimens of *T. moesta* from the Mexican segment of the range

have more extensive pale areas on the head and neck and higher ventral and lower subcaudal counts than do those from the Guatemalan portion of the range. Those inclined to name subspecies will find adequate justification for the recognition of a Mexican and a Guatemalan subspecies on the basis of the data I have presented herein. I am not so inclined, however, because to do so doesn't increase our biological knowledge of this species and because there is no material available from the possible zone of intergradation between the locality near Felipe Carrillo Puerto in Quintana Roo and those at Tikal and Paso Caballos in El Petén.

Locality records (14 spec.) — GUATEMALA: Depto. El Petén — no other data (MNHN 3774, 3774A), Flores (UMMZ 79058-59), Río San Pedro, Paso Caballos (MCZ 38591), Tikal (MCZ 55432; UMMZ 117904). MÉXICO: Quintana Roo — 18 mi S Felipe Carrillo Puerto (LSUMZ 33299), 25 mi W Puerto Juárez (USNM 157815); Yucatán — no other data (USNM 24883), Chichén Itzá (FMNH 36321), Dzibilchaltun (FMNH 153515), Mayapán (FMNH 40716), Mérida (USNM 6565).

TABLE 4

Comparison of Ventral and Subcaudal Data in Mexican and Guatemalan Specimens of *Tantilla moesta*

Country	Ventrals		Subcaudals	
	Males	Females	Males	Females
México	147-151(148.6)5[1]	152(152.0)2	53-62(57.0)5	52-54(53.0)2
Guatemala	138-148(142.3)4	150-151(150.5)2	58-60(59.3)3	53-57(55.3)3

Tantilla reticulata Cope

T[antilla]. reticulata Cope, 1860: 77, 1861: 74, 1866: 126, 1876: 144; Amaral, 1929b: 221; Daniel, 1949: 324; Scott, 1969: 204; Peters and Orejas-Miranda, 1970: 296; Wilson, 1970: 118; Savitzky and Smith, 1971a: 170; Wilson and Meyer, 1971: 28; Savage, 1973: 16, 1976: 18; Wilson, McCranie, and Porras, 1977: 55.

Microdromus virgatus Günther, 1873: 17.

Homalocranium sexfasciatum Fischer, 1882: 225.

Homalocranion virgatum: Bocourt, 1883: 585.

Homalocranion reticulatum: Günther, 1895: 152.

Tantilla sexfasciata: Cope, 1887: 83; Smith, 1942: 37.

Tantilla virgata: Cope, 1887: 83; Amaral, 1929b: 221; Smith and Burger, 1950: 119.

Holotype — ANSP 3361 (presumed lost; E. Malnate, pers. comm.).

Type-locality — "Cocuyas de Veraguas, New Grenada" (=Cocuyas, Panamá).

[1]Range (arithmetic mean) sample size.

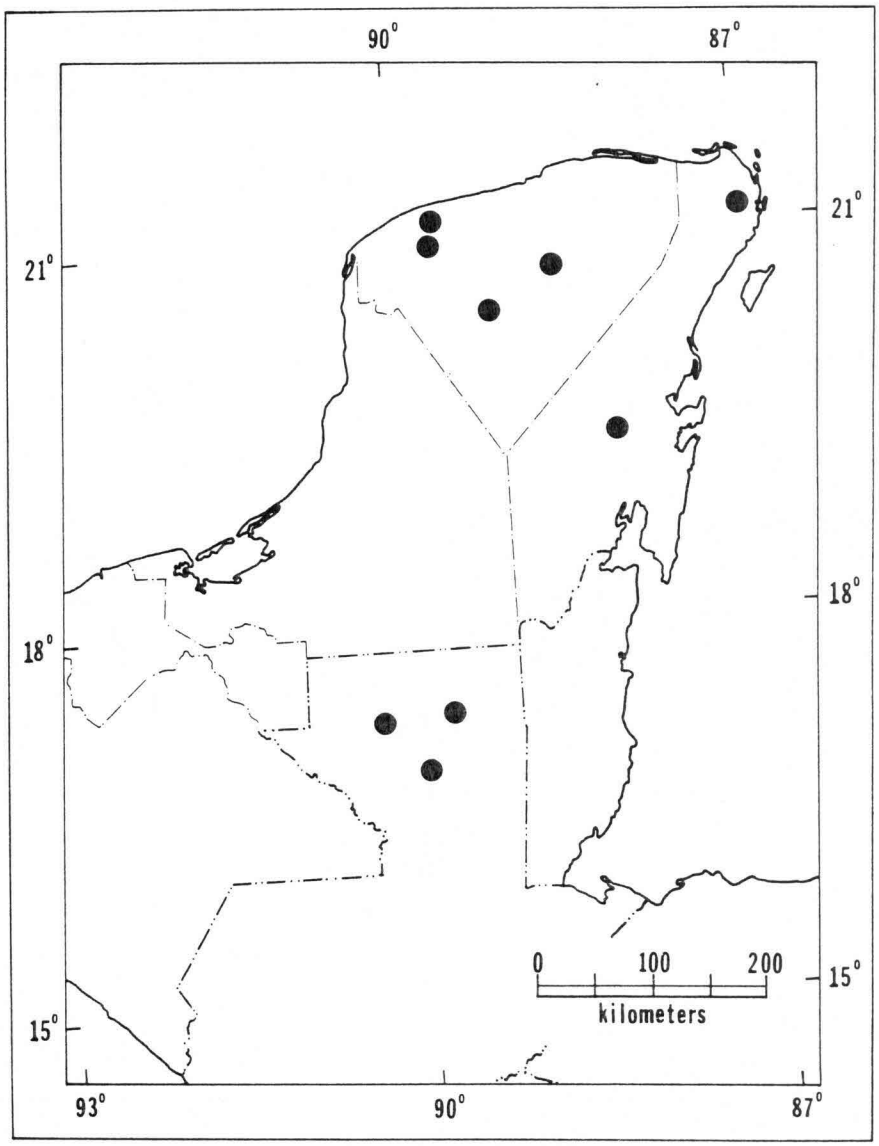

Figure 19. Distribution of *Tantilla moesta*.

Definition — A species of *Tantilla* with a multilineate dorsal pattern. A pale middorsal stripe is present, occupying the middorsal scale row and adjacent halves of the paravertebral rows. This stripe is bordered by a dark stripe on either side of the lower half of the paravertebral rows (row 7). Scale row 6 is brown and is bounded below by a dark stripe on the upper half of row 5. A pale brown field is present on row 4 and adjacent halves of rows 3 and 5 and is bounded below by a dark stripe on adjacent halves of rows 2 and 3. The lower half of scale row 2 is cream and row 1 is pale brown. Dark pigment is present on the anterolateral portions of each scale in the pale areas, presenting a reticulate appearance. A dark brown stripe extends the length of the lateral area of the ventrals. The head pattern consists of an incomplete pale nuchal collar outlined with dark pigment on all sides. Ventrals and subcaudals range from 158 to 173 and 58 to 70, respectively (Table 2).

Description — Wilson and Meyer (1971).

Distribution — Low and moderate elevations of the Caribbean versant of Central America from southeastern Nicaragua to Panamá and the Caribbean and Pacific versant of northwestern Colombia (Fig. 20).

Remarks — Wilson and Villa (1973) inadvertently omitted *T. reticulata* in a discussion of the species of *Tantilla* occurring in Nicaragua, although Wilson and Meyer (1971) had shown earlier that it does barely enter the country from the south.

Specimens examined (4 spec.) — COSTA RICA: Prov. Heredia — 10 km N Puerto Viejo (MCZ 110414), Río Frio, Standard Fruit Company, 10°20'N, 83°53'W, 101 m (UF/FSM 31209, 31683, 42349).

Locality records — COLOMBIA: Depto. unknown — Río San Juan (Nicéforo María, 1942); Depto. Chocó — Quibdó (Nicéforo María, 1942).

Tantilla schistosa (Bocourt)

Homalocranion schistosum Bocourt, 1883: 584.

Tantilla schistosa: Cope, 1887: 83, 1892: 597; Amaral, 1929b: 222; Dunn and Bailey, 1939: 19; Stuart, 1948: 82, 1950: 24, 35, 51, 55, 60, 1957: 93; Taylor, 1951: 155, 1954: 765; Mertens, 1952b: 75; Darling and Smith, 1954: 180, 192; Smith, 1958: 224; Neill and Allen, 1962: 88; Bogert and Duellman, 1963: 11; Meyer, 1969: 204; Scott, 1969: 204; Fitch, 1970: 157; Peters and Orejas-Miranda, 1970: 282, 296; Savage, 1973: 16, 1976: 18; Wilson and Villa, 1973: 95.

Homalocranium schistosum: Günther, 1895: 152; Boulenger, 1896: 221; Boettger, 1898: 110.

Tantilla phrenetica Smith, 1942: 33, 39, 42 (holotype, USNM 110381; type locality, Cuautlapan, Veracruz, México), 1943: 476, 1945: 3; Stuart, 1943: 9, 24, 1948: 82, 1950: 24, 32; Hartweg, 1944: 5, 7; Taylor, 1944: 186; Smith and Taylor, 1945: 140, 1950: 347; Shannon, 1951: 482; Mertens, 1952a: 137, 1952b: 75; Marx, 1958: 493; Cochran, 1961: 217; Smith, Langebartel, and Williams, 1964: 78; Tanner, 1970: 226; Greene, 1972: 12; Müller, 1973: 13.

Tantilla schistosa phrenetica: Smith, 1962: 13; Smith and Taylor, 1966: 26; Peters

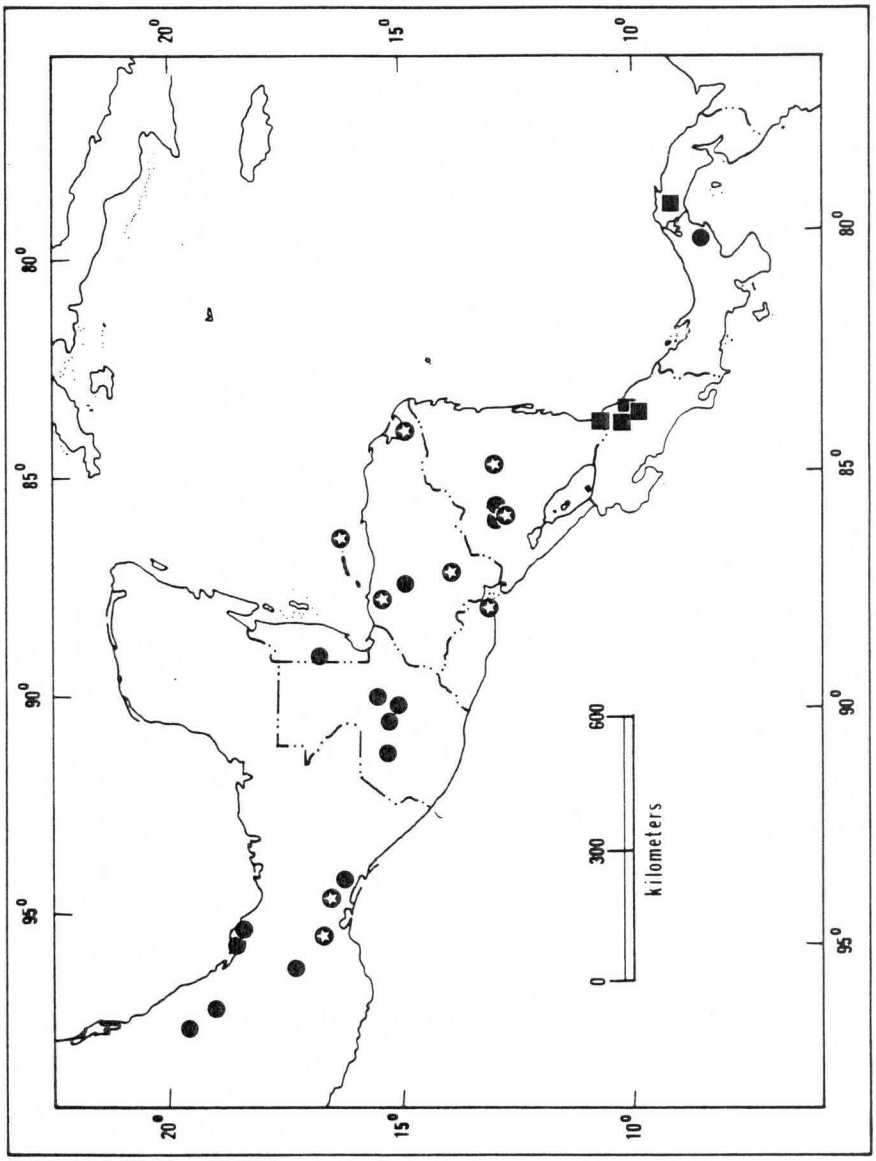

Figure 20. Distribution of *Tantilla reticulata* (squares), *T. schistosa* (circles), and *T. taeniata* (circles with star).

and Orejas-Miranda, 1970: 296; Wilson, 1970: 119; Greene, 1972: 12.

Tantilla schistosa schistosa: Smith, 1962: 13; Duellman, 1963: 247; Stuart, 1963: 119; Neill, 1965: 124; Smith and Taylor, 1966: 26; Peters and Orejas-Miranda, 1970: 296; Wilson, 1970: 119.

Tantilla schistosa schistosa: Smith, 1962: 13; Duellman, 1963: 247; Stuart, 1963: 119; Neill, 1965: 124; Smith and Taylor, 1966: 26; Peters and Orejas-Miranda, 1970: 296; Wilson, 1970: 119.

Tantilla schistosa taylori Smith, 1962: 17 (holotype, KU 35627; type locality,

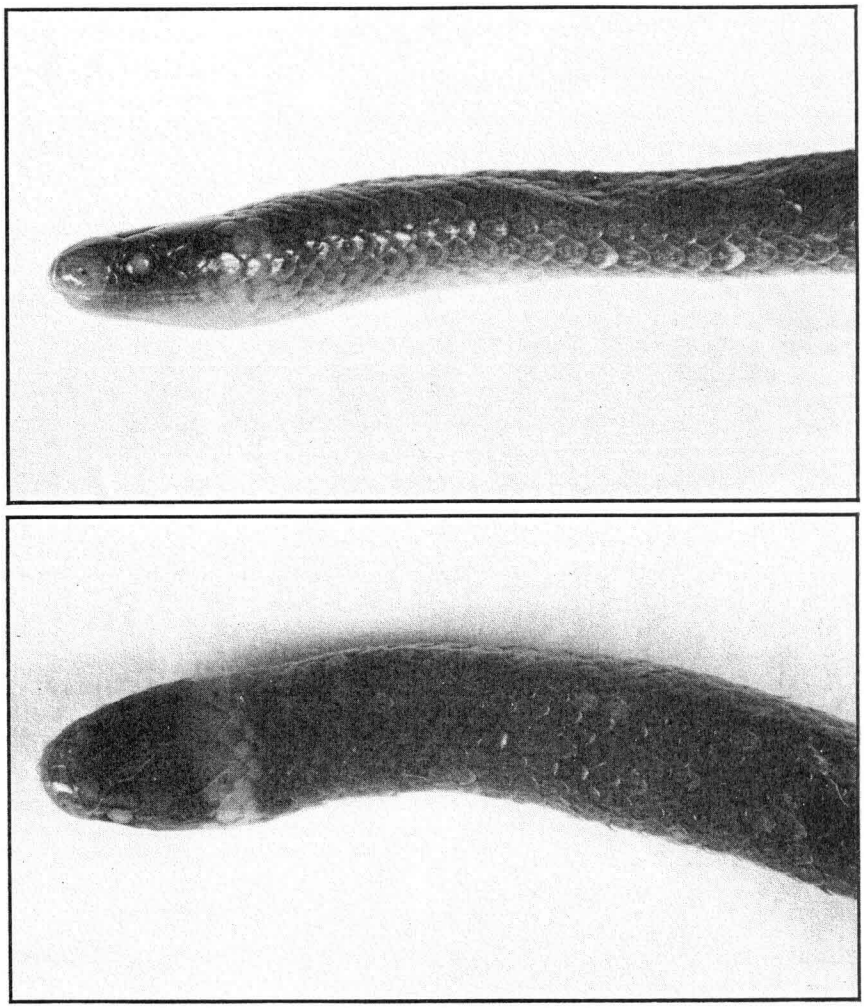

Figure 21. Lateral (upper) and dorsal (lower) views of head of *Tantilla schistosa* (CRE 2858 from San Isidro del General, Prov. San José, Costa Rica).

Suretka, Prov. Limón, Costa Rica); Peters and Orejas-Miranda, 1970: 297.

Lectoholotype — MNHN 1883-506, collected by M.-F. Bocourt. Specimen designated as lectoholotype by Smith (1942).

Type-locality — Alta Verapaz, Guatemala (restricted by Smith, 1942).

Definition — A species of *Tantilla* with a pale to dark brown dorsum, with or without a paling of color on the middorsal scale row. The head pattern consists of a complete or medially divided pale nuchal band separating the head color from that of the dorsum. The pale nuchal band begins on the posterior portion of the parietals and extends one-half to two scales posterior to the parietals. A postocular pale spot may or may not be present. The venter is immaculate cream or reddish-orange. Ventrals and subcaudals range from 117 to 147 and 24 to 42, respectively (Table 2).

Description (Fig. 21) — *Tantilla schistosa* has an olive to reddish-brown (pale to dark brown in preservative) dorsum. Some specimens show a slight paling of the middorsal scale row and row 4; most, however, have a unicolor dorsum. The dorsum of the head of most specimens is the same color as that of the body but a few specimens have a markedly paler head than body (e.g., KU 35628, LACM 114080, MCZ 15302). The head cap is followed by a cream-colored nuchal band which begins on the middle to posterior portion of the parietals and extends one-half to two scales posterior to the parietals. This pale nuchal band is usually complete, but occasionally may be divided and usually extends laterally to cross the last supralabial. In a few specimens the pale nuchal collar may be so obscure as to be easily overlooked. A preocular pale spot is absent but some specimens have a postocular pale spot which may cover as little as the adjacent sutures of the lower postocular, the anterior temporal, and the fifth and sixth supralabials or as much as the anteroventral portion of the anterior temporal, all of the fifth supralabial, and the anterior half of the sixth supralabial. The infralabials are lightly to well pigmented. The venter is immaculate cream to salmon red, with some encroachment of the dorsal ground color onto the lateral edges of the ventrals.

Variation in scutellation is as follows: postnasal and single preocular almost invariably in contact (barely separated on one side in one specimen); supralabials 7, with 3rd and 4th entering orbit (except in one specimen with 6 on one side and the 2nd and 3rd supralabials entering the orbit); infralabials 5 or 6, with first three or four in contact with anterior chinshields and the 3rd or 4th largest, first pair invariably separated by contact of mental and anterior chinshields; postoculars 1 or 2, usually 2 (upper postocular fused to supraocular on one side in two specimens); temporals 1+1 or 1+1+1, usually 1+1 (posterior temporal fused to the last supralabial on one side in one specimen); dorsal scale rows 15 throughout; ventrals in males 119-144 ($\bar{x}$ =132.6), in females 117-147 ($\bar{x}$ =135.3); anal plate divided; subcaudals in males 32-42 ($\bar{x}$ =36.2), in females 24-40 ($\bar{x}$ =33.4); ventrals + subcaudals in males 155-185 ($\bar{x}$ =168.9), in females 151-180 ($\bar{x}$ =169.1).

Total length in snakes of all ages is 99-293 mm and tail length is 15-53 mm. Relative tail length is 0.128-0.201.

Geographic variation — The most recent revision of this species is that of Smith (1962). In that paper Smith recognized four subspecies, *schistosa, costaricensis,*

phrenetica, and *taylori.* The taxa *costaricensis* and *phrenetica* had previously been considered distinct species; *T s. taylori* was described therein.

The holotype of *T. costaricensis* (*T. s. costaricensis* of Smith, 1962) is actually a specimen of *T. alticola* (see above). Thus, no further discussion of this taxon is necessary.

The other infraspecific taxa recognized by Smith (1962) were distinguished from one another in the following fashion. *Tantilla s. phrenetica* was characterized by "a nuchal collar present throughout life; maximum length probably no greater than 225 mm.; infralabials heavily pigmented; ventrals and caudals in males 137-142 (12), mean 140, 37-44 (11), mean 41, in females 135-147 (14), mean 138, 36-42 (14), mean 38." *Tantilla s. schistosa* was diagnosed as having "a nuchal collar present throughout life; maximum length probably no greater than 225 mm., perhaps less (214 in specimens at hand); infralabials sparsely pigmented; ventrals and caudals in males 123-136 (7), mean 130, 31-40 (5), mean 37, in females 128-138 (8), mean 133, 24-37 (7), mean 33." The other subspecies, *T. s. taylori*, was described on the basis of a single specimen and diagnosed as having a nuchal collar, 117 ventrals, and sparsely pigmented infralabials. *Tantilla s. phrenetica* was stated to occur in Veracruz and Oaxaca, México, *T. s. schistosa* in Veracruz, México, Guatemala, Honduras, Costa Rica, and Panamá. The holotype of *T. s. taylori* came from Sureka, Costa Rica.

The discovery that the nominal taxon *T. costaricensis* is actually *T. alticola* prompted a reexamination of the variation in *T. schistosa.* I have examined 45 specimens of this species, including type material of all taxa involved.

Little variation is seen in color pattern from throughout the species' range. The nuchal collar was used by Smith (1962) to distinguish *T. s. costaricensis*, in his usage, from the other three subspecies he recognized; thus, the character distinction no longer has any pertinence. A cursory survey of the available material illustrates that infralabial dark pigmentation will not distinguish specimens from Veracruz and Oaxaca, México (*T. s. phrenetica sensu* Smith, 1962) from specimens from farther south (*T. s. schistosa* and *T. s. taylori*). This pigmentation ranges from poorly-developed to well-developed anywhere within the range where sufficiently large samples exist.

The pale nuchal collar may be complete or divided. Of the 12 specimens examined from México, 4 have the collar divided (33.3%), 8 have it complete (66.7%). All specimens from elsewhere in the range have the collar complete.

Smith (1962) also used the numbers of ventrals and subcaudals to distinguish between subspecies. His data indicated that numbers of both groups of scales were higher in *T. s. phrenetica* than in *T. s. schistosa* and that the single known specimen of *T. s. taylori* had the lowest ventral count (117) for the species (tail of this specimen incomplete). Thus, the total count for ventrals plus subcaudals would be much higher for *phrenetica* than for *schistosa.*

Arrangement of the data on ventral and subcaudal variation within established subspecific boundaries masks some interesting variational trends. The picture is not so simple as presented by Smith (1962). I have arranged the data on ventrals and

subcaudals (as well as ventral plus subcaudal counts) according to the country or state of provenance (Table 5). It is apparent from a perusal of the data that no simple pattern of variation exists. Ventral numbers are relatively high in México (males, 129-144; females, 135-144), Belize (females, 138-146), Nicaragua (male, 143; female, 147), and Costa Rica (males, 130-141; females, 132-141), excepting the southeastern corner, and relatively low in Guatemala (males, 121-122; females, 126-140), Honduras (female, 127), and southeastern Costa Rica (female, 117). The single specimen (a female) available from Panamá has a ventral count of 131, one lower than the lowest count for females from Costa Rica (excepting that for the holotype of *T. s. taylori*). Thus, the concept of a subspecies (*phrenetica*) with relatively high counts and one (*schistosa*) with relatively low counts does not withstand scrutiny.

The ventral count of 117 for the specimen (KU 35627) from Suretka (a village near the Río Tarire in the extreme southern portion of the Costa Rican province of Limón, near the border of Panamá) designated by Smith (1962) as the holotype of *T. s. taylori* is very distinctive. Ventral counts for female *T. schistosa* from elsewhere within the country range from 132 to 141 ($\bar{x}$ =136.8). The Suretka specimen, however, came from an area of Costa Rica (the province of Limón, which extends the length of the Caribbean coast of the country) that is otherwise unrepresented by material of *T. schistosa* (Scott, 1969) and it is possible that it is a member of a population exhibiting very low ventral counts. In addition, the distinctiveness of this specimen is tempered somewhat by the existence of another specimen (NMB 2120) from "Vera Pax, México" (=Depto. Alta or Baja Verapaz, Guatemala?) which has 119 ventrals. The National Intelligence Survey Gazetteer for México lists no locality such as "Vera Paz" and *T. schistosa* is well known to occur in Depto. Alta Verapaz, Guatemala and so it is likely that the locality given for NMB 2120 is a lapsus and that the specimen actually came from Guatemala, most likely the department of Alta Verapaz. the count of 119 for this male specimen is close to the range of counts for four other males from Guatemala (121-122) and its subcaudal count (39) is within the range of counts (33-40) of other Guatemalan male *schistosa*. At any rate, the specimen from Suretka is not so distinctive as was once thought and it will be interesting to examine additional material from this general area of Costa Rica.

Subcaudal numbers also exhibit geographic variation, but not of the same pattern as for ventrals. Counts in México and Guatemala (33-42) are relatively high, whereas those for specimens from Belize, Honduras, Nicaragua, and Panamá (24-33) appear relatively low. The counts for material from Costa Rica (28-36) fall in between those of the two above-mentioned groups. Again, Smith's (1962) concept of relatively high sbucaudal counts in *phrenetica* and low in *schistosa* is not warranted.

Variation in total ventral-subcaudal counts generally follows that in ventrals, except that there is a closer resemblance between ventral-subcaudal counts for female *schistosa* from Guatemala to those from Costa Rica than is the case with ventrals (Table 5).

The infralabials also vary geographically, an unusual occurrence within the genus *Tantilla*. Almost all of the specimens from Nicaragua, Costa Rica, and Panamá have five infralabials with three in contact with the anterior chinshields and the third

TABLE 5

Variation in Numbers of Ventrals, Subcaudals, and Ventrals Plus Subcaudals in *Tantilla schistosa*

Locality	Ventrals		Subcaudals		Ventrals & Subcaudals	
	Males	Females	Males	Females	Males	Females
Veracruz, México	129-140(134.8)6[1]	135-139(137.3)3	37-42(39.5)5	37-40(38.3)3	163-182(173.2)5	175-177(175.7)3
Oaxaca, México	144	135-144(139.5)2	41	36-40(38.0)2	185	175-180(177.5)2
Guatemala	121-122(121.3)4	126-140(132.2)5	33-40(37.3)4	33-36(35.0)5	155-161(158.5)4	162-173(167.2)5
Belize	—	138-146(142.0)2	—	26-33(29.5)2	—	171-172(171.5)2
Honduras	—	127	—	24	—	151
Nicaragua	143	147	32	—	175	—
Costa Rica	130-141(136.7)7	117-141(133.5)6	33-36(34.1)7	28-36(31.6)5	164-175(170.9)7	164-173(168.4)5
Panamá	—	131	—	27	—	158

[1]Range (arithmetic mean) sample size.

the largest. The only exception, interestingly enough, is the Suretka specimen (KU 35627), which has six infralabials, with four touching the anterior chinshields and the fourth the largest, as do most of the specimens from México to Honduras. Only two specimens (one from México and the other from Guatemala) out of 26 specimens from that area have five infralabials and those only on one side.

In light of the nature of the patterns of geographic variation elucidated above, no infraspecific taxa can be justifiably recognized. I, therefore, regard *Tantilla schistosa* as monotypic.

Distribution (Fig. 20) — Low, moderate, and intermediate elevations of the Atlantic versant from Veracruz and Oaxaca, México to Panamá.

Ecological observations — As with other species of Neotropical *Tantilla*, little information is available on the ecology of this species. Shannon (1951) mentioned taking one on a trail at 5:30 P.M. Bogert and Duellman (1963) reported the species' occurrence in the cloud forests of the Sierra de Juárez in Oaxaca. Stuart (1943, 1948) collected several specimens "beneath decaying rubbish in coffee groves" and later (1950) termed the species a "ground-litter inhabitant." Taylor (1951) reported finding one under a log along with a *Micrurus nigrocinctus* which later consumed the *Tantilla* while in the collecting container.

Specimens examined (40 spec.) — BELIZE: no other data (MPM 8209); Cayo District — Xunantunich, nr. Cayo (MCZ 56993). COSTA RICA: Prov. Alajuela — Cariblanco (BMNH 1905.1.30.54); Prov. Cartago — Río Reventazón, 2 km SE Turrialba (KU 25731), Turrialba (AMNH 69723; CRE 93, 2805; KU 34042; MCZ 56111); Prov. Heredia — Isla Bonita, 1450 m (KU 103898); Prov. Limón — Suretka (KU 35627); Prov. Puntarenas — Agua Buena (KU 35628), Rincón de Osa, Quebrada Agua Buena (LACM 114081); Prov. San José — San Isidro del General, 706 m (CRE 2858). GUATEMALA: no other data (NMW 23045); Depto. Alta Verapaz — no other data (MNHN 1883-506), Finca Samac (UMMZ 91061-63), Panzamala (UMMZ 91059-60), Semacoch (USNM 38134); Depto. Quiché — Finca San Francisco el Quiché (UMMZ 89198). HONDURAS: Depto. Yoro — Portillo Grande, 1250 m (MCZ 38750). MÉXICO: no other data (MNHN 6221); Oaxaca — 23 mi E (by Mex. Hwy. 190) La Ventosa (CAS 143899), Totontepec (USNM 20835), Yelagago, ca. 1143 m (AMNH 89624); Veracruz — 9 mi SE Alvarado (LACM 51799), Cuautlapan (AMNH 76120; KU 105884; UIMNH 27404-05, 110381), El Limón Totalco (UIMNH 27403), Tustla (=San Andrés Tuxtla?) (MNHN 6221), Volcán San Martín (UIMNH 33861). NICARAGUA: Depto. Matagalpa — Finca Tepeyac, 10.5 km N, 9 km E Matagalpa, 100 m (KU 86247), Hacienda La Cumplid, 19 km N Matagalpa (UMMZ 116525). PANAMÁ: Prov. Panamá — La Campana (USNM 135996).

Tantilla taeniata (Bocourt)

Homalocranion taeniatum Bocourt, 1883: 587.

Homalocranium trivittatum Müller, 1885: 678.

Homalocranium taeniatum: Günther, 1895: 151.

Homalocranium trilineatum: Boulenger, 1896: 217 (in error).

Tantilla taeniata: Cope, 1887: 83; Smith, 1942: 37; Savitzky and Smith, 1970: 22, 1971a: 167, 1971b: 11, 1971c: 46; Wilson, 1970: 118, 1974: 53; Wilson and Meyer, 1971: 11, 32, 38; Wilson and Hahn, 1973: 131; Wilson and Villa, 1973: 95.

Tantila triseriata Smith and Smith, 1951: 97; Smith, Langebartel, and Williams, 1964: 78; Smith and Taylor, 1966: 27; Smith and Williams, 1966: 485.

Tantilla tritaeniata Smith and Williams, 1966: 483.

Tantilla reticulata: Meyer, 1969: 389 (in error).

Tantilla taeniata taeniata: Smith and Smith, 1976: S-B-199 (by inference).

Tantilla taeniata triseriata: Smith and Smith, 1976: S-B-199, S-C-68, S-G-7.

Tantilla taeniata tritaeniata: Smith and Smith, 1976: S-B-199, S-C-68.

Holotype — MNHN 1666, male.

Type-locality — "Guatemala."

Definition — A species of *Tantilla* with a brown dorsum with a distinct pale middorsal stripe (gold to orangish tan in life) occupying the middorsal scale row and acjacent halves of the paravertebral rows and a pale lateral stripe (cream to gold in life) on adjacent halves of scale rows 3 and 4. The lower half of the paraventral scale row is cream, the upper half is dark brown. Both the middorsal and lateral stripes are outlined above and below with a dark brown stripe occupying the adjacent half row. The head pattern consists of a pale nuchal band (complete, divided medially, or divided both medially and laterally) on a dark brown background, which crosses the last supralabial. The venter may be either cream or reddish orange. Ventrals and subcaudals range from 143 to 178 and 58 to 67, respectively (Table 2).

Description — See Wilson and Meyer (1971), Wilson and Hahn (1973), Wilson and Villa (1973), and Wilson (1974).

Distribution — Low and moderate elevations of the Caribbean versant from Oaxaca, México to Nicaragua, including the Bay Islands; also on the Pacific versant in eastern Oaxaca, México, El Salvador, and Honduras (Figure 20).

Remarks — Smith and Smith (1976) indicated tacitly that they recognized three subspecies within *Tantilla taeniata*, viz., *T. t. triseriata* in Oaxaca, México, *T. t. tritaeniata* on the Bay Islands (Guanaja) of Honduras, and *T. t. taeniata* occupying the remainder of the range of the species. Wilson and Meyer (1971) presented reasons for regarding this species as monotypic and I concur. The possibility of the conspecificity of *T. taeniata* and *T. jani* (Wilson, 1974) remains an intriguing but unconfirmed possibility.

Specimens examined (3 spec.) — EL SALVADOR: Depto. La Unión — Volcán de Conchagua, 4 km S La Unión, 1000 m (UU 4716). HONDURAS: Depto. Islas de la Bahía — Isla Guanaja, SE shore of island (UF/FSM 28574). NICARAGUA: Depto. Matagalpa — nr. Matagalpa (KU 174316 — formerly JV 7218).

Tantilla vermiformis (Hallowell)

Lioninia vermiformis Hallowell, 1861: 484; Cochran, 1961: 195.

Tantilla vermiformis: Cope, 1861: 74, 1866: 126, 1876: 145, 1887: 84, 1900: 1111; Amaral, 1929b: 222; Smith, 1941: 115; Neill and Allen, 1961: 94; Peters and Orejas-Miranda, 1970: 298; Wilson and Villa, 1973: 95; Savage, 1976: 18; Van Devender and Cole, 1977: 1.

Homalocranium vermiformis: Günther, 1895: 155.

Homalocranium vermiforme: Boulenger, 1896: 225.

Lectoholotype — USNM 32338, adult (?) female, so designated by VanDevender and Cole (1977).

Type-locality — "Nicaragua."

Definition — A species of *Tantilla* with a pink to brown dorsum with a thin disjunct dark middorsal stripe confined to the middorsal scale row. The head is slightly darker than the dorsum and there is a tan to pale brown marking on the parietals. Ventrals and subcaudals number 115 to 129 and 19 to 27, respectively (Table 2).

Description (Fig. 22) — *Tantilla vermiformis* has a pale brown to brown dorsum (pink in life in one Nicaraguan specimen), each scale with a darker border. There is a poorly-defined, disjunct middorsal dark stripe present (dark brown to black in color), confined to the middorsal scale row, which continues to the end of the tail. The ground color becomes pale on the lateral portions of the body, gradually fading into the ventral color on the lateral edges of the ventrals. The head is dark brown dorsally and laterally with a tan, pale lavender, or pale brown blotches on the posterior portion of the parietals (as well as, in some cases, portions of the posterior temporal and the postparietal scales). The venter is immaculate white, cream, pale yellow, or pale pink.

Variation in scutellation is as follows: postnasal and single preocular usually in contact (except when the preocular and prefrontal are fused); supralabials 7, with 3rd and 4th entering orbit; infralabials 6, with four in contact with anterior chinshields, 4th largest, first pair separated by contact of mental and anterior chinshields; postoculars 2; temporals 1+1, but anterior temporal frequently fused with sixth supralabial; dorsal scales 15 throughout; ventrals in males 115-123 ($\bar{x}$ =119.6), in females 120-129 ($\bar{x}$ =124.2); anal plate divided; subcaudals in males 23-28 ($\bar{x}$ =25.3), in females 19-24 ($\bar{x}$ =21.0); ventrals + subcaudals in males 141-147 ($\bar{x}$ =144.5), in females 140-150 ($\bar{x}$ 144.7).

Total length in snakes of all ages is 71-157 mm and tail length is 8-23 mm. Relative tail length is 0.096-0.150.

Geographic variation. — Van Devender and Cole (1977) pointed out that specimens of *Tantilla vermiformis* from Nicaragua have fewer ventrals and more subcaudals that those from Costa Rica. Specimens from Costa Rica more commonly have the primary temporal fused with the sixth supralabial and do not have a pink ventral coloration, as reported for this species from Nicaragua by Wilson and Villa (1973).

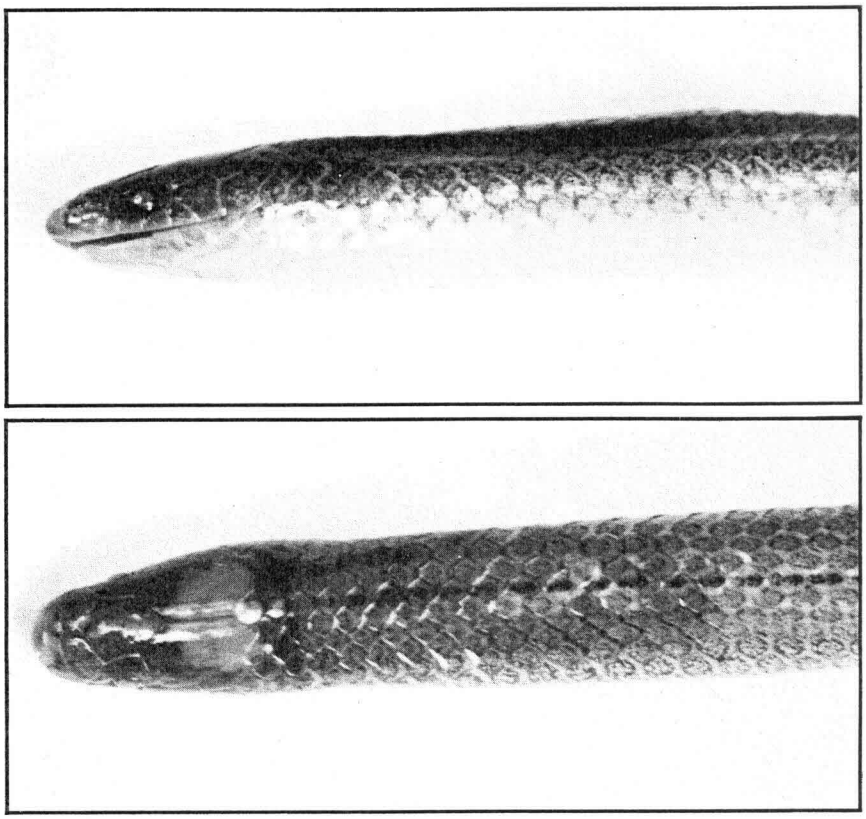

Figure 22. Lateral (upper) and dorsal (lower) views of head of *Tantilla vermiformis* (AMNH 111327 from 1.0 km E Los Angeles de Tilarán, Prov. Guanacaste, Costa Rica).

I have been fortunate to have available four additional specimens and notes on those specimens from Nicaragua, kindly provided by Van Wallach. This material consists of three males (VW 78-226, 78-288, 78-311) and one female (VW 78-418) and confirms most of the distinctions pointed out by Van Devender and Cole (1977). These data were combined with data on the remainder of the Nicaraguan material, already discussed by Wilson and Villa (1973), and compared to that from Costa Rica (Table 6). The primary temporal is always separate from the sixth supralabial in specimens from Nicaragua but is frequently fused to that scale in specimens from Costa Rica. On the other hand, a pink ventral coloration was seen in none of the specimens provided me by Van Wallach, according to his notes. The same pattern shown by Van Devender and Cole (1977) for ventrals and subcaudals is supported by my data.

Distribution — Low elevations of the Pacific versant from northwestern Nicaragua to northwestern Costa Rica (Fig. 23).

Ecological observations — See Van Devender and Cole (1977).

TABLE 6

Comparison of Selected Characters Between Samples of *Tantilla vermiformis* from Nicaragua and Costa Rica

Characters	Nicaragua		Costa Rica[3]	
	Males	Females	Males	Females
Ventrals	115-120(116.3)6[1]	120(120.0)2	117-123(120.6)14	120-129(124.5)11
Subcaudals	26-28(26.6)7	22(22.0)2	23-26(24.7)13	19-23(20.6)11
Primary temporal not fused to sixth supralabial	100%(14/7)[2]	100%(4/2)	40%(50/25)	

[1]Range (arithmetic mean) sample size.
[2]The number in parentheses indicates the number of sides of heads counted over the number of specimens examined for this character.
[3]Data on Costa Rican specimens taken from Van Devender and Cole (1977).

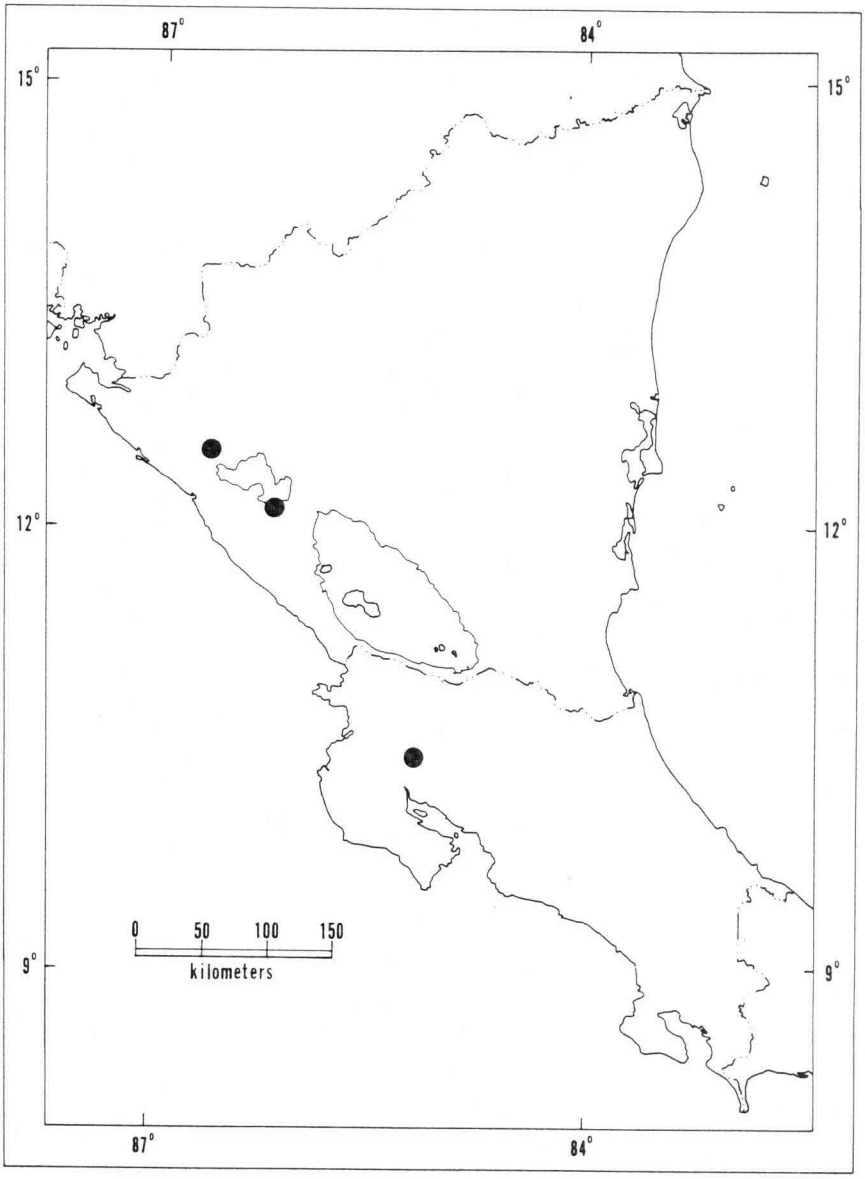

Figure 23. Distribution of *Tantilla vermiformis*.

Remarks — Whereas specimens from Costa Rica frequently have the primary temporal and the sixth supralabial fused, this condition is not seen in specimens from Nicaragua. On the other hand, two specimens from Nicaragua (VW 78-288, 78-418) show fusion of the preocular to the supraocular and prefrontal, respectively, on one side of the head. These fusions reflect the semifossorial habits of the species.

Specimens examined. — I have examined the material from Costa Rica reported by Van Devender and Cole (1977). See that paper for the locality data.

NICARAGUA: Depto. Managua — nr. Managua (VW 78-311), Piedrasitas (VW 77-226, 78-288, 78-418).

KEY TO THE SPECIES OF *TANTILLA* OCCURRING IN CENTRAL AMERICA

1. Head and nape white, except for dark ring around eye; remainder of dorsum dark olive ---------- *T. albiceps*
   Dorsal color pattern not as shown ---------- 2
2. Dorsum of body with black-bordered pale crossbars on a dark red background ---------- *T. annulata*
   Dorsal pattern not banded ---------- 3
3. Middorsal dark stripe present ---------- 4
   Middorsal dark stripe absent ---------- 6
4. Total of ventrals and subcaudals 140-150 ---------- *T. vermiformis*
   Total of ventrals and subcaudals greater than 180 ---------- 5
5. Total of ventrals and subcaudals 188-192 ---------- *T. lempira*
   Total of ventrals and subcaudals 204-232 ---------- *T. melanocephala*
6. Dorsum with pale middorsal and/or lateral stripes ---------- 7
   Dorsum without pale stripes ---------- 13
7. Subcaudals fewer than 30 (known range, 21-26) ---------- *T. brevicauda*
   Subcaudals more than 30 ---------- 8
8. Middorsal pale stripe absent ---------- 9
   Middorsal pale stripe present ---------- 10
9. Pale nuchal band complete; pale lateral stripe poorly evident -- *T. cuniculator*
   Pale nuchal band reduced to two nuchal spots; pale lateral stripe well-developed ---------- *T. cuesta*
10. Pale middorsal stripe poorly indicated; pale lateral stripe absent --- *T. canula*
    Pale middorsal stripe well-developed; pale lateral stripe present ------ 11
11. Middorsal pale stripe confined to the middorsal scale row -------- *T. jani*
    Middorsal pale stripe covers the middorsal scale row and adjacent halves of the paravertebral rows ---------- 12

12. Pale area on row 4 and adjacent halves of rows 3 and 5; dark brown stripe extending length of lateral portion of ventrals; anterolateral edges of scales of pale areas on dorsum outlined with dark pigment ---------- *T. reticulata*
    Pale lateral stripe on adjacent halves of rows 3 and 4; paraventral scale row distinctly divided into dark upper and pale lower half; no dark pigment concentrated on anterolateral edges of scales of pale areas of dorsum ---------- *T. taeniata*

13. Dorsum and venter dark brown to black ---------- *T. moesta*
    Ventral color much paler than dorsal color ---------- 14

14. Ventrals fewer than 115 (known range, 103-114) ---------- *T. canula*
    Ventrals greater than 115 ---------- 15

15. Ventrals greater than 150 (value for female holotype, 164) ---------- *T. bairdi*
    Ventrals fewer than 150 ---------- 16

16. Pale nuchal band reduced to two nuchal spots ---------- *T. excubitor*
    Pale nuchal band complete or divided medially only ---------- 17

17. Snout with prominent cream-colored marking; preocular spot present ---------- *T. alticola*
    Snout same color as remainder of dorsum of head or only slightly paler; preocular spot absent ---------- *T. schistosa*

DISTRIBUTIONAL PATTERNS

Members of the genus *Tantilla* in Central America are inconspicuous, seemingly uncommon, semifossorial inhabitants of the leaf litter and rotting log segment of the community occurring in a wide variety of habitats existing at low, moderate, and intermediate elevations (0-1750 m). These snakes are infrequently encountered in the field. Nonetheless, the genus is ecologically and geographically widespread in Central America.

Geographic distribution — Central America is a topographically complex region. In attempting to explain that complexity for the purposes of discussion I have used a modification of the system Savage (1975) used in his discussion of the distribution of the members of the *Eleutherodactylus rugulosus* group. The modified system is as follows:

1. Upper Central American Highlands — Guatemala to northern Nicaragua
   A. Guatemalan Highlands
   B. Highland areas of Honduras, El Salvador, and northern Nicaragua
2. Lower Central American Highlands — Costa Rica and western Panamá
3. Caribbean Lowlands
   A. Yucatán Peninsula
   B. Caribbean lowlands of Honduras and northeastern Nicaragua
   C. Caribbean lowlands of southeastern Nicaragua, Costa Rica, and Panamá

4. Pacific Lowlands
   A. Pacific lowlands of Guatemala and El Salvador
   B. Pacific lowlands of Honduras, Nicaragua, and northwestern Costa Rica
   C. Pacific lowlands of southwestern Costa Rica and Panamá

The known distributions of Central American *Tantilla* may be arranged into the above-detailed categories as follows:

1. Guatemalan Highlands — Two species are limited to the Guatemalan highlands, viz., *Tantilla bairdi*, known only from a single specimen from the mountains of the department of Alta Verapaz and *T. cuesta*, herein described from the mountains of the department of San Marcos. The range of three other species includes a portion of the Guatemalan highlands. *Tantilla brevicauda* occurs in the highlands of both Guatemala and El Salvador. *Tantilla jani* ranges into the highlands of southern Guatemala but also occurs in the lowlands elsewhere in its range (Oaxaca and Chiapas). *Tantilla schistosa* is a wide-ranging species in Central America and Mexico and a portion of its range includes the mountains of Alta Verapas.

2. Highlands of Honduras, El Salvador, and northern Nicaragua — Only one species, *T. lempira*, is limited to this area, occurring in the mountains of the Pacific versant of Honduras. As mentioned above, *T. brevicauda* occurs in both the highlands of Guatemala and El Salvador. Portions of the range of *T. taeniata* include the highlands of southern Honduras and the widespread *T. schistosa* occurs in northern Honduras and Nicaragua.

3. Lower Central American Highlands of Costa Rica and Panamá — No species of *Tantilla* is endemic to this region. This is interesting in view of its importance as a center of origin and dispersal for numerous other groups of reptiles and amphibians. This appears to be largely a result of the fact that *Tantilla* in Central America occurs primarily in the lowlands and moderate elevations of the central mountain masses. Nonetheless, five species range into the lower elevations of this highland mass. *Tantilla alticola* and *T. reticulata* occur only at moderate elevations of the Pacific and Caribbean versants of Costa Rica, respectively. *Tantilla annulata* and *T. melanocephala* occur at moderate elevations of both versants. *Tantilla schistosa*, however, is widespread at moderate elevations of Costa Rica and Panamá.

4. Yucatán Peninsula — The Yucatán Peninsula is unique among the areas discussed here in harboring three endemic species of *Tantilla: T. canula, T. cuniculator,* and *T. moesta*. In addition to the Mexican section of the peninsula, in which all three species occur, two species (*T. canula* and *T. moesta*) are also found in the Petén region of Guatemala and one (*T. cuniculator*) in Belize. *T. schistosa* also occurs in Belize.

5. Caribbean Lowlands of Honduras and Northeastern Nicaragua — Only *T. taeniata* occurs in this area. It is also distributed at moderate elevations in highland areas elsewhere in northern Central America.

6. Caribbean Lowlands of Southeastern Nicaragua, Costa Rica, and Panamá —

One species, *T. albiceps*, known only from a single specimen from Barro Colorado Island, is limited to this area. This area is also the principal area of occurrence of *T. annulata* and *T. reticulata.* One of the pattern type of *T. melanocephala* also occurs in this area.

7. Pacific Lowlands of Guatemala and El Salvador — This area forms the northern terminus of the Pacific coastal segment of the range of *T. melanocephala.* The type locality of *T. excubitor* lies at the northern edge of this region in Guatemala.

8. Pacific Lowlands of Honduras, Nicaragua, and Northwestern Costa Rica — One species, *T. vermiformis*, is endemic to this region, occurring along the Pacific coast of Nicaragua and northwestern Costa Rica. The remainder of the range of the Pacific coastal Central American form of *T. melanocephala* also is in this area.

The principal features of the geographic distribution of *Tantilla* in Central America may be summarized as follows:

1. A moderate amount of endemism is seen in the geographic regions discussed above. Of the seventeen species of *Tantilla* occurring in Central America the following nine are limited to one of the above-discussed areas: *T. albiceps; T. bairdi, T. canula; T. cuesta; T. cuniculator; T. excubitor; T. lempira; T. moesta; T. vermiformis.* Five of these species (*T. albiceps, T. bairdi, T. cuesta, T. excubitor,* and *T. lempira*), however, are known only from one or a few specimens.

2. Fewer species occur in the highland areas than in the lowland ones. Of the eleven species occurring in highland areas (*T. alticola, T. annulata, T. bairdi, T. brevicauda, T. cuesta, T. jani, T. lempira, T. melanocephala, T. reticulata, T. schistosa,* and *T. taeniata*), only four (*T. bairdi, T. brevicauda, T. cuesta,* and *T. lempira*) are known to be limited there. Another species (*T. schistosa*), however, is most widely distributed in this region. By way of contrast, of the thirteen species known to occur in lowland areas somewhere within their range (*T. albiceps, T. alticola, T. annulata, T. canula, T. cuniculator, T. excubitor, T. jani, T. melanocephala, T. moesta, T. reticulata, T. schistosa, T. taeniata,* and *T. vermiformis*), six species (*T. albiceps, T. canula, T. cuniculator, T. excubitor, T. moesta,* and *T. vermiformis*) are found only there. Three other species (*T. annulata, T. melanocephala,* and *T. reticulata*) occur principally in lowland areas.

3. In those countries of Central America lying on both the Caribbean and Pacific versants the species count is higher, as might be expected, than in those countries occupying only the Caribbean (Belize) or Pacific (El Salvador) versant. On the other hand, those countries which straddle the "spine" (i.e., continental divide) of Central America have uneven numbers of species of *Tantilla* (Table 7). Guatemala, with ten species, is the most speciose country. Nicaragua and Costa Rica are next with six species each. Panamá and Honduras harbor five and four species, respectively. Guatemala is the most speciose for the following apparent reasons: (a) proximity to the presumed area of origin of the genus (México); (b) inclusion within its boundaries of a portion of an area relatively high in endemic species (Yucatán Peninsula); (c) occurrence on both the Caribbean and Pacific versants; (d) large size (third largest in Central America); (e) marked physical relief and vegetational diversity.

TABLE 7

Country Distribution of Central American Species of *Tantilla*

Species	Guatemala	Belize	Honduras	El Salvador	Nicaragua	Costa Rica	Panamá
T. albiceps							X
T. alticola					X	X	
T. annulata					X	X	X
T. bairdi	X						
T. brevicauda	X			X			
T. canula	X						
T. cuesta	X						
T. cuniculator		X					
T. excubitor	X						
T. jani	X						
T. lempira			X				
T. melanocephala	X		X	X	X	X	X
T. moesta	X						
T. reticulata					X	X	X
T. schistosa	X	X	X		X	X	X
T. taeniata	X		X	X	X		
T. vermiformis					X	X	

Altitudinal distribution — In Central America members of the genus *Tantilla* occur from near sea level to as high as 1750 meters. The altitudinal range for each species in Central America is as follows:

T. albiceps — ca. 100 m
T. alticola — 680-1200 m
T. annulata — 0-850 m
T. bairdi — 1550 m
T. brevicauda — ca. 600-1750 m
T. canula — 5-283 m
T. cuesta — 1050 m
T. cuniculator — 10-15 m
T. excubitor — ca. 305 m
T. jani — ca. 305-609 m
T. lempira — 1450 m
T. melanocephala — 0-1400 m
T. moesta — 10-283 m
T. reticulata — ca. 0-1430 m
T. schistosa — 60-1600 m
T. taeniata — ca. 0-1000 m
T. vermiformis — 40-520 m

As is to be expected, the same broad altitudinal distribution patterns discussed in the previous section are seen. In addition, some species (for which sufficient data

are available) have relatively narrow altitudinal ranges (*T. canula, T. cuniculator,* and *T. moesta*), whereas others have relatively broad ranges (*T. alticola, T. annulata, T. brevicauda, T. melanocephala, T. reticulata, T. schistosa,* and *T. taeniata*). Broad altitudinal ranges are typical for many Central American snakes.

Ecological distribution — In discussing the ecological distribution of the Central American members of the genus *Tantilla*, I have utilized Holdridge's (1967) system of bioclimates and attendant forest formations.

As indicated above, the elevational range of *Tantilla* in Central America is from near sea level to 1750 meters. Within this range, the mean annual temperature may vary between perhaps 15°C and 24°C or more and the mean annual precipitation may vary between 500 and 5000 mm. Within these parameters, the following forest formations may be recognized:

Formation	Mean Annual Temperature (°C)	Mean Annual Precipitation (mm)	Elevation (m)
Tropical Arid Forest (TAF)	24 or more	500-1000	0-600
Tropical Dry Forest (TDF)	24 or more	1000-2000	0-600
Tropical Moist Forest (TMF)	24 or more	2000-4000	0-600
Tropical Wet Forest (TWF)	24 or more	4000	0-600
Subtropical Dry Forest (SDF)	18-24	500-1000	600-1000
Subtropical Moist Forest (SMF)	18-24	1000-2000	600-1500
Subtropical Wet Forest (SWF)	18-24	2000-4000	600-1500
Subtropical Rain Forest (SRF)	18-24	4000	600-1500
Lower Montane Moist Forest (LMF)	12-18	1000-2000	1500-2700
Lower Montane Wet Forest (LWF)	12-18	2000-4000	1500-2700

Most of these forest formations harbor two or more species of *Tantilla*, with the exception of the Subtropical Dry Forest and Lower Montane Moist Forest formation, which have none. The distribution of the seventeen species of Central American *Tantilla* within the forest formations discussed above is indicated in Table 8. Examination of this table indicates that three species occur in the Tropical Arid Forest formation. Those three are inhabitants of the Yucatán Peninsula and a portion of their range extends into the arid outer portion of the peninsula. Few species also occur in the Subtropical Rain Forest or Lower Montane Wet Forest formation. The sparse inhabitance of the former formation may be more apparent than real, but the latter formation occurs at the upper limit of altitudinal distribution for the genus in Central America. In fact, of the three species listed as occurring in the Lower Montane Wet Forest formation, *T. alticola* is known to do so only in Colombia and the single specimen of *T. bairdi* was secured from a locality just barely within the Lower Montane Wet Forest formation, according to the collecting data. six species occur in the Tropical Dry Forest formation but none are limited to it. Three species occurring there (*T. canula, T. cuniculator,* and *T. moesta*) also occur in

the Tropical Arid Forest formation and are obviously dry-adapted forms. The remainder also occur in wetter formations. Several species occur principally or wholly within the Tropical Moist Forest, Tropical Wet Forest, Subtropical Moist Forest, and Subtropical Wet Forest formations — the moist and wet lowlands and uplands. Of the nine species in this category (*T. albiceps, T. alticola, T. annulata, T. cuesta, T. excubitor, T. jani, T. lempira, T. reticulata,* and *T. schistosa*), seven occur only within these formations (all except *T. alticola* and *T. annulata*).

Tantilla melanocephala appears to be the most ecologically tolerant, occurring in a greater number of forest formations than any other species (all but two of the formations in which any Central American *Tantilla* occurs). This situation is due to the peculiar evolutionary history of the species in Central America (see Wilson and Mena, 1980, for a discussion).

The picture presented above concerning the ecological distribution of the CentralAmerican species of *Tantilla* could be substantially altered by the collection of more material of this still poorly-represented group of snakes.

In summary, there are few forest formations below 1750 meters in Central America that do not contain some species of *Tantilla.*

TABLE 8

Distribution of Central American Members of the Genus *Tantilla* within the Forest Formations of Holdridge (1967)

Species	Forest Formations							
	TAF	TDF	TMF	TWF	SMF	SWF	SRF	LWF
T. albiceps			X					
T. alticola				X		X		X
T. annulata			X	X		X	X	
T. bairdi								X
T. brevicauda					X	X		X
T. canula	X	X						
T. cuesta						X		
T. cuniculator	X	X						
T. excubitor			X					
T. jani			X			X		
T. lempira					X			
T. melanocephala		X	X	X	X	X	X	
T. moesta	X	X						
T. reticulata			X	X		X		
T. schistosa			X		X	X		
T. taeniata		X	X		X			
T. vermiformis		X	X					
Total species	**3**	**6**	**9**	**4**	**5**	**8**	**2**	**3**

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