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Taxonomic Notes on Ecuadorian Snakes in the American Museum of Natural History

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In the publication of check lists, many authors take the liberty of making changes in taxonomic status and additions to a fauna without full annotation of their actions. This sometimes leads to a frustrating situation for the author's colleagues, for they feel compelled to accept his decisions without having the opportunity to evaluate the evidence. As Hartweg (1956, p. 262) points out, "checklist authors would cause less confusion if they would indicate clearly their deviations from the latest 'authoritative' references." In anticipation of completion of my check list of snakes of Ecuador, therefore, I present here several revisions of status, additions to the fauna, and the description of one new species, based primarily on the collections of the American Museum of Natural History, along with material from my personal collection. My field work in Ecuador during the summer of 1954 was supported by a grant from the Penrose fund of the American Philosophical Society.

Corallus annulata colombiana Rendahl and Vestergren

Boa annulata colombiana Rendahl and Vestergren, 1940, Arkiv för Zool., vol. 33A, no. 1, p. 2.

There are two specimens from Ecuador in the American Museum that belong to the species *Corallus annulata,* one of which (A.M.N.H. No. 61754) was collected on the Guayaquil River. The other (A.M.N.H. No. 73252) was taken from a bunch of bananas that were presumably shipped from Ecuador. Neither is easily assignable to sub-

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species on the basis of the characteristics presented by Rendahl and Vestergren (1941, pp. 2–8). In fact, the subspecific characteristics they used were based on a single specimen each of *colombiana* and *blombergi* and two individuals of *a. annulata.* It is apparent from examination of the two new Ecuadorian specimens that the lepidosis of the dorsum of the snout is highly variable. Both of the specimens of Central American *annulata* possess a continuous row of infraloreals, however, that runs from the nasal to the suboculars. In all four South American specimens this row does not reach to the nasal, but begins behind a contact between the third upper labial and the loreal row. This character thus separates both South American forms from the nominate subspecies.

The subspecies *colombiana* and *blombergi* currently can be separated only on the basis of the arrangement of the scales between the nasals and perhaps on the basis of the number of supraloreals present. In the single specimen of *blombergi* there are "two medium-sized lateral internasals, separated by two medial internasals, arranged one behind the other" (Rendahl and Vestergren, 1941, p. 8), while the single specimen of *colombiana* has an extremely large pair of lateral internasals which are in contact anteriorly but separated posteriorly by a single medial internasal. A.M.N.H. No. 61754 has two quite large lateral internasals, but they are not in contact at all. A single, large median internasal separates them along their entire inner margins. This internasal is followed by a pair of scales on the midline that are within the divergent ends of the lateral internasals. The comparatively larger size of the lateral internasals and the presence of a single median internasal lead me to assign this specimen to *colombiana,* with a corollary hypothesis that the contact between the lateral internasals is of little significance, as it is contingent upon the size of the median internasal.

The second specimen, supposedly from Ecuadorian bananas, is quite different from all of Rendahl and Vestergren's specimens and the other one I have from Ecuador. It has two very small internasals, which are not so long as the anterior part of the nasal, followed by a second pair of internasals, which are in contact on the midline throughout their length. Two small median scales in tandem on the midline follow, narrowly separating a third pair of larger scales. Behind this pair, and in contact behind the posterior median scale, is a fourth pair of large scales. This is much more like the situation in *a. annulata,* although it differs considerably from both of the figures in Rendahl and Vestergren

(1941, figs. 1 and 3). Two possibilities exist. First, the specimen may actually have come from one of the banana ports in Central America, and thus be a legitimate member of the nominate subspecies. Second, as I suggest above, the use of the scales on the dorsum of the snout is of doubtful validity. As to the second characteristic, which is the number of supraloreals present, No. 61754 has only three, while No. 73252 has four. Both *a. annulata* and *blombergi* have four, and *colombiana* has three, in Rendahl and Vestergren's material. Again, the validity of the character is doubtful. I am retaining the currently recognized subspecies both here and in the check list, but this is in deference to the insufficient material available to me rather than any recognition of their validity.

A.M.N.H. No. 61754, a female, has 273 ventrals (last divided); 76 subcaudals; 17–15 upper labials, with the penultimate and antepenultimate on both sides partially fused; 12 scales around the orbit; 11–12 scales between the eyes, including the supraoculars; maximum body scale rows 51, at midbody; 40 blotches on the body, nine on the tail. A.M.N.H. No. 73252, also a female, has 266 ventrals; 79 subcaudals; 14–14 upper labials, with the last three apparently fused, judging from the presence of three labial pits on the last labial (the labial pits are constantly associated with the sutures on most specimens); 13 scales around the orbit; 11 scales between the eyes; maximum body scale rows 50; 44 blotches on the body, 11 on the tail. There is a considerable difference in the colors of the two specimens, with No. 61754 quite light, and with little contrast between the blotches and the interspaces, possibly as the result of fading, and No. 73252 very dark, with orange-red blotches and very dark brown interspaces.

Anomalepis flavapices, new species

HOLOTYPE: James A. Peters Collection No. 2613, collected near Esmeraldas, Esmeraldas Province, Ecuador, by "Mr. Gray."

PARATYPE: A.M.N.H. No. 6966, collected at Manabi, Ecuador, by G. H. Pepper.

DIAGNOSIS: This species can be distinguished from all other members of the genus by the absence of brown pigment on the yellowish white head and end of the tail, and by the number of scale rows from the rostral to the tail tip, which are 304–308. It is distinguished from all species except *aspinosus* by the number of scale rows around the body which is 26.

DESCRIPTION OF TYPE SPECIMEN: The snout is rounded, with the

part visible from above less than half of the length of the prefrontals, each of which is large and pentagonal, with an acute angle posteriorly. The frontal is septagonal; it is larger than all other head scales except the prefrontals; its length is approximately equal to the suture between the prefrontals; and it is as wide as long, with its outer margin at the posterior acute angle of each prefrontal. The frontal is bordered laterally by the supraocular and posteriorly by the first of three rows of enlarged scales which occupy the area between the frontal and the body scales. These rows are composed of a median and two lateral scales. The lateral scales are slightly anterior to the median scales in each row, and all scales in these rows are approximately equal in size and considerably smaller than the frontal.

The nostril lies in a suture ascending obliquely forward from the mutual suture of the nasal and first labial, and a very shallow groove runs from the nostril to the anterior edge of the nasal. The loreal is the same size as the nasal, and is in contact with three labials and two preoculars, but separated from the prefrontals by contact between the preocular and nasal. There are two preoculars; the upper is larger and is about the size of the loreal, and the lower preocular is one-half as large as the upper. The ocular is as large as the lower preocular, with the eye almost totally obscured. The supraocular is as large as the ocular, but does not extend so far posteriorly as the ocular. There is one very small subocular, which is the smallest scale on side of head; and there are two postoculars, equal in size, the lower slightly anterior to the upper. A single "temporal" scale behind the supraocular touches a corner of the ocular above the upper postocular. The scales posterior to the temporal and postoculars are uniform in size and distribution and are only slightly larger than the body scales into which they merge.

The first labial has a horizontal suture across its lower end. The lower part is a tiny, squarish scale on the lip line, while the upper part is as large as the loreal. The second labial is small and is entirely below the loreal. The third labial is large, twice as high as the second, and is separated from the ocular by a tiny subocular. The fourth labial is small and is separated from the subocular and lower postocular by a single scale, which is about as large as the fourth labial. There are four lower labials, with the fourth very elongate and by far the largest. The mental is extremely reduced anteriorly, narrowly separating the first labials. It is expanded posteriorly.

There are two to four maxillary teeth. The maxilla is movable. There is a single tooth at the anterior end of the dentary.

There are 308 scales between the rostral and the end of the tail. The dorsal scales are in 26 rows one head length behind the head; 26 rows at one-fourth of the body length; 26 at one-half of the body length; 24 at three-fourths of the body length; 24 one head length anterior to the anus, increasing to 25 at the anus owing to division in the midventral row of scales slightly anterior to the anus. There are three enlarged preanal plates, with the lateral pair in contact posteriorly but separated by an enlarged median plate anteriorly. There are 10 scales from the anus to the tip of the tail, which lacks a terminal spine.

The dorsal body color is dark brown. The ventral color is light brown, which is sharply set off from the dorsal color. The margin between the dorsal and ventral colors is irregular. Both the head and the tip of tail have no brown pigment whatever, but are yellowish white.

PARATYPE: While the paratype agrees with the type in most respects, there are some striking differences, which approach in magnitude the differences that have been used to define typhlopid species in the past. It differs from the type in the following ways: the frontal is one and one-half times as long as the suture between the prefrontals; the first row of scales behind the frontal is considerably larger than the second or third rows, which are approximately equal in size. The first labial is not divided horizontally, and it has no small scale split off at the lip line. The ocular is considerable smaller than in the type, only slightly larger than the subocular. The ocular fails to reach the "temporal." The upper postocular is in contact with the supraocular. The eye is clearly visible. The small scale above the fourth labial is in contact with the subocular but not with the lower postocular on the left side of the head. On the right side the scale above the fourth labial is in contact with the lower postocular. There are 304 dorsal scale rows from rostral to tail tip. The scale row counts are as given for the type. There are seven scales from anus to tail tip, which has a small terminal spine. This specimen has no color pattern whatever but is bleached completely white. In addition, the outermost shiny part of the scales on the head has been sloughed to the end of the frontal as well as all scales anterior to and including the postoculars and the fourth labial. This may obscure the relationships of the head scales somewhat, but there are still marked differences.

REMARKS: Geographically this species should be most closely related to *A. mexicanus* Jan and Sordelli (=*A. dentatus* Taylor) from Panamá, for they both occur, apparently, in the hot, humid rain forests which extend from Caribbean Panamá to northwestern Ecuador. In many of its characteristics, however, it is closer to *A. aspinosus* Taylor, which is known from the Amazonian slope of the Andes in Peru. The dorsal scale counts of 304–308 are somewhat closer to the 320–343 of *aspinosus* than to the 267–272 of *mexicanus,* and the midbody and preanal scale-row counts of 26 and 24 are identical with those of *aspinosus,* while *mexicanus* has 22 rows both at midbody and at the anus. *Anomalepis colombia* Marx, although the closest species in terms of distance to *A. flavapices,* is most distinct on the basis of scale counts, for it has 365 dorsal scales, and the scale row count at midbody is 28, with 26 at the anus. The new species is quite distinct from all others, of course, in its possession of a yellowish white head and tail. This characteristic is not uncommon in worm snakes, but has not previously been reported in *Anomalepis.* The scales of the snout are slightly lighter in some specimens of *mexicanus.*

The type of this species was given to me by Dr. Gustavo Orcés-V., of the Escuela Polytecnica Nacional, Quito, Ecuador, who had recognized it as a distinctive and new member of the Ecuadorian fauna.

The name of this new species is a combination of the Latin stem *"flavus,"* meaning yellow, and the word *"apices,"* meaning tips. This is in reference to the yellow head and tail tip.

Drepanoides anomalus Jan

Clelia anomala JAN, 1863, Elenco sistematico, p. 92.

While there have been no published records of this species in Ecuador, the new genus and species described by Rendahl and Vestergren (1941, p. 10), *Pseudoclelia guttata,* from the Río Pastaza between Río Puyo and Río Copataza, Ecuador, is generically identical with *Drepanoides,* and possibly specifically identical with *anomalus* Jan. In his tabular key, Dunn (1928, p. 24) characterizes *Drepanoides* in the following fashion: the members of the genus have many maxillary teeth with slightly enlarged, grooved, posterior fangs; no hypophyses on the posterior vertebrae; an elliptical pupil; no scale pits; a single anal plate; and double subcaudals. These are precisely the characteristics used by Rendahl and Vestergren (*loc. cit.*) to characterize the genus *Pseudoclelia,* with the only obvious difference being the presence of a groove on the posterior maxillary teeth, according to Dunn, and a solid

tooth, according to Rendahl and Vestergren. The few characters given for *D. anomalus* by Dunn (1944b, p. 203) when he reported the occurrence of the genus in Colombia are the same as those given by Rendahl and Vestergren (1941, pp. 10–13) for *P. guttata* and certainly indicate that the two species are the same. The single specimen available (A.M.N.H. No. 35890), from Baños, Ecuador, has been compared point by point with the figure and description of *Pseudoclelia guttata,* and is identical with it in virtually all respects. The only differences are in variable characteristics, which include the ventrals (177 in the Baños specimen), the subcaudals (84), and the black area on the snout, which ends on the frontal rather than on the anterior edge of the parietals. The dorsal scales in Rendahl and Vestergren's type seem to have larger brown spots on their tips than do those of A.M.N.H. No. 35890.

Erythrolamprus guentheri Garman

Erythrolamprus guentheri GARMAN, 1883, Mem. Mus. Comp. Zoöl., vol. 8, no. 3, p. 154.

In 1858, Günther (p. 48) described a single specimen of *Erythrolamprus venustissimus* as "var. D.," which he characterized as having "rings complete, but not arranged in pairs, broad, alternating with white rings of the same breadth; muzzle black in front." He gave the locality as "Mexico?" A year later, Günther (1859, p. 89) noted the receipt of a specimen of *E. venustissimus,* var. D., from the Andes of Ecuador, which was the first fairly specific locality for the variety.

Under the impression that the variety was Mexican, Garman (1883, p. 63) copied Günther's 1858 description with slight alteration, and listed it as *E. venustissimus,* var. D. This is in the section entitled "Synopses and Descriptions" of his paper on the North American reptiles and batrachians. In a later section of the same paper, entitled "Systematic List and Synonymy," Garman (p. 154) gave the variety the name *Erythrolamprus guentheri,* with the type locality given as "Mexico(?)." Smith and Taylor (1948, p. 200) mention both the Günther record of 1858 and the Garman record of 1883 in the synonymy of *Erythrolamprus aesculapii* Linnaeus, give the type locality of Garman's taxon as "Mexico," without a question mark, and state that the type of *E. aesculapii* is unknown.

Fortunately, however, the type of Linnaeus' species has been found and described (Andersson, 1899, p. 15). There are three specimens in the Drottningholm Museum Linnaean collections that have been identified as *Coluber Aesculapii* Linnaeus, two of which are identical

with *Erythrolamprus aesculapii,* while the third is a *Micrurus.* Andersson says, "Of the two specimens of Erythr. aesculapii the longer has been the type for the figure in Mus. Ad. Frid. On this specimen there are 16 pairs of black annuli, if those on the tail be counted." In view of the fact that all specimens of *E. guentheri* are characterized as having the black rings not in pairs, it appears that *guentheri* is a valid taxon.

The validity of Günther's assignment of his "var. D." to a specimen from the Andes of Ecuador is indicated by a series of specimens collected by or for Enrique Feyer, now in the American Museum collections. This series includes the following: A.M.N.H. Nos. 23245, 23250, 23277, and 28811, all recorded as from Riobamba, Ecuador; No. 24150, from Macas, Turula, 800 meters, Ecuador; No. 28827, from (?) Macas region, Turula, Ecuador; and No. 35961, from Turula, Ecuador. Both Nos. 28811 and 28827 have notes with them indicating that they should be recorded from Luoula, Río Upano, Ecuador.

The specimens from "Riobamba" serve as verification of Günther's record of a specimen from the Andes of Ecuador, as that city is on the inter-Andean plateau. Unfortunately, however, I have little faith in the legitimacy of any record for Riobamba in material collected by Feyer, for it seems likely that material was brought to him at his base of operations in Riobamba from many localities in Amazonian Ecuador. This is indicated more strongly by the fact that the other localities mentioned are all within the upper limit of the tropical rain forest in the headwaters of the Río Santiago, which would certainly be more appropriate for snakes of the genus *Erythrolamprus* than would the comparatively arid, almost treeless plain in which Riobamba lies. Actually, any locality in the vicinity of Macas on the Río Upano can be considered in the "Andes of Ecuador," as mountains rise on all sides of that town except to the south. Macas itself is at 1070 meters. To my knowledge the locality "Turula" has never been precisely located.

The specimens listed all have divided nasals, a loreal, two postoculars, one anterior and two posterior temporals, and seven upper labials, with the third and fourth in the orbit. There is a single preocular in all but No. 23245, which has two on the left side only, and the lower labials nine in all except one, which has eight. All have five lower labials in contact with the first chin shield. The ventrals are 187–197 in the males; the single female has 190. The subcaudals in males are 41–45; the single female has an incomplete tail. The body scale rows are 15 throughout the body; the caudal scale rows reduce from eight

to six at the level of subcaudals 5–9; from six to four at subcaudals 14–21; and from four to two at subcaudals 33–40. The black bands on the body vary from 21 to 32, but only one, No. 24150, has fewer than 28. There are three to six tail bands, which are partially double on No. 24150. In two specimens examined there are 12 maxillary teeth followed by a diastema and two enlarged teeth, which have a shallow groove over part of their length.

There is a distinct ontogenetic change in the amount of pigmentation deposited in the light areas between the bands in this species. In very young specimens, such as Günther had and upon which the species name is based, the red areas are quite distinct (called white by Günther, but presumably red in life), and each scale is black only on its posterior half. There is a distinct light band across the parietals, separating the black of the snout from the black band on the occipitals. Slightly larger individuals show an invasion of all red areas on the body and the parietal band by melanin, which increases with the size of the individual until the red areas are as black as the rings, and can be distinguished from them only by the fact that the black of the formerly red areas does not extend across the venter, but ends on the first scale row, while the black bands are continuous around the body. The light parietal area is completely obscured in old specimens, so that the entire head is black, and no occipital collar can be distinguished.

It is possible that No. 24150 represents a different species within this genus, because, in addition to its low blotch count, it is quite large but still retains a clear parietal band, only partially invaded by melanin, and red bands that still contrast strongly with the black bands. Several other specimens are smaller but show much more melanin deposition.

Erythrolamprus mimus micrurus Dunn and Bailey

Erythrolamprus mimus micrurus DUNN AND BAILEY, 1939, Bull. Mus. Comp. Zoöl., vol. 86, no. 1, p. 12.

Dunn and Bailey (1939, p. 12) described this subspecies from specimens collected on the Atlantic slope of Panamá and the Pacific slope of Colombia, and its occurrence in the northwestern corner of Ecuador was presaged by the many reptilian and amphibian taxa already known to occur from the moist forests of Esmeraldas north to the wet Caribbean coast of Central America. A.M.N.H. No. 13430 was collected in Lita, Ecuador, by W. F. H. Rosenberg, and A.M.N.H. No. 13540 was taken at the Río Durango, also by Rosenberg. The two specimens

have been compared with the type and paratypes of *micrurus* at the Museum of Comparative Zoölogy, Harvard College (M.C.Z.), and found to be similar in most respects. They differ most in the appearance of the black neck band. In the type (M.C.Z. No. 31828) this band is well separated from the black of the snout by a broad white area, and the band itself is wide. In A.M.N.H. No. 13430 the neck band occupies not only the first few scales posterior to the parietals, but extends onto the parietals themselves, and is fused over most of the dorsum of the head with the black of the snout. This tends to obscure its nature as a neck band. In A.M.N.H. No. 13540 the neck band is more distinct, but still is completely although narrowly fused with the black of the snout. In a single series of paratypes, however (M.C.Z. Nos. 32724–32726), there is one with a neck band four scale rows long, completely separated from the black of the snout (No. 32726); one with a small black patch on the posterior half of the parietals and one occipital, which is narrowly connected with the snout blotch (No. 32724); and one with a longer collar, including about three scale rows, that is strongly fused with the black of the snout (No. 32725). No. 32724 was mentioned by Dunn and Bailey (1939, p. 13) as the specimen that led them to conclude that the relationship was with *mimus mimus,* at the subspecific level.

A.M.N.H. No. 13430 has 185 ventrals, 50 subcaudals, and 15 black bands on the body, with four on the tail. A.M.N.H. No. 13540 has 181 ventrals, 48 subcaudals, and 11 black bands on the body, with three on the tail. On both, the white rings are much broader than the black, as is true of the Museum of Comparative Zoölogy specimens from Colombia. On No. 13540 the single preocular has a partial suture running horizontally from the anterior edge that almost divides it into two scales. The caudal scale reductions are remarkably similar in the two specimens. The following formula is a combined summary: *8* 3+4 (6) *6* 2+3 (18–19) *4* 1+2 (38–41) *2* (48–50). A single tooth was removed from the enlarged pair following the diastema in No. 13540 and examined under high magnification. It appears to be identical with the tooth of *E. mimus* as described by Cope (1868, p. 307) in the type description of the species.

Lygophis lineatus lineatus Linnaeus

Coluber lineatus Linnaeus, 1758, Systema naturae, ed. 10, p. 221.

Although Parker (1935, p. 528), in his work on British Guiana, described this species as "cis-andean," and it was therefore to be expected

in eastern Ecuador, no records of its occurrence there have been made. It is a little surprising that the first Ecuadorian record should be A.M.N.H. No. 20410, from Esmeraldas, without indication of collector, for this locality is in the northwestern corner of the country on the Pacific. The known range of the species was northern South America, east of the Andes, but also including the Magdalena River drainage in Colombia, and two Panamanian provinces (Coclé and Herrera; Dunn, 1944a, p. 489).

Hoge (1952, fig. 1 and pl. 1) published photographs of one of the cotypes examined by Linnaeus, and it is evident that the single Ecuadorian specimen is not a good fit within the typical subspecies as defined by Hoge. Its pattern is much more similar to that of *Lygophis lineatus dilepis* Cope, as described and figured by Hoge, but the likelihood of occurrence of that subspecies on coastal Ecuador is slight. It was described from Paraguay, and Hoge (1952, p. 251) gives its range as Río Grande do Norte, Brazil, throughout Mato Grosso and Paraguay to Northern Argentina.

In a paper on the fauna of the West Indies, Reinhardt and Lütken (1863) mention "Guianas, Brazil, Guayaquil, and Mexico" as the places from whence the species was known. Hoge (1952, p. 247) suggests that the Guayaquil reference is *"Lygophis dilepis"* which, later in the same paper, he makes a subspecies of *lineatus*. Reinhardt and Lütken give no data on their specimens, nor is it sure that they actually examined any from South America. The records they give are in a table listing the West Indian fauna, and they do not mention specimens examined or any other basis for their records. The Guayaquil record may be correct, but it is in need of verification.

The specimen has one preocular, two postoculars, one anterior and two posterior temporals, eight upper labials, with the fourth and fifth entering the orbit, and 10 lower labials, five of which touch the first chin shield. There are 18 maxillary teeth followed after a broad diastema by two enlarged teeth. The dorsal scales are 19 on the anterior part of the body, reducing through fusion of the third and fourth rows at the level of the 103d ventral to 17, the number at the anus. There are 173 ventrals and 73 caudals.

The color pattern is strikingly different from that of the Linnaean cotype figured by Hoge. The ventral surface is clear of pigment, as are the first, second, and third rows, and the lower half of the fourth row of dorsal scales. A dark stripe covers the upper half of the fourth, all of the fifth, and the barest edge of the sixth rows. The remainder of

the sixth and seventh rows, and the lower half of the eighth row are a light straw color (as the venter in preservative). The upper half of the eighth and the bottom quarter of the ninth are dark brown, while the rest of the ninth and all of the vertebral row are a light brown. At the point of reduction of dorsal scale rows from 19 to 17, the lower dark stripe moves up a row to stay on the fourth and fifth rows. All body stripes are continuous on the head. The middorsal stripe expands slightly into a lighter brown area on the parietals and ends in a blunt point on the internasals. The upper light stripes on either side join on the anterior edge of the internasals and the top edge of the rostral. The lower dark stripes touch the outer margin of the parietals and the upper edge of the labials, pass through the eyes, and meet on the middle of the rostral. The lower half of each labial is clear straw color, a continuation of the lowest light area on the body. All stripes extend onto the tail, but the upper dark stripes break into a series of dark spots and then fade out rapidly, leaving only the light brown middorsal stripe. The lateral dark stripe also disappears completely farther back, and the end of the tail is unicolored. In the cotype of *lineatus* the vertebral stripe appears to be unicolored, without a lighter brown center, and bordered below by a narrow light stripe, half a scale row wide. The sides below this stripe are pigmented with a lighter brown, apparently, with a very narrow dark stripe on the middle half of the fourth scale row only, rather than clear with a broad dark stripe, as in A.M.N.H. No. 20410.

In spite of its rather obvious differences from the typical subspecies, I have assigned the specimen to *l. lineatus,* on a zoogeographical basis. Hoge's review of the species included only those forms found in Brazil, and assignment of extralimital specimens will be unsatisfactory until the species has been analyzed throughout its range.

LITERATURE CITED

ANDERSSON, LARS

1899. Catalogue of Linnean type-specimens of snakes in the Royal Museum at Stockholm. Bihang Handl. K. Svenska Vetensk.-Akad., vol. 24, pp. 1–35.

COPE, EDWARD D.

1868. Sixth contribution to the herpetology of tropical America. Proc. Acad. Nat. Sci. Philadelphia, vol. 20, pp. 305–313.

DUNN, EMMETT R.

1928. A tentative key and arrangement of the American genera of Colubridae. Bull. Antivenin Inst. Amer., vol. 2, pp. 18–24.

1944a. A revision of the Colombian snakes of the genera *Leimadophis, Lygophis, Liophis, Rhadinaea,* and *Pliocercus,* with a note on Colombian *Coniophanes.* Caldasia, no. 10, pp. 479–495.

1944b. Los generos de anfibios y reptiles de Colombia, III. Tercera parte: reptiles; orden de las serpientes. *Ibid.,* no. 12, pp. 155–224.

DUNN, EMMETT R., AND JOSEPH R. BAILEY

1939. Snakes from the uplands of the Canal Zone and of Darien. Bull. Mus. Comp. Zoöl., vol. 86, pp. 1–22.

GARMAN, SAMUEL

1883. The reptiles and batrachians of North America. Mem. Mus. Comp. Zoöl., vol. 8, no. 3, xxxiv + 185 pp.

GÜNTHER, ALBERT

1858. Catalogue of the colubrine snakes in the collection of the British Museum. London, xvi + 281 pp.

1859. List of the cold-blooded Vertebrata collected by Mr. Fraser in the Andes of western Ecuador. Proc. Zool. Soc. London, pp. 89–93.

HARTWEG, NORMAN

1956. Review: "Die rezenten Schildkröten, krokodile und bruckeneschen," by Robert Mertens and Heinz Wermuth. Copeia, p. 262.

HOGE, A. R.

1952. Notes on *Lygophis* Fitzinger. Mem. Inst. Butantan, vol. 24, pp. 245–267.

PARKER, H. W.

1935. The frogs, lizards, and snakes of British Guiana. Proc. Zool. Soc. London, pt. 2, pp. 505–530.

REINHARDT, J., AND C. F. LÜTKEN

1862. Bidrag til det vestindiske Öriges og navnligen til de dansk-vestindiske Öers Herpetologie. Vidensk. Meddel. naturh. Feren. Kjöbenhavn, nos. 10–18, pp. 153–291.

RENDAHL, HIALMAR, AND GRETA VESTERGREN

1941. On a small collection of snakes from Ecuador. Arkiv för Zool., vol. 33A, no. 5, pp. 1–16.

SMITH, HOBART M., AND EDWARD H. TAYLOR

1948. An annotated checklist and key to the snakes of Mexico. Bull. U. S. Natl. Mus. no. 187, iv + 239 pp.