THE AMPHIBIANS AND REPTILES OF MONA ISLAND, WEST INDIES

BY KARL P. SCHMIDT

In arranging the collection of reptiles in Field Museum of Natural History, I was much interested to find three specimens from Mona Island, one of the rare boa, *Epicrates monensis*, one of the Mona Island *Dromicus*, which I now believe to represent a well-marked new form, and one of the skink, *Mabuya sloanii*. These specimens were collected by Wilmot W. Brown, Jr., in February, 1892 while collecting birds on Mona Island for the late Charles B. Cory. They were presented to the Field Museum of Natural History by Mr. Cory, together with other West Indian collections. The birds collected at the same time formed the subject of a brief note by Mr. Cory (1892).

In view of the interesting results of a careful examination of the West Indian burrowing snakes of the genus *Typhlops*, begun by myself in 1920, and elaborated by Miss Doris M. Cochran in 1924, the Mona Island snake of that genus offered a special problem for investigation. The Field Museum of Natural History is indebted to the Naturhistorisches Museum in Hamburg for the loan of their two specimens of *Typhlops* from Mona Island (the only ones known), for study in this connection. These specimens form the types of a distinct species, and throw added light on the relations of the Mona Island fauna.

The drawings for the present paper are the work of Mr. Carl F. Gronemann.

Geography of Mona Island

Mona Island[1] is situated in the Mona Passage, midway between Santo Domingo and Porto Rico, and in line with Saona Island (off the southeast corner of Santo Domingo) and the southwest corner of Porto Rico. It is a block of tertiary limestone about six and a half miles long and four in greatest width, angular in outline, and rising precipitously from the sea on three sides. On the fourth side, to the southwest, a terrace, several hundred yards in width and ten or twelve feet above sea level, intervenes between the water and the cliff. The sea cliff ranges

[1] Mona Island was visited by the writer in 1919 in the course of field work for the "Survey of Porto Rico and the Virgin Islands" by the New York Academy of Sciences.

from one hundred and twenty-five to nearly two hundred feet in height. Above the cliff the top of the island is a slightly rolling plateau, rising slowly from the southwest to the highest point on the east, the site of a lighthouse. The face of the cliff is everywhere honeycombed with caves, and especially at a high level, where a band of softer limestone determines a series of large caves. These are the source of bat-guano, and have long been exploited for that purpose.

On the southwest side, the cliff which separates the plateau from the low terrace is much broken by an extremely coarse talus-slope. Stretches of vertical cliff still appear and caves are numerous. The caves of the lower levels on this side form the dwellings for the few permanent inhabitants of the island, who cultivate a considerable extent of the terrace, and burn charcoal.

The vegetation of Mona Island is strikingly dominated by the soil and moisture conditions. Whatever the amount of rainfall (which is unknown), the porosity of the underlying limestone produces a condition of extreme aridity. The surface of the limestone weathers into rounded hollows, meeting in knifelike edges and points which project above the scanty reddish soil that accumulates in the depressions. The amount of soil is somewhat greater on the lower southwestern part of the plateau, and this is covered by a rather dense stand of low trees and shrubs interspersed with cactus. As the plateau rises, the amount of bare limestone increases and the remnants of soil in the hollows are occupied by cactus, often to the exclusion of other plants.

Where the choice of foothold at every step lies between a cactus and a limestone point or knife-edge, progress afoot is extremely difficult. Crevices due to jointing, and loose blocks of limestone left from the fallen roofs of caves, add to these difficulties. The natives, who hunt the wild goats and pigs, wear broad pig-skin sandals. The mongrel dogs that aid them in hunting are almost unbelievably hardy. A single day's walk will wear through the soles of an ordinary pair of shoes.

A few widely separated hollows in the limestone of the plateau contain fresh water. These are scarcely springs, but they must depend for their supply on the seepage of water from the higher parts of the plateau. They have no overflow. Similar seepage accounts for the pronouncedly moist border of the lower terrace where it meets the cliff. Here the trees reach a considerable height and the vegetation in general loses its xerophytic aspect.

The terrace was probably covered in former times by a forest of considerable height. This has now been largely cleared away. The soil seems

to be a fairly fertile sandy loam. The ground water is brackish. Cocoa palms have been planted, and cassava and watermelons are cultivated.

The caves must harbor great numbers of bats, but these are as yet very imperfectly known. *Mormoops blainvillii* Leach is recorded by Rehn (1902, p. 165), presumably from specimens collected by Bowdish in 1901. *Noctilio leporinus mastivus* (Dahl) is recorded on the authority of Elliot (Pub. Field Mus. Nat. Hist., Zool., 4, p. 617), but with no reference to a recorded specimen.[1] Cattle, goats and pigs have been introduced and persist in small herds and droves on the plateau, where they are now entirely feral.

The inaccessible parts of the sea cliff of Mona and almost the whole of the neighboring islet Monito form the sites of sea bird rookeries. Land birds are relatively few, and only one, a subspecies of ground dove (*Chamaepelia*), is peculiar to the island.[2]

Extensive collections of insects and spiders made by Lutz in 1914 have been studied in part. From the evidence of the spiders, (Lutz, 1915), no great degree of peculiarity in the invertebrate fauna of Mona is to be expected.

[1] Since this was written, a note by J. E. Benedict has appeared in the Journal of Mammalogy, (7, p. 58-59, 1926), which indicates that the source of this record may be a series of U. S. National Museum specimens from Mona Island (=Monos Island) off Trinidad.

[2] Examination of papers by Bowdish and Wetmore yields a total of 22 species of birds recorded from Mona Island. These are:

1. *Phaethon americanus* GRANT. Yellow-billed Tropic Bird.
2. *Sula leucogastra* (BODDAERT). Booby.
3. *Fregata magnificens* MATTHEWS. Man-o'-War Bird.
4. *Nyctanassa violacea* (LINNÉ). Yellow-crowned Night Heron.
5. *Pandion haliaëtus carolinensis* (GMELIN). Osprey.
6. *Pisobia minutilla* (VIEILLOT). Least Sandpiper.
7. *Anoüs stolidus stolidus* (LINNÉ). Noddy.
8. *Sterna anaetheta* SCOPOLI. Bridled Tern.
9. *Sterna fuscata* LINNÉ. Sooty Tern.
10. *Geotrygon montana* (LINNÉ). Ruddy Quail-dove.
11. *Geotrygon chrysia* SALVADORI. Key West Quail-dove.
12. *Chamaepelia passerina exigua* RILEY. Mona Ground-dove.
13. *Zenaida zenaida lucida* NOBLE. Porto Rican Dove.
14. *Columba leucocephala* LINNÉ. White-crowned Pigeon.
15. *Columba squamosa* BONNATERRE. Scaled Pigeon.
16. *Conurus chloropterus* (SOUANCÉ). Santo Domingo Paroquet.
17. *Coccyzus americanus* (LINNÉ). Yellow-billed Cuckoo.
18. *Coccyzus minor nesiotes* CABANIS. Mangrove Cuckoo.
19. *Progne dominicensis* (GMELIN). Caribbean Martin.
20. *Margarops fuscatus fuscatus* (VIEILLOT). Pearly-eyed Thrasher.
21. *Seiurus noveboracensis noveboracensis* (GMELIN). Water Thrush.
22. *Agelaius xanthomus* (SCLATER). Yellow-shouldered Blackbird.

GEOLOGIC EVIDENCE ON THE ORIGIN OF MONA ISLAND

Before taking up the discussion of the amphibian and reptilian fauna of Mona, I wish to present the available geologic and physiographic evidence bearing on its origin.

The islands of Santo Domingo and Porto Rico are joined by a submerged bank over which the greatest depth of water is 318 fathoms. The great depths to the north and south (4000 and 2000 fathoms) throw this connecting bank into strong relief. Two small islands are situated on this submarine bank, Desecheo, about 14 miles from Point Jiguero, and Mona (including Monito), midway in the passage, about 45 miles from Mayaguez.

Vaughan (1919, p. 603), remarks on the relative truncation of the western end of Porto Rico as an indication of faulting. The eastern end of Santo Domingo is even more strikingly truncate. The eastern end of Saona Island, approximately in line with the Santo Domingan coast, extends the line of truncation. The Porto Rican earthquake of 1918, whose damage to Mayaguez and Aguadilla suggests a submarine fault-slip parallel to the western coast, affords important evidence of a tendency to faulting in this region.

The rapid erosion of Mona now in progress, suggests a former greater extent for this island. The islet of Monito, conforming exactly with Mona in general aspect, must at no distant time have been a part of a greater Mona, which would then have had a length of nearly ten miles. The angular outline of Mona is due to the jointing of the limestone, which, combined with the undercutting of the waves and the weakening by caves, causes the fall of huge blocks of limestone which are rapidly eroded away by the waves. The similarity of Mona and Saona in the general appearance of their cliffs is well shown in De Booy's figures of Saona (1915, fig. 20 and 21), and in the published figures of Mona Island (Britton, 1915, pl. 1; Lutz, 1915, fig. 1; and Lobeck, 1922, fig. 39). The hills of southwestern Porto Rico may belong to the same limestone formation. The evidence of much greater faulting in the case of St. Croix is fairly conclusive. The date of this faulting is placed by Vaughan (p. 611) in the Pliocene. There is a further possibility that the Pleistocene emergence may have been sufficient to connect Santo Domingo and Porto Rico.

The very different character of Desecheo Island is accounted for by its composition of older series rocks. The jutting out of Point Jiguero from the general straight line of the west coast of Porto Rico, in line with Desecheo, strongly suggests a ridge of igneous rock which has

resisted the tendency to faulting, or which represents the top of an old range of hills above the level of the tertiary limestones.

It is regrettable that the caves of Mona Island have not been thoroughly examined for fossil and subfossil mammal remains. The caves of Porto Rico, investigated by Anthony in 1916, yielded such a wealth of interesting material that I am unable to suppress the hope that the caves of Mona may yet yield similar evidence of a former mammalian population. Such evidence, of course, would tend to close the argument for a former connection of Santo Domingo and Porto Rico including Mona Island. For the further evidence bearing upon this subject, the reader may refer to Vaughan.

RELATIONS OF THE HERPETOLOGICAL FAUNA

It is surprising to find a high proportion of endemic species among the amphibians and reptiles of Mona Island. Eight of the nine species (including two described below) have been described as distinct; and while I have proposed the union of two of the described forms with their Porto Rican relatives, the remaining six species appear to be well distinguished, and it is perhaps not impossible that a study of more extended series might reverse my opinion on *Sphaerodactylus* and *Anolis monensis*.

Stejneger (1904, p. 563) has discussed the relations of the Mona Island fauna and, while the status of no less than five of the species has changed in some degree since that date, the general conclusion that the Mona fauna is almost exactly intermediate between that of Santo Domingo and Porto Rico is only confirmed.

The list of species with their nearest allies on the neighboring islands, follows:

SANTO DOMINGO	MONA	PORTO RICO
1. *Eleutherodactylus* sp.	*Eleutherodactylus monensis*	.....
2.	*Sphaerodactylus macrolepis*	*S. macrolepis*
3.	*Anolis cristatellus*	*A. cristatellus*
4. *Cyclura cornuta*	*Cyclura stejnegeri*	.....
5.	*Ameiva alboguttata*	*A. exsul*
6.	*Mabuya sloanii*	*M. sloanii*
7. *Typhlops* sp.	*Typhlops monensis*	.....
8. *Epicrates fordii*	*Epicrates monensis*	.....
9.	*Dromicus variegatus*	*D. portoricensis*

Thus, while four of the nine species are directly allied to Santo Domingan forms, three of the five forms with Porto Rican relatives are

believed to be identical with them, and the alliances between *Ameiva alboguttata* and *Dromicus variegatus* and their Porto Rican representatives are very close. On the other hand the *Cyclura*, the *Typhlops* and the *Epicrates* are strikingly distinguished from the Porto Rican species of the same genera, though the skull of the Porto Rican fossil *Cyclura* is unfortunately as yet unknown.

In general, I believe it to be a sounder policy in zoogeography to base the explanation of faunal phenomena upon geologic evidence than to establish geologic hypotheses upon faunal evidence. I have endeavored to present above an outline of the geologic and physiographic evidence for a Pliocene land connection between Santo Domingo and Porto Rico, of which Mona Island is a relic. Allowing for the process of extinction, which apparently accompanies the decrease in size of islands and of which in any case there is ample evidence for Porto Rico, I believe that the degree of endemism in the herpetological fauna of Mona Island agrees very well with the view that it is of equal age with the separation of Porto Rico from a larger Antillean land mass.

LIST OF AMPHIBIANS AND REPTILES

1. Eleutherodactylus monensis (Meerwarth).

Hylodes monensis MEERWARTH, Mitt. Naturh. Mus. Hamburg, **18**, p. 39, pl. 1, fig. 11, pl. 2, fig. 4-5, 1901.

Eleutherodactylus monensis STEJNEGER, Rept. U. S. Nat. Mus., **1902**, p. 595, fig. 30-34, 1904; BARBOUR, Mem. Mus. Comp. Zool., **44**, p. 247, 1914.

This species was described from a series of seven Mona Island specimens and compared specifically with *E. lentus* of St. Thomas. The only other specimen known was collected by Bowdish and described by Stejneger, who compares it to a Santo Domingan species (not named). The existence of a Porto Rican representative of *lentus*, *E. richmondi*, places *monensis* in a series of no less than four vicarious forms, the Santo Domingan *weinlandi*, *monensis*, *richmondi*, and *lentus*.

2. Sphaerodactylus macrolepis Günther.

Sphaerodactylus macrolepis GÜNTHER, Ann. Mag. Nat. Hist. (2), **4**, p. 215, pl. 1, fig. 4, 1859; SCHMIDT, Ann. N. Y. Acad. Sciences, **28**, p. 184, 1920; BARBOUR, Mem. Mus. Comp. Zool., **47**, p. 253, 1921.

Sphaerodactylus macrolepis var. *monensis* MEERWARTH, Mitt. Naturh. Mus. Hamburg, **18**, p. 20, 1901.

Sphaerodactylus monensis STEJNEGER, Rept. U. S. Nat. Mus., **1902**, p. 607, 1904; BARBOUR, Mem. Mus. Comp. Zool., **44**, p. 270, 1914.

Barbour, in his monograph of *Sphaerodactylus* (1921, loc. cit.), concurs with my opinion that the Mona Island form, and the Porto Rican as well, are indistinguishable from Virgin Island specimens.

3. Anolis cristatellus Duméril and Bibron.

Anolis cristatellus DUMÉRIL and BIBRON, Erpét. Gen., **4**, p. 143, 1837; SCHMIDT, Ann. N. Y. Acad. Sci., **28**, p. 186, 1920.

Anolis monensis STEJNEGER, Rept. U. S. Nat. Mus., **1902**, p. 646, fig. 98-101, 1904; BARBOUR, Mem. Mus. Comp. Zool., **44**, p. 273, 1914.

It is remarkable that Bock, collecting for the Hamburg Museum in 1891-1894, did not obtain this species. Its presence on the island in 1892 is attested by remains (including a well preserved tail) in the stomach of the specimen of *Epicrates* described below. This lizard and the *Ameiva* are the most abundant reptiles on the island.

I have remarked elsewhere (1920, loc. cit.) that the yellow coloration of the Mona Island specimens is matched by specimens from the limestone hills of southwestern Porto Rico. The possibility is thus presented that *cristatellus* may be divisible into two forms both present in Porto Rico and only one on Mona. The variation in this species is remarkable, and merits a detailed study. Its range covers twelve islands, and I believe that we have on some of them a very early phase of the formation of an endemic insular form by simple isolation. Fifty-four specimens from Mona, collected by Bowdish, Lutz, and myself, are now in museum collections.

4. Cyclura stejnegeri Barbour and Noble.

Cyclura stejnegeri BARBOUR and NOBLE, Bull. Mus. Comp. Zool., **60**, p. 163, pl. 12, 1916; SCHMIDT, Ann. N. Y. Acad. Sci., **28**, p. 191, 1920.

Metopoceros cornutus MEERWARTH, Mitt. Naturh. Mus. Hamburg, **18**, p. 26, 1901.

Cyclura cornuta STEJNEGER, Rept. U. S. Nat. Mus., **1902**, p. 670, fig. 122-126, 1904; BARBOUR, Mem. Mus. Comp. Zool., **44**, p. 299, 1914.

The large series of *Cyclura cornuta* now available, thanks to the collections of Abbott (U. S. National Museum) and the Nobles (American Museum of Natural History) should be examined with special

reference to the problem of the distinctness of the forms described from Mona and Navassa islands.

The Virgin Island *Cyclura pinguis* (Barbour, Proc. Biol. Soc. Wash., **30**, p. 100) is not allied to the *cornuta* group, and it would be highly interesting to know whether the fossil *Cyclura mattea* of St. Thomas and *C. portoricensis* of Porto Rico belong with *pinguis* or with *cornuta*.

5. Ameiva alboguttata Boulenger.

Ameiva alboguttata BOULENGER, Jahresb. Naturw. Ver. Magdeburg, **1894-1896**, p. 112, 1896; MEERWARTH, Mitt. Naturh. Mus. Hamburg, **18**, p. 32, pl. 2, fig. 6-8, 1901; STEJNEGER, Rept. U. S. Nat. Mus., **1902**, p. 618, fig. 67-72, 1904; BARBOUR, Mem. Mus. Comp. Zool., **44**, p. 311, 1914; BARBOUR and NOBLE, Bull. Mus. Comp. Zool., **59**, p. 440, 1915; SCHMIDT, Ann. N. Y. Acad. Sci., **28**, p. 193, 1920.

This species is known from ample series, and appears to be constantly distinct from the Porto Rican *Ameiva exsul*, to which, however, it is very closely allied. The difference between the two species, though for rather extreme individuals, is well illustrated by Meerwarth (loc. cit.).

6. Mabuya sloanii (Daudin).

Scincus sloanii DAUDIN, Hist. Nat. Rept., **4**, p. 287, pl. 55, fig. 2, 1803.

Mabuia sloanii BOULENGER, Jahresb. Naturw. Ver. Magdeburg, **1894-1896**, p. 113, 1896; MEERWARTH, Mitt. Naturh. Mus. Hamburg, **18**, p. 37, 1901.

Mabuya sloanii STEJNEGER, Ann. Rept. U. S. Nat. Mus., **1902**, p. 608, fig. 56-58, 1904; BARBOUR, Mem. Mus. Comp. Zool., **44**, p. 320, 1914; SCHMIDT, Ann. N. Y. Acad. Sci., **28**, p. 194, 1920.

A specimen of this species (F. M. N. H. No. 215) was collected on Mona by W. W. Brown, Jr. It agrees in scale characters with Porto Rican and Culebra specimens and with the latter in coloration. I have not seen Santo Domingan specimens.

The scales around mid-body are 32; from the posterior face of the thighs to the parietal they number 59; from anal cleft to mental, 61; 14 lamellae beneath the 4th toe; length from snout to vent 60 mm.; snout to ear opening 12 mm.; fore-limb 15 mm.; hind-limb 19 mm.; tail 98 mm.

7. Typhlops monensis sp. nov.

Typhlops lumbricalis MEERWARTH, Mitt. Naturh. Mus. Hamburg, 18, p. 5, 1901.

Type from Mona Island, West Indies. No. 1582 Naturh. Mus. Hamburg. Collected in 1891 by Ch. Bock.

Range—Known only from Mona Island.

Diagnosis—Allied to *Typhlops lumbricalis* Linné as defined by Cochran (1924, p. 174) by the number of scales from head to tail; distinguished by the more pointed snout, depressed head, and the successive increase in size of the three median scales behind the rostral.

Description of Type—Head depressed, snout strongly projecting, pointed when viewed from above; diameter contained in the total length about 40 times, varying from 3.8 mm. anteriorly, to 4.8 mm. near the tail. Rostral broader than the first median scale behind it, not extending as far back as a line drawn between the anterior borders of the eyes; nostril slightly below the rostral edge, on a suture which ex-

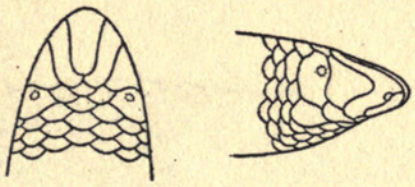

Fig. 1. Dorsal and lateral views of head of *Typhlops monensis*, type. (x3).

tends from the middle of the upper edge of the second upper labial to the rostral at the lateral angle; preocular a little wider than the ocular, in contact with the third labial; eye very distinct; ocular large, with a nearly straight anterior edge, in contact with the third and fourth upper labials; three median scales behind the rostral (prefrontal, frontal, and interparietal) successively larger, the last nearly as large as the "parietal" (or posterior supraocular) which separates it from the ocular; four upper labials, the last largest; nasals narrowly in contact behind the rostral.

Scale rows 20 anteriorly, 20 at mid-body, and 18 posteriorly; 321 scales from rostral to tail-spine on the vertebral line.

Color nearly uniform white, terminal part of each scale faintly dusky.

Total length 182 mm., tail 3 mm.

Notes on Paratype—The single paratype in the Hamburg Museum, No. 2039, agrees with the type in number of scale rows and in the details of head-scales, except that the nasals are narrowly separated by a rostral-prefrontal suture. The color is brown above, nearly white beneath, the brown pigment confined to the distal two-thirds of each scale. No trace of a white caudal ring or notch. Scales from rostral to tail-spine 313.

Remarks—It is interesting to find the Mona Island *Typhlops* related to the Santo Domingan and Cuban forms. The *Typhlops* of the Greater Antilles form two remarkable series, as has been shown by Cochran (loc. cit.). The Santo Domingan form is as yet imperfectly known, but the scale counts on record (245 to 305) do not overlap those of the Mona species.

8. Epicrates monensis Zenneck.

Epicrates monensis ZENNECK, Zeitschr. Wiss. Zool., **64**, p. 64, pl. 3, fig. 58-62, 1898; STEJNEGER, Rept. U. S. Nat. Mus., **1902**, p. 692, fig. 153-157, 1904.

Epicrates fordii var. *monensis* MEERWARTH, Mitt. Naturh. Mus. Hamburg, **18**, p. 8, 1901.

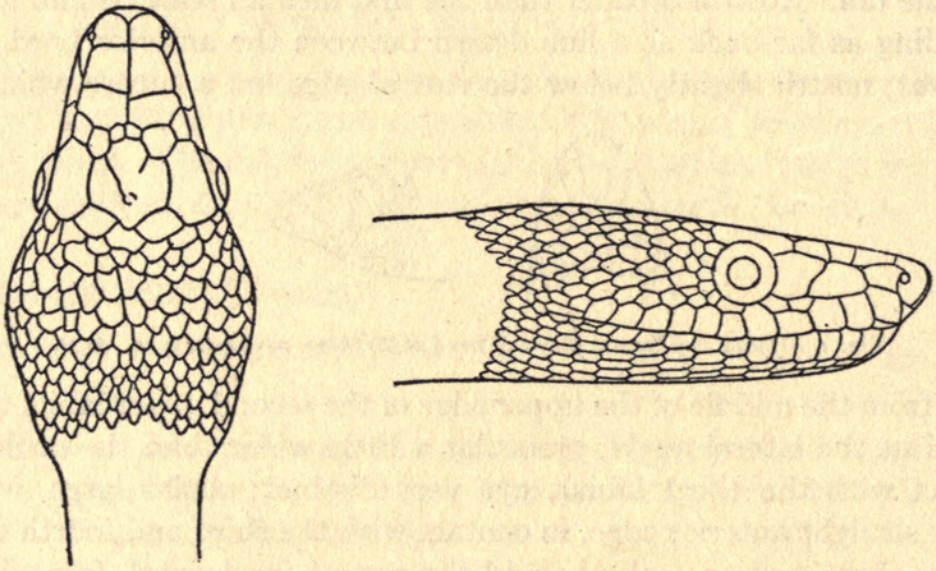

Fig. 2. Dorsal and lateral views of head of *Epicrates monensis*, F. M. N. H. No. 267. (x2).

Description of specimen—F. M. N. H. No. 267, female. Body slender, strongly compressed, head long but abruptly wider than the neck. Rostral as high as broad, just visible from above; internasals longer than broad, with a long suture; anterior prefrontals as long as broad, followed by a third pair broader than long; the latter separated from the frontal and supraoculars by a transverse row of six small scales; frontal hexagonal, the anterior border irregular, twice as broad as the adjacent supraocular, a little longer than broad; three small subequal parietals; anterior portion of each nasal fused with the internasal; loreal longer than high; two preoculars, the lower small; on the left side the lower preocular rests on the 6th labial, on the right it rests on the 5th, with a small additional scale anterior to it; postoculars 7-6; 7th and 6th labials

entering the eye on the left and right sides respectively; upper labials 14-13, lower labials 14-16.

General color pattern of three rows of large dark bordered brown spots on a lighter brown ground color; of these the dorsal row is very irregular, its spots often united from front to back, or alternate, sometimes extending down to join a lateral spot; about 52 spots on the body; venter unmarked; a few small brown spots beneath the tail; no pattern on the head.

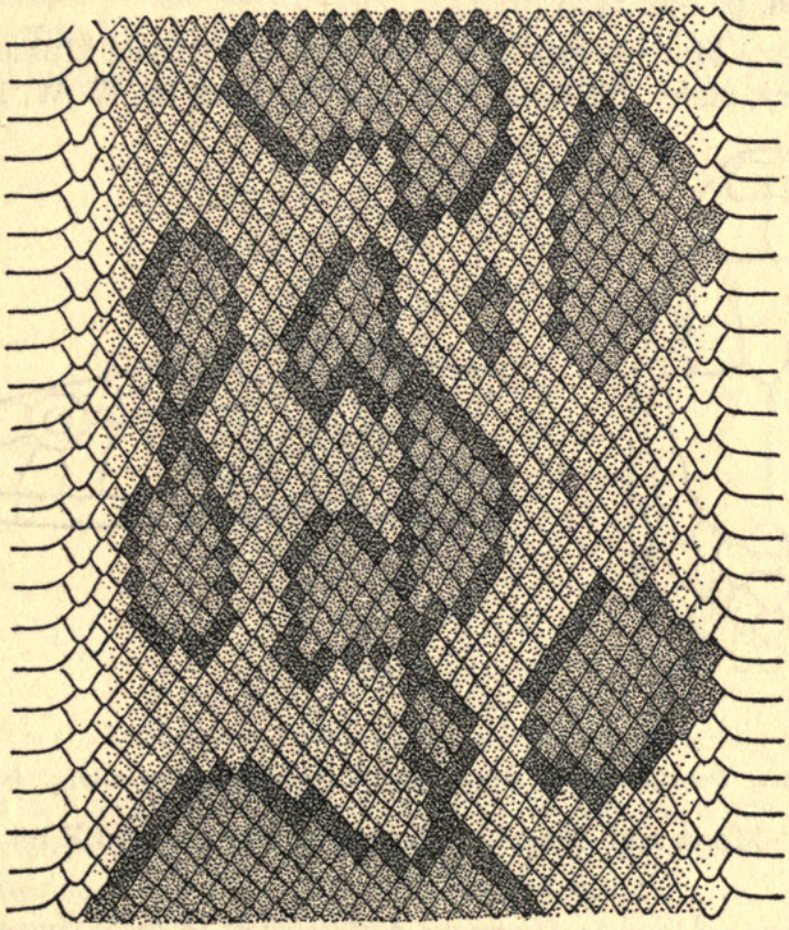

Fig. 3. Color pattern of *Epicrates monensis* at mid-body, F. M. N. H. No. 267 (x2).

Dorsal scales 39-43-25; ventrals 267; caudals 54+; length of body 600 mm., tail incomplete.

The stomach contained the remains of an *Anolis cristatellus*.

Remarks—The number of postoculars, upper labials, and ventrals, known in this species, is slightly increased by this specimen. It has the small prefrontal scales of *E. fordii* with the typical coloration of *E. monensis*. The clearing up of the status of the relations of this species must be left to a reviser of the genus, with specimens of the several Santo Domingan species at hand.

9. Dromicus variegatus sp. nov.

Dromicus sanctae-crucis var. *portoricensis* BOULENGER, Jahresb. Naturw. Ver. Magdeburg, **1894-1896**, p. 113, 1896; MEERWARTH, Mitt. Naturh. Mus. Hamburg, **18**, p. 11, 1901.

Dromicus sanctae-crucis BOULENGER, Cat. Snakes Brit. Mus., **3**, p. 634, 1896 (not of Günther).

Alsophis portoricensis STEJNEGER, Rept. U. S. Nat. Mus., **1902**, p. 700, fig. 170, 1904 (part); SCHMIDT, Ann. N. Y. Acad. Sci., **28**, p. 199, 1920 (part).

Type from Mona Island, West Indies. No. 266 Field Museum of Natural History, male. Collected February 13, 1892, by W. W. Brown, Jr.

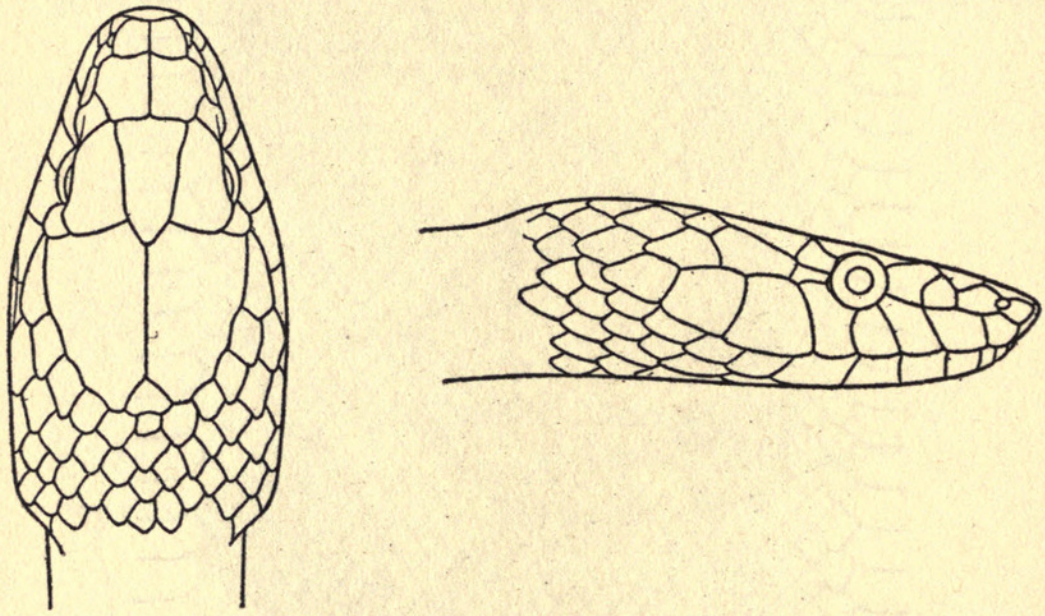

Fig. 4. Dorsal and lateral views of head of *Dromicus variegatus*, type. (x2).

Range—Mona and Desecheo Islands between Porto Rico and Santo Domingo.

Diagnosis—Allied to *Dromicus portoricensis* in scale characters, and distinguished chiefly by its coloration, in which the regular reticulation of black of the dorsal scales and the black borders of the ventrals are absent.

Description of Type—Habitus unspecialized; venter weakly angulate; head large and well distinguished from the neck, somewhat depressed; body rather slender. Rostral wider than high, just visible from above; internasal suture two-thirds that of the prefrontals; frontal longer than its distance from the end of the snout, as long as the parietal suture; parietals large; nasal divided; loreal small, 5-sided; a single large preocular, extending to the upper side of the head, not in contact with the

frontal; two postoculars, the lower much the smaller; temporals one-half, with a well marked groove between them and the labials; upper labials eight, the third, fourth and fifth entering the eye; lower labials ten; chin shields slender, the posterior pair much longer than the anterior.

Dorsal scales 17-17-15; ventrals 173; tail incomplete.

Top of head with a few brown spots on a lighter ground color; a black lateral line from the nostril through the eye, extending some distance on the neck; a short nuchal black line from the parietal suture to the constriction of the neck; upper and lower labials and chin light, punctulate with brown dots; venter immaculate anteriorly, with slight brown markings on the angle and on the posterior margins of the ventrals

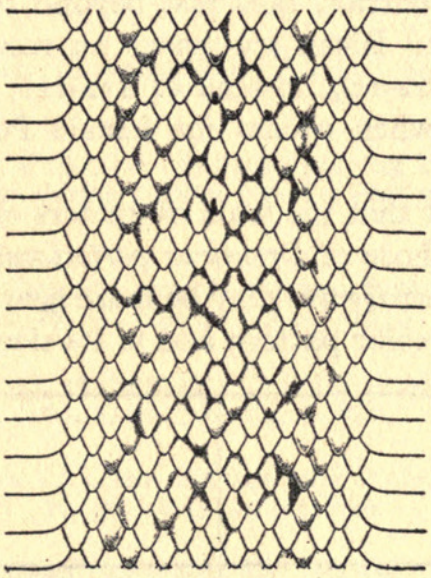

Fig. 5. Color pattern of *Dromicus variegatns* at mid-body, type. (x1).

toward the tail; subcaudals with narrow brown markings parallel to but not at the rear border; posterior margins of the dorsal scales with irregular black markings, tending to form zig-zag cross-bands.

Notes on Paratypes—The two specimens collected on Mona Island and mentioned in my paper in the Annals of the New York Academy of Sciences, A.M.N.H. Nos. 13773 and 13774, may be named as paratypes of this species. They agree with the type described above, with the wavy dorsal cross-bands somewhat better developed. They show no approach to the coloration of the specimens of *portoricensis* examined by me, and Stejneger (loc. cit.) contrasts his Porto Rican specimens in the same way with one from Desecheo Island. The ventrals, caudals, and measurements of the two male paratypes are as follows: ventrals 177, 179; caudals 125, 113; total length 661 mm., 780 mm.; length of tail 213 mm., 248 mm.

Remarks—Meerwarth's notes on the coloration of the 25 specimens examined by him confirm the constancy of this character. It is somewhat remarkable that the Desecheo specimen described by Stejneger should belong to this form, as is apparently the case. The extremes and averages for the ventrals and caudals of the specimens on record are as follows:

	No. Specimens	Extremes	Average
Ventrals	41	170–181	176
Caudals	30	112–126	120

While there is certainly an average difference in the ventrals and caudals of the two sexes, the extremes practically coincide. The Desecheo specimen, with 183 ventrals, falls just beyond the limit of the Mona series. The few Porto Rican specimens on record indicate a higher number of caudals, 122-129, instead of 112-126, but this difference is likely to prove less when counts for female Porto Rican specimens become known.

In spite of the fact that the scale characters of this form are almost exactly the same as those of *Dromicus portoricensis*, I am strongly inclined to believe that *variegatus* may be more nearly allied to *antillensis*, which it resembles in color pattern and in its slender body form.

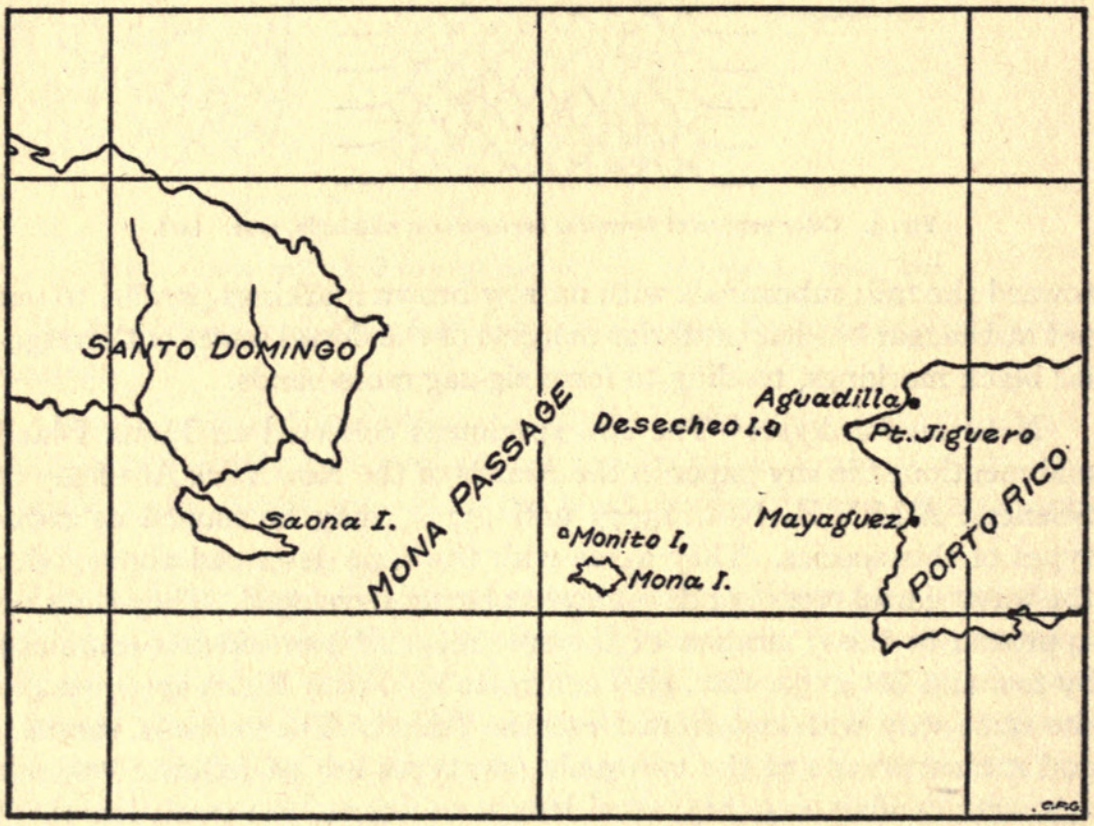

Fig. 6. Map of Mona Passage, with localities referred to in text.

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