

THE AMEIVA (LACERTILIA, TEIIDAE) OF HISPANIOLA.

III. AMEIVA TAENIURA COPE

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INTRODUCTION

Ameiva taeniura Cope was described in 1862 on the basis of an unknown number of syntypes from near Jérémie, Département du Sud, Haiti. Barbour and Noble (1915: 433 *et seq.*) regarded *A. taeniura* as a synonym of *A. lineolata* Duméril and Bibron; the two species are very distinct in size, squamation and pattern, as Schmidt (1921a: 17) later demonstrated. Barbour and Noble examined 15 specimens of *A. taeniura*; with one exception, all were from various Haitian localities. Schmidt reported twelve specimens from the República Dominicana, and showed that the species was widespread throughout that republic. Mertens (1939:72-73) collected six specimens at three localities in the República Dominicana. Much more material was available to Cochran (1941:274), who noted the occurrence of the species at various Haitian and Dominican localities, as well as on the islets of Ile-à-Vache, Petite Cayemite and Grande Cayemite. Cochran had previously (1928:56 and 1934:179) described two other Hispaniolan *Ameiva*: *A. barbouri* from Ile de la Gonâve, and *A. rosamondae* from Isla Saona. These two species are correctly associated with *A. taeniura*, as Mertens (*loc. cit.*) has pointed out. Finally, Schmidt (1919:524) had described *Ameiva navassae* from Navassa Island between Hispaniola and Jamaica; later (1921b), he regarded *A.*

navassae as being related to the Cuban *Ameiva auberi* Cocteau. In actuality, *A. navassae* is identical with *A. taeniura*; the precise status of this name is discussed in detail below.

Before proceeding, the status of the supposed syntypes of *A. taeniura* must be discussed. Barbour and Loveridge (1929:214) considered that three specimens in the Museum of Comparative Zoology at Harvard University (MCZ 3614) were the original syntypes. Examination of these specimens shows that, instead of their being *A. taeniura* from Hispaniola, they are specimens of *Ameiva thoracica* Cope from the Bahamas. Cope gave a detailed pattern description in his original work, and gave as well measurements on a single lizard, which was 3 inches in snout-vent length and 10 inches 6 lines in total length. None of the three supposed syntypes has a snout-vent length of 76 mm (= 3 inches), the snout-vent lengths being 107, 92 and 70 mm. The pattern of these "syntypes" likewise does not agree with Cope's description. There is no question that MCZ 3614 does not contain the syntypes of *taeniura*; on the other hand, it is quite clear that Cope did indeed have specimens of the Hispaniolan lizard in hand when he wrote the original diagnosis.

There are three other specimens of *A. taeniura* in the Harvard collection (MCZ 3608, 3609 [2 specimens]) which were involved in the same loan to Cope that resulted in the confusion of the presumed syn-

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types. These lizards include two with snout-vent lengths of 75 and 77 mm, and thus quite close to the snout-vent length given by Cope. All agree also quite closely with Cope's pattern description. None, however, presently measures 267 mm (= 10 inches 6 lines) in total length. MCZ 3608, which has a snout-vent length of 75 mm, is the only specimen which currently has a tail (in two pieces), and a total length of about 240 mm is achieved when the specimen is assembled. It is possible that MCZ 3608 is one of the syntypes, and that Cope's total length measurement is in error, but I am reluctant to designate this lizard as a lectotype; it seems preferable to consider the original material, on which the name *A. taeniura* was based, as lost.

A. taeniura is now represented in collections by adequate series from the Tiburon Peninsula and the Península de Barahona; both of these regions pertain to the south island of Hispaniola (Williams, 1961). Despite intensive recent collecting in the República Dominicana, on the north island, *A. taeniura* remains rather poorly known in that republic. I have examined 406 specimens of *A. taeniura* from Hispaniola, Iles de Petite Cayemite and Grande Cayemite, Ile de la Gonâve, Ile-à-Vache, Isla Saona, and Isla Carenero in the Bahía de Samaná. Most of the material from the República Dominicana and much of the that from Haiti has been collected by Miss Patricia A. Heinlein and Messrs. Donald W. Buden, Ronald F. Klinikowski, David C. Leber, Dennis R. Paulson, Richard Thomas and the author, and is presently denoted as the Albert Schwartz Field Series (ASFS). To the above companions I wish to express my gratitude, and especially to Richard Thomas for visiting Isla Saona on my behalf. I have borrowed material from the following institutions and private collections: American Museum of Natural History (AMNH), Charles M. Bogert and George W. Foley; Carnegie Museum (CM), Neil D. Richmond and Clarence J. McCoy; Museum of Comparative Zoology (MCZ), Ernest E.

Williams; Natur-Museum und Forschungs-Institut Senckenberg (SMF), Konrad Klemmer; University of Florida collections (UF), Walter Auffenberg; United States National Museum (USNM), Doris M. Cochran and James A. Peters; Peabody Museum at Yale University (YPM), Charles A. Reed; Donald W. Buden (DWB), and Richard Thomas (RT). I am grateful to the above for permission to study specimens in their care. The Harvard collections from the Tiburon Peninsula recently obtained with the aid of National Science Foundation grant GB2444 to Dr. Ernest Williams, have proved extremely pertinent and valuable, especially in defining the parameters of *A. taeniura* near the type locality. Paratypes of new forms have also been placed in the Museum of Natural History, University of Kansas (KU), and in the University of Illinois Museum of Natural History (UIMNH).

The main body of *A. taeniura* on the Hispaniolan mainland lies to the south of the Cul de Sac-Valle de Neiba plain. Not only is the species abundant in this region, but it also occupies three satellite islands (Ile-à-Vache, the Cayemites) associated with it. The species has not been taken on Isla Beata and Isla Alto Velo which are also associated with the south island of Hispaniola. On the north island, *A. taeniura* is known from the Llanos de Azua (where it appears to be quite rare), and from the region between Santo Domingo and Cabo Engaño (the eastern extremity of the island). There is an adequate series from the Península de Samaná (where the species appears to be abundant, although on two visits to the Península I have not seen it there). To the north in the República Dominicana, *A. taeniura* is known from the northern foothills of the Cordillera Central, from the Valle de Constanza region, Puerto Plata, and near Loma de Cabrera near the Dominico-Haitian border. In northern Haiti, there are specimens only from Plaisance and St. Michel de l'Atalaye; the species occurs as well near Trou Forban. The occurrence of *A. taeniura* on the north island

satellites Isla Saona and Ile de la Gonâve (and on the islet Isla Carenero) has already been mentioned. The gaps in the distribution on the north island surely are not all real. However, collecting by ourselves and others in intermediate areas has not revealed the species.

Ameiva taeniura, in contrast to *A. lineolata* and *A. chrysolaema*, is a denizen of shady and mesic situations. It is common about Camp Perrin in southwestern Haiti and on Ile-à-Vache nearby. Large series from the Jérémie area attest to its abundance in that region. On the Península de Barahona, which, south of the Sierra de Baoruco, is extremely arid, *A. taeniura* occupies more shady stands of dry hardwood and *Acacia* forest; its interaction with *A. chrysolaema* near Laguna de Oviedo has already been discussed (Schwartz and Klinowski, 1966). In the Llanos de Azua, the only two specimens secured were from a shady ravine; the remainder of the habitat was xeric thorn scrub. Mertens (1939) noted the occurrence of *A. taeniura* along the coast and even in the *Avicennia* zone at San Pedro de Macorís; the same situation occurs at Ile-à-Vache and near El Macao in the extreme eastern República Dominicana. Neither *A. chrysolaema* nor *A. lineolata* is so closely associated with shady and mesic situations as is *A. taeniura*; in increasing dependence upon this niche, the three species may be ranked as *lineolata-chrysolaema-taeniura* with *lineolata* the most confirmed denizen of hot and dry habitats.

The altitudinal range of *A. taeniura* is extensive. It occurs from sea level in many areas to elevations of 4250 feet (1296 meters) in the Cordillera Central in the República Dominicana, and 5600 feet (1707 meters) in the Montagne Noire in Haiti. No other Hispaniolan *Ameiva* (nor for that matter West Indian *Ameiva*) has such a broad altitudinal range. Doubtless its preference for more mesic and cool situations has allowed *A. taeniura* to ascend to these greater heights in the uplands.

There are 12 subspecies of *A. taeniura*

discussed in the present paper; there is good evidence that this is not the complete roster of races on this species, but adequate material is lacking from the northern half of Haiti and the western and central portions of the República Dominicana. I have once again placed most emphasis on coloration and pattern—two features which vary geographically in a rational manner. Emphasizing these characters at the expense of scale counts demands that data on pigmentation and pattern must be taken on fresh specimens in the field. Without these data, some well-characterized races might be completely overlooked. In actuality, one must rely primarily on these two attributes in *A. taeniura*, since in most cases scale characters are extremely variable. For example, the range in number of rows of longitudinal ventrals for the entire sample of *A. taeniura* is 28 to 35; the range of this character in lizards from the Jérémie region alone is 29 to 34, and most other samples are comparable, usually merely lacking one or the other extreme, or both. Counts of fourth toe scales (both toes combined), femoral pores (both series combined), and scales in the fifteenth caudal verticil show somewhat more differentiation, but in hardly any case is there complete separation between subspecies on these counts.

The number of transverse rows of ventral plates has been used to characterize species of *Ameiva*. In *A. taeniura*, these rows are either 8 or 10, with only one population (southwestern shore of the Tiburon Peninsula) having a modal condition of 8. Any large sample (with the exception of 18 lizards from the Cordillera Central) includes both 8- and 10-row lizards. Thus even the number of transverse ventral rows is not constant in most cases. Although scale counts are given for all subspecies, they have in general been de-emphasized and must be used with discretion.

Ameiva taeniura may be defined as follows: 1) a moderate sized species of the genus *Ameiva* with snout-vent length to 102 mm in males and 103 in females; 2) dorsal

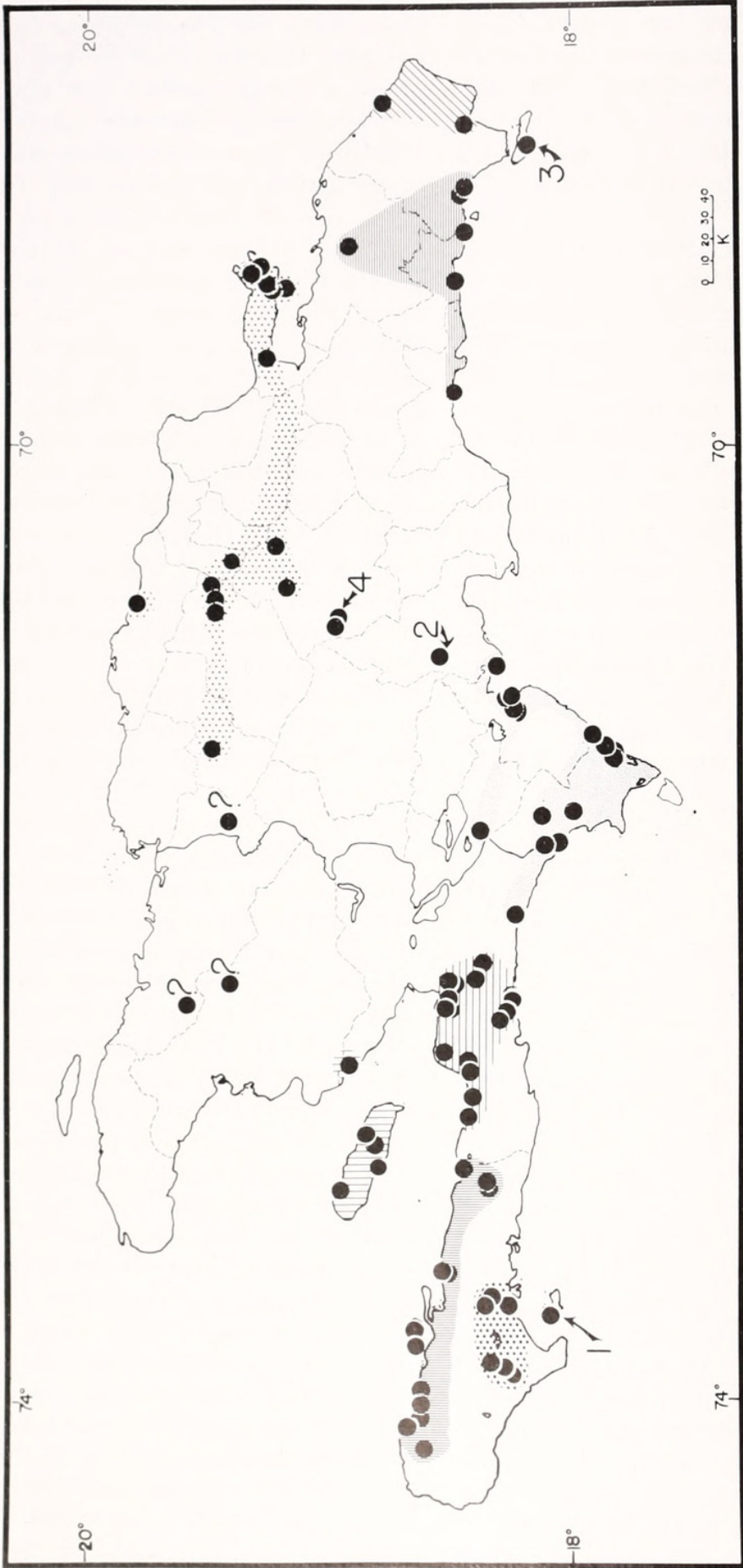


Fig. 1. Hispaniola, showing the known distribution of the subspecies of *Ameiva taeniura*, as follows: narrow vertical lines, *taeniura*; coarse stippling, *regnatrix*; wide horizontal lines, *varica*; fine stippling, *vulcanalis*; narrow horizontal lines, *tofacea*; diagonal lines, *vafra*; medium stippling, *ignobilis*; wide vertical lines, *barbouri*; 1) *aequorea*; 2) *azuara*; 3) *rosamondae*; 4) *algida*. The ranges of *tofacea* and *ignobilis* have been shaded to include localities which probably pertain to these races (see text for precise localities). Questioned localities in northwestern República Dominicana and northern Haiti are represented by specimens presently not assignable to subspecies. Lizards from Petite and Grande Cayemite are likewise not identified to race (see text for discussions).

caudal scales keeled and oblique; 3) ventrals in 8 or 10 transverse rows and in 28 to 35 longitudinal rows; 4) fourth toe subdigital scales from 61 to 91; 5) femoral pores 24 to 41; 6) fifteenth caudal verticil with 18 to 31 scales; 7) dorsal pattern consisting of either a) a series of five pale longitudinal lines on a dark back or, b) a median dorsal pale longitudinal zone, or c) a "combination" of the two conditions; and 8) hemipenis extending to about the sixth or seventh caudal verticil, sulcate surface naked; sulcus bifurcates slightly apically, the branches ending in two weakly bifid apical areas on each side; non-sulcate surface entirely flounced, the flounces extending around the organ onto the sulcate surface to near the sulcus itself; a small smooth triangular area on the non-sulcate side which divides the flounces for about one-half the length of the organ into two fields corresponding to the apical areas.

SYSTEMATIC ACCOUNT

Ameiva taeniura taeniura Cope, 1862

Ameiva taeniura Cope, 1862, Proc. Acad. Nat. Sci. Philadelphia, 14:63 (type locality—near Jérémie, Dépt. du Sud, Haiti)

Diagnosis: A subspecies of *A. taeniura* characterized by a combination of moderate size (males to 88 mm, females to 76 mm, snout-vent length), usually 10 transverse rows of ventrals, low number of fourth toe subdigital scales and femoral pores, moderate number of scales in the fifteenth caudal verticil; dorsal pattern consisting of a dorsal zone bordered by one (paramedian) or two (paramedian and dorsolateral) pairs of pale longitudinal lines (the uppermost of which separating a fairly broad longitudinal dark zone between itself and the middorsal pale zone), lateral fields black with scattered pale (rusty in life?) dots, especially posteriorly; throat orange.

Distribution: The northern and western portions of the Tiburon Peninsula of Haiti from Marfranc east to Miragoâne and vicinity; inland, in the eastern portion of its

range, to the vicinity of Fond des Nègres and St. Michel du Sud (Fig. 1).

Discussion: I have not seen living examples of *A. t. taeniura*, and thus am unable to treat the nominate subspecies in the same detailed manner as most of the other races. However, I have had the advantage of seeing a large body of freshly collected and well preserved material in the Museum of Comparative Zoology, and the following notes on pattern and coloration are drawn primarily from this recently taken material.

The dorsal pattern, although somewhat variable, shows the following situation. There is usually a broad middorsal pale longitudinal zone from the head onto the dorsal third of the tail. The basic pattern of *Tiburon taeniura* (as will be shown in the descriptions following) consists of a series of five pale longitudinal lines on a dark ground color. In *A. t. taeniura*, the median dorsal longitudinal zone embraces as many as the median and two paramedian longitudinal lines, so that the result is a longitudinal pale zone, bordered by a black longitudinal zone (the interspace between the original paramedian and dorsolateral light lines), which in turn is bordered by the dorsolateral light line. In many lizards, the extent of the dorsal pale zone is variable, so that the pale longitudinal paramedian lines may still be visible and not incorporated into the dorsal pale zone. The dorsolateral light lines are prominent, and begin above the eye and extend onto the proximal half of the tail, where they are wide and usually blue-green. On the head, the dorsolateral lines are rarely bordered medially by black. The lateral fields are black and extend from the temporal regions along the sides to the basal two-thirds of the tail. The lateral fields contain a few tiny pale spots (which probably were dull red or brick colored in life) especially posteriorly, and are bordered ventrally by a pale line which begins at the upper edge of the auricular opening and continues onto the basal quarter of the tail. This pale lateral line is regularly represented ante-

rior to the auricular opening by one or two pale dots or dashes on the cheek between the eye and the ear. Below the lateral line the lower sides are dull grayish or brownish stippled with pale blue or blue-gray. The venter is blue-gray (presumably blue in life), and the tail is bright blue ventrally and distally, often with a median dorsal black zone (the continuation of the dark area between the dorsolateral pale body lines), a black lateral zone (the continuation of the lateral fields), and a ventrolateral dark line (the continuation of the dark area below the lateral line). These dark tail areas are separated by bold blue longitudinal lines and the blue underside of the tail. The throats are presently pale pinkish-orange, and I assume that in life they were bright orange. There is no striking sexual or ontogenetic difference in pattern, although juveniles have the dorsal pale lines more distinct than adults. In other races which I have seen in life, generally the orange throats of females are less brilliant than those of males.

The largest male (from Jérémie) measures 88 mm in snout-vent length, and the largest female (from Carrefour Sanon, near Jérémie) measures 76 mm. The longitudinal ventrals vary between 29 and 34 (mean 32.0) and these scales are most often arranged in 10 transverse rows (74.1 per cent), with 25.9 per cent having 8 transverse rows of ventrals. The fourth toe subdigital scales range from 65 to 82 (mean 73.2), and the femoral pores range from 24 to 35 (mean 29.3). The scales in the fifteenth caudal verticil vary between 23 and 29 (mean 25.8).

Of the two specimens from Fond des Nègres and St. Michel du Sud (USNM 72623 and AMNH 49721), the latter agrees well in pattern with *A. t. taeniura*. The individual from Fond des Nègres differs from all other *A. t. taeniura* in having the five dorsal lines well expressed, although the median one is fairly broad and expanded. I consider this individual as being a somewhat aberrant *A. t. taeniura*.

So many localities for *A. t. taeniura* can not be found on any map that it is difficult to state with certainty what the altitudinal limits of the race may be. There are specimens from sea level along the coast (10 mi. E Baradères, Petit Trou de Nippes, Roseaux) to about 600 feet (183 meters) at St. Michel du Sud and Fond des Nègres. Field notes (MCZ) by Francois Vuilleumier state that *Ameiva* "with blue tails" were regularly encountered but not collected on a trip between Lopino and Pourcine in the lower northern ranges of the Massif de la Hotte. Presumably the high elevation of the Massif de la Hotte to the south prevents *A. t. taeniura* from meeting the subspecies on the south coast.

Specimens examined: Haiti, Dépt. du Sud, Jérémie, 6 (MCZ 3608-09, 3 specimens; USNM 59240-42); Laye, nr. Jérémie (not mapped), 1 (MCZ 65070); Tiga, nr. Jérémie (not mapped), 1 (MCZ 65071); Carrefour Sanon, nr. Jérémie (not mapped), 18 (MCZ 65072-84, 69994-98); Perine, nr. Jérémie (not mapped), 2 (MCZ 65085-86); Bozor, nr. Jérémie (not mapped), 4 (MCZ 65087-89, 65113); Place Nègre, 2 (MCZ 65092-93); Paroty, nr. Jérémie (not mapped), 1 (MCZ 65094); Bozo, nr. Jérémie (not mapped), 5 (MCZ 69999-70003); La Source, nr. Jérémie (not mapped), 1 (MCZ 70004); Marfranc, 2 (MCZ 74547-48); Tessier, nr. Marfranc (not mapped), 4 (74556-59); Trou Bois on Jérémie road (not mapped), 5 (MCZ 74551-55); Roseaux, 4 (MCZ 74549-50, USNM 58245-46); 10 mi. (16 km) E Baradères, 4 (USNM 80767-70); Petit Trou de Nippes, 2 (USNM 80799-800); Miragoâne, 3 (USNM 77070-71, 72635); St. Michel du Sud, 1 (AMNH 48721); Fond des Nègres, 1 (USNM 72623); (the following localities, all "near Miragoâne," are unlocatable and unmapped and may be in either the *Département du Sud* or the *Département de l'Ouest*): Commune Aquin, 1 (MCZ 66302); Risque, 2 (MCZ 66303-04); Butête, 6 (MCZ 66305-06, CM 37926-29); Nan Carosse, 2 (MCZ 66307-08); Mingrette, 7 (MCZ 66309-10, 66314-15, CM 37930-32).

POPULATIONS ON THE ILES DE GRANDE AND PETITE CAYEMITE

This seems an appropriate place to discuss the small sample of *A. taeniura* from the islands of Grande and Petite Cayemite, which lie off the north coast of the Tiburon Peninsula between Jérémie and Baradères. The adjacent mainland of Haiti is occupied by *A. t. taeniura*.

There are two specimens (MCZ 25535–36) from Grande Cayemite and five (USNM 80819–23) from Petite Cayemite. The former consist of a male (snout-vent length 78 mm) and a female (75 mm), and the latter four males (snout-vent lengths 51 to 68 mm) and a female (67 mm). When treated as a group, the following scale counts are obtained: longitudinal ventrals in 30 to 33 rows (mean 31.9) and usually in 10 (one exception with 8) transverse rows. The fourth toe subdigital scales vary between 81 and 91 (mean 85.2), the femoral pores between 28 and 32 (mean 29.9), and there are from 26 to 30 (mean 28.4) scales in the fifteenth caudal verticil. The population(s) is thus very high (and almost completely separable from *A. t. taeniura*—with an overlap of only two scales) in number of fourth toe scales. In other counts they are comparable, although they average higher in both femoral pores and fifteenth verticil scales. In fact, no other population of *A. taeniura* approaches the very high number of fourth toe scales possessed by these Cayemite specimens.

Examination of the patterns shown by these specimens leaves much to be desired. The two specimens from Grande Cayemite are presently dark and have five bold pale dorsal lines with no trace of any middorsal pale zone. These two lizards are abundantly different from adjacent *A. t. taeniura*. The five specimens from Petite Cayemite present a different aspect, for all these lizards are patterned very much like the mainland specimens, with a pale middorsal zone bordered by a black zone. These Petite Cayemite specimens are presently not

separable in pattern from those from the mainland. Thus, the Grande Cayemite specimens are different from *A. t. taeniura* in both pattern and fourth toe scales, whereas the Petite Cayemite individuals differ only in fourth toe scales and are comparable in pattern.

It is tempting to name the Cayemite lizards as a distinct race, which I have little doubt that they are. However, the anomalous pattern condition makes it imperative that additional material be secured before the above course is followed. It is possible that Petite Cayemite lizards might be best interpreted as intergrades or intermediates between *A. t. taeniura* and a distinct subspecies on Grande Cayemite, although of the two islands, the latter is closer to the mainland. Another possibility is that each has its own distinct subspecies; only fresh material will clarify the situation.

Ameiva taeniura regnatrix new subspecies¹

Holotype: MCZ 81072, an adult male, from Camp Perrin, Dépt. du Sud, Haiti, one of a series collected 26 July 1962 by David C. Leber. Original number X2989.

Paratypes: MCZ 81073–75, same data as type; UF 21318–19, UIMNH 61602–03, same locality as type, 22 July 1962, native collector; ASFS X2667–70, X2686–88, X2701–04, same locality as type, 23 July 1962, native collector; ASFS X2818–22, same locality as type, 24 July 1962, native collector; CM 40555–58, same locality as type, 28 July 1962, native collector; AMNH 94233–34, Carrefour Canon, 500 feet (152 meters), Dépt. du Sud, Haiti, 1 August 1962, R. F. Klinikowski; AMNH 94232, 4 km NE Carrefour Canon, Dépt. du Sud, Haiti, 1 August 1962, D. C. Leber; KU 93303–04, Ravine Citronnier, 10 km N, 2 km E Cavaillon, Dépt. du Sud, Haiti, 6 August 1962, D. R. Paulson; UF 21320, 14 km N Cavaillon, 1800 feet (549 meters), Dépt. du Sud, Haiti, 6 August 1962, D. C. Leber; KU 93305–07,

¹ Latin, ruling; this is the only species of the genus known from its geographic range.

UIMNH 61604-06, Cavaillon, Dépt. du Sud, Haiti, 6 August 1962, native collector.

Diagnosis: A subspecies of *A. taeniura* characterized by a combination of moderate size (males to 88 mm, females to 81 mm snout-vent length), regularly 8 transverse rows of ventrals, very low number of fourth toe subdigital scales, low number of femoral pores, and moderate number of scales in the fifteenth caudal verticil; dorsal pattern consisting of five dorsal, longitudinal, yellow to tan lines, the median and parame-dian lines at times enclosed in a reddish brown middorsal zone (although these lines still maintain their distinctness if so included), lateral fields black and without included pale dots; throat orange.

Distribution: Extreme southwestern portion of the Tiburon Peninsula, from Carrefour Canon and Camp Perrin in the west, east to the vicinity of Cavaillon (Fig. 1).

Description of type: An adult male with the following measurements and counts: snout-vent length 83 mm, tail 204 mm; ventrals in 33 longitudinal and 8 transverse rows; fourth toe subdigital scales 38 and 34 (total 72); femoral pores 15 and 17 (total 32); 26 scales in the fifteenth caudal verticil. Dorsal ground color reddish brown in life, with a series of five longitudinal yellowish tan lines, the median and parame-dian lines slightly wider than the dorso-lateral lines and blending with the reddish brown head color on the occiput. A black longitudinal zone between the parame-dian and dorsolateral lines beginning on the supraoculars, extending medially between the supraoculars and median head shields, and continuing onto the base of the tail, the dorsolateral lines the most prominent and extending onto the proximal three-quarters of the tail as dorsolateral pale yellowish lines. The parame-dian lines extend onto the base of the tail where they fuse with one another at about the eighteenth dorsal caudal verticil. Lateral fields black, without included pale dots. Lateral pale line from the auricular opening to the groin, and then continuing behind the

leg as a broad, blue ventrolateral caudal line. Throat vivid orange (pl. 2C12; all color designations from Maerz and Paul, 1950), this color extending onto chest; remainder of venter grayish orange extending onto underside of tail. Lower sides below yellow lateral line brown. Limbs vaguely marbled black and dark brown. A prominent yellow dash on the cheek and a yellow reversed C bordering the anterior edge of the auricular opening.

Variation: The series of 38 *A. t. regnatrix* has the following counts: longitudinal ventrals 28-33 (mean 31.3); rows of transverse ventrals 8 (94.7 per cent) or 10 (5.3 per cent); fourth toe scales 61-74 (mean 66.7); femoral pores 24-34 (mean 28.9); fifteenth verticil 23-28 (mean 24.8).

The coloration and pattern of *A. t. regnatrix* are fairly constant. The five dorsal longitudinal lines and the black lateral fields without included pale or red dots are regular features of the series. Some specimens have the median and parame-dian dorsal lines widened, at times so much so as to form a dorsal pale zone. However, even in these cases the integrity of the longitudinal lines is quite clear. The extension of the black longitudinal zone onto the supra-oculars and between them and the median head scales is a constant pattern feature. The underside of the tail in adults is orange-gray proximally and blue-gray distally; in juveniles the tail is vivid blue dorsally, whereas in adults only the more distal portion is blue, the proximal region being black with prominent tan to yellowish dorsal and dorsolateral lines.

Comparisons: The major scale difference between the races *taeniura* and *regnatrix* is that the former customarily has 10 transverse rows of ventrals, the latter 8. Although there is much overlap, the mean (66.7) of fourth toe scales in *regnatrix* is considerably lower than that (73.2) in *taeniura*.

In pattern the two are quite distinct. The middorsal zone of *taeniura* contrasts with the five-lined dorsum of *regnatrix*. *Taeni-*

ura regularly has some pale flecks in the black lateral fields, whereas *regnatrrix* regularly lacks intrafield markings. The extension of the black longitudinal zones onto the head shields affords a rapid means of differentiating the two races.

Remarks: *A. t. regnatrrix* occurs from sea level to elevations of 1800 feet (549 meters) in the Massif de la Hotte north of Cavaillon. At Camp Perrin, the lizards were abundant among rocks along the edges of cultivated fields. At Carrefour Canon they were collected along the edge of a canal in mesic coffee canopy forest, and 14 km N of Cavaillon they were encountered along the edge of *Coffea* in the uplands. The Ravine Citronnier locality is in xeric scrub, but is within the uplands of the Massif de la Hotte.

***Ameiva taeniura aequorea*¹ new subspecies**

Holotype: MCZ 81086, an adult male, from western end, Ile-à-Vache, Dépt. du Sud, Haiti, one of a series collected 4 August 1962 by Ronald F. Klinikowski, David C. Leber, and Dennis R. Paulson. Original number X3416.

Paratypes: AMNH 94235–37, CM 40559–61, KU 93308–11, UF 21321–23, UIMNH 61607–09, same data as type; ASFS X3570–76, same locality as type, 6 August 1962, R. F. Klinikowski.

Diagnosis: A subspecies of *A. taeniura* characterized by a combination of small size (males to 80 mm, females to 73 mm snout-vent length), regularly 10 transverse rows of ventrals, moderate number of fourth toe subdigital scales and scales in the fifteenth caudal verticil, and low number of femoral pores; dorsal pattern consisting of five longitudinal yellow dorsal lines, of which the median is often obsolescent or incomplete on the neck, on a black ground, lateral fields of black without or with very few tiny pale dots; throat dark orange.

Distribution: Ile-à-Vache, Haiti (Fig. 1).

Description of type: An adult male with

the following measurements and counts: snout-vent length 80 mm, tail 146, distal two-thirds regenerated; ventrals in 33 longitudinal and 10 transverse rows; fourth toe subdigital scales 40 and 39 (total 79); femoral pores 15 and 13 (total 28); 21 scales in the fifteenth caudal verticil. Dorsal ground color black, with five longitudinal yellow lines which are distinctly orange anteriorly. The median line is obscure and broken on the neck, whereas the parame-dian lines are somewhat brighter and the dorsolateral lines are boldly distinct. The longitudinal black stripe begins on the supraoculars and sends a short branch between the supraoculars and the median head scales. The lateral fields are black and have a very few tiny scattered pale dots. The parame-dian lines extend onto the tail, where they join at about the twenty-third dorsal caudal verticil. The dorsolateral lines expand upon the base of the tail and continue (becoming progressively bluer) to the point of regeneration. There is an orange cheek spot and an orange preauricular spot. The lateral line begins at the auricular opening and continues to the groin; posterior to the hindlimb, the lateral line continues as a bold white ventrolateral tail stripe. The sides below the lateral line are black, somewhat stippled with gray. The throat, chest, and anterior half of venter were dark orange (pl. 1G12) in life, the remainder of the venter being duller grayish orange. The limbs are coarsely marbled black and tan. The underside of the tail is blue.

Variation: The series of 24 *A. t. aequorea* has the following counts: longitudinal ventrals 30–32 (mean 31.5); rows of transverse ventrals 10 (95.8 per cent) or 8 (4.2 per cent); fourth toe scales 65–83 (mean 76.6); femoral pores 26–31 (mean 28.3); fifteenth verticil 21–26 (mean 23.2).

The coloration and pattern of the paratypes are close to that of the type. No other specimen has any included pale dots in the black lateral fields, and indeed they are far from conspicuous in the type. The median pale dorsal line is always visible, regularly

¹ Latin, sea-girt, referring to Ile-à-Vache.

broken on the neck, and may be somewhat obscured by a tan clouding between the paramedian lines. Even in the latter case, the median line is visible. The throats, chests, and anterior portion of the venter are dark orange in males; females have the throats somewhat paler. The underside of the tail may be blue or gray. The limbs are heavily marbled with black and tan.

Comparisons: The most pertinent comparison is between *aequorea* and the adjacent *regnatrix*. The former has 10 transverse rows of ventrals and the latter 8. The much lower mean of fourth toe scales (66.7) in *regnatrix* differentiates the mainland race from *aequorea* (with a mean of 76.6). *Aequorea* also appears not to reach so large a size as *regnatrix*. The two are comparable in pattern, but the broken median line on the neck in *aequorea* will differentiate them. The dark orange throat and orange-tinted dorsal lines of *aequorea* differ from the brighter throat and yellow to tan lines of *regnatrix*. From *taeniura*, the Ile-à-Vache subspecies differs in lacking a middorsal pale zone and in lacking pale dots in the lateral fields. Both *aequorea* and *taeniura* have 10 transverse rows of ventrals. The northern race reaches a slightly larger size than *aequorea*.

Remarks: *A. t. aequorea* is close to *regnatrix* in pattern, and differs primarily in details of coloration and in number of transverse rows of ventrals. Its origin from *regnatrix* on the adjacent mainland is obvious. On Ile-à-Vache, *A. t. aequorea* was abundant in shady situations especially along the mangrove border, where the earth was cool even at midday. Many more lizards were observed than were collected.

Ameiva taeniura navassae Schmidt, 1919

Ameiva navassae Schmidt, 1919, Bull. Amer. Mus. Nat. Hist., 41(12):524 (type locality—Navassa Island).

It seems appropriate here to comment upon *Ameiva navassae* Schmidt. This species is known from a single specimen (AMNH 12607) collected by Rollo H. Beck

on Navassa between 13 and 19 July 1917. It is an adult male, with the following measurements and counts: snout-vent length 85 mm; ventrals in 34 longitudinal and 10 transverse rows; fourth toe subdigital scales 43 and 42 (total 85); femoral pores 15 and 16 (total 31); scales in fifteenth caudal verticil 28. The dorsum is presently dark with four pale longitudinal lines and a median pale middorsal area; the dorso-lateral pale lines extend anteriorly over the outer edge of the supraoculars and more or less onto the canthus. The lateral fields are black and without included pale dots. The lower sides are vaguely marbled with light and dark. The tail is regenerated for its distal half. Four dorsal pale lines extend onto the unregenerated portion of the tail and there is a broad pale ventrolateral line as well. Both fore- and hindlimbs are vaguely marbled with dark and light. There is a pale cheek spot and a pale preauricular spot. The top and sides of the head are dull tan, and the chin and throat are now pale, in contrast to the dull grayish blue of the venter.

There can be no doubt that *A. navassae* is related to *A. taeniura*, rather than to *A. auberi* from Cuba, as Schmidt (1921b:559) suggested. It may seem strange that Schmidt, who had collected *A. taeniura* in the República Dominicana (1921a), did not recognize the similarity of the two "species." This is, however, easily attributable to the fact that Dominican *A. taeniura* lack the lined pattern of the Tiburon races, which Schmidt had not observed.

A. navassae resembles most closely in details of pattern specimens of *A. t. regnatrix*. Thomas (1966) has commented on the possibility that the type specimen of *navassae* may have originated in the vicinity of Les Cayes (from which port Beck set out for Navassa; Wetmore and Swales, 1931:19) and later was mislabeled as having come from Navassa. This supposition reaches greater importance, for, should *regnatrix* and *navassae* be identical, the southwestern Tiburon race would then take the name

navassae. The resemblance of *navassae* and *regnatrix* may be due to close relationship, since a Hispaniolan lizard arriving on Navassa might be most logically expected to have come from the tip of the Tiburon Peninsula, rather than elsewhere. The fact that no collector, either before or after Beck (see Thomas, 1966, for details), has taken another specimen of *Ameiva* on Navassa may be very significant, or it may be of no significance whatsoever, if the supposed destructive effects of the lighthouse-keeper's domestic animals can be blamed for the disappearance of some of the Navassan fauna.

In any event, from the very fact that I have not used the name *navassae* for the Camp Perrin-Cavaillon lizards, it is obvious that I am not convinced of the identity of *navassae* with *regnatrix*. The fourth toe scales in *navassae* number 85; no specimen from the Tiburon Peninsula itself nor from Ile-à-Vache (whence the type of *navassae* might have come) has so high a count (130 examined), the highest being a count of 83 for *aequorea*. The high count for *regnatrix* is 74. The *navassae* count of 85 is, however, included by the counts of Grande-Petite Cayemite lizards (81–91). However, since Beck is not known ever to have visited these islets, or even to have visited the north coast of the Tiburon, it does not seem likely that the type of *navassae* originated on the Cayemites. The 34 longitudinal rows of ventrals in *navassae* are greater in number than in any specimen of *regnatrix*, but are equalled or exceeded by three specimens of *taeniura*. *A. navassae* has 10 transverse rows of dorsals in contrast to 8 rows in *regnatrix*.

As Thomas (1966) has suggested, it is possible that *A. navassae* came from a local population of *A. t. regnatrix* which has as yet not been sampled, a population in which such high fourth toe counts do occur. I hesitate to say that no *Ameiva* occurred in the recent past on Navassa. What can be said is that *A. navassae* must be regarded as a subspecies of *A. taeniura*,

whatever the history and provenance of the type and only specimen.

*Ameiva taeniura varica*¹ new subspecies

Holotype: MCZ 81076, an adult female, from Morne Calvaire, 1 mi. (1.6 km) SW Pétionville, 2300 feet (701 meters), Dépt. de l'Ouest, Haiti, taken 21 June 1962 by native collector. Original number X1299.

Paratypes: ASFS X1322, same data as type, 22 June 1962, R. F. Klinikowski; USNM 59220, Pétionville, Dépt. de l'Ouest, Haiti, 23 March 1917, J. B. Henderson and P. Bartsch; ASFS X2265–66, Belle Fontaine, north base of Morne la Visite, ± 3000 feet (915 meters), Dépt. de l'Ouest, Haiti, 13 July 1962, D. C. Leber; UIMNH 61610, Furcy, 5600 feet (1707 meters), Dépt. de l'Ouest, Haiti, 6 July 1962, E. Cyphale; ASFS X2351–52, Furcy, 5600 feet, Dépt. de l'Ouest, Haiti, 15 July 1962, native collector; MCZ 58016–17, Furcy, 5600 feet, Dépt. de l'Ouest, Haiti, 26 October 1950, A. Curtiss; MCZ 63606 (2 specimens), YPM 3657–58, Furcy, 5600 feet, Dépt. de l'Ouest, Haiti, May 1960, L. Whiteman; MCZ 65347, Furcy, 5600 feet, Dépt. de l'Ouest, (no date), A. Curtiss; AMNH 70144–45, Furcy, 5600 feet, Dépt. de l'Ouest, Haiti, September 1949, A. Curtiss.

Associated specimens: Haiti, Dépt. de l'Ouest, Petit Goâve, 1 (USNM 59244); 6.2 mi. (9.9 km) W Fauché, 1 (ASFS X2047); 1.3 mi. (2.1 km) NE Fauché, 2 (ASFS X2043–44); 5 km S Dufort, 1 (MCZ 63339); Momance, 2 (MCZ 8637, 8643); Carrefour, 1 (MCZ 59503); Morne de Cayette, 1 (MCZ 63605); Diquini, 3 (MCZ 8691–92, 8695); Bas Cap Rouge, 5 (MCZ 65167–68, CM 37831–33); Marbial, 21 km NE Jacmel, 6 (MCZ 65163–66, CM 37829–30); 1 to 2 mi. (1.6 to 3.2 km) E Cayes Jacmel, 1 (AMNH 39899); halfway between Cayes Jacmel and Marigot, 2 (MCZ 58105, AMNH 49761).

Diagnosis: A subspecies of *A. taeniura* characterized by a combination of moderate

¹ Latin, straddling, in reference to its occurrence on both sides of the Massif de la Selle.

size (males to 90 mm, females to 82 mm snout-vent length), usually 10 transverse rows of ventrals, low number of fourth toe subdigital scales, moderate number of femoral pores and scales in the fifteenth caudal verticil; dorsal pattern consisting of a broad pale to medium brown zone bordered by bright yellow dorsolateral lines, lateral fields black with scattered red to buffy dots; throat orange.

Distribution: The base of the Tibúron Peninsula, from Petit Goâve to Pétionville on the north, and into the uplands as far as Furcy and Belle Fontaine; on the south side of the Massif de la Selle from Bas Cap Rouge and Marbial near Jacmel, west to near Marigot (Fig. 1).

Description of type: An adult female with the following counts and measurements: snout-vent length 82 mm, tail broken; ventrals in 33 longitudinal and 8 transverse rows; fourth toe subdigital scales 36 and 37 (total 73); femoral pores 15 and 15 (total 30); 27 scales in the fifteenth caudal verticil. A pale brown dorsal band extending from the occiput onto the base of the tail, where it becomes gradually constricted and disappears on about the nineteenth dorsal caudal verticil; dorsal zone bordered laterally by bright yellow dorsolateral lines, and, in the region of the neck, some slightly darker longitudinal areas enclosed within the band adjacent to the dorsolateral lines. Lateral fields black with a few widely scattered red dots throughout their length, although the dots are more concentrated posteriorly. Lateral yellow line from auricular opening to groin, with orange cheek marking which is confluent with an orange auricular marking. Lateral line resumed behind hindlimb and, along with dorsolateral lines, continued onto tail. Lower sides flecked black and gray. Throat and lower labials orange (Maerz and Paul, 1950: pl. 11I9), this color extending onto anterior abdomen; posterior venter gray, as also underside of tail. Limbs tannish, marbled with dark gray and black.

Variation: The series of 35 *A. t. varica*

has the following counts: longitudinal ventrals 29–33 (mean 31.8); rows of transverse ventrals 10 (75.0 per cent) or 8 (25.0 per cent); fourth toe scales 64–80 (mean 71.5); femoral pores 26–35 (mean 30.8); fifteenth verticil 23–29 (mean 25.8).

A. t. varica is a somewhat variable race. Since it has a wide altitudinal range (from sea level to 5600 feet [1707 meters]), and since it occurs on both sides of the Massif de la Selle, such variation is not surprising. On the other hand, I am unable to distinguish specimens from the region between Petit Goâve and Momance, or from Marbial and Cayes Jacmel, from upland specimens from Pétionville and Furcy. Although most specimens resemble the type in having a broad brown, pale brown, or reddish brown middorsal zone, some (UIMNH 61610, for example) have buffy indications of the median and paramedian lines. Occasional individuals (CM 37830) lack dots in the black lateral fields. Others, rather than having the middorsal zone bordered directly by the dorsolateral yellow lines, have an interposed black stripe between the lines and the zone (MCZ 63605, for example). In this latter condition, the black lines stop on the neck and do not continue anteriorly onto the head. In fresh specimens the throats are orange, and the venters vary between dull orange and gray. The dorsolateral lines may be bright yellow, as in the type, buffy, or yellow anteriorly and grayish yellow posteriorly. The lower sides may be dotted with blue, and this color may occur also on the lateralmost ventral plates. The dots on the lateral fields vary from red to buffy, and there may be some red spotting on the lower sides. The hindlimbs may be flecked with dull red (brick).

Comparisons: *A. t. varica* may be differentiated from *regnatrrix* in that the former has usually 10 transverse rows of ventrals, the latter regularly 8. From *regnatrrix* and *aequorea*, *varica* differs in usually having prominent red dots in the lateral fields; although *taeniura* may have lateral dots,

they are most often restricted to the posterior portion of the lateral fields. The lined dorsa of *aequorea* and *regnatrrix* also distinguish these races from *varica*.

In size, *varica* is larger than *aequorea* and equal to *taeniura*; *varica* and *regnatrrix* are about equal in size. In fourth toe scales, *varica* is most strongly different from *regnatrrix* (means of 71.5 in the former, 66.7 in the latter).

Remarks: Both the altitudinal and geographic distributions of *A. t. varica* are extensive; the race occurs from sea level to 5600 feet (1707 meters) in the Morne l'Hôpital. Geographically, *varica* occurs on both sides of the Massif de la Selle, as high as about 1800 feet (549 meters) on the Plateau Cap Rouge and on the coast. I doubt that there is direct contact between the northern and southern populations, since the abrupt northern escarpment of the Massif de la Selle intervenes between these two regions. The way of contact must be devious. It is interesting that specimens of *varica* occur at the foot of the scarp at Belle Fontaine. Considering that the Massif de la Hotte in the west separates the races *taeniura* and *regnatrrix*, it is surprising that apparently the Massif de la Selle does not act in the same manner in the east; on the other hand, there are no specimens of the western races from high elevations in the La Hotte (although this may well be an artifact of collecting). Specimens of *A. t. varica* have been taken in a wooded thicket in a mesic cultivated area (Morne Calvaire), from a river flood-plain in brush-covered rocks and in cultivated areas (Belle Fontaine), and along the inner margin of mangroves and on a rocky hillside near a *Musa* patch (Fauché).

The only subspecies which approaches *varica* closely on the west is *taeniura*; the closest localities for the two are Miragoâne (*taeniura*) and Petit Goâne (*varica*), which are separated by about 23 kilometers. Possibly some of the specimens from localities "near Miragoâne" would bridge this gap slightly. Specimens from the Mira-

goâne area show no approach to *varica*. The relationships between *varica* and the more northern and eastern subspecies will be discussed below.

Ameiva taeniura barbouri Cochran, 1928

Ameiva barbouri Cochran, 1928, Proc. Biol. Soc. Washington, 41:56 (type locality—La Source, Ile de la Gonâve).

Diagnosis: A subspecies of *A. taeniura* characterized by a combination of large size (males to 100 mm, females to 74 mm snout-vent length), more often 10 transverse rows of ventrals (although the incidence of 8 rows is almost equal to that of 10), moderate number of fourth toe scales, very high number of femoral pores, and low number of scales in the fifteenth caudal verticil; dorsal pattern consisting of a broad median dorsal metallic tan zone bordered directly by black and undotted lateral fields without an intervening dorsolateral pale stripe; tail blue-green and unpatterned; throat orange.

Distribution: Ile de la Gonâve, and the adjacent mainland of Haiti in the vicinity of Trou Forban (Fig. 1).

Discussion: There are now available twenty-seven specimens of *A. t. barbouri* from Gonâve, and another from the mainland near Trou Forban. Coloration and pattern of two specimens from Etroits were recorded as: dorsal band metallic tan (Maerz and Paul, 1950: pl. 12D5), bordered directly by black and unspotted lateral fields. Sides grayish, not separated from lateral field by an intervening pale lateral line. Head rich tan. Throat orange (pl. 3B12), ventral ground color entirely blue (pl. 27E1). Tail blue-green (pl. 26J2), and without any pale or dark lines. Hands and feet pale blue, limbs clear gray, unspotted. The specimen from Trou Forban had a metallic tan back (pl. 14G8), grading to green on the base of the blue-green tail. The lateral field was completely black, the throat vivid orange (pl. 4B12), with the chest paler, fading to dull blue on the rest of the venter. The color description of the

Gonâve lizards and of that from Trou Forban are remarkably similar. It is possible that the mainland population may later be separated from that from Gonâve, but at present there is no reason for so doing.

There are only two females known, the larger with a snout-vent length of 74 mm; the largest male *barbourni* has a snout-vent length of 100 mm. The longitudinal ventrals vary between 30 and 34 (mean 32.7) and these scales are more often arranged in 10 transverse rows (51.9 per cent), with 48.1 per cent having 8 transverse rows of ventrals. The fourth toe subdigital scales range from 70 to 80 (mean 74.4), and the femoral pores range from 33 to 41 (mean 36.2). The scales in the fifteenth caudal verticil vary between 18 and 25 (mean 22.0). The Trou Forban male (not included in the above series) has a snout-vent length of 69 mm, 32 longitudinal and 8 transverse rows of ventrals, 76 fourth toe scales, 22 scales in the fifteenth verticil, and 18 femoral pores on the one uninjured leg.

Comparisons: The Gonâve race of *A. taeniura* requires no comparison with the mainland races to the south. The absence of any longitudinal lines on the back, the juxtaposed dorsal band and unspotted black lateral fields, and the unicolor and patternless tail will distinguish *barbourni* from the described races. The very high number of femoral pores (36.2 versus 28.3 to 30.8) is distinctive; there is no overlap in this count between *barbourni* and *aequorea*, and an overlap of only two or three scales between *barbourni* and *taeniura*, *regnatricis* and *varica*.

Remarks: The occurrence of *A. t. barbourni* on the mainland is suggestive of the relationships of the xeric littoral along the north shore of the Golfe de la Gonâve and the Ile de la Gonâve. The occurrence on this strip of such species as *Anolis brevirostris* and *Diploglossus curtissi* confirms the relationship of these two regions. Since both the anole and the galliwasp occur as well in the Cul de Sac plain, it is not completely unlikely that parts of this plain are

(were) occupied by *A. t. barbourni*, although there is no evidence at present of such occurrence (see Discussion).

The record of *barbourni* from Trou Forban is one of three records of *A. taeniura* from north of the Cul de Sac plain in Haiti. To the south occurs the race *varica*, separated by some 68 kilometers airline. The other northern records for *A. taeniura* are Plaisance and St. Michel de L'Atalaye; the nearest of these localities is about 60 kilometers airline. None of the northern lizards is close to *barbourni*. The mainland distribution of *A. t. barbourni* is at present unknown.

On Gonâve, *A. t. barbourni* is widespread, being known from one northern and three more southern localities. The two specimens collected by us were taken on a rocky hillside at the foot of the central hills; the immediate area was xeric scrub with some large shade trees. At Trou Forban, the single lizard was taken on a rocky path into a moist depression with a dense stand of *Acacia* trees in an otherwise very arid area. The elevation at Nan Café on Gonâve is about 1260 feet (384 meters) an upper limit for the occurrence of *barbourni* on Gonâve.

Specimens examined: Haiti, Ile de la Gonâve, La Source, 2 (MCZ 25537-38, type and paratype); 1.5 mi. (2.4 km) SW Etroits, 2 (ASFS X2506-07); Nan Café, 20 (MCZ 61064-66, UF 12242 (2 specimens), UF 12243 (4 specimens), UF 12244, 12245, 12246 (4 specimens), YPM 3308-09, YPM 3311, YPM 3313-14); Pointe à Raquettes, 2 (YPM 3315-16); no other locality, 1 (USNM 80827); Dépt. de l'Ouest, 2.2 mi. (3.5 km) SW Trou Forban, 1 (ASFS X1926).

*Ameiva taeniura vulcanalis*¹ new subspecies

Holotype: MCZ 81077, an adult male, from 5 mi. (8 km) NE Oviedo, Pedernales Province, República Dominicana, one of a series taken 4 August 1963 by David C.

¹ Latin, belonging to Vulcan, in allusion to the vivid orange throat.

Leber and Richard Thomas. Original number V281.

Paratypes: ASFS V282–84, same data as type; ASFS X9959–60, RT 753, same locality as type, 30 July 1963, A. Schwartz, R. Thomas; RT 777, same locality as type, 7 August 1963; ASFS X9954, 13.1 mi. (21 km) SW Enriquillo, Pedernales Province, República Dominicana, 30 July 1963, A. Schwartz; ASFS X9410–15, 13.1 mi. (21 km) SW Enriquillo, Pedernales Province, República Dominicana, 22 July 1963, A. Schwartz, R. Thomas; DWB 296, 13.1 mi. (21 km) SW Enriquillo, Pedernales Province, República Dominicana, 7 December 1964, R. Thomas; UF 21324, 1.3 mi. (2.1 km) NW Oviedo, Pedernales Province, República Dominicana, 30 July 1963, R. Thomas; KU 93312, 3 km SW Enriquillo, Barahona Province, República Dominicana, 7 August 1963, R. Thomas.

Associated specimens: **Haiti**, *Dépt. de l'Ouest*, Tean, nr. Saltrou, 4 (MCZ 68576–79). **República Dominicana**, *Pedernales Province*, Pedernales, 9 (ASFS V2667, V2787–94); 8 km N Pedernales, 1 (ASFS V2602); 6 km NE Las Mercedes, 2600 feet (793 meters), 1 (ASFS V2648); 30 km NW Oviedo, 1 (MCZ 57731); *Barahona Province*, Barahona, 10 (AMNH 37203–06, 37208, MCZ 63192, 58020–22, ASFS X9749); 1 mi. (1.6 km) N Barahona, 1 (MCZ 43812); 4 km NW, 1 km SW Barahona, 1 (ASFS V201); 4 km NW, 2 km SW Barahona, 500 feet, 2 (ASFS V203–04); west side, Punta Martín García, 11 (ASFS V89–99); *Independencia Province*, 3 km WNW El Naranjo, 1000 feet (305 meters), 3 (ASFS X9946–48).

Diagnosis: A subspecies of *A. taeniura* characterized by a combination of large size (males to 95 mm, females to 82 mm snout-vent length), usually 10 transverse rows of ventrals, low number of fourth toe subdigital scales, high number of femoral pores, and moderate number of scales in the fifteenth caudal verticil; dorsal pattern consisting of a broad pale (tan, gray, or greenish tan) zone, at times with remnants

of the dorsolateral pale (lemon yellow to buffy) longitudinal lines, lateral fields black with many small orange flecks; throat fire orange.

Distribution: From the vicinity of Saltrou in extreme southeastern Haiti, east across the Peninsula de Barahona (south of the Sierra de Baoruco) in the República Dominicana to Oviedo; thence northward along the coast to Barahona and west along the north flank of the Sierra de Baoruco to El Naranjo, and east around the Bahía de Neiba to Punta Martín García (Fig. 1).

Description of type: An adult male with the following counts and measurements: snout-vent length 90 mm, tail 224 mm; ventrals in 32 longitudinal and 8 transverse rows; fourth toe subdigital scales 37 and 37 (total 74); femoral pores 17 and 20 (total 37); 27 scales in the fifteenth caudal verticil. A broad tan middorsal zone from the occiput onto the basal quarter of the tail, this zone only very vaguely outlined with buffy, the lines not extending onto the head shields nor prominently onto the tail. Lateral fields obsolescent and gray on the temporal region, black between the limbs, heavily flecked with orange dots throughout their length, and becoming faint on the sides of the tail near the base. Lateral fields bordered below by a faint and obsolescent buffy line, which behind the hindlimbs forms a fairly prominent pale ventrolateral tail stripe. Pale cheek spot absent, preauricular spot present, buffy, and not conspicuous. Lower sides gray with indistinct dark mottling. Limbs tan, mottled with darker on the thighs. Throat and chest vivid fire orange, belly dull grayish blue. Tail greenish tan above, bluish green below.

Variation: The series of 57 *A. t. vulcanalis* has the following counts: longitudinal ventrals 31–35 (mean 32.3); rows of transverse ventrals 10 (80.3 per cent) or 8 (19.7 per cent); fourth toe scales 66–82 (mean 73.8); femoral pores 30–40 (mean 33.9); fifteenth verticil 24–30 (mean 26.7).

Despite its extensive range, *A. t. vulcanalis* is very constant in pattern, and most

specimens resemble the description of the type. In precise shade of the dorsal zone, there is some variation, however; the range in color includes tan to greenish tan (Enriquillo), gray (Las Mercedes), tan with a faint greenish border or tan anteriorly and greenish posteriorly (Pedernales), and reddish tan anteriorly and grayish tan posteriorly (Punta Martín García). The lateral fields are black and almost always are heavily flecked with orange flecks, although occasional specimens (ASFS V93, for example) lack flecks completely. If there is a dorsolateral line separating the dorsal zone from the lateral field (this is not the usual condition), it is yellow. If there is a lateral stripe (and there often is not), it is cream. The throats and chests are always vivid flame orange, and the venters vary from whitish (Pedernales) to grayish blue (Enriquillo) or dull grayish orange (Punta Martín García). The head markings are always obsolete, the preauricular spot being the more persistent of the two. The tails are not prominently striped dorsally, and are greenish or tannish green dorsally, dark gray to black laterally, with a broad cream stripe ventrolaterally. The hindlimbs are dark, almost black, in many individuals, and the thighs are flecked with greenish or tan.

Comparisons: No other race thus far described has heavily flecked lateral fields and lacks dorsal stripes. *A. t. barbouri* superficially resembles *vulcanalis*, but in details the two subspecies are very different; the solid black lateral fields of the former blending into the dorsal metallic tan zone are distinct from the sharp-edged dorsal zone of *vulcanalis*. The unicolor tail of *barbouri* likewise distinguishes it from *vulcanalis*. The tan zonate dorsum of *vulcanalis* will distinguish it from the striped or brown or reddish brown dorsa of the western races.

Remarks: *A. t. vulcanalis* is an inhabitant of some of the more arid areas in Hispaniola, but in this region it occupies shady situations such as stands of deciduous trees,

wooded mountain foothills, and shaded *Acacia* stands. Its interaction with *A. chrysolaema* at Oviedo has been described by Schwartz and Klinikowski (1966). Although several species of reptiles are restricted to the tip of the Península de Barahona by the Sierra de Baoruco and the virtually non-existent eastern coastal plain (and these restricted species include *A. chrysolaema* and *A. lineolata*, each of which has developed races both to the north and south of the Sierra de Baoruco in xeric habitats), such is not the case with *A. taeniura*, where *vulcanalis* occurs both to the north and south of the mountains. Undoubtedly, the eastern edge of the Sierra de Baoruco provides excellent mesic habitat for this lizard and this accounts for the continuity of the populations between Barahona and Oviedo. Also, *vulcanalis* has crossed the lower reaches of the Río Yaque del Sur. Near the mouth of this river, the Valle de Neiba is distinctly mesic, and this feature has presumably allowed *vulcanalis* to cross the otherwise xeric valley into the region of Punta Martín García. Although *A. t. vulcanalis* is not known to occur in the xeric regions of the Valle de Neiba, it does occur along the northern lower foothills of the Sierra de Baoruco as far west as El Naranjo. Since this locality is very close to the Dominico-Haitian border, *vulcanalis* is to be expected along the northern slopes of the Morne des Enfants Perdus in Haiti.

The highest elevation for *vulcanalis* is 2600 feet (793 meters) above Las Mercedes. The species is presumably absent from high elevations in the Sierra de Baoruco, since there has been much collecting in this range, especially in the Valle de Polo region. *A. t. vulcanalis* might be expected to occur at Forêt des Pins in Haiti, at 5800 feet (1768 meters) near the Dominico-Haitian border; it has not been taken there nor at intermediate or high elevations on the Dominican side of the boundary. It is interesting that of the four southern subspecies (*taeniura*, *regnatrrix*, *varica*, *vulcanalis*) associated directly with mountainous areas,

only *varica* occurs at very high elevations.

A. t. vulcanalis and *A. t. varica* approach one another along the southern coast of Haiti; the easternmost record of *varica* (halfway between Cayes Jacmel and Mari-got) and the westernmost record for *vulcanalis* (Trou Roche near Saltrou) are separated by about 38 kilometers (Trou Roche cannot be precisely located). Between Mari-got and Saltrou, the Morne Fortune forms a steep scarp adjacent to the ocean, and this may effectively separate *varica* and *vulcanalis*.

Ameiva taeniura azuae new subspecies

Holotype: MCZ 81078, a subadult male, from 22 km NW Azua, Azua Province, República Dominicana, taken 14 August 1963 by David C. Leber. Original number V459.

Paratype: ASFS V458, same data as type.

Diagnosis: A subspecies of *A. taeniura* characterized by a combination of small (?) size (male 65 mm, female 70 mm snout-vent length), 10 transverse rows of ventrals, very high number of fourth toe subdigital scales, moderate number of femoral pores, and high number of scales in the fifteenth caudal verticil; dorsal pattern consisting of a broad brown dorsal zone, bordered by lemon yellow dorsolateral lines, black lateral fields with many large brick dots; throat black.

Distribution: Known only from the type locality in the Llanos de Azua, República Dominicana (Fig. 1).

Description of type: A subadult male with the following counts and measurements: snout-vent length 65 mm, tail 127 mm, distal half regenerated; ventrals in 34 longitudinal and 10 transverse rows; fourth toe subdigital scales 44 and 41 (total 85); femoral pores 16 and 15 (total 31); 31 scales in the fifteenth caudal verticil. A broad brown dorsal zone, bordered anteriorly by a pair of narrow dorsolateral lemon yellow lines, extending onto the unregenerated portion of the tail. Lateral fields black, continuous from temporal region onto sides

of tail basally, and heavily spotted with large brick dots. Lateral line below lateral fields grayish yellow, fairly prominent. Cheek and auricular spots yellow and moderately prominent. Throat and chest black, infralabials and chin shields dull gray. Venter and underside of hindlimbs bronzy, underside of tail grayish blue. Limbs brown, somewhat marbled with darker gray or brown. Tail not striped dorsally, but with a pale ventrolateral stripe, the continuation of the lateral body stripe.

Variation: The only other specimen is a female with a snout-vent length of 70 mm, ventrals in 31 longitudinal and 10 transverse rows, 79 fourth toe scales, 31 femoral pores, and 30 scales in the fifteenth verticil. In coloration and pattern, the female is identical to the type, except that there are more brick dots in the lateral fields, and these dots are arranged into a series of about nine vertical bars in the posterior half of the fields. The throat of the female was dull gray rather than black; the ventral coloration was bronzy like that of the male.

Comparisons: No previously described race has a black throat, and *azuae* can be thus easily distinguished from all other subspecies. The high counts of fourth toe scales separate *azuae* from all other races; the only exception to this are those lizards from the Cayemites which have counts from 81 to 91. The high fifteenth verticil counts of *azuae* distinguish it from *taeniura*, *reg-natrix*, *aequorea*, *varica* and *barbouri*. Additional specimens of *azuae* will doubtless bring about some overlap in these counts.

Remarks: Although *A. t. azuae* is known only from two specimens, it is eminently distinct. Of all the specimens of *A. t. vulcanalis*, its neighbor to the south, none has a black or gray throat—in fact the vivid flame orange throats of *vulcanalis* offer strong contrast to the black (and gray) throats of *azuae*. The closest approximation of *vulcanalis* (Punta Martín García) to the type locality of *azuae* is only about 23 kilometers airline. The specimens of *azuae* were taken in a moderately mesic ravine in

Acacia scrub. Although we collected extensively in the Llanos de Azua, often in mesic and shady areas, we did not encounter *A. taeniura* elsewhere. Surely the distribution of *A. t. azuae* is more extensive than the present record indicates. Schmidt (1921a: 17) reported Beck's taking of *A. taeniura* in "the interior of Azua Province"; whether this specimen is from the Llanos (and thus probably *azuae*) or is from the interior uplands (where much of Beck's collecting in this area was carried on; see Wetmore and Swales, 1931) is unknown. *A. t. azuae*, in addition to the Llanos de Azua, may occur as well in the Valle de San Juan.

*Ameiva taeniura tofacea*¹ new subspecies

Holotype: MCZ 81079, an adult male, from mouth of the Río Chavón, west side, La Romana Province, República Dominicana, one of a series taken 4 September 1963 by Ronald F. Klinikowski, Albert Schwartz and Richard Thomas. Original number V1065.

Paratypes: ASFS V1064, V1066–68, UIMNH 61611–13, same data as type; CM 40562–63, Río Cumayasa, 17 km W La Romana, La Romana Province, República Dominicana, 28 June 1963, D. C. Leber and R. Thomas; ASFS X9293, 8 km E La Romana, La Romana Province, República Dominicana, 19 July 1963, R. Thomas; AMNH 7567, San Pedro de Macorís, San Pedro de Macorís Province, República Dominicana (no date), G. K. Noble; SMF 25700, San Pedro de Macorís, San Pedro de Macorís Province, República Dominicana, 6 March 1939, R. Mertens; SMF 25553, Tres Ojos, Distrito Nacional, República Dominicana, 16 March 1939, R. Mertens.

Associated specimen: República Dominicana, El Seibo Province, "San Francisco Mountains, \pm 2500 feet," 1 (USNM 35982).

Diagnosis: A subspecies of *A. taeniura* characterized by a combination of large size (males to 96 mm, females to 83 mm

snout-vent length), more often 10 than 8 transverse rows of ventrals (although the difference in incidence between the two categories is slight), and moderate number of fourth toe subdigital scales, femoral pores, and scales in the fifteenth caudal verticil; dorsal pattern consisting of a very pale greenish tan to sandy dorsal zone, bordered by yellow-green dorsolateral lines, lateral fields black with some scattered small brick dots; throat pale orange.

Distribution: Known from Tres Ojos east to the mouth of the Río Chavón; specimens reported by Cochran (1941: 274) from the city of Santo Domingo in the Distrito Nacional may be assignable to this subspecies. The single specimen from the "San Francisco Mountains, about 2500 feet" likewise seems close to *tofacea*, and extends the range of this race into the interior of eastern Hispaniola (Fig. 1).

Description of type: An adult male with the following counts and measurements: snout-vent length 77 mm, tail 143 mm; ventrals in 32 longitudinal and 8 transverse rows; fourth toe scales 36 on one leg, other leg damaged; femoral pores 14 and 13 (total 27); 23 scales in the fifteenth caudal verticil. A broad pale greenish tan dorsal zone, bounded by conspicuous yellow-green dorsolateral lines, and grading to greenish on sacrum and base of tail. Dorsolateral lines continue onto tail and are discernible to near tip. Head pale tannish brown, slightly darker than dorsal zone. Lateral fields black, bordered below by a yellow-green line, and with some scattered rusty flecks. Cheek and preauricular spots yellow, fairly prominent. Lower sides dark gray flecked with cream. Lateral pale stripe continues onto anterior face of thigh, and also resumes on tail as a broad ventrolateral pale stripe; sides of tail black, continuous with lateral fields. Both fore- and hindlimbs tan, much spotted with black. Throat and chest pale orange, remainder of venter pale bluish. Underside of tail pale blue.

Variation: The series of 15 specimens of *A. t. tofacea* has the following counts; lon-

¹ Latin, like sandstone, in allusion to the pale sandy dorsum.

gitudinal ventrals 31–33 (mean 32.1); rows of transverse ventrals 10 (53.3 per cent) or 8 (46.7 per cent); fourth toe scales 66–88 (mean 77.0); femoral pores 27–35 (mean 30.9); fifteenth verticil 21–29 (mean 24.2).

The paratypes agree closely with the type in coloration and pattern. The specimens from the Río Cumayasa were brown to greenish brown dorsally in life, with yellow-green dorsolateral lines and orange cheek and preauricular markings. The specimen from La Romana was bronzy tan above, with yellow dorsolateral lines. The lateral fields usually have some rusty flecks, although three juveniles lack this feature. The throats and chests are regularly pale orange; the ventral ground color varies from pale bluish to pale orange, and in the latter case, the lower sides are also dotted with orange. The underside of the tails varies from clayey gray to blue or blue-green.

Comparisons: From the four extreme western subspecies, *A. t. tofacea* differs in having a dorsal band bordered by dorsolateral stripes, rather than having a striped dorsum. *Tofacea* most closely resembles both *vulcanalis* and *azuae*, but may be distinguished from the latter in having a pale orange rather than a black or gray throat. The throat color of *vulcanalis* is brilliant orange, rather than pale orange. The heavily flecked lateral fields of *vulcanalis* differ from the more sparsely flecked fields of *tofacea*. The obsolete head markings of *vulcanalis* also will differentiate the two races. From *barbouri*, *tofacea* differs in having the dorsal zone bordered by the dorsolateral light lines, by having flecks in the lateral fields, and by having a patterned tail.

Remarks: *A. t. tofacea* occurs from the coast up to elevations of about 2500 feet (762 meters), if the elevation noted for the specimen from the "San Francisco Mountains" is correct. Since these mountains are presently not locatable on any map, I am not completely sure where they are; the major mountain range in extreme eastern Hispaniola is the Cordillera Oriental, whose

maximum elevation is about 2300 feet (701 meters).

The specimen from La Romana was taken in xeric scrub but adjacent to a fence row of shade trees; the series from the Río Chavón was taken along the coast in shaded thorn-scrub and sea-grape. At the Río Cumayasa, on 28 July 1963, Richard Thomas collected five eggs under a large flat rock in the river valley; two of these eggs measured 18.9×13.6 mm and 18.8×11.5 mm. One was opened on the following day and contained a young *Ameiva*. This foetus (ASFS X9927) clearly shows the pattern characteristics of *A. t. tofacea*. As far as I am aware, the eggs of *A. taeniura* have never before been found in the field.

*Ameiva taeniura vafra*¹ new subspecies

Holotype: MCZ 81080, an adult female, from 0.5 mi. (0.8 km) NW Boca de Yuma, La Romana Province, República Dominicana, one of a series taken 30 August 1963 by Albert Schwartz and Richard Thomas. Original number V862.

Paratypes: ASFS V863–66, AMNH 94238–40, KU 93313–15, RT 798, same data as type.

Associated specimen: República Dominicana, La Romana Province, 0.7 mi. SE El Macao, 1 (ASFS X7878).

Diagnosis: A subspecies of *A. taeniura* characterized by a combination of small size (males to 74 mm, females to 71 mm snout-vent length), usually 10 transverse rows of ventrals, moderate number of fourth toe subdigital scales, high number of femoral pores, and low number of scales in the fifteenth caudal verticil; dorsal pattern consisting of a rather narrow yellowish tan dorsal zone bordered by two indistinct yellow dorsolateral lines, lateral fields solid black; throat bright fire orange.

Distribution: Known only from two localities in extreme eastern Hispaniola, to the north and south of Cabo Engaño (Fig. 1).

¹ Latin, cunning, in allusion to their wariness.

Description of type: An adult female with the following counts and measurements: snout-vent length 71 mm, tail 158 mm; ventrals in 31 longitudinal and 10 transverse rows; fourth toe subdigital scales 41 and 41 (total 82); femoral pores 17 and 16 (total 33); 26 scales in the fifteenth caudal verticil. A broad yellowish tan dorsal zone bordered by a pair of dark yellow dorsolateral lines. Both dorsal zone and dorsolateral lines extend onto the tail, where the lines become pale blue and very wide, and continue down the length of the tail but are separated proximally by a black attenuated triangular figure. Lateral fields black, extending from the loreal region along the sides onto the lateral surface of the tail, bordered below by a yellow-orange line, and without any included flecking. Lateral line resumed behind hindlimbs to form a pale blue ventrolateral caudal line. Cheek and preauricular markings bold, yellow-orange. Lower sides gray, flecked with darker gray. Throat and most of venter vivid fire orange; underside of tail pale blue, upperside of tail greenish blue. Limbs marbled tan and dark brownish gray.

Variation: The series of 13 *A. t. vafra* has the following counts: longitudinal ventrals 31–33 (mean 31.7); rows of transverse ventrals 10 (84.6 per cent) or 8 (15.4 per cent); fourth toe scales 70–82 (mean 77.8); femoral pores 31–37 (mean 33.7); fifteenth verticil 20–26 (mean 22.5).

The series of paratopotypes requires no comment; they agree in detail with the type in coloration and pattern. The specimen from El Macao was described in life as having a tan dorsal zone with the edges a bit paler, but without definitive dorsolateral lines; the head was slightly orange. The lateral fields were solid black with a pale yellow lateral line. The lower sides were tan, flecked with pale yellow. The chin, throat, and subocular area were bright orange (Maerz and Paul, 1950: pl. 4D12). These notes agree fairly well with topotypical *vafra*, and I have little hesitancy

in assigning the El Macao lizard to this taxon.

Comparisons: From its neighbor to the west, *A. t. tofacea*, *vafra* differs in smaller size (96 mm versus 74 mm in males) and apparently in having a higher number of femoral pores. The most diagnostic features are the vivid (versus pale) orange throats and solid black lateral fields of *vafra*. From the balance of the races, *vafra* differs in lacking a lined dorsum (as have the four Tiburon and Ile-à-Vache races), in having an orange throat (in contrast to black in *azuave*), and in smaller size and details of pattern and coloration from *vulcanalis*. *Vulcanalis* and *vafra* are virtually separable on the basis of number of scales in the fifteenth verticil; these scales are 24 to 30 in *vulcanalis* and 20 to 26 in *vafra*. From *barbouri*, *vafra* differs in smaller size, in having a patterned tail, and in having a dorsolateral line between the dorsal zone and the lateral fields.

Remarks: The distribution of *A. t. vafra* is apparently restricted to the more xeric coastal region of the Cabo Engaño area. The type series was collected along a roadside and in forest clearings on the limestone ridge which parallels the coast behind Boca de Yuma. The forest is rather mesic and extensive. At El Macao, the single individual was taken in a very mesic hammock woods adjacent to the ocean; several others were seen in a coastal *Cocos* grove nearby. The predilection of *A. taeniura* for shady and moist situations in otherwise arid regions is once more demonstrated.

A. t. vafra approaches *A. t. tofacea* by a distance of 32 kilometers airline (Río Chavón and Boca de Yuma). The area between these two points is presently virtually inaccessible.

Ameiva taeniura rosamondae Cochran, 1934

Ameiva rosamondae Cochran, 1934, Occ. Papers Boston Soc. Nat. Hist., 8:179 (type locality—Isla Saona).

Diagnosis: A subspecies of *A. taeniura*

characterized by a combination of large size (male to 101 mm snout-vent length, no adult females known), 10 transverse rows of ventrals, moderate number of fourth toe subdigital scales, high number of femoral pores, low number of scales in the fifteenth caudal verticil; dorsal pattern consisting of a narrow greenish gray dorsal zone, faint yellow-green dorsolateral lines, solid black lateral field, and a patterned tail; throat orange.

Distribution: Isla Saona, República Dominicana (Fig. 1).

Discussion: *A. t. rosamondae* is known from only two specimens, the type which is an adult male, and a subadult female collected by Richard Thomas. Color notes on the latter describe the details of pattern: top of head and anterior portion of dorsal zone tan, fading to greenish gray, and becoming green and then blue on tail; the tail has a charcoal wash down its median basal portion. The dorsolateral stripes are yellow-green, the lateral fields solid black bordered below by a pale green lateral stripe. The snout is orange; the mental region is pink, becoming orange on the throat and chest. The venter is grayish green (the anterior scales are edged with orange). The tail is greenish dorsally at the base and deep blue (pl. 36L6) for its distal three-quarters. The upper surface of the limbs is charcoal colored.

The new specimen agrees with the type in pattern. To the above description may be added that the dorsal zone is narrow and the lateral fields especially wide. The lateral fields continue boldly onto the sides of the tail as broad black bands; the lateral stripe forms a broad pale ventrolateral caudal stripe. The cheek and preauricular spots are present but obsolete. The sides below the lateral stripe are gray with black flecking.

Comparisons: Remarkably, in pattern *A. t. rosamondae* most closely resembles *A. t. barbouri* from Gonâve. The tan dorsum of the latter contrasts with the greenish gray

dorsum of the former. The dorsal zone is much narrower in *rosamondae* than in *barbouri*, and the former has a patterned versus an unpatterned tail. From *A. t. vafra* on the adjacent mainland, *rosamondae* differs in being much larger (101 versus 74 mm in males), and in lacking obvious dorsolateral longitudinal lines. The tails of these two races are very similar in pattern and pigmentation. Comparison with the other subspecies is not necessary, since *rosamondae* is quickly distinguishable both from those subspecies with lined dorsa and those with zonate dorsa by its coloration and pattern.

Remarks: *A. t. rosamondae* is apparently uncommon on Isla Saona; Thomas saw no other individuals in his eight hours ashore there. It is really remarkable that the type of *rosamondae* (until now the only known specimen) is such a large individual; it ranks third among all specimens of *A. taeniura* I have examined.

Specimens examined: República Dominicana, Isla Saona, environs of Mano Juan, 1 (ASFS V3003); no precise locality, 1 (MCZ 37567—type).

*Ameiva taeniura ignobilis*¹ new subspecies

Holotype: MCZ 81081, an adult male, from 14.4 km E La Vega, La Vega Province, República Dominicana, one of a series taken 27 November 1964 by Richard Thomas. Original number V4204.

Paratypes: ASFS V4205–07, same data as type; ASFS V4270, 12 km NE Jarabacoa, 1400 feet (427 meters), La Vega Province, República Dominicana, 30 November 1964, native collector; ASFS V2925–27, 7 km W Santiago, Santiago Province, República Dominicana, 13 July 1964, R. Thomas; MCZ 58664, Santiago, Santiago Province, República Dominicana, (no date), Dr. Jiménez; SMF 26124, SMF 26251, SMF 26289, SMF 26317, Moca, Espaillat Province, República Dominicana, 10–16 April 1939, R. Mertens; MCZ 58667, Santiago and vicinity, Santiago

¹ Latin, obscure, ignoble, in allusion to the dark throat.

Province, República Dominicana, (no date), Dr. Jiménez; MCZ 57730, 3 km S Pena, Santiago Province, República Dominicana, 4 August 1958, C. E. Ray and A. S. Rand.

Associated specimens: República Dominicana, Santiago Rodríguez Province, 19 km SE Martín García, 600 feet (183 meters), 5 (ASFS V1253-57); Puerto Plata Province, Puerto Plata, 2 (MCZ 5441, AMNH 44845); Samaná Province, Samaná, 3 (AMNH 40984-85, MCZ 43700); 2 mi. from Samaná (not mapped), 1 (AMNH 42296); 1.5 mi. (2.4 km) from Samaná (not mapped), 4 (AMNH 42304-07); Rojo Cabo, 11 (AMNH 39346-53, 40254-56); Chico Puerto Francés (not mapped), 4 (AMNH 42300-03); 0.5 mi. (0.8 km) inland at Puerto Francés (not mapped), 3 (AMNH 42310-12); between Las Flechas and Clara (not mapped), 1 (AMNH 42297); Bahía del Rincón, 2 (AMNH 42298-99); Laguna, 1 (USNM 65018); Sánchez, 1 (CM 8137); "Samaná Peninsula," 1 (USNM 66765); Isla Carenero, 6 (AMNH 42274-79).

Diagnosis: A subspecies of *A. taeniura* characterized by a combination of large size (males to 102 mm, females to 103 mm snout-vent length), usually 10 transverse rows of ventrals, moderate number of fourth toe subdigital scales, femoral pores, and scales in the fifteenth caudal verticil; dorsal pattern consisting of a broad brown dorsal zone, bordered by bright green or yellow-green dorsolateral lines, lateral fields black with large dull red flecks; throat black or gray.

Distribution: In the west, from south of Martín García and near La Vega, east to the tip of the Península de Samaná; apparently also on the north coast near Puerto Plata (Fig. 1).

Description of type: An adult male with the following counts and measurements: snout-vent length 87 mm, tail 201 mm; ventrals in 34 longitudinal and 10 transverse rows; fourth toe subdigital scales 35 and 33 (total 68); femoral pores 15 and 16 (total 31); 29 scales in the fifteenth caudal verticil. A broad deep brown dorsal zone, bor-

dered by bright green dorsolateral lines, the dorsal zone continuing onto the tail where it gradually becomes checkerboarded and then inconspicuous; dorsolateral lines on tail faint. Lateral fields with faint orange, large, scattered spots. Lateral field begins on temporal region and continues onto basal portion of tail, where it is invaded by brown scales. Lateral field bordered below by a greenish yellow lateral line, which stops at the hindlimbs, and then continues onto the tail as a ventrolateral pale greenish gray line. Lower sides black mottled with reddish. Lower labials and tip of chin orange, throat black; chest dull gray, venter light gray. Underside of tail blue-black. Both fore- and hindlimbs heavily blotched brown and black. Cheek and preauricular spots orange, fairly prominent.

Variation: The series of 53 *A. t. ignobilis* has the following counts: longitudinal ventrals 30-34 (mean 32.3); rows of transverse ventrals 10 (82.7 per cent) or 8 (17.3 per cent); fourth toe scales 68-86 (mean 76.0); femoral pores 26-36 (mean 30.4); fifteenth verticil 23-30 (mean 26.0).

I am not certain that the large series of specimens from the Península de Samaná (38 lizards) is correctly associated with the lizards from the interior. This is partly due to the fact that I have never seen the Samaná lizards in life, despite three trips to the peninsula by myself and Richard Thomas. On the other hand, there are no scale differences between the two major samples, and I cannot at present determine any coloration or pattern differences. The Samaná lizards reach a larger size than do those from the interior, and in fact the largest female of any subspecies of *A. taeniura* is a Samaná lizard (USNM 65018). This female exceeds the largest female of any other races (*A. t. tofacea*, 83 mm) by 20 mm.

The dorsal band in western (interior) specimens of *A. t. ignobilis* is dark brown; it was noted in the specimen from Jara-bacoa that the dorsal zone granules are green basally, so that when viewed from

behind or above, the zone appears to be stippled with bright green. The dorsolateral lines are fairly conspicuous and vary from bright green to greenish yellow. The lateral fields are black, with rather large and scattered faint reddish to orange spots (although five young individuals with snout-vent lengths to 47 mm lacks dots). The cheek and preauricular markings may be orange or grayish yellow. The lateral stripes vary between greenish yellow and cream. The throat is always black or gray (in females or subadult males), although the labials may be bright orange. The venter is variable, having been recorded as yellowish gray or gray with an orange wash (Santiago), light gray (adult male) or orange (juveniles and females) (La Vega), pink (Jarabacoa), and bluish gray with faint orange posteriorly (Martín García). The upper surface of the tail is tan or brown proximally, usually with some checkerboarding, and black distally. One specimen (MCZ 57730) has the checkerboarding continued onto the posterior third of the dorsal zone.

A conspicuous pattern difference between these interior specimens and those from the Samaná is that the tails of Samaná lizards are prominently lined longitudinally, and lack the uniform coloration of the tails of interior individuals. I have little doubt that fresh Samaná specimens will be distinct from lizards from the interior region.

Comparisons: *A. t. ignobilis* requires comparison only with *A. t. azuae*; all other described races have orange rather than black throats. From *azuae*, *ignobilis* differs in much larger size (102 mm versus 65 mm), in having a dark brown rather than brown dorsal zone, and in not having so many dots in the lateral fields. The means of fourth toe scales are quite different (82.0 in *azuae*, 76.0 in *ignobilis*), but the counts on the two specimens of *azuae* are embraced by the counts of *ignobilis*.

Remarks: Additional specimens, presumably *ignobilis*, have been reported by Mertens (1939: 73) from the Río Mao near

Monción, Santiago Rodríguez Province, and by Schmidt (1921a: 17) from the Río Gurabo and the Río Cana, probably also in Santiago Rodríguez Province, and from Villa Riva, Duarte Province. The latter record bridges the gap between the interior and Samaná localities.

The strange rarity of *A. taeniura* on the north coast of the República Dominicana deserves comment; there are but two specimens from this region, from Puerto Plata. During a lengthy stay at Sosúa in this area, and extensive travel along the north coast from Imbert to Gaspar Hernández, we encountered no *A. taeniura*. It is possible that specimens from along this north coast will differ considerably from material to the south and east.

In the interior, *A. t. ignobilis* occupies the foothills and northern slopes of the Cordillera Central to elevations of 1400 feet (427 meters). It occurs as well in the eastern (and more mesic) extremity of the Valle de Cibao near Santiago. The type and paratypes were collected in a plantain plantation near the Río Camú, and the specimens from Martín García were taken in woods along the edge of a stream. The specimen from Jarabacoa apparently came from pine forest.

*Ameiva taeniura algida*¹ new subspecies

Holotype: MCZ 81082, an adult male, from 1 mi. (1.6 km) WSW Constanza, 4000 feet (1220 meters), La Vega Province, República Dominicana, one of a series taken 2 July 1963 by native collector. Original number X8503.

Paratypes: ASFS X8502, X8504–06, same data as type; AMNH 94241–44, MCZ 81083–85, RT 683, same locality as type, 3 July 1963, native collector; ASFS X8653–54, UIMNH 61614–15, same locality as type, 4 July 1963, native collector; ASFS X8825, 6 km W Constanza, 4250 feet (1296 meters),

¹ Latin *algida*, cold, referring to the high elevation of this subspecies.

La Vega Province, República Dominicana, 9 July 1963, R. Thomas.

Diagnosis: A subspecies of *A. taeniura* characterized by a combination of moderate size (males to 92 mm, females to 76 mm snout-vent length), always 10 transverse rows of ventrals, moderate number of fourth toe subdigital scales and femoral pores, and high number of scales in the fifteenth caudal verticil; dorsal pattern consisting of a brown to reddish brown dorsal zone without dorsolateral light lines in adults (but present and yellow in juveniles), the dorsal zone heavily dotted with conspicuous yellow dots in males but not in females, lateral fields black to dark reddish brown flecked with brick or golden, lower sides heavily and boldly dotted with cream; throat and chest black.

Distribution: Known only from the vicinity of Constanza in the Cordillera Central, República Dominicana (Fig. 1).

Description of type: An adult male with the following counts and measurements: snout-vent length 91 mm, tail 79 mm, broken; ventrals in 32 longitudinal and 10 transverse rows; fourth toe subdigital scales 41 and 40 (total 81); femoral pores 16 and 16 (total 32); 26 scales in the fifteenth caudal verticil. A broad reddish brown dorsal zone, without indications of dorsolateral light lines, heavily dotted with yellow dots from the neck to the base of the tail, but more abundant and clear posteriorly; lateral field black, flecked with golden dots. Lateral line absent, the region between the lateral edges of the ventral plates and the lateral fields heavily sprinkled with creamy to golden dots. Temporal and preauricular markings absent. Upper surface of tail brown with some darker brown checkerboarding basally, and with no prominent longitudinal lines or dark lateral band, the underside of the tail dull grayish tan. Chin and snout bright orange, infralabials greenish yellow, throat and chest (including the first seven transverse rows of ventrals) black. Venter black, dotted with bright blue. Forelimbs marbled black and brown,

hindlimbs blotched with reddish brown dorsally and spotted bright blue on their anterior faces.

Variation: The series of 18 *A. t. algida* has the following counts: longitudinal ventrals 31–33 (mean 32.0); rows of transverse ventrals always 10; fourth toe scales 67–86 (mean 74.6); femoral pores 27–38 (mean 31.2); fifteenth verticil 24–31 (mean 27.8).

Male *A. t. algida* agree with the description of the type; the dorsal zone may be brown or reddish brown, and the lateral fields vary between black and dark reddish brown, flecked in smaller males with brick and with golden in adults. The dorsal surface of the hindlimbs may be dotted with golden flecks. The four smallest males (snout-vent lengths to 73 mm) lack dorsal dotting. The females lack dotting, but have the dorsal zone, especially posteriorly, marbled with darker brown; the snout in females is pinkish, not orange. In females the lateral fields are black with many brick dots, and the lateral and dorsolateral lines vary between yellow and pale yellow-green. The throats are gray and the venter dull reddish orange. All adult males have black throats and chests, and in some specimens the black continues posteriorly to the center of the abdomen. The smallest male with a black throat has a snout-vent length of 65 mm, although two slightly larger males (66 and 73 mm) have only gray throats. In females, the cheek and preauricular spots are more clearly defined than in males.

Comparisons: *A. t. algida* requires comparison only with the two other black-throated races, *azuae* and *ignobilis*. All other subspecies have orange throats. From both *azuae* and *ignobilis*, *algida* differs in having a black chest (and at times part of the abdomen) and in having the dorsum in males dotted with bright yellow. The heavily dotted sides and obsolescent lateral line in adult males will also distinguish *algida* from the two other subspecies.

Remarks: *A. t. algida* is known only from a rather circumscribed area in the Cordil-

lera Central at elevations of 4000 and 4250 feet (1220 and 1296 meters); undoubtedly it is more widespread than these data indicate. We spent two weeks at Constanza and saw only one lizard, which was collected by Richard Thomas late in a warm morning in a wooded but cut-over ravine. The natives who collected most of the specimens indicated that they had been taken in open areas near Constanza. Much of the slopes above the Valle de Constanza today is covered with mixed pine and deciduous shrubs and low trees; such a shaded habitat seems a very suitable situation for *A. taeniura*.

The only subspecies of *A. taeniura* adjacent to *algida* is *ignobilis*. The closest these two races are known to approach one another is about 37 kilometers, airline. The intervening area, however, is extremely rugged and dissected, and the two races may not be in direct contact.

NORTHWESTERN REPUBLICA DOMINICANA AND NORTHERN HAITI

There remain six other specimens, two from extreme western República Dominicana, and four from Haiti north of the Cul de Sac Plain, which require special comment. These are the only specimens of *A. taeniura* available from this region, and although they are suggestive, they are inadequate for systematic treatment.

1) ASFS V1168-69, 1 km S Loma de Cabrera, 900 feet (274 meters), Dajabón Province, República Dominicana. These are two males with the largest having a snout-vent length of 50 mm; they are both obviously young. In addition, the smaller is badly damaged. There is nothing distinctive about the scale counts. The throats were grayish orange in life (and thus not like either the adjacent *ignobilis* or *algida*), and the dorsal zones were olive, almost black, with the smaller having bright yellow dorsolateral lines. The lateral fields are black with red dots. The entire tail is very

dark blue-black, with the dorsolateral pale lines very much reduced and almost absent. Quite obviously, these two lizards are not assignable to either *ignobilis* or *algida*. Their correct designation must await further material.

2) AMNH 49848, near Plaisance, Dépt. du Nord, Haiti. This is a large male with a snout-vent length of 87 mm. It is presently very discolored, but a dark median zone can be ascertained, and there appear to be dorsolateral lines. The lateral fields are flecked with pale. The entire venter is presently black, and presumably in life at least the throat (and chest) may have been black. The tail is patternless. This individual, separated from the nearest record of *ignobilis* by about 120 kilometers, airline, and from the Dajabon specimens noted above by about 85 kilometers, might be considered to be *ignobilis*. I prefer to consider it presently unidentifiable to subspecies.

3) USNM 74133-34, St. Michel de l'Atalaye, Dépt. de l'Artibonite, Haiti. These are two males with snout-vent length of 70 and 64 mm. The smaller has a black chest and throat, the larger has these regions gray. There is a broad dorsal zone with prominent pale dorsolateral lines. The lateral fields are heavily dotted with pale, and the lateral line is especially prominent. These two lizards might also be regarded as *ignobilis*, but they may well belong to the same taxon as the specimen from Plaisance (from which St. Michel is separated by only 28 kilometers). More material is badly needed from northern Haiti before any of these lizards can be evaluated properly.

4) USNM 75922, "Artibonite Valley," Haiti. I have commented elsewhere (Schwartz, 1966b) on the status of a specimen of *Leiocephalus melanochlorus* supposedly collected by J. S. C. Boswell in the Artibonite Valley; that lizard clearly came from the southwestern portion of the Tiburon Peninsula, probably in the vicinity of Les Cayes where Boswell is known to have collected. The *Ameiva*, although much discolored, is dorsally lined, and resembles (in

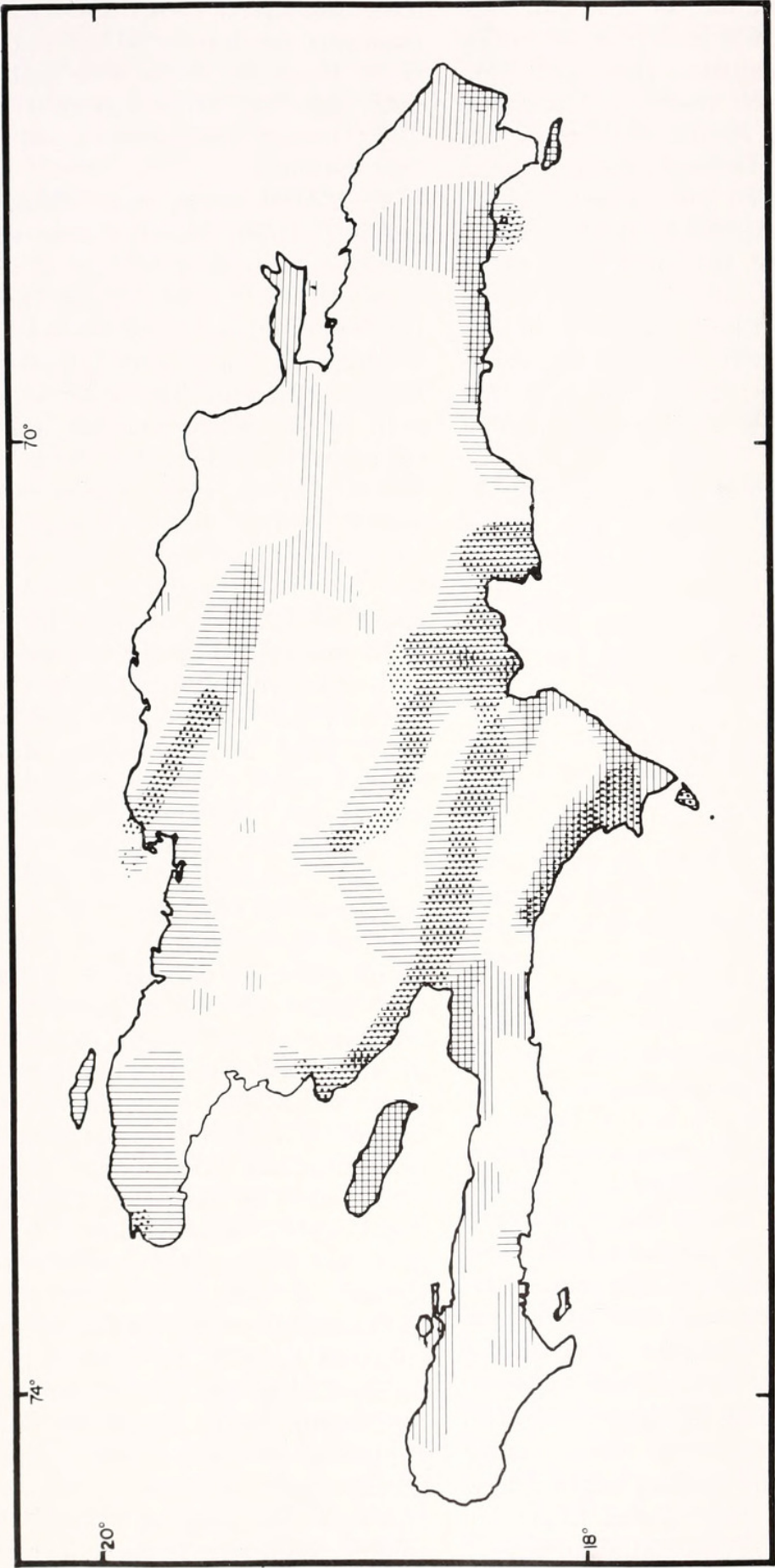


Fig. 2. Hispaniola, showing the combined known distributions of *Ameiva taeniura* (horizontal lines), *A. chrysolaema* (vertical lines) and *A. lineolata* (coarse stippling). Note general concordance of ranges of *lineolata* and *chrysolaema*, and rare sympatry between these two species and *A. taeniura*.

what details are discernible) specimens of *A. t. regnatrix*. Since there are no lined populations known from north of the Cul de Sac-Valle de Neiba plain, and since Boswell is known to have collected in the Les Cayes region, it seems likely that this *Ameiva* originated in that region and not in the Artibonite Valley. The closest record of *A. taeniura* to the Artibonite Valley itself is that of *A. t. barbouri*, a very distinctive subspecies. It is possible that there is a population of *A. taeniura* in the Artibonite Valley, but I consider it unlikely that this specimen originated there.

DISCUSSION

Ameiva taeniura, along with *Ameiva lineolata* and *Ameiva chrysolaema*, completes the roster of Hispaniolan teiids. The latter two species have been recently discussed (Schwartz, 1966a, Schwartz and Kliniowski, 1966) and the conclusion reached that both are north island (*sensu* Williams) species. Both *lineolata* and *chrysolaema* are confirmed inhabitants of xeric regions, the former somewhat more so than the latter. *A. lineolata* occurs on the south island only on the Península de Barahona (and Isla Beata), and *A. chrysolaema* occurs only east of a line drawn between Léogâne and Saltrou in Haiti (except for an isolated record at Aquin). Thus neither *lineolata* nor *chrysolaema* have extensive south island distributions. Reasons for suggesting that these two species are immigrants onto the south island have been discussed in the two papers mentioned above.

A. taeniura, on the other hand, occurs (in a general fashion) throughout much of the south island, and on Ile-à-Vache and the Cayemites. The peninsular races (*taeniura*, *regnatrix*, *varica*, and *aequorea*) share in a community of characters which include orange throats and lined dorsa. The eastern south island race *vulcanalis*, as well as all the north island races, have dorsa which show a dorsal zone. The races on Gonâve and Saona have this type of pattern also.

It seems likely that *A. taeniura* is the south island *Ameiva* and that it was, prior to the invasion of *A. chrysolaema* and *A. lineolata*, the dominant and only ground lizard on this southern land mass.

Of the north island Dominican races (*azuae*, *tofacea*, *vafra*, *ignobilis*, and *algida*), two have orange throats (*tofacea*, *vafra*) and the balance have black throats. The orange-throated races are, I believe, derivatives of the eastern south island *vulcanalis*, which has successfully been able to cross the eastern (mesic) end of the arid Valle de Neiba (*vulcanalis* occurs today on the north island at Punta Martín García) and from this region has expanded to the east along the southern Dominican littoral as far as Cabo Engaño (and has reached Isla Saona as well). The current absence of records for *A. taeniura* between Punta Martín García and Santo Domingo may reflect only that the proper microhabitats in the intervening region have not been sampled; the fortuitous taking of *A. t. azuae* in the Llanos de Azua in a particularly favorable niche in an otherwise inhospitable (for *A. taeniura*) environment shows how isolated populations of this species might easily be overlooked. On the other hand, the gap between *vulcanalis* and *tofacea* may be real; since much of the intermediate area is today the hot and dry Llanos de Azua, it is possible that there may not be populations of *A. taeniura* throughout the entire region.

The origin of the northern black-throated races (*algida*, *ignobilis*) is difficult to determine. The situation in northern Haiti is presently completely unknown. As far as we now know, *tofacea* (orange-throated) and *ignobilis* (black-throated) approach one another most closely in the vicinity of the Bahía de Samaná (for the moment I am disregarding the approximation of black-throated *azuae* and orange-throated *vulcanalis* to the south). The possibility suggests itself that the black-throated forms represent a long isolated off-shoot from the south island stock which has become restricted to the more northern and (generally) interior

regions of the north island. The scattered nature of the records for the black-throated subspecies suggests as well that these populations are in the process of becoming restricted in distribution, and what we see today are mere remnants of a formerly much more widespread range. In confirmation of this supposition is the finding of fossil *A. taeniura* (Etheridge, 1965:99) at Pedro Santana, San Rafael Province, República Dominicana, in an area where today the species is not known to occur. If we consider the black-throated races as being an old north island element, then *azuae* must be included, despite its proximity to orange-throated *vulcanalis*. The precise geographical relationships between the races *vulcanalis*, *azuae*, and *tofacea* in the Llanos de Azua and along the southern Dominican coast would be of extreme interest in clarifying the patterns of distribution of orange- and black-throated races in this area, but material is presently not available.

To sum up the above interpretations, I visualize *A. taeniura* as the south island Hispaniolan *Ameiva*; at some distant time, a stock of *A. taeniura* invaded the north island (either when the interisland strait was temporarily closed, or across the water gap) and evolved into the black-throated form of which *ignobilis*, *azuae*, and *algida* are now remnants. Secondly, *vulcanalis* from the south island later invaded the southern shore of the north island, and has since spread to the east and onto Isla Saona, and has developed two subspecies in the eastern portion of its range.

I have made no mention of *A. t. barbouri* in the above discussion. Its occurrence on the Hispaniolan mainland and on Ile de la Gonâve suggest that, rather than having evolved on Gonâve, this race has invaded Gonâve from the mainland. The Gonâve fauna includes such elements as *Diploglossus curtissi*, *Anolis brevirostris* and *Dromicus parvifrons alleni*; of these three forms, the galliwasp and the anole occur along the northern shore of the Golfe de la

Gonâve and in the Haitian Cul de Sac Plain, and the snake has been shown to be strangely like some specimens of *D. p. protenus* from the Cul de Sac (Thomas and Schwartz, 1965). The Cul de Sacian affinities with Gonâve, and additionally with the adjacent mainland coast to the northwest, are rather striking. There would thus seem the possibility that *barbouri* represents a derivative from the (proto) *vulcanalis* stock which early crossed the Cul de Sac strait, and developed along the southern littoral of the north island. With the closure of the strait, the resulting arid plain was too xeric for *barbouri* (and this plain likely was rapidly colonized by *A. lineolata* and *A. chrysolema*, as well as by *Leiocephalus semilineatus* and *L. schreibersi*—four species of ground dwelling lizards which bracket in size the intermediately-sized *barbouri*), and the race has become increasingly restricted in distribution to the shore of the Golfe de la Gonâve. At some time, *barbouri* has reached Gonâve, as have the other species noted above. Such a proposed history would be confirmed if *barbouri* were to be taken along the northern side of the Cul de Sac-Valle de Neiba plain in the foothills of the Montagnes du Trou d'Eau or the Sierra de Neiba; these particular areas have not been well collected. Casual observation of much of these foothill areas indicates that, compared with the ecological situations where *barbouri* was taken on Gonâve and at Trou Forban, they might well be very suitable for this subspecies.

As has been stated previously, *A. chrysolema* and *A. lineolata* are both inhabitants of xeric environments, whereas *A. taeniura* prefers cool and shady habitats. Inspection of the map (Fig. 2) showing the known distributions of the three species on Hispaniola and its satellite islands, shows that the ranges of *A. chrysolema* and *A. lineolata* correspond very closely. Only in occasional areas does *lineolata* occur without *chrysolema*. *A. taeniura* overlaps *A. lineolata* in three major areas: the Península de Barahona, Trou Forban, and the Llanos de Azua.

In the latter two areas, the known distribution of *A. taeniura* is confined to but a single locality. *A. taeniura* and *A. chrysolaema* are somewhat more widely sympatric; known areas include the northeastern shore of the Tiburon Peninsula, portions of the Península de Barahona and the southern shore near Saltrou, the southeastern coast near Santo Domingo, the extreme eastern end of the island, the eastern end of the Valle de Cibao, and the islands of Gonâve and Saona. The three species are sympatric in only four areas: Trou Forban, Península de Barahona, Llanos de Azua, and Punta Martín García. In three of these regions of triple overlap, *A. taeniura* is distinctly the less common of the three species, and is restricted to the more mesic microsituations within the widespread arid macrosituation. In the fourth region (Península de Barahona), the same ecological arrangement of species occurs, but all three are widespread

throughout the Península, with *lineolata* having the most restricted distribution. The more stringent ecological requirements of *lineolata* have doubtless brought this about; the eastern coast of the Península is more mesic and unsuitable for *lineolata*.

There are still wide areas in Hispaniola where *Ameiva* is unknown. Much of central Haiti is still *terra incognita* as far as the genus is concerned. At least *A. taeniura* (and possibly *A. chrysolaema*) should have wider distributions in this section. The same statement may be made concerning the extreme eastern and central República Dominicana. The status of *A. taeniura* along the north Dominican coast in the region of Puerto Plata and the interrelationships of the races *ignobilis*, *tofacea*, and *vafra*, on one hand, and of *vulcanalis*, *azuae* and *tofacea*, on the other, all require additional study.

KEY TO THE SUBSPECIES OF HISPANIOLAN AMEIVA¹

- | | |
|---|---|
| 1. Size small (to 59 mm snout-vent length);
8 (occasionally 10) transverse and 26–33
longitudinal rows of ventrals; 14–21 scales
in fifteenth caudal verticil; caudal scales
smooth and oblique; dorsal pattern a se-
ries of boldly contrasting narrow black
and white lines (<i>A. lineolata</i>) 2 | 5. Usually 11 dorsal black lines at midbody;
snout clear pale sandy <i>A. l. perplicata</i>
Usually 10 dorsal black lines at midbody 6 |
| Size larger; 8–12 transverse and 28–41
longitudinal rows of ventrals; 18–52 scales
in fifteenth caudal verticil; caudal scales
keeled, and straight or oblique; dorsal
pattern never as described above 7 | 6. Usually 7 black lines at level of sacrum;
size smaller (to 55 mm snout-vent length);
median black line broken on head or
neck <i>A. l. meracula</i>
Usually 8 black lines at level of sacrum;
size larger (to 59 mm snout-vent length);
median black line entire or broken
..... <i>A. l. lineolata</i> |
| 2. Usually 9 dorsal black lines at midbody .. 3
Usually 10 or 11 dorsal black lines at
midbody 5 | 7. Size large (to 160 mm snout-vent length);
10–12 transverse and 33–41 longitudinal
rows of ventrals; 30–52 scales in fifteenth
caudal verticil; caudal scales keeled and
straight (<i>A. chrysolaema</i>) 8
Size moderate (to 103 mm snout-vent
length); 8–10 (usually 10) transverse
and 28–35 longitudinal rows of ventrals;
18–31 scales in fifteenth caudal verticil;
caudal scales keeled and oblique (<i>A.</i>
<i>taeniura</i>) 24 |
| 3. Snout and top of head black 4
Snout and top of head pale <i>A. l. semota</i> | 8. Ventrals modally in 10 transverse rows 9
Ventrals modally in 12 transverse rows 19 |
| 4. Modal black stripe formula 7–9–7; throat
creamy, not pale blue like balance of
venter <i>A. l. privigna</i>
Modal black stripe formula 7–9–8; throat
pale blue <i>A. l. beatensis</i> | 9. Dorsum patternless 10
Dorsum with pattern 12 |
| | 10. Size large (to 137 mm snout-vent length);
dorsum gray-green with indistinct gray-
brown mottling in lateral field area; no |

¹ This key depends in usefulness on having freshly taken specimens which still retain their original colors and patterns. Attempts to determine old badly faded or discolored specimens will meet with limited success, except in cases where scale counts or gross pattern are definitive.

- black gular band *A. c. richardthomasi*
 Size smaller (to 126 mm snout-vent length); dorsum rusty brown, yellowish tan, grayish brown or olive; lateral fields absent or only vaguely indicated; black gular band present 11
11. Size small (to 111 mm snout-vent length); venter deep orange-red; lateral fields absent *A. c. leberi*
 Size larger (to 126 mm snout-vent length); venter some shade of blue to orange-gray; lateral fields absent or only indicated by a gray lateral stripe *A. c. boekeri*
 Dorsal pattern consisting of pale blue spots on a tan to brown ground *A. c. ficta*
 Dorsal pattern not consisting of spots 13
12. Dorsum gray-green, heavily mottled with black; sides with black tigroid lateral markings *A. c. richardthomasi*
 Dorsum lined 14
13. Dorsal pattern of 5 pale lines on a very dark brown ground; pattern often highly modified to give complex longitudinal dorsal figures; sides with vertical tigroid markings *A. c. woodi*
 Dorsal pattern of 5 or more lines, each line often consisting of longitudinal series of pale dots; sides without tigroid markings 15
14. Dorsum tan to brown, with 6 or 7 dull pale lines; lateral fields brown and often without included pale dots; no black gular band *A. c. defensor*
 Dorsum seldom brown, with 5 to 10 lines; lateral fields black; black gular band present 16
15. 5-7 dorsal lines entire; dorsum brown *A. c. alacris*
 6-10 dorsal lines fragmented 17
16. Dorsum reddish brown; venter blue to solid black *A. c. procax*
 Dorsum gray, olive, to black; ventral coloration varying from gray to grayish orange, never black 18
17. Lateral fields prominent, outlined by pale longitudinal lines *A. c. boekeri*
 Lateral fields obscure, not outlined by pale longitudinal lines *A. c. umbratilis*
18. Dorsum spotted or reticulate 20
 Dorsum lined 21
19. Dorsum with discrete sky-blue spots on a black ground *A. c. abbotti*
 Dorsum with discrete or confluent (yielding a reticulum) yellow spots on a tan to blackish brown ground *A. c. parvoris*
20. Dorsum with 5 wide black and confused longitudinal lines on a tannish gray to dark brown ground; lateral tigroid markings present and joined to the dorsal pattern; lateral fields absent *A. c. jacta*
- Dorsum with 5 to 7 pale lines; lateral fields present, no tigroid markings 22
21. Aspect faded; 6-7 dull buffy lines on reddish brown ground; lateral fields grayish brown; usually with black gular band reduced or absent *A. c. secessa*
 Aspect not faded; lateral fields black; black gular band present or absent 23
22. Size large (to 160 mm snout-vent length); dorsal pattern a series of 6 lemon yellow lines and/or linear series of dots on a dark brown to reddish brown ground; black gular band present *A. c. chrysolema*
 Size smaller (to 132 mm snout-vent length); dorsal pattern a series of 5-7 pale yellow lines (at times modified into a clear tan middorsal zone) on a tan to brown ground; black gular band absent, or present but not extensive *A. c. regularis*
23. Dorsum with a series of longitudinal lines and/or a middorsal zone accompanied by longitudinal lines; throat orange 25
 Dorsum without a series of longitudinal lines but with a middorsal zone; throat orange or black (including gray) 29
24. Usually 10 transverse rows of ventrals 26
 Eight transverse rows of ventrals *A. t. regnatrix*
25. Total number of fourth toe scales 85 *A. t. navassae*
 Total number of fourth toe scales 83 or less 27
26. Dorsum with 5 longitudinal lines; lateral fields without dots *A. t. aequorea*
 Dorsum with a dorsal zone and associated longitudinal lines 28
27. Dorsum with a middorsal zone and one or two pairs of dorsolateral lines; lateral fields with only a few scattered pale dots, often only posteriorly *A. t. taeniura*
 Dorsum with a middorsal zone and one pair of dorsolateral lines; lateral fields with prominent and scattered pale (red to buffy) dots *A. t. varica*
28. Throat orange 30
 Throat (or throat and chest) black (including gray) 34
29. Dorsolateral lines completely absent; lateral fields immediately adjacent to dorsal zone; tail unlined *A. t. barbouri*
 Dorsolateral lines present or at least indicated 31
30. Throat pale orange; lateral fields sparsely flecked with rusty *A. t. tofacea*
 Throat orange, but not pale 32
31. Throat vivid fire orange; lateral fields heavily flecked with orange *A. t. vulcanalis*
 Throat orange; lateral fields without flecks 33
32. Dorsolateral lines distinct, yellow-green;

- dorsal zone greenish gray — *A. t. rosamondae*
Dorsolateral lines indistinct, yellow; dorsal zone yellowish tan — *A. t. vafra*
34. Only throat black — 35
Throat and chest black; dorsum in ♂'s heavily dotted with yellow, in ♀'s marbled with dark brown — *A. t. algida*
35. Size small (to 70 mm snout-vent length); dorsolateral lines lemon yellow — *A. t. azuave*
Size large (to 103 mm snout-vent length); dorsolateral lines green or yellow-green — *A. t. ignobilis*

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