

Contributions in Biology and Geology

Number 47

December 30, 1981

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MILWAUKEE
PUBLIC
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ISBN 0-89326-077-0

Accepted for publication November 11, 1981

Milwaukee Public Museum Publications

Published by the order of the Board of Trustees

Milwaukee Public Museum

800 West Wells Street

Milwaukee, Wisconsin 53233

Variation in Hispaniolan *Anolis olssoni*
Schmidt (Reptilia: Sauria: Iguanidae)

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ABSTRACT — The Hispaniolan “grass anole,” *Anolis olssoni* Schmidt, is widespread on the Hispaniolan north island and has invaded the south island Península de Barahona and Ile de la Gonâve. Although these lizards are xerophilic, their dorsal color and pattern are not always pale as is typical of desert lizards. Seven subspecies are recognized on the main island and another on Ile de la Gonâve. These differ in color, pattern, and scutellation, and at least two are apparently widely disjunct from other populations. Two Dominican and two Haitian populations are left unassigned subspecifically, primarily due to inadequate samples.

On the Greater Antillean islands of Hispaniola, Cuba, and Puerto Rico is a complex of anoles which have come to be called “grass anoles” due to their habitat. The head and body shapes, as well as their very elongate tails, make these anoles conform to the shapes of blades of grass, although they are not rigidly restricted to this sort of physical situation. Still, their elongate form strongly suggests that they are at least adapted for camouflage on elongate substrates. Most of them are colored some shades of grays to browns and tans, with primarily lineate dorsal patterns, either vague or prominent, so that they are to a large extent camouflaged both diurnally and nocturnally by their coloration to low shrubs, herbs, or grasses. Their generalized means of escape is to drop to the ground and “disappear” in the tangled masses of grass culms or other ground vegetation. In Puerto Rico occur *A. krugi* Peters, *A. pulchellus* Duméril and Bibron, and *A. poncensis* Stejneger, of which *A. krugi* seems the most primitive (Williams, 1961) and departs most radically in coloration and pattern from the above generalized description. On Cuba occur *A. alutaceus* Cope, *A. antifloquioi* Garrido, *A. clivicola* Barbour and Shreve, *A. cyanopleurus* Cope, *A. cupeyalensis* G. Peters, *A. mimus* Schwartz and Thomas, *A. fugitivus* Garrido, *A. spectrum* Peters, *A. vanidicus* Garrido and Schwartz, and *A. juangundlachi* Garrido (list updated from Williams, 1961:4). Of the Cuban species, *A. cyanopleurus* and *A. mimus* depart from the above generalized description in that their

basic ground color is some shade of green (Garrido, 1975, 1980), rather than gray or brown. Williams (1961:4-5) briefly discussed the habitat preferences of the then-known non-Hispaniolan species and showed that not all of them are confirmedly open xeric area lizards.

On Hispaniola, there are recognized three species of grass anoles: *A. semilineatus* Cope, *A. olssoni* Schmidt, and *A. alumina* Hertz. There are three other elongate species on Hispaniola — *A. hendersoni* Cochran, *A. bahorucoensis* Noble and Hassler, and *A. dolichocephalus* Williams — that are more properly to be considered mesic forest understory anoles rather than "grass anoles." These three species have been recently discussed in detail by Schwartz (1978); they are distinctive *intra se* in that the males are brightly patterned and lack a dewlap; they form a compact Hispaniolan group, not directly related to other elongate anoles on that island. Of the three Hispaniolan grass anoles, *A. alumina* and *A. olssoni* are more or less restricted to xeric situations and the dry lower slopes of mountains. *Anolis semilineatus* is more ecologically tolerant, occurs to moderate elevations, and is often encountered in the understory of mesic woods, *cafetales*, and *caféières*.

Hertz (1976) discussed the variation in *A. alumina* and the status of some populations of *A. semilineatus* whose affinities are uncertain (those on the Haitian Tiburon Peninsula). There has been no assessment of the variation in *Anolis olssoni*. That at least three species are represented is unquestioned; electrophoretic evidence (Hertz, 1976:15) suggests that *A. alumina* is more similar to *A. olssoni* than it is to *A. semilineatus*. This is all the more peculiar in that *A. alumina* and *A. semilineatus* share the same sort of dewlap colors (pale greenish yellow in *A. alumina*, white in *A. semilineatus*), whereas in *A. olssoni* the dewlap is vivid orange. The dewlap scales of *A. olssoni* are large and lie in ordered, well separated rows, so that, when the dewlap is extended, the orange ground color of the dewlap skin is well exposed. The dewlap scales are, in addition, bright yellow and contrast with the vivid orange of the dewlap skin.

Williams (1961) presented an hypothetical map of the distributions of *A. semilineatus* and *A. olssoni*, wherein he also postulated by diagram that *A. semilineatus* is a south island species that has extended its range onto the north island. *Anolis olssoni*, on the other hand, has an apparently disjunct distribution, centering in the xeric Cul de Sac-Valle de Neiba-Llanos de Azua plain, with outlier populations (Fig. 1), often widely scattered, on the north island. Since Williams's paper, *A. olssoni* has been taken on the south island Península de Barahona, an area whence it had been previously unknown. Newly collected material demonstrates that some of the hiatuses in the range of *A. olssoni* are not so great as Williams supposed. Yet the populations of that species are apparently not continuous, since its habitat requirements are apparently rather stringent (primarily lowland desert). But lowland desert situations are not the only ones occupied by *A. olssoni*, and the species reaches a high elevation of 610 m within the Dominican Cordillera Central in pine forest

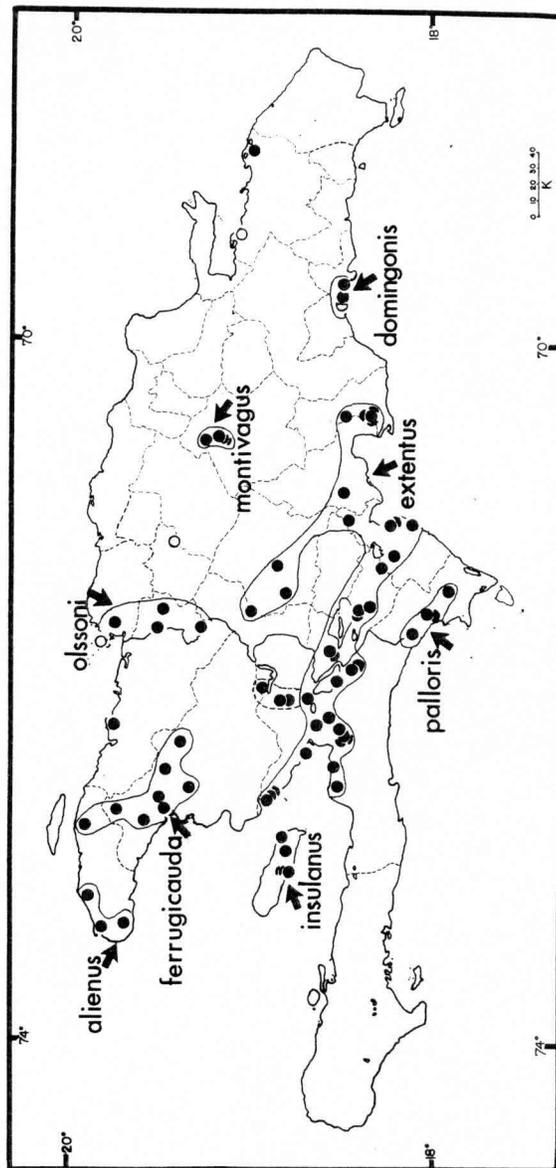


Fig. 1. Distribution of the subspecies of *Anolis olssoni*. Hollow symbols represent literature records whence I have not examined specimens. Solid symbols not enclosed within ranges of named subspecies are of specimens examined but not assigned subspecifically. The area enclosed by dashed lines in south-central Haiti is that occupied by the distinctive population of Peligre-Mirebalais lizards whose status remains uncertain.

(essentially a xeric situation), and to elevations of 549 m on the northern slopes of the Massif de la Selle in Haiti at Plaine Thoman (a xeric-mesic transitional locality) and on the northern slopes of the Cordillera Central south of La Vega, in open grassy and bushy areas within pine forest. The highest recorded elevation is 702 m southwest of Pétionville on the Morne l'Hôpital. In the lowlands it shuns oases and other mesic enclaves and is most readily encountered in open *Acacia*-scrub with scattered grassy ground cover.

The present project was undertaken to determine what sort of differentiation has taken place between the various populations of *A. olssoni*. At least three populations seem to be truly isolated: that to the east of the city of Santo Domingo (Tres Ojos; Riviera del Caribe) which is removed some 85 km from the nearest population to the west near Baní and San José de Ocoa; that on the northern slopes of and within the Cordillera Central in the central República Dominicana (south of La Vega and near Jarabacoa) and about 85 km north of the San José de Ocoa localities; and that at Guarabo, El Seibo Province, República Dominicana, on the south side of the Bahía de Samaná, 95 km northeast of the Santo Domingo localities. Hertz (1976:8) also showed an isolated locality symbol for the species north of Santo Domingo but gave no list of specimens. I have not located the specimens on which this record is based. The population south of the Sierra de Baoruco-Massif de la Selle on the Península de Barahona is likewise effectively isolated from populations to the north in the Valle de Neiba. *Anolis olssoni* on the northwestern Haitian Presqu'île du Nord Ouest seem localized, and there seems to be little continuity between them and populations to the east in the extreme northwestern República Dominicana, but there is a record from Cap-Haitien (Cochran, 1941:140). Although the Cap-Haitien area seems unsuitable for *A. olssoni* (the region is mesic), there are specialized local xeric areas (such as Cormier Plage on the northern side of the Cap-Haitien peninsula). To the east of Cap-Haitien and to the Dominican border stretches the extremely xeric Plaine du Nord, whence the species is not known, but where it is surely expected. *Anolis olssoni* also occurs on Ile de la Gonâve, where it seems to be very common in both xeric and semi-mesic areas (En Café).

I have studied 368 specimens of *A. olssoni*. I have not examined the holotype, but Schmidt (1919: 1921) gave an excellent detailed description of its scutellation. The single paratype is "very poorly preserved" (Schmidt, 1919:522), and it is not worthwhile to borrow it. There does exist an additional problem. As far as I have been able to determine, no topotypical material has been collected since Schmidt's description. I have examined only seven specimens from the general region of the type-locality, from Monte Cristi and Dajabón provinces in the República Dominicana, and from the Département du Nord in Haiti. Of these, a single adult male (ASFS V1484) from Guayubín, Monte Cristi Province, is the closest to being a topotype. Mertens (1939:54) noted six

supraocular disc, and 12 enlarged dorsal rows of keeled scales. These data are within the parameters of the short series available to me except that none of my seven specimens has 3/3 scales between the semicircles and the interparietal. The coloration and pattern of *A. o. olssoni* are as described above in the definition.

Remarks. I tentatively include the single specimen (USNM 74094) from Cap-Haitien, Dépt. du Nord, Haiti, with *A. o. olssoni*. The specimen is old (collected in 1928) and discolored; it is the only specimen from this region of Haiti, about 65 km west of the range of *A. o. olssoni* and 65 km east of the nearest locality (Deux Garçons) to the west. There is nothing distinctive in its scale counts, and I suspect that there is a continuous population of *A. olssoni* between the region of the type-locality and Cap-Haitien, in the eastern xeric portion of the Plaine du Nord.

Specimens examined. República Dominicana, Monte Cristi Prov., 7 km N Guayubín (ASFS V1484); Dajabón Prov., 8 km E Santiago de la Cruz, 122 m (ASFS V1301); 7 km S Dajabón, 69 m (ASFS V17789-91); 3 km SE Villa Anacaona (ASFS V17795); Haiti, Dépt. du Nord, 3 km SE Villa Anacaona (ASFS V17796).

Anolis olssoni ferrugicauda, new subspecies

Holotype. MCZ 156202, an adult male, from Gonaïves, Département de l'Artibonite, Haiti, taken 10 July 1978 by native collector. Original number ASFS V46554.

Paratypes. ASFS V46555-56, same data as holotype; ASFS V46668-75, same locality and collector as holotype, 12 July 1978; ASFS V46698-711, same locality and collector as holotype, 13 July 1978.

Associated specimens. Haiti, Dépt. du Nord Ouest, Deux Garçons, 12.3 km NE Bassin Bleu, 61 m (ASFS V44068-69); Dépt. de l'Artibonite, Gros Morne (MCZ 63007-09); 17.6 km N Carrefour Joffre, 183 m (ASFS V40418); Terre Sonnain, 1.6 km N Les Poteaux, 122 m (ASFS V40221); 1.9 km W Ennery, 336 m (ASFS V45731, ASFS V47800-01); St. Michel de l'Atalaye (USNM 69171-74, USNM 74137, USNM 74139-47, USNM 76642); 7.4 km NW Dessalines (ASFS V39338).

Definition. A subspecies of *A. olssoni* characterized by the combination of: 1) modally 5 vertical rows of loreal scales, 2) modally 1 row of scales between semicircles, 3) modally 2/2 scales between semicircles and interparietal, 4) moderate number ($\bar{x} = 11.5$) of scales around interparietal, 5) modally 2 postrostrals, 6) dorsum pale tan, overlaid with irregularly shaped and arranged black spots or blotches, these extending below the white flank stripe to render it more bold, nuchal spots present but incorporated into the dark dorsal blotched pattern and (in females) small and inconspicuous, 7) distal two-thirds of tail rich rusty brown, the proximal portion of this posterior part of the tail almost purple, 8) venter brown.

Description of holotype. An adult male with snout-vent length of 46 mm; 8 snout scales at level of second canthals; 5 vertical loreal rows; 1

Table 1. Meristic data for eight subspecies of *Anolis olssoni*. Number of individuals in each sample is enclosed in parentheses beneath each taxon. Means are enclosed in parentheses where applicable and modes are set in italics.

	<i>olssoni</i> (7)	<i>ferrugicauda</i> (57)	<i>alienus</i> (15)	<i>extentus</i> (155)	<i>insulanus</i> (54)	<i>palloris</i> (5)	<i>domingonis</i> (21)	<i>montivagus</i> (17)
Snout scales, second canthals	5-7 (6.0) <i>6</i>	6-9 (6.8) <i>6</i>	6-8 (6.5) <i>6</i>	5-8 (6.2) <i>6</i>	5-8 (6.8) <i>6</i>	5-8 (6.2) <i>6</i>	5-8 (6.2) <i>6</i>	4-7 (6.0) <i>6</i>
Loreal rows	4 (4.0) <i>4</i>	4-6 (4.8) <i>5</i>	4-6 (4.7) <i>5</i>	4-6 (4.6) <i>5</i>	4-6 (4.8) <i>5</i>	4-5 (4.4) <i>4</i>	3-7 (4.2) <i>4</i>	3-5 (3.8) <i>4</i>
Scales between semicircles	0 = 2 <i>1 = 5</i>	0 = 11 <i>1 = 46</i>	0 = 3 <i>1 = 11</i> 2 = 1	0 = 38 <i>1 = 116</i>	0 = 13 <i>1 = 41</i>	0 = 4 <i>1 = 1</i>	0 = 1 <i>1 = 17</i> 2 = 2	0 = 2 <i>1 = 15</i>
Scales between semicircles & interparietal	2/2 = 6	2/2 = 27 1/1 = 4 1/2 = 2 2/3 = 12 3/3 = 12	2/2 = 4 3/3 = 4 2/3 = 1 3/4 = 3 4/4 = 3	2/2 = 82 1/1 = 4 1/2 = 3 2/3 = 24 3/3 = 33 3/4 = 1 4/4 = 2 1/3 = 1	2/2 = 35 1/1 = 1 1/2 = 3 2/3 = 6 3/3 = 4	2/2 = 5	3/3 = 11 2/2 = 4 2/3 = 5 2/4 = 1	3/3 = 8 2/2 = 5 2/3 = 4
Scales around interparietal	10-13 (11.2)	9-14 (11.5)	10-14 (12.2)	8-19 (12.0)	8-14 (10.6)	7-10 (9.0)	10-14 (11.7)	10-13 (11.4)
Scales in supra- ocular disc	4-6 (5.0) <i>5</i>	3-7 (5.1) <i>5</i>	5-8 (5.9) <i>5</i>	2-7 (5.4) <i>5</i>	4-8 (5.3) <i>5</i>	5-6 (5.4) <i>5</i>	4-9 (6.3) <i>7</i>	5-7 (6.0) <i>5 & 7</i>
Postrostrals	2 = 7 (2.0)	2 = 39 3 = 17 (2.3)	2 = 13 3 = 2 (2.1)	2 = 114 3 = 33 4 = 6 (2.3)	2 = 28 3 = 25 4 = 1 (2.5)	2 = 2 3 = 3 (2.6)	2 = 10 3 = 10 (2.8)	2 = 13 3 = 4 (2.2)
Postmentals	2 = 7 (2.0)	2 = 37 3 = 10 4 = 8 5 = 2 (2.6)	2 = 8 3 = 3 4 = 4 (2.7)	2 = 118 3 = 21 4 = 13 5 = 1 (2.3)	2 = 29 3 = 14 4 = 10 (2.6)	2 = 3 3 = 2 (2.4)	2 = 11 3 = 5 4 = 5 (2.7)	2 = 8 3 = 5 4 = 4 (2.8)
Enlarged dorsal rows	9-15 (11.4)	9-14 (11.8)	11-15 (11.8)	8-14 (10.8)	9-12 (10.8)	9-12 (10.6)	11-14 (12.4)	10-14 (10.9)
4th toe lamellae	17-22 (19.3)	17-23 (20.2)	17-20 (18.9)	16-24 (19.6)	17-23 (19.5)	17-21 (18.8)	19-23 (20.7)	17-21 (19.4)

TAXONOMIC ACCOUNTS

Anolis olssoni Schmidt

Anolis olssoni Schmidt, 1919, Bull. Amer. Mus. Nat. Hist. 41(12): 522.

Type-locality: Slopes of the Moro of Monte Cristi, Monte Cristi Province, República Dominicana. *Holotype*: American Museum of Natural History 13400.

Definition. An elongate species of the genus *Anolis* with the following combination of characters: 1) males reaching a maximum snout-vent length of 50 mm, females 44 mm; 2) snout-vent length between 21 and 29 per cent of tail length; 3) snout scales at level of second canthal scales 4 - 8; 4) vertical loreal rows 3 - 7; 5) scales between supraorbital semicircles usually 1, occasionally 0 (= semicircles in contact) or 2; 6) scales between interparietal and supraorbital semicircles usually 2/2 or 3/3, but varying between 1/1 and 4/4; 7) suborbital scales always in contact with supralabials; 8) scales around interparietal 7 - 19; 9) scales in supraocular disc 2 - 9; 10) postrostral scales 2 - 4; 11) postmental scales 2 - 4; 12) fourth toe lamellae of phalanges II + III 16 - 24; 13) 8 - 15 rows of enlarged keeled dorsal scales; lateral scales small and granular; keeled ventrals about the same size as dorsals; 14) dewlap in males orange, usually bright, with widely spaced rows of yellow scales; 15) dorsal pattern with either (a) a middorsal longitudinal pale line, or (b) a series of dark triangles, their apices almost meeting middorsally, to give a serrate effect to the pattern, or (c) a combination of the above; 16) often a pair of dark nuchal blotches or a pair of dark occipital dots; 17) flank stripe more or less conspicuous, depending upon the shade of the stripe and the lateral and ventrolateral color or pattern (which may increase or decrease its boldness); 18) venter variable, from white, to white lineate with brown, to solid brown; 19) sexual dichromatism weak in that neither sex can be determined merely by inspection of coloration and pattern; males have a pair of enlarged postanal scales.

Anolis olssoni olssoni Schmidt

Definition. A subspecies of *A. olssoni* characterized by the combination of: 1) modally 4 vertical rows of loreal scales, 2) modally 1 row of scales between semicircles, 3) modally 2/2 scales between semicircles and interparietal, 4) moderate number ($\bar{x} = 11.2$) of scales around interparietal, 5) modally 2 postrostrals, 6) dorsum pale tan, usually lineate in both sexes, nuchal blotches present and large, flank stripe prominent, 7) distal one-half of tail brownish, 8) venter pale (white) in males, white to brown-lineate in females.

Variation. Variation in scutellation is shown in Table 1. The sample is small (seven specimens) and none is truly topotypical. Schmidt's data and drawings of the dorsal view of the head and body scutellation (1919; 1921) show that the male holotype has a snout-vent length of 39 mm, 0 scales between the semicircles, 3/3 scales between the semicircles and the interparietal, 13 scales around the interparietal, 5 scales in the

specimens from Monción, Santiago Rodríguez Province, from this same general region. Thus, material from extreme northwestern República Dominicana and extreme northeastern Haiti is not abundant in collections, and my conclusions about the variation in "topotypical" material is subject to some doubt.

The very opposite situation exists with specimens of *A. olssoni* from some other regions. The species is very abundant from the vicinity of Montrouis in Haiti along the Golfe de la Gonâve, and from Diquini and Carrefour along the northern coast of the Tiburon Peninsula in the same country, east through the Cul de Sac Plain and the Valle de Neiba, and thence into the Llanos de Azua. There are many specimens in collections from this general region that I have deliberately chosen not to examine. The species also extends from the Llanos de Azua to the northwest as far as the vicinity of Sabana Cruz in the Valle de San Juan but appears to be uncommon there. South of the Sierra de Baoruco, *A. olssoni* is not common; only five specimens exist from this region, despite many man-days expended there by myself and companions, and field parties from the Museum of Comparative Zoology.

There is an apparently sharp break in the range of *A. olssoni* at the Plaine de l'Artibonite, north of St. Marc in Haiti. This extensive low-lying area is now irrigated and planted in rice; it has likely always been mesic and periodically flooded and would make an excellent barrier for genetic exchange between northern and southern populations. On the northern side of this inundated region, *A. olssoni* is once more encountered in the xeric deserts south of Gonaïves and inland to the vicinity of St. Michel de l'Atalaye on the Plateau Central. To the north of Gonaïves, *A. olssoni* reaches to nearly the northern Haitian coast near Port-de-Paix (Deux Garçons), and onto the Presqu'île du Nord Ouest (Jean Rabel; Môle St. Nicholas; Bombardopolis). The Cap-Haitien record mentioned previously lies between this western population and those near the type-locality in Monte Cristi Province.

In summary, the distribution of *A. olssoni* is fairly continuous from the northwestern Haitian Presqu'île du Nord Ouest south along the coast of the Golfe de la Gonâve and thence east throughout the Cul de Sac-Valle de Neiba plain into the Llanos de Azua and the Valle de San Juan. The only obvious break in this entire range is at the Plaine de l'Artibonite. The species also is on Ile de la Gonâve and on tiny Ile à Cabrit off the coast near Duvalierville. There exist (apparently) isolated populations at Cap-Haitien; in the Dominican Cordillera Central between La Vega and Jarabacoa; near Santo Domingo; and in the Sabana de la Mar-Guarabo region (Mertens, 1939:54).

scale between semicircles; 3/3 scales between semicircles and interparietal; 5 scales in supraocular disc; 3 postrostrals; 3 postmentals; 14 enlarged rows of dorsal scales; 21 lamellae on phalanges II + III of fourth toe. Dorsum in life tan, heavily overlaid (except middorsally where there is a clear median zone that is not outlined with black lines) with irregularly shaped and arranged black blotches and spots, from the neck to above the hindlimbs. Flank stripe bold and white, outlined ventrally by two irregular rows of bold black spots; nuchal spots present but incorporated into the dorsal blotched pattern; occipital dots absent. Tail tan basally, rich rusty brown for its distal two-thirds, the basal portion of this dark part of the tail deep reddish purple. Venter brown.

Variation. Variation in scutellation is shown in Table 1. The largest male *A. olssoni* (ASFS V46670), with a snout-vent length of 50 mm, is a topotype of this subspecies. The largest females (ASFS V46556, ASFS V46673) with snout-vent lengths of 44 mm, are likewise topotypes, but females of another subspecies (see beyond) also reach this size.

Comparisons. Comparisons of all subspecies are grouped together at the end of the present paper rather than under each individual account.

Remarks. I have not seen specimens in life from the eastern extreme of the range of *A. o. ferrugicauda* at St. Michel de l'Atalaye. However, they do not disagree with the definition of this subspecies except in tail and ventral coloring. They are, however, very dark dorsally and are spotted or blotched, and there is no reason to assume that they lacked the distinctive tail and ventral coloration in life of more western material.

Anolis o. ferrugicauda occurs from north of the Plaine de l'Artibonite to near the northern Haitian coast (Deux Garçons), in xeric areas (primarily *Acacia* and cactus desert), at elevations between sea level and 183 m. But it also extends inland from Gonaïves along the southern valley bordering the Massif du Nord Ouest. This valley is xeric in the west but gradually becomes more mesic as it follows the Rivière Ennery so that when one reaches the town of Ennery the habitat is wooded and mesic and at an elevation of 336 m, an entirely unlikely area for *A. olssoni*. At Ennery also occur other (elsewhere) xerophiles such as *Ameiva chrysolema* Cope, *Sphaerodactylus cinereus* Wagler, *Mabuya lineolata* Noble and Hassler, and *Leiocephalus pratensis* Cochran, along with such mesophilic species as *Leiocephalus personatus* Cope, *Sphaerodactylus difficilis* Barbour, and *Anolis ricordi* Duméril and Bibron. Thus the Ennery area is one with a peculiarly mixed herpetofauna, including mesic-adapted local species and xeric-adapted species that have arrived there by following the river valley. *A. o. ferrugicauda* apparently extends from Ennery onto the Plateau Central at St. Michel de l'Atalaye. In the interior, there are no specimens available between St. Michel and near the Barrage de Peligre, 60 km to the southeast. The material from Peligre and near Mirebalais resembles *A. o. ferrugicauda* in some ways as far as pattern and depth of color are concerned, but not in scutellation. The Peligre-Mirebalais material will be discussed in detail beyond.

Etymology. The name *ferrugicauda* is Latin, from *ferrugo* (rust) and *cauda* (tail) in reference to the striking tail color of this population.

Anolis olssoni alienus, new subspecies

Holotype. MCZ 63010, an adult male, from Jean Rabel, Département du Nord Ouest, Haiti, taken in 1960 by A.S. Rand and J. D. Lazell, Jr. Original number MCZ 05576.

Paratypes. MCZ 63011-13, same data as holotype; MCZ 63014-20, Bombardopolis, Dépt. du Nord Ouest, Haiti, 1960, A.S. Rand and J.D. Lazell, Jr.; MCZ 63121-24, Môle St. Nicholas, Dépt. du Nord Ouest, Haiti, 1960, A.S. Rand and J.D. Lazell, Jr.

Definition. A subspecies of *A. olssoni* characterized by the combination of: 1) modally 5 vertical rows of loreal scales, 2) modally 1 row of scales between semicircles, 3) modally 2/2 and 3/3 scales between semicircles and interparietal, 4) high number ($\bar{x} = 12.2$) of scales around interparietal, 5) modally 2 postrostrals, 6) dorsum (as preserved) very pale tan and virtually patternless in both sexes, at times vaguely lineate and one male with paired triangles, flank stripe inconspicuous and not outlined with black, nuchal and occipital spots usually present in both sexes, 7) tail faintly darker distally, 8) venter white.

Description of holotype. An adult male with snout-vent length of 42 mm; 7 snout scales at level of second canthals; 5 vertical loreal rows; 1 scale between semicircles; 2/3 scales between semicircles and interparietal; 13 scales around interparietal; 5 scales in supraocular disc; 2 postrostrals; 3 postmentals; 13 enlarged rows of dorsal scales; 19 lamellae on phalanges II + III of fourth toe. Dorsum (as preserved) very pale tan with faint, slightly darker tan, laterodorsal dots and no dark brown to black markings; flank stripe white but not outlined above or below by black or dark brown and thus relatively inconspicuous; four or five white dots along the upper border of the flank stripe; nuchal dark blotches barely indicated, but occipital dark dots present and the darkest element of the dorsal pattern. Venter white. Tail slightly darker tan distally than proximally.

Variation. Variation in scutellation is shown in Table 1. The largest male *A. o. alienus* (MCZ 63011, topotype) has a snout-vent length of 43 mm; the largest females (MCZ 63012-13, topotypes) have snout-vent lengths of 40 mm. The entire series of 15 specimens agrees well with the description of the holotype. They are pale dorsally, without any bold markings. Only one male has indications of dorsal triangles; all other specimens are unicolor or vaguely lineate and without distinctive pattern. The flank stripe is white but is not set off from the balance of the pale dorsal color and thus is inconspicuous and non-contrasting. Nuchal blotches and occipital dots are usually present (the former often barely discernible) in males, and in females nuchal blotches are present (but faint), and three of six have occipital dots. Venters are always clear white. It is difficult to visualize two subspecies as different in color and pattern as adjacent *A. o. alienus* and *A. o. ferrugicauda*.

Remarks. The Presqu'île du Nord Ouest is one of the herpetologically least known areas of Haiti. What little material of various species has been collected there suggests that it is a center of endemism on both the specific and subspecific levels. It is basically xeric but with an interior mountain range, the Massif du Nord Ouest. Jean Rabel and Môle St. Nicholas are coastal stations, whereas Bombardopolis lies on a plateau at an elevation of about 400 m. Stations for *A. o. alienus* and *A. o. ferrugicauda* are separated by about 45 km (Jean Rabel and Deux Garçons), and presumably intergradation between the two subspecies takes place in this intermediate area. *Anolis o. ferrugicauda* extends northward along the xeric eastern margin of the Massif du Nord Ouest, whereas *A. o. alienus* occupies the northern and western lowland areas associated with this range.

Etymology. The name *alienus* (estranged) is Latin in reference to the remote area occupied by this subspecies.

Anolis olssoni extentus, new subspecies

Holotype. MCZ 156203, an adult male, from 8.3 km E Croix des Bouquets, Département de l'Ouest, Haiti, taken 19 August 1977 by native collector. Original number ASFS V40470.

Paratypes (all from Dépt. de l'Ouest, Haiti). ASFS V40469, same data as holotype; ASFS V8271-73, 9.2 km N Croix des Bouquets, 153 m, 23 February 1966, E. Cyphale, R. Thomas; ASFS V8327-34, 6.4 km SW Gressier, 25 February 1966, E. Cyphale, R. Thomas; ASFS V8453-61, Mariani, 11.2 km E Gressier, 3 March 1966, E. Cyphale; ASFS V36984-7018, 1.1 km E Thomazeau, 18 May 1974, native collectors; ASFS V8132, La Source, east of Fond Parisien on edge of Etang Saumâtre, 19 February 1966, R. Thomas.

Associated specimens. Haiti, Dépt. de l'Ouest, Pétionville, 458 m (ASFS X3340, ASFS V14979-80, ASFS V14995); 1.6 km NW Pétionville (ASFS V23972, ASFS V24376-78); Chateau Blanc, 6.4 km NE Pétionville, 160 m (ASFS V8403-04); Morne Calvaire, 1.6 km SW Pétionville, 706 m (ASFS X1306-07); Trou Forban (ASFS V8217); 3.5 km SE Trou Forban (ASFS X4004-18); 5 km SE Trou Forban (ASFS V8202); Plaine Thoman, 11.4 km SE Fond Parisien, 549 m (ASFS V40447-48, ASFS V46320-21); Soliette, 17.0 km S Fond Parisien, 488 m (ASFS V46297-301); Ile à Cabrit (ASFS V9857-59, ASFS V44805); República Dominicana, Independencia Prov., Boca de Cachón (ASFS V39708); 5 km N Jimaní (ASFS V354 78-79); 7 km W Duvergé (ASFS V4410); 6 km NW Duvergé (ASFS V17129-38); Puerto Escondido (ASFS V20695); Barahona Prov., Barahona (ASFS X9452, USNM 197365-68); 5 km S Barahona (ASFS V20550-51); 5.3 km NE La Ciénaga (ASFS X9667-70); 10 km W Cabral (ASFS V40749); 9 km S Cabral, 366 m (ASFS X9926); 23.7 km NE Palo Alto (ASFS V30724-32); Azua Prov., Tábara Abajo (ASFS V31189-93); San Juan Prov., 9 km N El Cercado (ASFS V21568); Barranca (ASFS V31361); 17.1 km SE Sabana Cruz, 366 m

(ASFS V31462-65); *Peravia Prov.*, 14.2 km S San José de Ocoa, 397 m (ASFS V717-19); 26.4 km S San José de Ocoa, 153 m (ASFS V736); 11 km S Los Ranchitos (ASFS V15608); 19 km NW Baní (ASFS V15628-31); 1 km W Cruce de Ocoa (ASFS V35833).

Definition. A subspecies of *A. olssoni* characterized by the combination of: 1) modally 5 vertical rows of loreal scales, 2) modally 1 row of scales between semicircles, 3) modally 2/2 scales between semicircles and interparietal, 4) high number ($\bar{x} = 12.0$) of scales around interparietal, 5) modally 2 postrostrals, 6) dorsum pale tan, males usually lineate, females usually with triangles (see *Variation*), nuchal spots usually absent in males and present in females, occipital dots usually absent in both sexes, flank stripe white but not prominent and not outlined in black or dark brown, 7) tail dark tan to brownish distally, 8) venter white.

Description of holotype. An adult male with a snout-vent length of 49 mm; 6 snout scales at level of second canthals; 5 vertical loreal rows; 1 scale between semicircles; 2/2 scales between semicircles and interparietal; 12 scales around interparietal; 5 scales in supraocular disc; 2 postrostrals; 4 postmentals; 12 enlarged rows of dorsal scales; 21 lamellae on phalanges II + III of fourth toe. Dorsum (as preserved) very pale tan with nuchal blotches and with a pair of tiny brown occipital dots; tail brownish distally, concolor with dorsum proximally; venter white. Flank stripe white, not conspicuous and not set off ventrally by any darker pigment.

Variation. Variation in scutellation is shown in Table I. The largest male *A. o. extentus* is the holotype. The largest female (ASFS V37009; 1.1 km E Thomazeau, Haiti) has a snout-vent length of 44 mm.

Anolis o. extentus has the broadest distribution of any of the subspecies; consequently, it is in some ways more variable than those subspecies with more compact ranges. Although the range is continuous through the Culde Sac-Valle de Neiba plain, Haitian specimens from the western portion of the range differ in some ways from Dominican specimens from the eastern portion. All 34 Haitian males are lineate, whereas of 22 Dominican males, 15 are lineate and seven have triangles. Nuchal blotches occur in 17 Haitian males and are absent in 27, whereas these blotches are present in 11 Dominican males and are absent in ten. Occipital dots are present in 16 Dominican males and absent in five, whereas these dots are absent in 26 Haitian males and present in 18. Females from Haiti are usually lineate, but four have triangles; Dominican females are usually triangulate (21) and less often lineate (15). Nuchal blotches occur in 19 Dominican females and are absent in 17, whereas these blotches are absent in 35 Haitian females and present in 16. Finally, occipital dots are present in 27 Dominican females and absent in nine, whereas these dots are absent in 31 Haitian females and present in 20 Haitian females. The definition of the subspecies takes these variations into consideration. All specimens are generally pale, and the flank stripe is relatively inconspicuous, since it is not outlined ventrally

by dark pigment. Venters in both sexes are invariably white, although locally (Trou Forban) the chin and chest are yellow.

Dewlap color is apparently likewise slightly variable, especially in specimens from the extreme western portion of the range of *A. o. extentus*. Two adult males from near Trou Forban (ASFS X4004-05) were recorded in life as having the dewlap dull orange (Pl. 3F11 and Pl. 4B12; color designations from Maerz and Paul, 1950). Elsewhere in Haiti the dewlap was noted as being "almost brick" (Fond Parisien), "mustard brown" (Trou Forban), "almost red" (Trou Forban), "bright rusty orange" (Croix des Bouquets), "mustard yellow" and "mustard orange" (Gressier), and "bright rust" (Pétionville). Two males (ASFS V20550-51) from 5 km S Barahona, República Dominicana, were noted as having the dewlap "mustard with orange streaking on skin." All other notes state that the dewlap is "orange." It appears that in some areas there is variation in the basically orange dewlap of *A. o. extentus*.

Remarks. There are two other samples of *A. olssoni* that are best discussed here. One occurs on Ile à Cabrit, a tiny islet (see Schwartz, 1979) in the Golfe de la Gonâve. The four specimens from that islet do not differ in color, pattern, or scutellation from *A. o. extentus* on the adjacent mainland, and they are listed above as belonging to this subspecies.

The second series of specimens is from the vicinity of the city of Mirebalais within the Montagnes du Trou-d'Eau. The area is mesic and not typical of the regions usually occupied by *A. olssoni*. Specimens included are (all from Dépt. de l'Artibonite): ASFS V43797-99, 5.1 km NE Barrage de Peligre; MCZ 68250-52, Mirebalais; MCZ 68253-70, Blancher, near Mirebalais; ASFS V45622-28, 6.4 km S Mirebalais, 153 m. These lizards are much darker than *A. o. extentus*. Of 16 males, 11 have triangle remnants or black dorsal spotting and five are lineate. All have large dark nuchal blotches and lack occipital dots. The flank stripe in males is bold and outlined below. Of 15 females, 13 are clearly lineate whereas two have triangles. Nuchal blotches are absent in two females, and only three have occipital dots. The venters of males are brownish, those of females whitish but usually lineate with brown.

Although the localities from which these lizards came are removed only a short distance (30 km) from localities where *A. o. extentus* occurs, the series as a whole is quite different from *A. o. extentus* and in some pattern and color features is much more like *A. o. ferrugicauda*. The series differs in scutellation in having modally 4 vertical loreal rows (5 rows in *A. o. ferrugicauda* and *A. o. extentus*), and a lower mean number of scales around the interparietal (10.9 versus 11.5 and 12.0). I have no doubt that these lizards represent either: 1) a geographically interior subspecies, or 2) intermediates between *A. o. ferrugicauda* and *A. o. extentus*. The former seems more likely. Major problems are the rather circumscribed area from which the specimens have come, and that they are from a region bordering the large hiatus of knowledge about *A.*

olssoni in interior Haiti, the area between St. Michel de l'Atalaye in the north and Mirebalais and the Barrage de Peligre in the south. Until information and specimens are available from this region, it is premature to assign a name to this distinct population.

Etymology. The name *extentus* is from Latin for "stretched out" in allusion to the wide distribution of this subspecies.

Anolis olssoni insularus, new subspecies

Holotype. MCZ 80701, an adult male, from the vicinity of Pointe à Raquettes, Ile de la Gonâve, Haiti, taken in 1964 by G. Whiteman. Original number MCZ X-01041.

Paratypes (all from Ile de la Gonâve). MCZ 80693-700, same data as holotype; MCZ 80702-12, Ti Roche, 0.5 km from Pointe à Raquettes, 1964, G. Whiteman; MCZ 80713-16, Pointe à Raquettes, 1964, G. Whiteman; MCZ 80717, Nan Palmiste, 4 km from (N) Pointe à Raquettes, 1964, G. Whiteman; MCZ 80718, Ti Palmiste, 6 km from (N) Pointe à Raquettes, 1964, G. Whiteman; MCZ 85150-51, Nan Saline, 1966, G. Whiteman; MCZ 85152-55, Lan Saline, 1966, G. Whiteman; MCZ 85156-60, Tête Source, 1966, G. Whiteman; MCZ 85161-65, Lan Coupe, 1966, G. Whiteman; MCZ 85166-68, Anse à Galets, 1966, G. Whiteman; ASFS V22407-10, 24 November 1970, R. A. Ober; ASFS V47407-09, Anse à Galets, 29 June 1978, native collectors; USNM 76797-98, Nan Café, March 1929, A. J. Poole and W. Perrygo.

Definition. A subspecies of *A. olssoni* characterized by the combination of: 1) modally 5 vertical rows of loreal scales, 2) modally 1 row of scales between semicircles, 3) modally 2/2 scales between semicircles and interparietal, 4) low number ($\bar{x} = 10.6$) of scales around interparietal, 5) modally 2 postrostrals, 6) dorsum (as preserved) dark brown and lineate in both sexes (although a few specimens of each sex are triangulate), flank stripe bold and conspicuous, nuchal blotches variable in males, usually absent in females; occipital dots usually absent in both sexes, 7) tail dark tan distally without reddish tones, 8) venter white with occasional brown lines or line fragments in females.

Description of holotype. An adult male with snout-vent length of 47 mm; 7 snout scales at level of second canthals; 5 vertical loreal rows; 1 scale between semicircles; 2/3 scales between semicircles and interparietal; 10 scales around interparietal; 6 scales in supraocular disc; 3 postrostrals; 2 postmentals; 10 enlarged rows of dorsal scales; 19 lamellae on phalanges II + III of fourth toe. Dorsum (as preserved) with a middorsal pale zone and dark brown triangles, their bases fused laterally, delimiting the middorsal pale zone and the flank stripe; nuchal blotches present but small; occipital dots present but very faint and blurred; flank stripe bold and white, delimited both dorsally and ventrally by dark brown pigmentation; groin dark brown with a few scattered but bold white dots below the flank stripe; venter white.

Variation. Variation in scutellation is shown in Table 1. The largest males (MCZ 80705, MCZ 80710) have snout-vent lengths of 48 mm. The

largest females (MCZ 80697, MCZ 80704, MCZ 80715-16, ASFS V47409) have snout-vent lengths of 40 mm. Both males and females are usually lineate, but six (including the holotype) of 37 males have triangles, and five of 17 females have triangles. The sides are dark brown and the flank stripe is conspicuous. Nuchal blotches are about equally present in both males and females, but occipital dots are usually absent. They are present or faintly indicated in five of 37 males and one of 17 females. Ventrals in both sexes are white, but occasional females have brown ventral lines or line fragments.

Remarks. *A. o. insulanus* occurs from sea level to elevations of about 525 m (Nan Café). It is not uncommon in lowland xeric scrub but also occurs in the higher more wooded interior of Gonâve. The dark dorsa, with or without triangles, and the absence of occipital dots is distinctive.

Etymology. The name *insulanus* (islander) is Latin, in reference to the occurrence of this subspecies on Ile de la Gonâve, the major Hispaniolan satellite island.

Anolis olssoni palloris, new subspecies

Holotype. MCZ 156204, an adult male, from 5 km N Pedernales, Pedernales Province, República Dominicana, taken 25 June 1964, by R. Thomas. Original number ASFS V2546.

Paratypes (all from Pedernales Province, República Dominicana). ASFS V21532-33, 8 km N, 2 km E Cabo Rojo, 1 August 1969, R. Thomas; ASFS V30084, 7 km N, 17.6 km SE Cabo Rojo, 153 m, 22 August 1971, D. C. Fowler; MCZ 146869, 10 km N Cabo Rojo, 1975, W. E. Haas.

Definition. A subspecies of *A. olssoni* characterized by the combination of: 1) modally 4 vertical rows of loreal scales, 2) modally semicircles in contact, 3) 2/2 scales between semicircles and interparietal, 4) low number ($\bar{x} = 9.0$) of scales around interparietal, 5) modally 3 postrostrals, 6) dorsum greenish gray and always lineate, the middorsal line either with or without dark outlining; flank stripes cream and indistinct, with an indistinct greenish lower border; nuchal and occipital spots usually absent in both sexes; 7) tail darker distally, 8) venter white.

Description of holotype. An adult male with snout-vent length of 47 mm; 6 snout scales at level of second canthals; 4 vertical loreal rows; semicircles in contact; 2/2 scales between semicircles and interparietal; 10 scales around interparietal; 5 scales in supraocular disc; 2 postrostrals; 2 postmentals; 10 enlarged rows of dorsal scales; 19 lamellae on phalanges II + III of fourth toe. Dorsum in life greenish gray, including head and upper surfaces of all limbs; middorsal zone cream, bordered posteriorly by narrow brown stripes; flank stripe cream with indistinct greenish lower border. Venter white. Dewlap brilliant orange-red. As preserved, the dorsal ground color is very pale tan without any greenish tinge, but all other details of body color and pattern are readily discernible.

Variation. Variation in scutellation is shown in Table 1. The largest male is the holotype; the largest female (ASFS V21533) has a snout-vent length of 43 mm and is the only female in the series. All four paratypes resemble the holotype as preserved – pale tan dorsa without nuchal blotches. Only one has occipital dots present. The middorsal zone may be partially (posteriorly) or almost entirely set off from the balance of the dorsum by narrow dark brown lines along its margin. The flank stripes are white and may or may not be relatively prominent, depending upon the depth of the lateral pigmentation. The distal portion of the tail is slightly darker than the pale tan proximal portion.

Remarks. *A. o. palloris* is an extremely pale subspecies. It appears to be relatively uncommon in its range south of the Sierra de Baoruco-Massif de la Selle on the Peninsula de Barahona. There is as yet no evidence that this subspecies is in contact with its northern neighbor (*A. o. extentus*), and it is thus another example of a Barahona Entrapment reptile (see Schwartz, 1980).

Etymology. The name *palloris* (paleness) is Latin, in reference to the very pallid color of this population. The subspecific name is genitive singular.

Anolis olssoni domingonis, new subspecies

Holotype. MCZ 143797, an adult male, Riviera del Caribe, 4 km W airport turnoff, Distrito Nacional, República Dominicana, taken in 1974 by P. E. Hertz and R. B. Huey. Original number MCZ F-15097.

Paratypes. MCZ 143734, MCZ 143736, MCZ 143748-50, MCZ 143753-54, MCZ 143756-57, MCZ 143761, MCZ 143763, MCZ 143765-66, MCZ 143768, MCZ 143794-95, MCZ 143801, MCZ 143803-04, same data as holotype; ASFS V15649, 0.8 km NE Tres Ojos, Distrito Nacional, República Dominicana, 4 August 1968, A. Schwartz.

Definition. A subspecies of *A. olssoni* characterized by the combination of: 1) modally 4 vertical rows of loreal scales, 2) modally 1 row of scales between semicircles, 3) modally 3/3 scales between semicircles and interparietal, 4) moderate number ($\bar{x} = 11.7$) of scales around interparietal, 5) modally 2 or 3 postrostrals, 6) dorsum with a middorsal streak and very dark brown to blackish sides, none triangulate, nuchal spots absent, occipital dots present in most specimens, flank stripe white and bold due to dark pigment both above and below, 7) distal portion of tail dark brown and contrasting with tan proximal portion, 8) venter white.

Description of holotype. An adult male with a snout-vent length of 43 mm; 6 scales at level of second canthals; 4 vertical loreal rows; 1 scale between semicircles; 3/3 scales between semicircles and interparietal; 11 scales around interparietal; 9 scales in supraocular disc; 2 postrostrals; 2 postmentals; 14 enlarged rows of dorsal scales; 21 lamellae on phalanges II + III of fourth toe. Dorsum (as preserved) with a middorsal bronzy stripe, sides very dark brown, the upper edge of the sides with dark

blotches edging the middorsal stripe, the nuchal blotches incorporated into this dorsal edging; occipital dots present and bold on a tan ground; flank stripe white and very bold, outlined below by dark brown and black; base of tail streaked like dorsum, the lateral dark brown coloration extending onto tail base. Tail broken. Venter white with some slight lateral brown streaking.

Variation. Variation in scutellation is shown in Table 1. The largest male *A. o. domingonis* (MCZ 143750, MCZ 143794) have snout-vent lengths of 44 mm. No females are included in the series I have examined. The coloration and pattern of the entire series of males is much as described for the holotype. There is a middorsal pale (often metallic) area with very dark brown sides, these also often overlaid with black markings (MCZ 143748), most especially both along the middorsal stripe and above the white flank stripe. Nuchal blotches are absent or are incorporated into the dorsal band edging, but occipital dots are usually present and bold on a tan cephalic ground color. Tails are dark brown distally, and their bases are often very lineate with the continuation of the dorsal pattern onto the tail bases. The ventrolateral areas are likewise dark, thus distinctly outlining the flank stripes and making them bold and contrasting.

Remarks. In addition to the paratypes herein designated, there are many more topotypes in the MCZ that I have not examined; these include females of which I have seen none. The range of *A. o. domingonis* seems to be restricted from Santo Domingo (Mertens 1939:54) east to Riviera del Caribe, a distance of 16 km. This coast is not especially xeric. The population of *A. o. domingonis* seems to be truly isolated from the nearest records of *A. o. extentus* to the west – a distance of some 95 km. Other xerophilic species occur in the region (and even farther east) where *A. o. domingonis* is found. The xerophilic Cul de Sac-Valle de Neiba herpetofauna stops rather abruptly in the vicinity of Bani, Azua Province, where the habitat changes from xeric to more mesic. But the occurrence of some xerophiles far to the east of this line and including some offshore islands (such as Isla Catalina) suggests that at one time this southern Dominican coast was more xeric than it now is, and that enclaves of some xerophilic species have persisted there.

There are two specimens (USNM 66682-83) of *A. olssoni* from Guarabo, El Seibo Province, República Dominicana, some 100 km to the northeast of the known range of *A. o. domingonis*. Both are males with snout-vent lengths of 47 mm. Both are also discolored and were collected in 1923. There is nothing distinctive in the scutellation of these two lizards, and there are no notes on their color and pattern in life. I leave them unassigned subspecifically. As noted before, there is at least one apparently totally disjunct population in the Sabana de la Mar-Guarabo region. This area is extremely mesic and on the south shore of the Bahía de Samaná. Additional material from these localities (both of which I have visited, without securing *A. olssoni*) should be most interesting.

Etymology. The name *domingonis* is from Santo Domingo; the latter is treated as a third declension noun, and *domingonis* is genitive singular.

Anolis olssoni montivagus, new subspecies

Holotype. MCZ 156205, an adult male, from 14 km SW La Vega, 488 m, La Vega Province, República Dominicana, taken 22 October 1968 by R. Thomas. Original number ASFS V1736.

Paratypes (all from La Vega Province, República Dominicana). ASFS V1737-41, same data as holotype; ASFS V14086, 12 km NE Jarabacoa, 610 m, 15 July 1968, A. Schwartz; MCZ 14996-15004, 6.4 km N Hotel Montaña, January 1975, C. Smart; MCZ 132655, 5.5 km W La Vega, 1974, T.P. Webster.

Definition. A subspecies of *A. olssoni* characterized by the combination of: 1) modally 4 vertical rows of loreal scales, 2) modally 1 row of scales between semicircles, 3) modally 3/3 scales between semicircles and interparietal, 4) moderate number ($\bar{x} = 11.4$) of scales around interparietal, 5) modally 2 postrostrals, 6) dorsum (as preserved) usually boldly lineate (one exception which is triangulate), the median pale line outlined laterally by dark brown lines that extend onto the base of the tail; sides dark brown and without dark blotches or spots; nuchal spots usually present in males, absent in females; occipital dots always present; flank stripe cream and bold, outlined below by dark stippled ventrolateral bands, 7) distal two-thirds of tail dark tan, 8) venter white.

Description of holotype. An adult male with a snout-vent length of 40 mm; 7 scales at level of second canthals; 3 vertical loreal rows; 1 scale between semicircles; 3/3 scales between semicircles and interparietal; 11 scales around interparietal; 6 scales in supraocular disc; 2 postrostrals; 4 postmentals; 14 enlarged rows of dorsal scales; 17 scales on phalanges II + III of fourth toe. Dorsum (as preserved) strongly lineate, with a middorsal pale stripe, bordered laterally by fine dark brown to black lines, these lines anteriorly becoming rather blotchy; sides dark brown, bordering the pale cream flank stripe above, this stripe bordered below by heavy dark brown stippling; nuchal blotches and occipital dots present and prominent; venter white with some remnant dark brown lines ventrolaterally.

Variation. Variation in scutellation is shown in Table I. The largest males (MCZ 15004, MCZ 156205 — holotype, ASFS V1737) have snout-vent lengths of 40 mm. The largest female (MCZ 150003) has a snout-vent length of 39 mm. All but one male and all females are lineate dorsally; the middorsal band is always outlined with fine dark brown to black lines, thereby rendering the middorsal line more prominent. The sides are dark brown, and the lower sides likewise are usually stippled with dark brown. These dark pigments make the flank stripe very prominent. Nuchal blotches and occipital dots are usually present and bold. In preserved specimens, the venter is white, at times with faint ventrolateral brown lines or their remnants; the distal portions of the tails are darker brown.

Remarks. The known distribution of *A. o. montivagus* encompasses a relatively small area from La Vega at an elevation of about 153 m, onto the northern slopes of the Cordillera Central to an elevation of 610 m. The area is predominantly pine-clad within the mountains, but the specimen from west of La Vega was presumably taken from the lowlands in a mesic region. Specimens in the ASFS have been reported as sleeping on a guava bush (*Psidium*), on grasses, on low shrubs, and in bunches of dead pine needles on a fallen branch on the ground. This is the only area I know where *A. olssoni* inhabits pinewoods; on the northern slopes of the Morne l'Hôpital in Haiti, the species has not been taken in this habitat.

A. o. montivagus appears to be another completely disjunct population of *A. olssoni*. The nearest records are of *A. o. olssoni*, some 120 km to the west, and of *A. o. extentus*, some 100 km to the south. It is more possible that *A. o. montivagus* is continuous with *A. o. olssoni* through the Valle de Cibao, at the western extreme of which the latter subspecies occurs. Mertens (1939:54) listed specimens from Monción, about 80 km east of La Vega, that tend to fill the gap between the Monte Cristi area and La Vega but suggest that the species is uncommon in this region. Another possible route of origin of *A. o. montivagus* is from the south via the central valley from Santo Domingo to La Vega and Santiago, a distance of some 100 km. Once again, there are no records from this valley, although Hertz (1976) showed a locality symbol in this interval. The similarities between *A. o. montivagus* and *A. o. domingonis* suggest in some ways that the latter route is the one of origin for the former subspecies.

Etymology. The name *montivagus* (wandering over the mountains) is Latin in allusion to the habitat of this subspecies.

COMPARISONS AND COMMENTS

Color, pattern, and scutellation all play roles in differentiating the subspecies of *A. olssoni*. Five subspecies (*olssoni*, *ferrugicauda*, *insularius*, *domingonis*, *montivagus*) are dark, whereas the remainder (*alienus*, *extentus*, *palloris*) are pale.

Of the dark subspecies, *ferrugicauda* stands out boldly from all others; its brown venter, spotted dorsum, and rusty tail all distinguish it from all other populations. *Anolis o. domingonis* and *A. o. montivagus* differ from the other dark subspecies in modally having 3/3 scales between the interparietal and the semicircles; these two subspecies also have 7 scales in the supraocular disc (in the case of *montivagus* this occurs in one of the two modes). The vertical loreal rows in *olssoni*, *domingonis*, and *montivagus* are modally 4, whereas there are 5 rows in *ferrugicauda* and *insularius*. The intensity of the flank stripe in the dark subspecies is usually bold, due to the contrasting dark pigment above and below the stripe.

Of the three pale subspecies, *palloris* is the most distinctive, since it has the semicircles in contact, in contrast to all other subspecies and also has the lowest number of scales around the interparietal. *Anolis o. alienus* and *A. o. extentus* are similar, but they are separated by the very different *A. o. ferrugicauda*. In addition, *A. o. extentus* reaches a larger size than *A. o. alienus* (males to 49 mm in snout-vent length in the former, 43 mm in the latter).

It is virtually axiomatic that, in lizards, those that inhabit desert or xeric areas are pale; if these pale desert populations have mesic relatives, the latter are dark in color. Such is not the case in *A. olssoni*, since in this essentially xeric-adapted lizard, both pale and dark subspecies occur in uniformly xeric regions. I have pointed out that no more different subspecies of *A. olssoni* can be visualized than adjacent *A. o. alienus* (pale) and *A. o. ferrugicauda* (dark and spotted); the same can be said in comparing *A. o. ferrugicauda* and adjacent *A. o. extentus* to the south. Yet all these subspecies occur in xeric regions, all of which seem equally rigorous and harsh to the human eye. The two eastern subspecies (*domingonis*, *montivagus*) inhabit atypical relatively mesic areas (although pinewoods are essentially xeric), and these two populations are dark in color. *Anolis o. insulanus* from Ile de la Gonâve is dark, but the areas where it has been taken, at least on the coast, are xeric, often extremely so. There seems to be no obvious direct correlation between dorsal color and habitat in the various subspecies of *A. olssoni*.

ACKNOWLEDGMENTS

I have examined material in the Museum of Comparative Zoology (MCZ) and the National Museum of Natural History (USNM) through the courtesy of Ernest E. Williams, José P. Rosado, George R. Zug, and Fran Irish. There are many more specimens of *A. olssoni* in both collections which I have chosen not to examine; many of these are from localities already well represented in the Albert Schwartz Field Series (ASFS). In the field I have had the capable assistance of: P.A. Adams, J.R. Buffett, D.A. Daniels, J.R. Dennis, D.C. Fowler, E.D. Graham, Jr., S.J. Incháustegui, R.F. Klinikowski, M.D. Lavrich, D.C. Leber, J.K. Lewis, R.A. Ober, D.R. Paulson, J.A. Rodgers, Jr., B.R. Sheplan, M.H. Strahm, J.B. Strong, R. Thomas, and C.R. Warren. Many specimens in the ASFS have been collected under the auspices of National Science Foundation research grants G-7977 and B-023603 to myself, and specimens in the MCZ were secured under B-01980X and preceding grants to Ernest E. Williams.

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