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ON SOME OVERLOOKED SPECIES OF THE GENUS *LIOLAEMUS* WIEGMANN (REPTILIA TROPIDURIDAE) FROM PERU

R. F. LAURENT¹

ABSTRACT. Three new species of the genus *Liolaemus*, *L. robustus*, *L. polystictus*, and *L. williamsi*, from the upper western slopes of the Cordillera Central and of the eastern slopes of the Cordillera Occidental of Peru are described. They were previously confused with *L. multiformis* Cope, 1856, which is here synonymized with *L. signifer* (Duméril and Bibron, 1841) and seems to be restricted to the northern part of the Altiplano. The status of other northern species of *Liolaemus* is discussed.

INTRODUCTION

The bewildering diversity of the genus *Liolaemus* Wiegmann has been well documented by L. Müller, W. Hellmich, R. Donoso-Barros, and J. M. Cei for the southern part of its range in Chile and Argentina, more or less south of the 30th parallel. In contrast, this diversity has been largely neglected in the northern part of its range, in northwestern Argentina, Bolivia, and Peru. Many of the forms that occur in this region have been inadequately described, and a number of names have been placed in synonymy with little or no documentation. Thus, the discovery of three undescribed species from the upper western slopes of the Cor-

¹ Investigador Principal del CONICET, PRHERP-Fundación Lillo, Miguel Lillo 251, 4000 Tucumán, ARGENTINA.

TABLE 1. CHARACTERS OF THE SUBGENERA *LIOLAEMUS* AND *EULAEMUS*.

	<i>Liolaemus</i> (395 ♂♂, 356 ♀♀)	<i>Eulaemus</i> (313 ♂♂, 313 ♀♀)
Preanal pores	0-7 $\bar{x} = 2.19$ < 5 in 91% of specimens, the series generally shorter than the 1st toe (12.4% of exceptions)	3-12 $\bar{x} = 6.40$ > 4 in 92% of specimens, the series generally longer than the 1st toe (2.29% of exceptions)
Nostrils	lateral	latero-dorsal
Distance between upper border of subocular and lip compared with distance between nasal plates	inferior (3.37% of exceptions)	superior (7.03% of exceptions)
Upper labials	generally flat and long, the 4th below eye, with posterior border oblique	generally high and short, 5th, 6th, or 7th below eye, with posterior border vertical
Range	Chile (≥ 50 taxa) southern and western Argentina (18 taxa) Bolivia (3 taxa) Peru (3 taxa)	northern Chile (6 taxa) southern and western Argentina (25 taxa) Bolivia (6 taxa) Peru (9 taxa)

dillera Central and the upper eastern slopes of the Cordillera Occidental of Peru necessitates an evaluation of the status of other taxa from the region, before the new forms can be adequately diagnosed.

Elsewhere (Laurent, 1983), I have pointed out that the great majority of *Liolaemus* species, including all that occur in the northern part of its range, can be referred to one or the other of two large groups: 1) a primarily Chilean group (subgenus *Liolaemus*), and 2) a primarily Argentinian group (subgenus *Eulaemus*). Distinguishing characteristics of these two groups are provided in Table 1.

Two groups of *Eulaemus* may be recognized: 1) a *fitzingeri* group in which there is a patch of enlarged scales on the posterior surface of the thigh, and 2) a *signifer* group in which the patch of enlarged scales is lacking. The species allocated to the subgenus

Liolaemus and to the two subgroups of *Eulaemus* are listed in the Appendix.

Members of the Chilean group (subgenus *Liolaemus*) are few in the northern part of the range of *Liolaemus*. *Liolaemus tacnae* (Shreve), originally described in the genus *Stenocercus*, is apparently a local species from the department of Tacna in southern Peru. *Liolaemus alticolor* Barbour and *L. walkeri* Shreve are names that have been applied to a large set of Andean populations from Peru southward to Catamarca Province, Argentina. The form *walkeri* was considered by Hellmich (1961) and Donoso-Barros (1966) to be a subspecies of *alticolor*. It is uncertain whether this form represents a valid species or subspecies. In fact, several taxa may be represented by specimens now referred to *walkeri*.

The majority of northern *Liolaemus*, including the three new species described below, are members of the Argentinian group (subgenus *Eulaemus*). A number of Koslowsky's names have been revived (Laurent, 1982a) for members of this group, and new species have been recently described (Laurent, 1982a, 1984, 1985, 1986), but there still are problems with certain other names in the group.

Liolaemus ornatus Koslowsky, 1898, is an abundant species of the *fitzingeri* group that occurs from low to high altitudes from Catamarca Province, western Argentina, northward to the Lake Titicaca region in southern Peru and northern Bolivia. Pellegrin (1909) described *Liolaemus pulcher* and *L. mocquardi* from Ti-huanaco, Depto. de La Paz, Bolivia. Examination of the syntypes reveals that those of *L. pulcher* are males and those of *L. mocquardi* are females of the same form. Peters and Donoso-Barros (1970) correctly placed *L. pulcher* in the synonymy of *L. ornatus*, thus *L. mocquardi* may now be added to that synonymy.

Liolaemus simonsi Boulenger, 1902, based on specimens from Potosi, Challapata, and Uyuni, Bolivia, was considered to be a subspecies of *multiformis* by Burt and Burt (1931), an allocation followed by Peters and Donoso-Barros (1970). The syntypes of *Liolaemus simonsi* (BM 1902.5.29.74–79 [RR 1946.8.12.20–23], 1902.5.29.85–87 [RR 1946.8.12.24–26]), kindly lent by Dr. C. MacCarthy, possess a patch of enlarged scales on the posterior aspect of the thigh, a fact not mentioned in the type description, but which excludes *simonsii* from the synonymy of *multiformis*.

However, a comparison of the syntypes with Bolivian specimens of the widespread *Liolaemus ornatus* confirm the synonymy of *simonsi* with *ornatus*.

The remaining northern species of *Liolaemus*, including the three new forms described below, are members of the *signifer* group of *Eulaemus*. *Liolaemus dorbignyi* Koslowsky, 1898, from Catamarca Province in western Argentina and *L. jamesi* Boulenger, 1891, from west of the Andes in Tarapacá Province, northern Chile, are large-scaled members of the *signifer* group, similar to one another in scalation and proportions, and may represent vicariant forms on opposite sides of the Andes, an hypothesis to be investigated in a later paper.

Liolaemus signifer (Duméril and Bibron, 1841) is one of the two oldest names available for members of the Argentinian group, the other is *L. fitzingerii*. The type locality of *L. signifer* was given as "Chile," but recently Cei, Lescure, and Ortiz (1980) have mapped the route taken by d'Orbigny, its collector, in Chile, Peru, and Bolivia, and restricted the type locality of *signifer* to the highlands of Peru and Bolivia. For the most part, the route taken by d'Orbigny passed through the range of the species that most subsequent authors refer to as *Liolaemus multiformis* Cope with a very short stretch passing through the range of *Liolaemus annectens* Boulenger, 1901, in Arequipa Province, Peru. There are significant statistical differences between these two forms, but the presence of a zone of intergradation indicates that a single species with two geographic races is involved. When the holotype of *L. signifer* (MNH Paris 6890) is compared with the two races, it falls always with the population of the intergrade zone or with *multiformis*, never with *annectens*. It is on this basis that *Liolaemus multiformis* Cope, 1856, is here considered to be a synonym of *L. signifer* (Duméril and Bibron, 1841).

L. multiformis was based on a series of specimens (Acad. Nat. Sci. Phila. 13064-6, 13098, 13104, 13168-70) from Lake Titicaca, Peru. A number of forms described subsequently have been placed in its synonymy, some correctly, but some apparently not. I have examined all of the relevant type material and consider the following synonymies to be correct: *lenzi* Boettger, 1891 (fide Burt and Burt, 1931), type locality "Bolivianische Ufer des Titicaca-Sees"; *tropidonotus* Boulenger, 1901 (fide Burt and Burt,

1931), type locality "Tirapata, E. Peru, 13,000 feet"; *bolivianus* Pellegrin, 1909 (fide Hellmich, 1962), type locality "Tiahuanaco, Depto. de La Paz, Bolivia"; *variabilis crequii* Pellegrin, 1909 (fide Hellmich, 1962), type locality "Tiahuanaco, Depto. de La Paz, Bolivia"; *variabilis courtyi* Pellegrin, 1909 (fide Hellmich, 1962), type locality "Tiahuanaco, Depto. de La Paz, Bolivia"; *variabilis neveui* Pellegrin, 1909 (fide Hellmich, 1962), type locality "Tiahuanaco, Depto. de La Paz, Bolivia."

Since *multiformis* has been shown to be a synonym of *signifer*, all of the above forms are properly referred to the synonymy of the latter. In addition, *L. pantherinus* Pellegrin, 1909 (syntypes MNH Paris 05-344-05-345), for which no locality was given, also cannot be distinguished from *L. signifer*.

Two forms that have been synonymized with *Liolaemus multiformis* appear to be valid: *L. annectens* Boulenger, 1901 (synonymized by Hellmich, 1962), type locality "Caylloma and Sumbay, 11,300 to 13,600 feet," and *L. annectens orientalis* Müller, 1923 (synonymized with *multiformis simonsi* Boulenger, 1902, by Burt and Burt, 1931), type locality "Oberer Pilcomayo, zwischen Tarija and S. Francisco, Bolivien." As pointed out above, *Liolaemus annectens* is probably a geographic race of *Liolaemus signifer*. Evidence for the validity of *orientalis* will be presented at another time.

As indicated earlier, the *signifer* group of *Eulaemus* is defined by the absence of a patch of enlarged postfemoral scales, while the *fitzingerii* group is defined by their presence. A patch of enlarged postfemoral scales is unique within tropidurine iguanids and is almost certainly derived. However, if a patch of enlarged postfemoral scales was derived only once within *Liolaemus*, then the *fitzingerii* group is paraphyletic, because the patch is also found in species excluded from the group and placed in the subgenus *Ortholaemus* (Laurent, 1984), i.e., *wiegmanni*, *cranwelli*, *multimaculatus*, *scapularis*, *salinicola*, *occipitalis*, *lutzae*. Since the *signifer* group, at present, is defined only by the absence of these enlarged scales, this subgroup also may be paraphyletic. Although the question of their monophyly cannot be resolved at this time, the *signifer* and *fitzingerii* groups provide a useful means for the diagnoses and identification of the new forms described below.

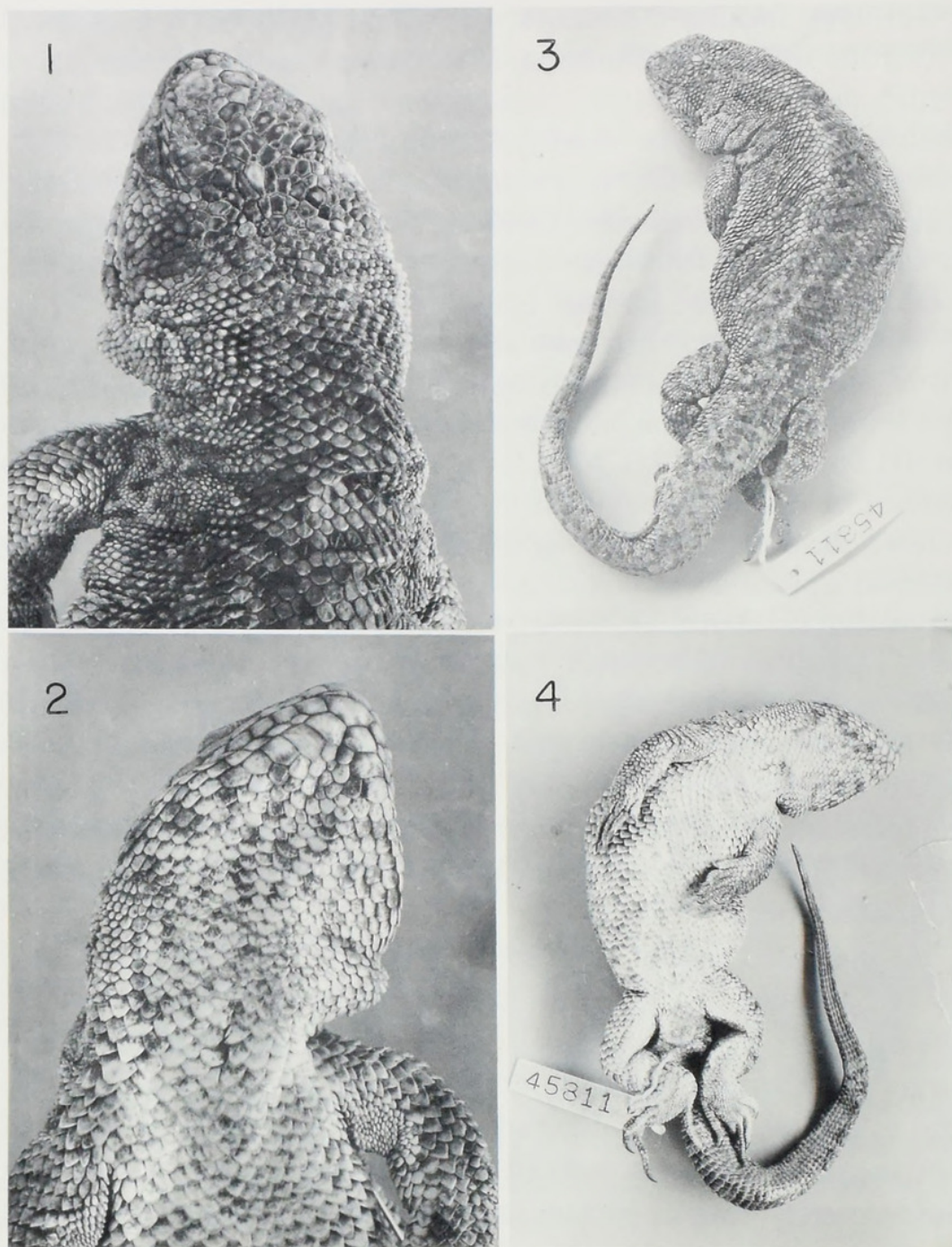


Plate I. *Liolaemus robustus*, sp. nov. Paratype male: MCZ 45811. Depto. Junin, Peru. 1. Dorsal view of head. 2. Ventral view of head. 3. Dorsal view. 4. Ventral view.

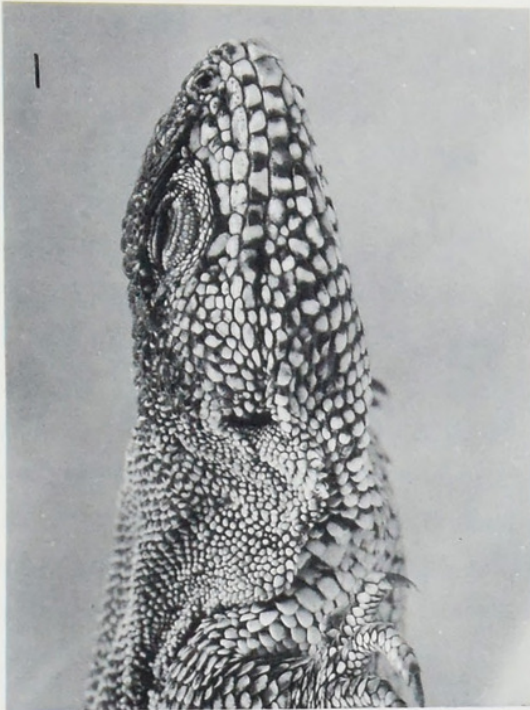


Plate II. 1. *Liolaemus polystictus*, sp. nov. Holotype male: MCZ 45845. Side view of head. 2. *Liolaemus polystictus*, sp. nov. Paratype female: MCZ 45849. Dorsal view. 3. *Liolaemus robustus*, sp. nov. Paratype female: MCZ 45811. Side view of head.

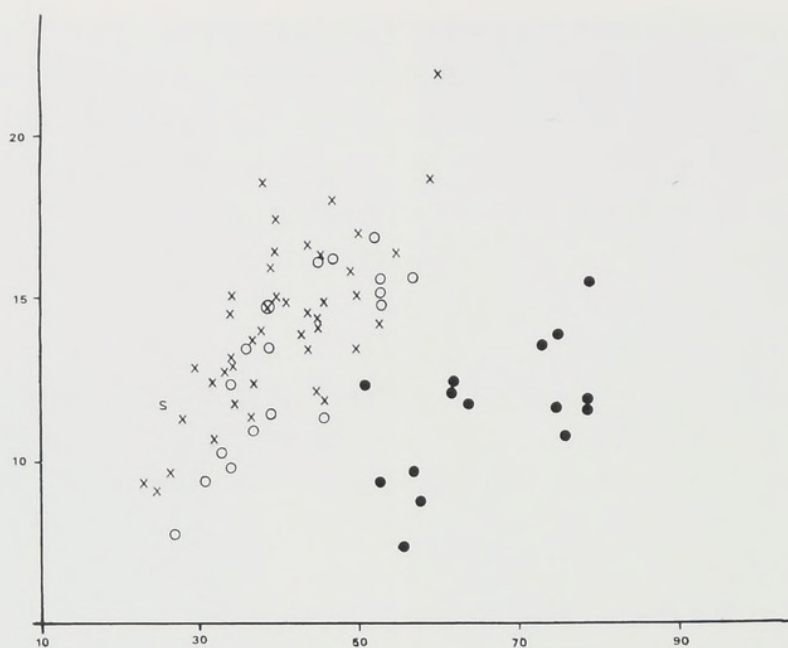


Figure 1. Scatter-diagram of minimum width of frontal region (ordinates) and length of 5 dorsal scales (abscissa). Measurements in tenths of a millimeter. \times = *Liolaemus signifer*, \circ = *L. polystictus*, sp. nov. \bullet = *L. robustus*, sp. nov. S = Type of *L. signifer*. \otimes = Lectotype of *L. multiformis*.

Liolaemus robustus, new species
(Pl. I, Figs. 1–4; Pl. II, Fig. 3)

Holotype. One male (FMNH 34242/H) from Junin, Depto. Junin, collected by K. P. Schmidt.

Paratypes. PERU: *Depto. Junin*: Same data as holotype: FMNH 34242/1–23, 34247, 11 males, 4 females, 9 juveniles. Huayre, N of Junin: FMNH 34253, 2 males, 1 female, 4 juveniles. Huawhay (=Huayre?): UMMZ 89484, 1 male. Ondores on Lake Junin: MCZ 157226, 1 male. “Depto. of Junin” only: MCZ 45809–12, 16155–56, 1 male, 5 females, W. F. Walker, 14 April 1939. *Depto. Lima*: Yauricocha: MCZ 45830, 1 male.

Diagnosis. A species of the *Liolaemus signifer* group, differing from *L. signifer* by the lower number of scales around the body (47–61, instead of 66–82), the frontal azygous, generally divided in two parts, anterior and posterior, instead of divided into many scales (at least 3, generally 5–8, and even more), by a narrower frontal zone, bigger head, more robust general proportions, and by its characteristic color pattern with black spots or dots.

Other differences are: 1) 44–59 scales (rather than 65–87) between occiput and level of the front border of the thighs; 2) 12–19 dorsal scales (instead of 18–30) in head length; 3) 63–78 ventral scales (instead of 74–92) between postmentals and vent; 4) 49–70 lateral scales between the legs (instead of 65–89); 5) minimum width of frontal region 13–25% (rather than 25–49%) of the length of 5 dorsal scales (see Fig. 1).

Description of the Holotype. Head length (from posterior edge of ear opening) (HL = 20.13 mm) 26.8% of snout–vent length (SVL = 77 mm). Two vertical antehumeral folds and a longitudinal oblique and sinuous fold on the side of the neck, bifurcated behind the ear on the right side. Scales on the upper side of head markedly convex, a count of 15 on the midline. Rostral scale about 2.5 times as wide (W = 4.0 mm) as high (H = 1.63 mm). Nasal triangular, separated from rostral, surrounded by 7 scales. Nostril round, in the posterior part of the nasal, a little nearer to the point of the snout (2.94 mm) than to the posterior extremity of the canthal (3.40 mm). Internasals 2 anterior + 2 azygous + 2 posterior. Ear opening somewhat oblique, nearly rectangular, surrounded by granular scales that are smaller behind than in front of the ear. Temporals convex, 7 between the postsubocular and the ear. Interparietal small, pentagonal, surrounded by 5 scales, the anteriormost median. Frontal region occupied by 2 azygous scales. Five supraoculars, 7 supraciliaries, the 5th below the 4th and 6th. Five scales between the rostral and frontal region. Semicircles simple, 4 scales between the frontal region and the supraciliaries.

In prefrontal zone, between the posterior internasals and the frontal region, 11 scales, 3 intercanthal scales. Across the snout, 11 scales between the labials at the postnasal level, 11 also at the canthal level. Four scales between nasal and subocular. Subocular divided in two. Paralabials 8, 4 in contact with subocular. Supralabials 8. Infralabials 5–6, followed by 9–7 granules as far as the corner of the mouth. Mental fan-shaped, in contact with 4 scales.

Lateral scales of neck granular, 41 between ear opening and forelimb. About 30 scales between ear openings. Fifty-five scales around the body. Fifty-four between occiput and level of anterior border of thigh. Dorsal scales juxtaposed or imbricate on the sides,

very faintly keeled or smooth, 14 in head length. Flank scales smaller, erect, granular at armpit and groin, about 61 between legs. Ventrals smooth and imbricate, 68 between mental and pre-anal pores. Caudal scales similar to body scales, 22 in 15th verticil. No patch of enlarged scales behind the thigh. Fourteen to fifteen infradigital lamellae beneath 4th finger, 19 beneath 4th toe. Tail (83 mm) 107.8% of snout-vent length.

Color (in Alcohol). Above, olivaceous gray, with some scales blackish, these often clustered in small groups, which give a more or less punctate appearance. Belly whitish with grayish pigmentation on most scales; throat with gray dots, without definite pattern.

Variation (see Table 2). Upper labials generally 8 (38 sides), sometimes 9 (16 sides) or 7 (9 sides), rarely 10 (5 sides) or 11 (2 sides), the first 5 to 6 without small scales below and inside. Lower labials generally 6 (46 sides), sometimes 5 (14 sides), rarely 7 (6 sides), 8 (3 sides), or 4 (1 side). Supraoculars generally 4 (34 sides) or 5 (25 sides), rarely 6 (7 sides) or 3 (8 sides). Supraciliaries usually 7, the 5th below the 4th and 6th, but 6 on 6 sides and 8 on 9 sides. Temporals between the postsubocular and the ear most often 8 (31 sides), not infrequently 7 (24 sides), sometimes 9 (11 sides), exceptionally 6 (4 sides). Plates between the rostral and the frontal normally 5 (43 sides), sometimes 6 (20 sides), rarely 7 (3 sides) or 4 (2 sides). Scales between the frontal and the supraciliaries 4 (46 sides), sometimes 3 (19 sides), rarely 2 (3 sides) or 5 (2 sides). Scales around the interparietal usually 5 (11 cases) or 6 (14 cases), sometimes 7 (7 cases), rarely 8 (3 cases), symmetrical (14 cases) or irregular (21 cases). Scales in contact with the nasal generally 7 (35 sides), sometimes 6 (19 sides) or 8 (11 sides), rarely 9 (2 sides) or 5 (1 side), rarely adjacent to the rostral (2 sides). Paralabials usually 8 (28 sides), often 7 (22 sides), sometimes 9 (13 sides), rarely 6 (4 sides) or 10 (1 side). Paralabials in contact with subocular generally 4 (41 sides), sometimes 5 (18 sides), rarely 3 (7 sides), exceptionally 2 or 6 (1 side each). Plates between the upper labials over the snout posterior to the nasals 7 to 12 (mean = 9.97), at canthal level 9 to 14 (mean = 11.60). Usually 4 scales between nasal and subocular. Preanal pores in males 3 (2 cases), 4 (8 cases), 5 (6 cases), or 6 (3 cases). A single female has one vestigial pore. Almost always, the frontal is di-

TABLE 2. MERISTIC CHARACTERS OF *LIOLAEMUS ROBUSTUS*.

	(7 ♂♂, 7 ♀♀)	
	♂♂	♀♀
Scales around midbody	48–61 (\bar{x} = 53.05)	50–60 (\bar{x} = 54.43)
Dorsal scales between occiput and levels of anterior border of thighs	44–59 (\bar{x} = 52.28)	51–56 (\bar{x} = 53.14)
Ventral scales between postmentals and vent	63–74 (\bar{x} = 68.59)	72–78 (\bar{x} = 74.14)
Lateral scales between anterior and posterior limbs	49–68 (\bar{x} = 58.40)	56–68 (\bar{x} = 62.14)
Scales in the 15th verticil of tail	18–22 (\bar{x} = 20.28)	19–23 (\bar{x} = 20.86)
Gular scales between ears	29–35 (\bar{x} = 32.04)	28–32 (\bar{x} = 30)
Hellmich's index	14–17 (\bar{x} = 15.40)	13–15 (\bar{x} = 14)
Lamellae under 4th finger	14–17 (\bar{x} = 15.63)	14–16 (\bar{x} = 15)
Lamellae under 4th toe	18–21 (\bar{x} = 19.78)	19–21 (\bar{x} = 19.57)

vided into two plates, one anterior and one posterior. In only three cases are there 3 plates with 2 anterior, one posterior. In one case there are 3 plates in a longitudinal series, in another the anterior plate is asymmetrically located on the left. In three specimens there is a single undivided frontal.

The dorsal coloration does not appear very variable in preserved material. The black dots or spots may be more or less distinct. They have a tendency to concentrate in two laterodorsal zones in some specimens. The ventral pigmentation may be almost absent, uniformly distributed or scattered into ill-defined spots. Intact tails vary from 106 to 123% of snout–vent length in males (mean = 111.47), from 109 to 126% (mean = 117.73) in females.

Size. Snout–vent length of the largest male (from Yauricocha) 85 mm, of the largest female 82 mm.

Geographic Variation. One specimen (MCZ 45830) from Yauricocha, Lima Department, is somewhat different from the other specimens from Junin Department. The belly and throat are black with white dots; the frontal is divided in three; there are 5 scales between the frontal and the supraciliaries, 22 lamellae beneath the 4th toe. The supraciliaries are only 5, the 3rd below the 2nd and 4th. The last may be an anomaly, since the formula 7 (5) is

TABLE 3. COMPARATIVE VARIATION OF MERISTIC AND MORPHOMETRIC CHARACTERS IN *LIOLAEMUS ROBUSTUS*, SP. NOV., *L. POLYSTICTUS*, SP. NOV., *L. WILLIAMSI*, SP. NOV., AND *L. SIGNIFER* (DUMÉRIL AND BIBRON).

	<i>robustus</i> (N = 15)	<i>polystictus</i> (N = 17)	<i>williamsi</i> (N = 15)	<i>signifer</i> (= <i>multiformis</i>) (N = 32)
Frontal divided into plates	2 (1 + 1), rarely 3 (2 + 1)	1 to 5 (2 + 1 + 2)	1 to 5 (2 + 1 + 2 or 2 + 2 + 1)	3 (1 + 2) to 9 (3 + 2 + 2 + 2)
Scales around mid-body	48–61	57–70	54–67	66–82
Dorsal scales between occiput and level of front borders of thighs	44–59	55–70	48–65	65–87
Ventral scales between postmentals and vent	63–78	62–71	67–78	74–92
Lateral scales between legs	49–68	54–76	66–77	65–89
Hellmich's index	12–17	14–21	17–22	18–30
Minimum width of frontal region as % of length of 5 dorsal scales	13–23 (\bar{x} = 16.9)	24–38 (\bar{x} = 31)	18–29 (\bar{x} = 23.8)	25–49 (\bar{x} = 35.72)
Width of head in % of snout–vent length	19.6–24.6 (\bar{x} = 21.68)	19.70–23.7 (\bar{x} = 21.25)		18.3–22.3 (\bar{x} = 19.98)
Distance between posterior borders of eyes in % of head height		85.2–110.1 (\bar{x} = 95.49)		70.9–107.6 (\bar{x} = 84.9)
Length of 4th toe nail in % of width of 5 ventral scales (♂♂ only)		20.5–38.6 (\bar{x} = 30.02)		31.6–50 (\bar{x} = 40.81)
Distance between the pubic symphysis and the vent as % of ear–eye distance (♀♀ only)		80–124 (\bar{x} = 98.84)		62–99 (\bar{x} = 78.65)

TABLE 3. Continued.

	<i>robustus</i> (N = 15)	<i>polystictus</i> (N = 17)	<i>williamsi</i> (N = 15)	<i>signifer</i> (= <i>multiformis</i>) (N = 32)
Minimum distance between nasals in % of minimum distance between supra-ocular scales	90–142 (\bar{x} = 113.31)	56–87 (\bar{x} = 70.8)	65–139 (\bar{x} = 95.7)	
Rostral height in % of eye–lip distance	43–65 (\bar{x} = 50.57)	50–74 (\bar{x} = 60.62)	48–62 (\bar{x} = 55.85)	
Length of 5 dorsal scales in % of ear–eye distance			67–104 (\bar{x} = 79.4)	29–71 (\bar{x} = 49.58)
Eye–lip distance in % of subocular length	47–70 (\bar{x} = 54.83)		37–58 (\bar{x} = 49.05)	
Length of 1st finger (without claw) in % of length of 5 dorsal scales		51–83 (\bar{x} = 65.95)	40–65 (\bar{x} = 54.14)	

the norm for the entire genus *Liolaemus*, but the other features might characterize a valid subspecies if confirmed for a majority of the specimens from the region.

Relationships. All of these specimens had been identified as *L. multiformis* (Cope). However, they are clearly different from the syntypes of the species and series collected around Lake Titicaca. The most obvious differences are indicated in Table 3 and Figure 1.

There is also a large and clear-cut morphometric difference: the width of the frontal region at its narrowest point is less than 25% of the length of 5 dorsal scales (lowest value 13%) in *robustus*; in *signifer* the same measurement is more than 25% (highest value 48.9%). The name of the species has been inspired by its robust appearance. While it is expected to be most significant in this respect, the width of head/snout–vent length ratio is not diagnostic at all: 18.31 to 24.57% (mean = 21.73%) in *robustus* versus 18.78 to 22% (mean = 20.54%) in *signifer* (see Fig. 2).



Figure 2. Scatter-diagram of width of head (ordinates) and snout-vent length (abscissa). Measurements in tenths of a millimeter. ● = *Liolaemus robustus* ♂, and ○ = ♀. x = *L. signifer* ♂, and O = ♀. S = Type of *L. signifer*.

L. robustus, as well as the two new species described below, is not compared here with other *Eulaemus* species. Other papers, which will remedy this lack, are in preparation. They include descriptions of other new species, one from Peru, one from northern Chile, and 5 from northwestern Argentina, and the last of the series is intended to provide a key to all *Eulaemus* without enlarged femoral scales.

The sexual dimorphism of *L. robustus* is not as conspicuous as that of *L. signifer*. The size difference is less marked, and the color pattern is about the same in both sexes, at least in alcohol. However, the colors in life are probably brighter in males than in females.

Liolaemus polystictus, new species
(Pl. III, Figs. 1–4; Pl. II, Figs. 1–2)

Holotype. One male (MCZ 45845) from Santa Inez (13°12'S, 75°05'W), about 100 km S of Huancavelica, Depto. Huancavelica, Peru, W. F. Walker Sr., collected February 1939.

Paratypes. PERU: *Depto. Huancavelica*: Same data as holotype: 2 males MCZ 45844, 45846, 3 females MCZ 45847–49, 2 juveniles MCZ 161157–58, 1 male, 1 female UMMZ 89482. Same locality and collector: MCZ 43782, collected 14 December 1936. Huancavelica: 5 males, 4 females, 2 juveniles FNHM 81453–63, no collector, no date. Six km SW Castrovirreyna, 3,650 m, KU 163563, W. E. Duellman, collected 24 February 1975.

Diagnosis. A species of the *Liolaemus signifer* group, differing from all other members of this group by the male color pattern, in which each dorsal scale is bicolor, pigmented at the base, clear behind, giving a striking appearance of fine punctation, and by having a greater sexual dimorphism in size.

It can be distinguished from *L. signifer* by the following differences: 1) 62–75 ventral scales instead of 74–92 between postmentals and vent; 2) 57–70 scales instead of 66–82 around midbody; 3) 55–70 dorsal scales instead of 65–87 between occiput and level of front borders of thighs; 4) some morphometric differences only noticeable on scatter-diagrams because of allometry (Figs. 3–5).

L. polystictus differs from *L. robustus* in the following characters: 1) minimum width of frontal region 24–38% of length of 5

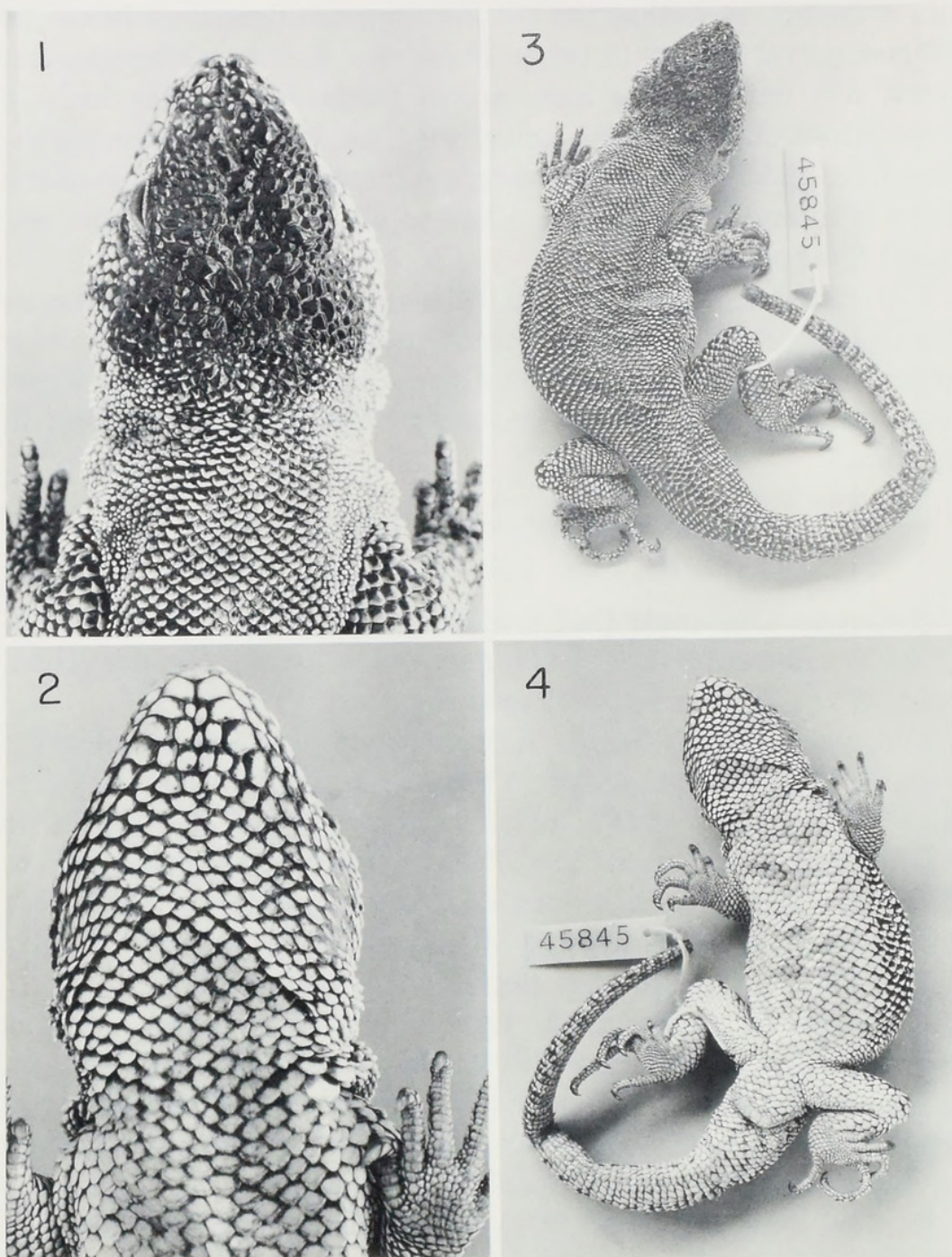


Plate III. *Liolaemus polystictus*, sp. nov. Holotype male: MCZ 45845. Huan-cavelica, Peru. 1. Dorsal view of head. 2. Ventral view of head. 3. Dorsal view. 4. Ventral view.

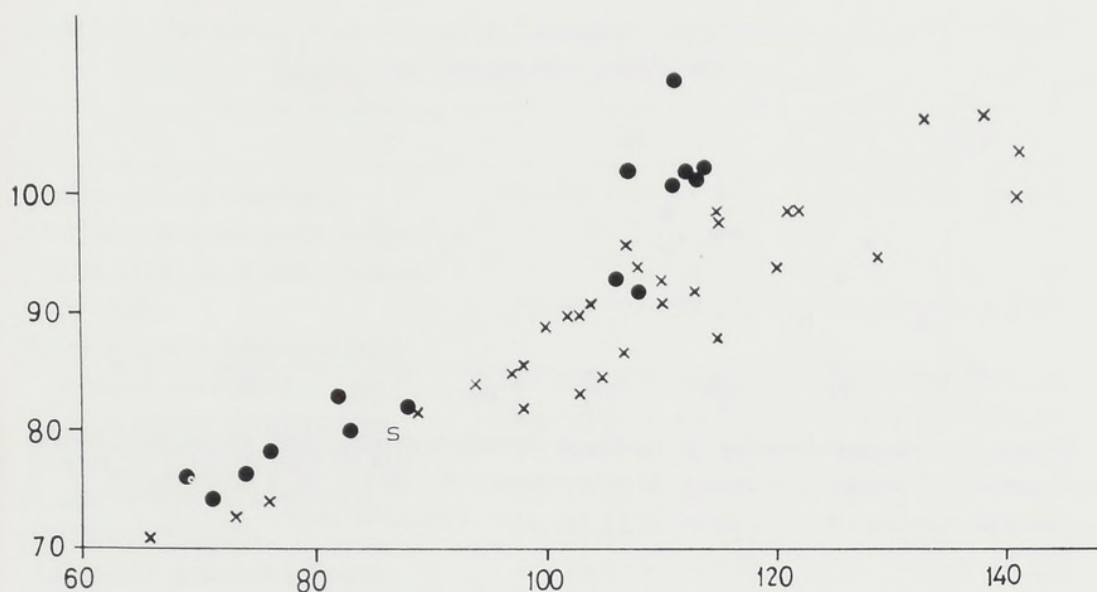


Figure 3. Scatter-diagram of distance between posterior eye borders (ordinates) and head height (abscissa). Measurements in tenths of a millimeter. ● = *Liolaemus polystictus*, sp. nov. × = *L. signifer*. S = Type of *L. signifer*.

dorsal scales instead of 13–23% (see Fig. 1); 2) minimum distance between nasals 56–87% of minimum distance between supraocular scales instead of 90–142%; 3) 57–70 scales around midbody instead of 47–61; 4) 55–70 dorsal scales instead of 44–59 between occiput and level of front borders of thighs.

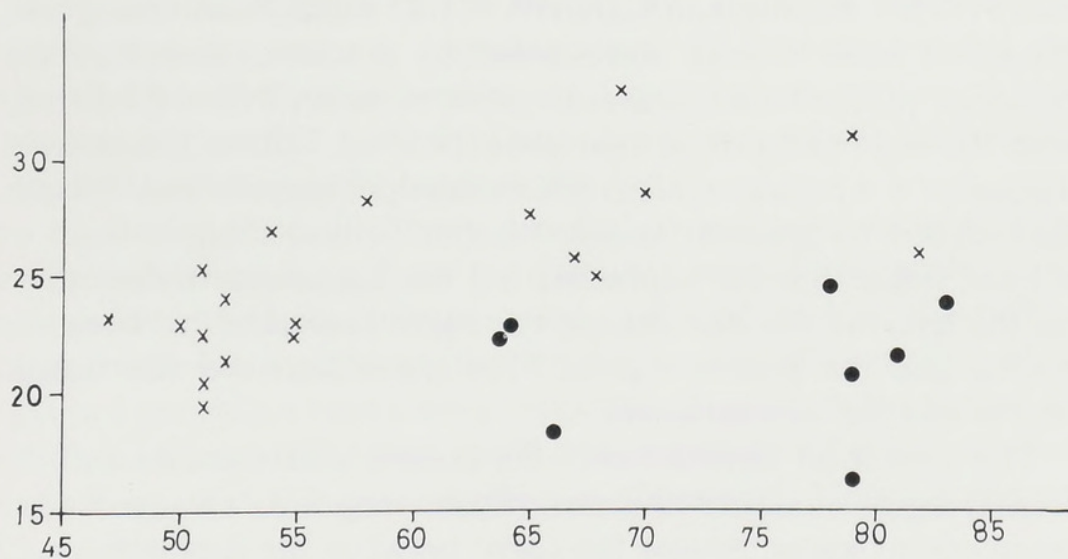


Figure 4. Scatter-diagram of length of claw of 4th toe (ordinates) and width of 5 ventral scales (abscissa). Measurements in tenths of a millimeter. × = *Liolaemus signifer*. ● = *L. polystictus*, sp. nov. Males only.

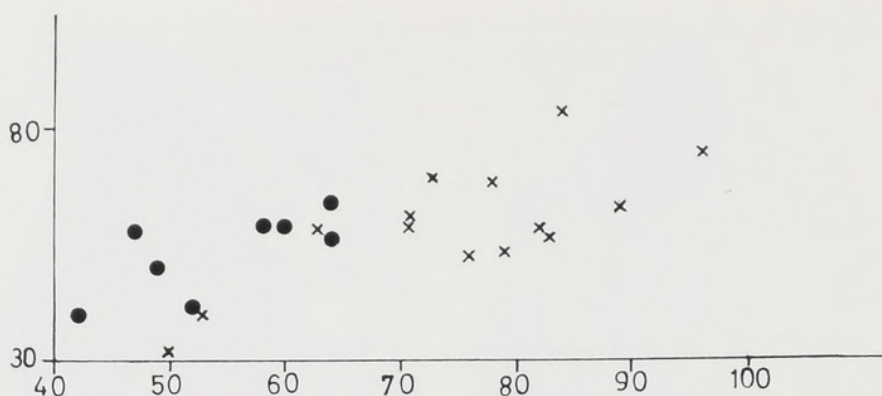


Figure 5. Scatter-diagram of distance between armpit and groin (ordinates) and ear-eye distance (abscissa). Measurements in tenths of a millimeter. \times = *Liolaemus signifer*. \bullet = *L. polystictus*, sp. nov. Females only.

Description of the Holotype. Head length (from posterior rim of ear opening) (HL = 22 mm) 28.9% of snout-vent length (SVL = 76 mm). Vertical lateral folds of the neck overshadowed by a horizontal fold, which is sinuous and bifurcated just behind the ear. Scales on upper surface of head strongly convex, 16 on the midline. Temporals convex, some slightly keeled, keels higher behind than in front, 8–9 between the postsubocular and the ear. Frontal region occupied by two azygous scales, their front and rear borders oblique, five supraoculars. Rostral plate 2.76 times wider (WR = 4 mm) than high (HR = 1.45 mm). Nasal triangular, separated from rostral, surrounded by 8 scales, nostril in the posterior part of nasal, nearer to point of snout (NS = 2.95 mm) than to hind border of canthal scale (NC = 3.7 mm). Internasals: 4 anterior + 4 posterior, all irregular. Ear opening oval and oblique, surrounded by granular scales, smaller behind than in front of the ear. Eight to seven supraciliaries, the 5th lateral to the others on the left, the 4th and 5th on the right. Six scales between the rostral and the frontal region. Five scales between the frontal region and the supraciliaries.

The prefrontal zone between the posterior internasals and the frontal region contains 13 scales, rather irregularly arranged. Five intercanthal scales. Across the snout between the supralabials 12 scales behind the postnasal level, 14 at the canthal level. Four scales between the nasal and the subocular. Paralabials 9–7, 5–3 in contact with subocular.

TABLE 4. MERISTIC CHARACTERS IN *LIOLAEMUS POLYSTICTUS*, SP. NOV. (9 ♂♂, 8 ♀♀, JUVENILES NOT INCLUDED).

	♂♂	♀♀
Scales around midbody	57–70 (\bar{x} = 61.34)	63–68 (\bar{x} = 64.87)
Dorsal scales between occiput and level of anterior border of thigh	55–63 (\bar{x} = 59.22)	57–70 (\bar{x} = 62.62)
Ventral scales between postmentals and vent	62–67 (\bar{x} = 64.67)	64–75 (\bar{x} = 68.12)
Lateral scales between legs	54–70 (\bar{x} = 62.78)	53–76 (\bar{x} = 63.75)
Scales in 15th verticil of tail	17–20 (\bar{x} = 19.40)	19–22 (\bar{x} = 20.87)
Gular scales between ears	27–32 (\bar{x} = 29.56)	28–32 (\bar{x} = 29.88)
Hellmich's index	16–21 (\bar{x} = 17.78)	14–21 (\bar{x} = 18.38)
Lamellae under 4th finger	17–18 (\bar{x} = 17.67)	15–19 (\bar{x} = 16.25)
Lamellae under 4th toe	20–24 (\bar{x} = 21.56)	19–22 (\bar{x} = 20.5)

Nine supralabials on the left side, 8 on the right side. Seven to six infralabials, followed by 6–7 granules as far as the corner of the mouth. Mental fan-shaped, in contact with 4 scales.

Lateral scales of the neck granular, 41 between ear opening and front leg, 32 scales between ear openings, 63 scales around the body, 61 between occiput and level of front border of thighs. Dorsal scales imbricate and keeled. Lateral scales smaller, erect and granular, smaller still at armpit and groin, 58 between legs. Ventral scales smooth and imbricate, 63 between mental and preanal pores. Five preanal pores. Caudal scales similar to body scales, 20 in 15th verticil of tail. Seventeen subdigital lamellae beneath 4th finger, 22 beneath 4th toe.

Color (in Alcohol). Above, blackish with a very dense and fine punctation resulting from the fact that each dorsal scale is pigmented at the base, unpigmented at the tip. Below, the belly is light, with black pigmentation on the borders of the scales, which gives a reticulate appearance especially marked on the throat. On the lateral scales, the pigmented and unpigmented areas are about equal, so that the general effect is checkered. Upper surface of head blackish.

The color in life is unknown, but it is surmised that the unpigmented parts are actually vividly colored (white, yellow, orange, red, green, or blue).

Variation (see Table 4). Upper labials generally 9 (15 sides), sometimes 8 (6 sides) or 10 (5 sides), rarely 6–7 (1 side each) or 11 (4 sides), the first 5 to 8 without small scales below and inside. Lower labials generally 5 (14 sides) or 6 (12 sides), sometimes 7 (5 sides), rarely 4 (1 side). Supraoculars generally 5 (15 sides), sometimes 4 (8 sides), rarely 3 (3 sides), 6 (5 sides) or 7 (1 side). In one individual, only one plate on the left and two on the right are enlarged enough to be termed supraoculars. Supraciliaries as usual 7, the 5th below the 4th and the 6th, at least in females, except in one case where the number is 6, but anomalies are surprisingly common in males, where 6 is actually the most frequent number (9 sides), while 7 is less common (5 sides), 5 (2 sides) and 8 (1 side) are rare; the lower supraciliary, which is generally the 5th, is the 4th on 4 sides (3 in males). Three males each show another anomaly on one side: 1) the 5th supraciliary is in front of the 6th, not below; 2) the 3rd supraciliary is also below the 2nd and the 4th; 3) the 4th and the 5th supraciliaries are both overhung by the 3rd and the 6th. Temporals between the postsubocular and the ear usually 8 (10 sides) or 9 (9 sides), often 7 (8 sides, 6 sides in females), rarely 10 (3 sides, all in females) or 6 (3 sides), exceptionally 5 (1 side in a male). Plates between the rostral and the frontal most often 6 (16 sides), less often 5 (12 sides), sometimes 7 (6 sides). Scales between the frontal and the supraciliaries 5, sometimes 4 (9 sides) mostly in females (8 sides), exceptionally 3 (1 side). Scales around the interparietal usually symmetrical (irregular in only 4 specimens), usually 6 (9 specimens), sometimes 7 (5 cases) or 8 (3 cases). Scales around the nasal generally 7 (20 sides), sometimes 6 (7 sides, 2 in males) or 8 (6 sides, 5 in females), rarely 9 (1 side), rarely including the rostral (2 sides). Paralaminae usually 9 (18 sides), sometimes 8 (13 sides), rarely 7 (3 sides). Paralaminae in contact with subocular generally 4 (15 sides), sometimes 5 (10 sides) or 3 (9 sides). Plates between the upper labials around the snout behind nasals 7–13 (mean = 10.6), 10–15 at the canthal level (mean = 12.25). Scales between nasal and subocular usually 4, rarely 5 (7 sides) or 6 (2 sides); in this last case, the subocular is actually divided, which is a presumed return to a primitive condition. Preanal pores 5 (6 specimens), 4 (2 specimens), or 3 (1 specimen). In frontal, always at least one azygous element, most often 2 (7 cases), only single

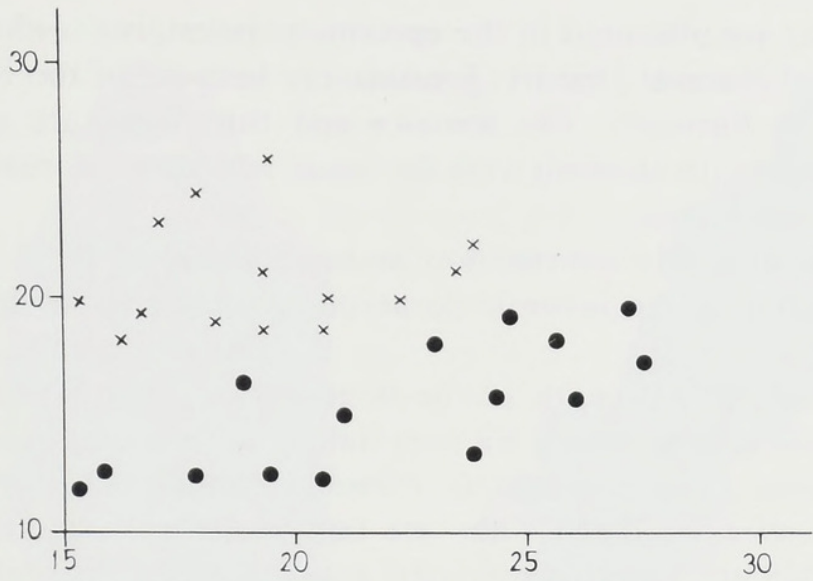


Figure 6. Scatter-diagram of minimum distance between nasals (ordinates) and minimum distance between supraoculars (abscissa). Measurements in tenths of a millimeter. × = *Liolaemus robustus*, sp. nov. ● = *L. polystictus*, sp. nov.

(frontal undivided) in one case, 3 in a longitudinal line (1 case), 3 with 2 in front (2 cases), 3 with 2 behind (2 cases), 3 with 2 laterals (1 case), 4 with 2 in front and 2 longitudinally behind (1 case), 5 with 2 in front, 2 behind and 1 central (2 cases).

The color pattern of males hardly varies at all; the fine and regular dorsal punctation and the ventral reticulation are always

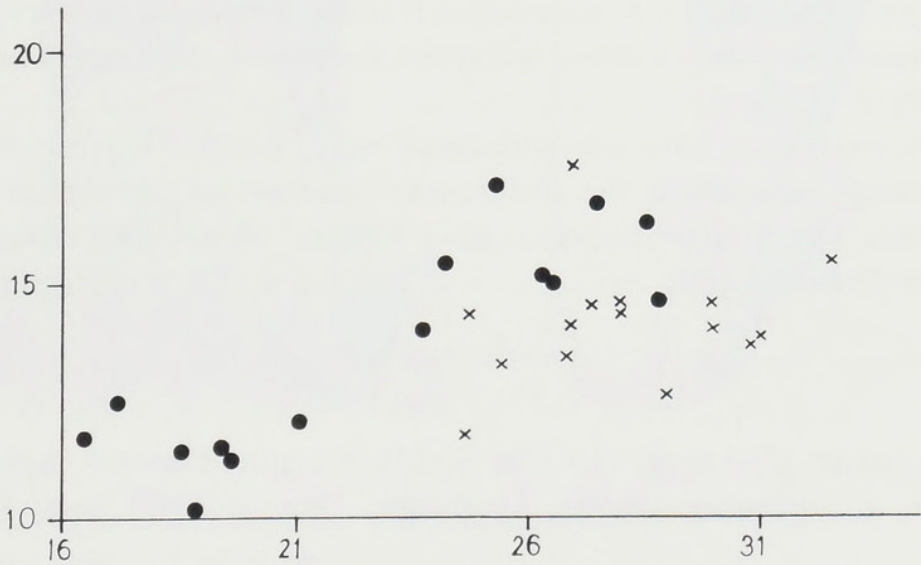


Figure 7. Scatter-diagram of rostral height (ordinates) and distance between subocular upper border and mouth (abscissa). Measurements in tenths of a millimeter. × = *Liolaemus robustus*. ● = *L. polystictus*, sp. nov.

present but are obscured in the specimens belonging to the Field Museum of Natural History, presumably because of too long an exposure to formalin. The females and the young are gray to reddish brown (in alcohol) with the usual two latero-dorsal series of blackish blotches.

Habitat. The only information we have is that of W. E. Duellman, who found the juvenile paratype under a rock in a grassy river valley.

Size. Snout-vent length of the largest male 86 mm (tail 102 mm), of the largest female 69 mm (tail 77 mm).

Systematic Position. Both *L. robustus* and *L. polystictus* are vicariants of *L. signifer*. They are considered different species because they are well-differentiated and separated by mountainous barriers that must have interrupted any gene flow over a long period of time.

The most obvious differences between *L. polystictus* and *L. signifer* are the color pattern, and the great disparity in size between the sexes in the former.

There are other characters. The frontal in *L. polystictus* is more often divided than in *L. robustus* but less than in *L. signifer*. A similar intermediacy is apparent in scale numbers (see Table 3) except for the ventral longitudinal counts that are even lower, although very slightly, in *polystictus* than in *robustus*.

Morphometrically, *L. polystictus* is more similar to *signifer* than to *robustus* in some respects but more similar to *robustus* in others (width of head).

The pertinent data are indicated in Table 3, but the ratios somewhat understate the differences because of allometric distortions. The scatter-diagrams give a better idea of the character differences (see Figs. 3-7).

Liolaemus williamsi, new species
(Pl. IV, Figs. 1-4)

Holotype. One male (LACM 9323), Pampas Galeras, between Nazca and Puquio, Depto. Ayacucho, Peru, x-1965, coll. S. W. Taft.

Paratypes. Four males, 3 females, 2 juveniles (LACM 9319-22, 9324-28), same data. Four males, 3 females, 3 juveniles (LACM 9329-38), Lucanas, Pampas Galeras, 96 km from Nazca,

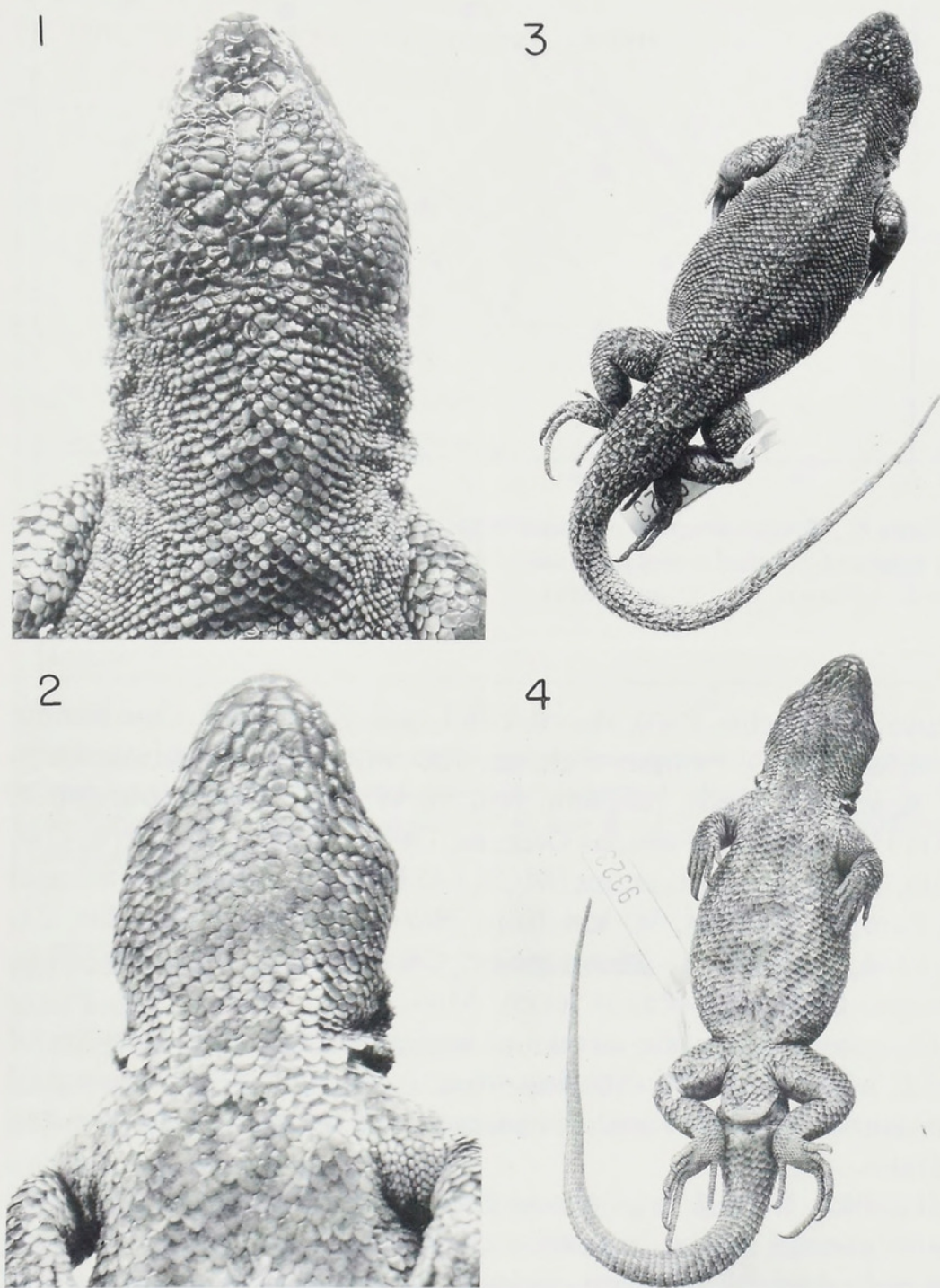


Plate IV. *Liolaemus williamsi*, sp. nov. Holotype male: LACM 9323. Pampas Galeras, Depto. Ayacucho, Peru. 1. Dorsal view of head. 2. Ventral view of head. 3. Dorsal view. 4. Ventral view.

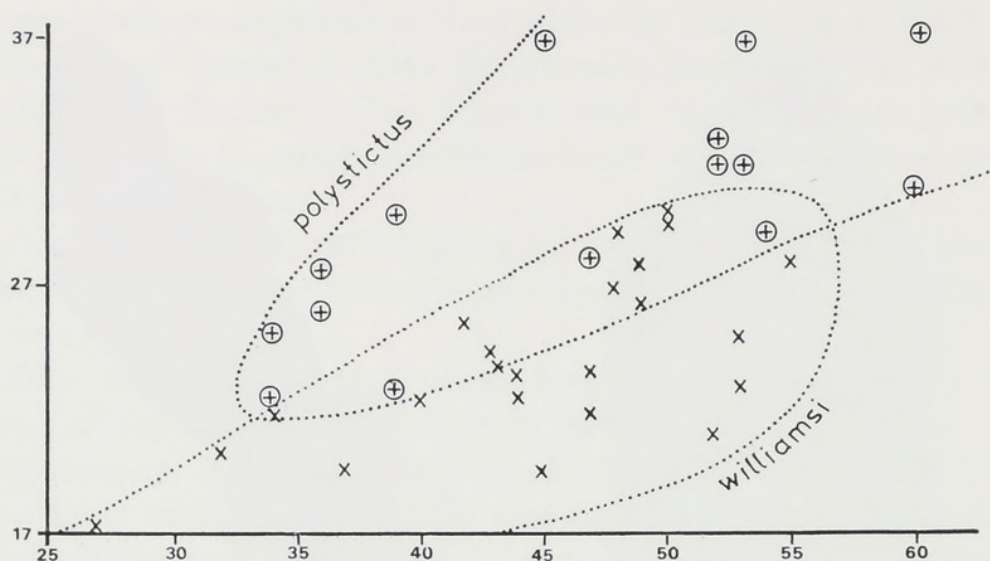


Figure 8. Scatter-diagram of length of the first finger, without claw (ordinates) and length of 5 dorsal scales (abscissa). Measurements in tenths of a millimeter. \times = *L. williamsi*. \oplus = *L. polystictus*.

Depto. Ayacucho, Peru, iv-vii-1963, coll. S. W. Taft. One female (LACM 35867), Pampas Galeras, 300 miles south of Lima, Depto. Ayacucho, Peru, iii-1966, coll. S. W. Taft. One male (MCZ 100435), Lucanas, Pampas Galeras, Depto. Ayacucho, Peru. One male, 2 females, 4 juveniles (MCZ 145335-41), Reserva Nacional de Pampas Galeras, 90 km from Nazca, Depto. Ayacucho, 21, iv-1974, coll. R. A. Mittermeier. One female (MCZ 157223), Pampas Galeras, Lucanas (exch. Mus. Javier Prado).

Diagnosis. A middle-sized and somewhat melanistic species of the *L. signifer* group, differing from *L. signifer* by its larger and less numerous scales and the presence of preanal pores in some females.

It differs from *L. signifer* in the following features: 1) 54-67 scales around midbody instead of 66-82; 2) 48-65 dorsal scales instead of 65-87 between occiput and level of front borders of thighs; 3) 67-78 ventral scales instead of 74-92 between postmentals and vent; 4) minimum width of frontal region 18-29% of length of 5 dorsal scales instead of 25-49%; 5) length of 5 dorsal scales 67-104% of ear-eye distance instead of 29-71%.

It can be distinguished from *L. robustus* by the following differences, apart from color pattern: 1) 66-77 lateral scales between

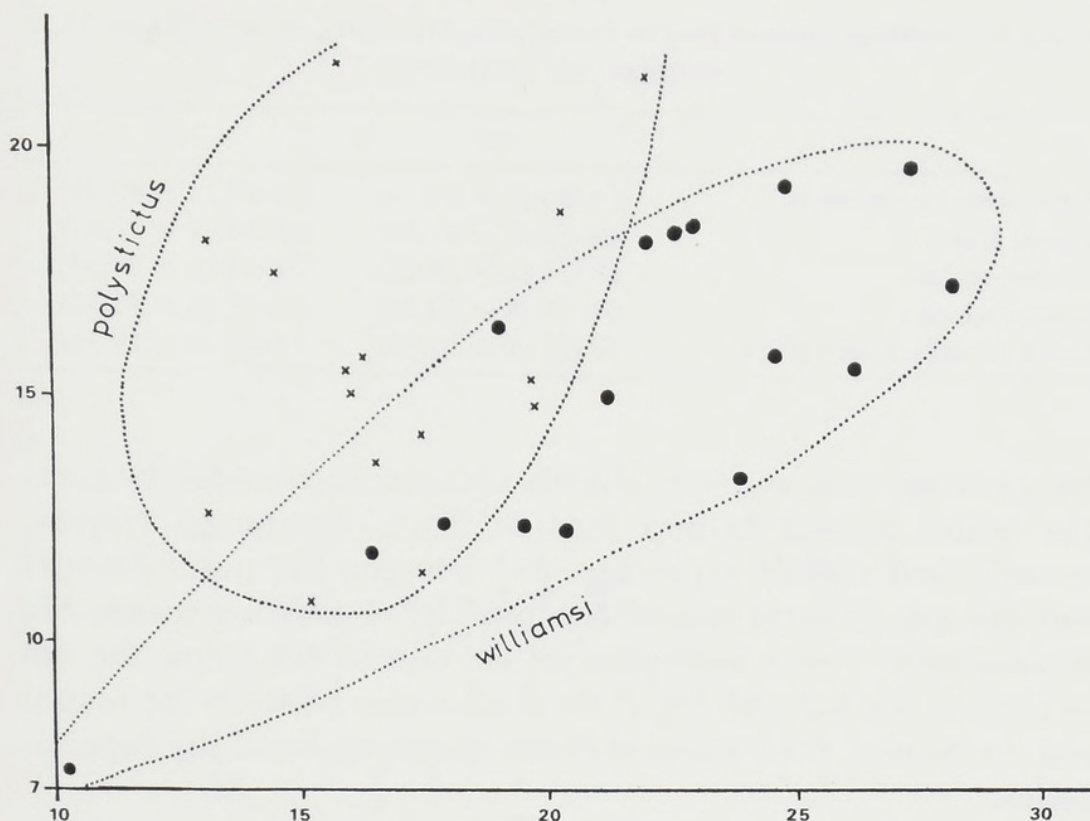


Figure 9. Scatter-diagram of minimum distance between nasals (ordinates) and minimum distance between supraoculars (abscissa). Measurements in tenths of a millimeter. \times = *Liolaemus polystictus*, sp. nov. \bullet = *L. williamsi*. The difference is essentially allometric.

legs instead of 49–70; 2) 17–22 dorsal scales instead of 12–19 in head length.

It differs from *L. polystictus* by the larger number of ventral scales between postmentals and vent (67–78 instead of 62–71) and several morphometric characters mostly noticeable only on scatter-diagrams (Figs. 8, 9).

Description of the Holotype. Head length (HL = 19.2 mm) 25.6% of snout–vent length (SVL = 75 mm). Vertical lateral folds of the neck overshadowed by a horizontal and sinuous fold bifurcated in front. Scales on upper face of head convex, 15 on the midline. Rostral plate 2.87 times wider (WR = 3.7 mm) than high (HR = 1.29 mm). Nasal more or less trapezoidal, surrounded by 6 scales. Nostril round, in the posterior part of nasal, nearer to point of snout (NS = 2.55 mm) than to hind border of canthal scale (NC = 2.89 mm). Two anterior and 4 posterior internasals.

TABLE 5. MERISTIC CHARACTERS IN *LIOLAEMUS WILLIAMSII*, SP. NOV. (11 ♂♂, 11 ♀♀, JUVENILES NOT INCLUDED).

	♂♂	♀♀
Scales around midbody	54-64 (\bar{x} = 59)	57-67 (\bar{x} = 60.09)
Dorsal scales	48-62 (\bar{x} = 54.64)	49-65 (\bar{x} = 57.82)
Ventral scales	67-77 (\bar{x} = 70.82)	71-78 (\bar{x} = 74.55)
Lateral scales	66-75 (\bar{x} = 70.36)	66-77 (\bar{x} = 72.36)
Scales of tail's 15th verticil	17-21 (\bar{x} = 19.36)	18-22 (\bar{x} = 19.36)

Ear openings oval and very slightly oblique, surrounded by granular scales smaller behind than in front. Temporals convex, smooth, and slightly imbricate, 6-7 between the postsubocular and the ear. Frontal region occupied by 2 azygous scales. Six supraoculars, 7 or 6 supraciliaries, the 5th or 4th below the 4th and 6th or the 3rd and 5th. Five to six scales between the rostral and the frontal. Five scales between the frontal and the superciliaries.

In prefrontal zone, between the posterior internasals and the anterior frontal, 12 scales, more or less symmetrically arranged. Four intercanthal scales. Across the snout, between left and right labials, 11 scales just behind the postnasal level, 11 also at the canthal level. Four or 5 scales between nasal and subocular. Paralarbials 8-9, 5 in contact with the subocular.

Supralabials 8-9. Infralabials 5, followed by 6-7 granules as far as the corner of the mouth. Mental fan-shaped, in contact with 4 scales.

Lateral scales of neck granular, 46 between ear and fore limb. Thirty-three scales between ear openings. Fifty-nine scales around body. Fifty between occiput and level of insertion of thighs.

Dorsal scales imbricate and keeled. Lateral scales smaller, imbricate and feebly keeled, still smaller at axilla and groin. Seventy-two scales between legs. Ventral scales smooth and imbricate, 68 between mental and preanal pores. Four preanal pores. Caudal scales similar to body scales, 17 in the 15th verticil. Sixteen subdigital lamellae under 4th finger, 20 beneath 4th toe.

Color (in Alcohol). Blackish with numerous tiny gray dots (one on each scale). Below, darkish gray, with light areas on cloacal region and thighs.



Figure 10. Scatter-diagram of length of 5 dorsal scales (ordinates) and ear-eye distance (abscissa). Measurements in tenths of a millimeter. \times = *Liolaemus williamsi*. \bullet = *L. signifer*. S = Type of *L. signifer*.

Color (in Life). Unknown.

Variation (see Table 5). Upper labials generally 8 (18 sides) or 9 (20 sides), sometimes 10 (9 sides), rarely 7 (2 sides), 11 (1 side) or 12 (1 side), the first 4 to 8 without small scales below and inside. Lower labials generally 6 (26 sides) or 5 (21 sides), rarely 7 (4 sides) or 4 (1 side). Supraoculars generally 5 (30 sides), sometimes 6 (15 sides) or 4 (9 sides), rarely 3 (1 side) or 7 (1 side). Supraciliaries as usual 7, the 5th below the 4th and 6th, but anomalies are frequent: 6 (5) (5 sides), 6 (4) (1 side), 8 (6) (3 sides), 8 (5) (1 side), 9 (6) (1 side), or 8 (4 and 6) (1 side), 6 (0) (1 side).

Temporals between postsubocular and ear generally 7 (32 sides), sometimes 8 (9 sides) or 6 (7 sides), rarely 9 (4 sides). Scales between rostral and frontal most often 5 (27 sides), less often 6 (20 sides), rarely 7 (3 sides), 4 (1 side) or 8 (1 side). Scales between

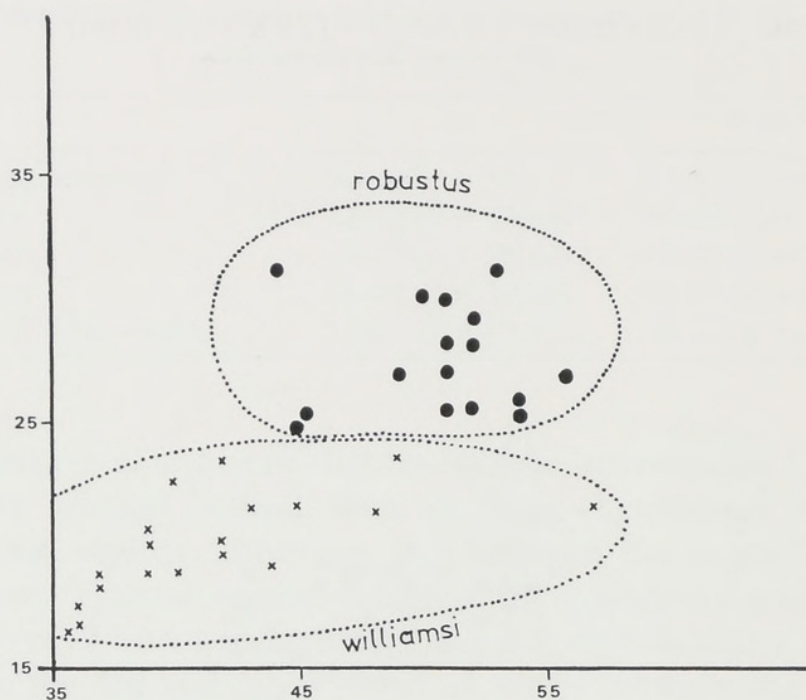


Figure 11. Scatter-diagram of minimum distance between upper border of subocular and lip (ordinates) and supraocular length (abscissa). Measurements in tenths of a millimeter. ● = *L. robustus*. × = *L. williamsi*.

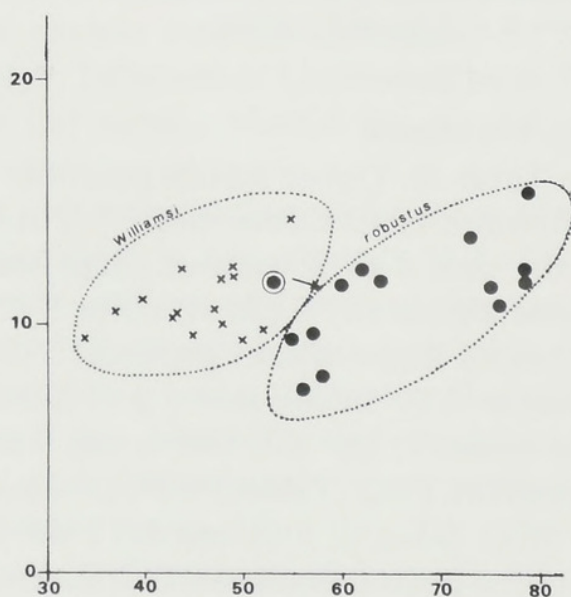


Figure 12. Scatter-diagram of minimum width of the frontal region (ordinates) and length of 5 dorsal scales (abscissa). Measurements in tenths of a millimeter. × = *Liolaemus williamsi*, sp. nov. ● = *L. robustus*, sp. nov.

frontal and supraciliaries normally 4 (29 sides), often 5 (19 sides), rarely 3 (5 sides), exceptionally 2 (1 side). Scales around the interparietal often asymmetrical (13 cases), most often 7 (13 cases), sometimes 8 (7 cases), rarely 9 (3 cases) or 6 (3 cases), exceptionally 10 (1 case). Scales around nasal normally 6 (33 sides), sometimes 7 (13 sides), rarely 5 (2 sides) or 8 (3 sides). Paralaminae most often 8 (23 sides), often 7 (13 sides) or 9 (14 sides), rarely 6 (1 side) or 10 (1 side). Paralaminae in contact with subocular generally 4 (22 sides), often 3 (13 sides) or 5 (11 sides), rarely 2 (3 sides) or 6 (1 side). Scales between supralabials 8–14 at the postnasal level (mean = 10.75), 11–15 (mean = 12.53) at the canthal level. Preanal pores, 5 in 5 males, 4 in 4 males, 6 in 2 males, present also but poorly developed in some females. Frontal not divided in 1 case, divided into 2 median scales in 12 cases, into 4 symmetric scales in 1 case, into 5 scales symmetrically arranged (2 anterior, 1 azygous, 2 posterior) in 2 cases, into 5 scales with the azygous posterior in 1 case, into 3 scales with the azygous one posterior in 2 cases, into 3 scales with the azygous one anterior in 2 cases.

Tail, when not broken or regenerated, longer than snout–vent length, 127 to 138.5% (mean = 131.45%).

Size. Largest male 76 mm SVL, largest female 77 mm SVL.

Color (in Alcohol). In males, as shown by specimens other than the holotype, the color is generally blackish, sometimes with light markings that can fuse and form more or less oblique and discontinuous transverse lines. In one specimen, the color is lighter and allows about 14 pairs of blackish spots to be seen. The belly can be light with a few black dots, but is more often dark with a few light areas or spots. In females and juveniles the two longitudinal series of dark blotches on a light background are distinct. The belly is light with dark markings.

L. williamsi differs from *L. signifer*, *L. robustus*, and *L. poly-stictus* by its smaller size and dark coloration (possibly artificial in some specimens), the presence of preanal pores in some females, the frequencies of its meristic characters, and some of its proportions (see Table 3 and Figs. 8–12). As described above, the species represents the differentiation of populations of relatively smaller size in the upper parts of Pacific Andean valleys isolated from larger-size populations of the Altiplano.

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APPENDIX

Subgenus <i>Liolaemus</i>	Subgenus <i>Eulaemus</i>
	<i>signifer</i> group
<i>L. alticolor</i> Barbour 1909	<i>L. andinus</i>
<i>L. atacamensis</i> Müller & Hellmich 1933	<i>a. andinus</i> Koslowsky 1895
	<i>a. poecilochromus</i> Laurent 1986
<i>L. austromendocinus</i> Cei 1974	<i>L. aymararum</i> Veloso, Sallaberry,

APPENDIX. Continued.

Subgenus <i>Liolaemus</i>	Subgenus <i>Eulaemus</i>
	<i>signifer</i> group
<i>L. bellii</i>	Navarro, Iturra, Valencia, Penna & Diaz 1982
<i>b. bellii</i> Gray 1845	<i>L. disjunctus</i> Laurent 1990
<i>b. araucaniensis</i> Müller & Hellmich 1932	<i>L. dorbignyi</i> Koslowsky 1898
<i>b. moradoensis</i> Hellmich 1950	<i>L. eleodori</i> Cei, Etheridge & Videla 1985
<i>b. neuquensis</i> Müller & Hellmich 1938	<i>L. fabiani</i> Yañez & Nuñez 1983
<i>L. bibronii</i> Bell 1843	<i>L. famatinae</i> Cei 1980
<i>L. bisignatus</i> Philippi 1860	<i>L. fittkaui</i> Laurent 1986
<i>L. bitaeniatus</i> Laurent 1984	<i>L. forsteri</i> Laurent 1982
<i>L. buergeri</i> Werner 1907	<i>L. griseus</i> Laurent 1984
<i>L. capillitas</i> Hulse 1979	<i>L. huacahuasicus</i> Laurent 1985
<i>L. ceii</i> Donoso-Barros 1971	<i>L. islugensis</i> Ortiz & Marquet 1987
<i>L. chiliensis</i> Lesson 1828	<i>L. jamesi</i> Boulenger 1891
<i>L. coeruleus</i> Cei & Ortiz 1983	<i>L. montanus</i> Koslowsky 1898
<i>L. constanzae</i> Donoso-Barros 1961	<i>L. multicolor</i> Koslowsky 1898
<i>L. copiapiensis</i> Müller & Hellmich 1933	<i>L. nigriceps</i> Philippi 1860
<i>L. curicensis</i> Müller & Hellmich 1938	<i>L. orientalis</i> Müller 1923
<i>L. curis</i> Nuñez & Labra 1985	<i>L. ortizi</i> Laurent 1982
<i>L. cyanogaster</i>	<i>L. polystictus</i> Laurent 1991
<i>c. cyanogaster</i> Duméril & Bibron 1837	<i>L. puritamensis</i> Nuñez & Fox 1989
<i>c. brattstroemi</i> Donoso-Barros 1961	<i>L. robustus</i> Laurent 1991
<i>L. donosoi</i> Ortiz 1975	<i>L. ruibali</i> Donoso-Barros 1961
<i>L. duellmani</i> Cei 1978	<i>L. schmidtii</i> Marx 1960
<i>L. elongatus</i>	<i>L. signifer</i>
<i>e. elongatus</i> Koslowsky 1896	<i>s. signifer</i> Duméril & Bibron 1837
<i>e. petrophilus</i> Donoso-Barros & Cei 1971	<i>s. annectens</i> Boulenger 1901
<i>L. exploratorum</i> Cei & Williams 1984	<i>L. williamsi</i> Laurent 1991
<i>L. fitzgeraldi</i> Boulenger 1899	
<i>L. fuscus</i> Boulenger 1885	<i>fitzingerii</i> group
<i>L. gracilis</i> Bell 1843	<i>L. boulengeri</i> Koslowsky 1898
<i>L. gravenhorstii</i> Gray 1845	<i>L. chacoensis</i> Shreve 1948
<i>L. hellmichi</i> Donoso-Barros 1974	<i>L. darwinii</i> Bell 1843
<i>L. hernani</i> Sallaberry, Nuñez & Yañez 1982	<i>L. donosobarrosi</i> Cei 1974
<i>L. kriegi</i> Müller & Hellmich 1939	<i>L. fitzingerii</i>
<i>L. kuhlmanni</i> Müller & Hellmich 1932	<i>f. fitzingerii</i> Duméril & Bibron 1837
	<i>f. canqueli</i> Cei 1973
	<i>L. irregularis</i> Laurent 1986
	<i>L. melanops</i>
	<i>m. melanops</i> Burmeister, 1888

APPENDIX. Continued.

Subgenus <i>Liolaemus</i>	Subgenus <i>Eulaemus</i>
<i>L. lemniscatus</i> Gravenhorst 1838	<i>m. xanthoviridis</i> Cei & Scolaro 1980
<i>L. leopardinus</i>	
<i>l. leopardinus</i> Müller & Hellmich 1932	<i>L. ornatus</i> Koslowsky 1898
<i>l. ramonensis</i> Müller & Hellmich 1932	<i>L. rothi</i> Koslowsky 1898
<i>l. valdesianus</i> Hellmich 1950	<i>L. uspallatensis</i> Macola & Castro 1982
<i>L. lorenzmuelleri</i> Hellmich 1950	
<i>L. monticola</i>	
<i>m. monticola</i> Müller & Hellmich 1932	
<i>m. chillanensis</i> Müller & Hellmich 1932	
<i>m. villaricensis</i> Müller & Hellmich 1932	
<i>L. nigromaculatus</i> Wiegmann 1834	
<i>L. nigroviridis</i>	
<i>n. nigroviridis</i> Müller & Hellmich 1932	
<i>n. campanae</i> Hellmich 1950	
<i>n. minor</i> Müller & Hellmich 1932	
<i>n. nigroroseus</i> Donoso-Barros 1966	
<i>L. nitidus</i> Wiegmann 1834	
<i>L. paulinae</i> Donoso-Barros 1961	
<i>L. pictus</i>	
<i>p. pictus</i> Duméril & Bibron 1837	
<i>p. argentinus</i> Müller & Hellmich 1939	
<i>p. chiloensis</i> Müller & Hellmich 1939	
<i>p. major</i> Boulenger 1885	
<i>p. talcanensis</i> Urbana & Zungia 1977	
<i>L. platei</i> Werner 1898	
<i>L. robertmertensi</i> Hellmich 1964	
<i>L. sanjuanensis</i> Cei 1982	
<i>L. schroederi</i> Müller & Hellmich 1938	
<i>L. tacnae</i> Shreve 1941	
<i>L. tenuis</i>	
<i>t. tenuis</i> Duméril & Bibron 1837	
<i>t. punctatissimus</i> Müller & Hellmich 1933	

APPENDIX. Continued.

Subgenus <i>Liolaemus</i>	Subgenus <i>Eulaemus</i>
<i>L. variegatus</i> Laurent 1984	
<i>L. velosoi</i> Ortiz 1987	
<i>L. walkeri</i> Shreve 1938	
<i>L. zapallarensis</i>	
z. <i>zapallarensis</i> Müller & Hellmich 1933	
z. <i>ater</i> Müller & Hellmich 1933	
z. <i>sieversi</i> Donoso-Barros 1954	



Laurent, R F. 1992. "On some overlooked species of the genus *Liolaemus* Wiegmann (Reptilia Tropicuridae) from Peru." *Breviora* 494, 1–33.

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