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THE GENUS *PHENACOSAURUS* (SQUAMATA: IGUANIA) IN WESTERN VENEZUELA: *PHENACOSAURUS TETARII*, NEW SPECIES, *PHENACOSAURUS EUSKALERRIARI*, NEW SPECIES, AND *PHENACOSAURUS NICEFORI* DUNN, 1944

TITO R. BARROS,[1] ERNEST E. WILLIAMS,[2] AND ANGEL VILORIA[1]

ABSTRACT. Two new, possibly parapatric species of *Phenacosaurus* are described from the Sierra de Perijá, Estado Zulia, Venezuela: *P. tetarii,* larger, at least 85 mm snout–vent length, with heterogeneous squamation on the flanks, closest to *P. nicefori* but larger in adult size, and *P. euskalerriari,* small, about 56 mm snout–vent length, with uniform flank squamation, closest to *P. orcesi,* but with larger flank scales and shorter interparietal.

Phenacosaurus nicefori Dunn is redescribed on the basis of material from Betania, Estado Táchira, Venezuela, and from the Páramo de Tamó, overlapping the borders of both Colombia and Venezuela, as well as from topotypic material from Norte de Santander in Colombia.

INTRODUCTION

The members of the genus *Phenacosaurus* are anoline lizards endemic to the subpáramo and páramo of northwestern South America and are characterized by a casqued head with converging lateral parietal crests with a smaller or larger notch at their occipital ends, a variable vertebral crest, short limbs, and a probably prehensile tail. Initially they were believed to be present only in Colombia, from where the type species, *Phenacosaurus heterodermus,* was described by Duméril and Duméril in 1851. Dunn (1944), studying material in Colombian collections, added two new species to the genus, *P. nicefori* from the Department of Norte de Santander and *P. richteri* from the Department of Cundina-

[1] Museo de Biología, Facultad de Ciéncias, Universidad del Zulia, Apartado 526, Maracaibo 4033, Zulia, Venezuela.

[2] Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts 02138.

marca. Hellmich (1949) described as *P. paramoensis* a single specimen from the páramo overlapping the borders of the Departments of Cundimamarca, Huila, and Meta. Lazell (1969), in a revision using most of the known specimens of the genus, synonymized *P. richteri* and *P. paramoensis* with *P. heterodermus* but added the species *P. orcesi* on the basis of two specimens from Ecuador. The first giant species of the genus from the Cordillera Oriental of Colombia was named *P. inderenae* by Rueda and Hernández-Camacho (1988). Williams and Mittermeier (1991) cited a juvenile from Venceremos in the Department of San Martin in Peru as a possible third specimen of *P. orcesi.*

At the present time, several additional new species of the genus have been described or are in the process of description. From Venezuela, Myers *et al.* (1993) described a small series of one new species (*P. neblininus*) from the Cerro La Neblina in the extreme south, and Williams *et al.* (1996b) described an additional new species based on a single specimen collected by S. Gorzula and A. Farrera in the Macizo del Chimantá Tepui in Estado Bolivar. A second giant species very similar to *P. inderenae* has been collected in La Alegría and adjacent localities in the Provincia de Sucumbíos in Ecuador and was described by Williams *et al.* (1996a).

As the result of three expeditions to the Sierra de Perijá in Estado Zulia, Venezuela, in 1989 and 1991 by the Museo de Biologia of the Universidad del Zulia (MBLUZ), four specimens of *Phenacosaurus* (MBLUZ R-215 and R-308, MCZ 176474, and 176475) represent two new species. One species is represented by a male from the Páramo de Tetari and a female from the Cerro Pintado. A specimen (MHNLS 664) of this new species had already been collected by Ramón Urbano in 1952 but was referred to *P. nicefori* by Alemán (1953) and Lazell (1969). The other is a smaller species, again a male and a female, related to *P. orcesi.*

In addition, with the intention of completing a synopsis of the species of *Phenacosaurus* in western Venezuela, the material of *P. nicefori* from Betania, Estado Táchira, and Páramo del Tamá, which overlaps both the Department of Norte de Santander of Colombia and Estado Táchira, Venezuela, and also topotypic specimens from the Department of Norte de Santander, Colombia, are reported and described.

The descriptions of the new species herein are a slightly modified version of the format utilized by Williams for lizards of the genus *Anolis* (for the nomenclature of the scales, see Williams *et al.*, 1996a,b).

DESCRIPTION

Phenacosaurus tetarii, new species

Holotype. MBLUZ R-215, adult male, collected by Angel Viloria, October 24, 1989, on the roads that lead to the Páramo del Tetari, Sierra de Perijá, Estado Zulia, Venezuela (10°06′34″N, 72°53′00″W), 2,790 m elevation.

Paratypes. MHNLS 664, adult male, collected by Ramón Urbano, 1952, at the base of Pico Tetari, Sierra de Perijá, Estado Zulia, Venezuela, 2,900 m elevation; MCZ 176474, adult female, collected by Angel Viloria, March 24, 1989, at the base of Cerro Pintado, Sierra de Perijá, Estado Zulia, Venezuela, 2,400 m elevation.

Etymology. Tetari is the name that the Yukpa Indians have given to the second highest peak in the Serranía de Perijá (3,575 m elevation).

Diagnosis. A phenacosaur closest to *P. nicefori* but differing in the greater snout–vent length (SVL of *tetarii*: holotype male 80 mm male, paratype 86 mm; female 70 mm, rather than a maximum SVL of males 57 mm and females 58 mm in *nicefori*), with the parietal area converging to a very narrow notch at its occipital margin, and differing also in the dewlap color (*tetarii*: yellow rather than white with pale orange stripes in *nicefori*).

Description. The description is based primarily on the male holotype and the male paratype; the differences of the female paratype are mentioned whenever visible.

Head: A casque well developed. The head scales anteriorly mostly smooth, but strongly pustular posteriorly in the region of the parietal table.

Dorsal head scales (Fig. 1)—Antorbital area: Canthals 4 on both sides in both males, 4 on the left side in the female paratype, the other side obscure. In the male holotype, the anteriormost canthal separated from the circumnasal by 3 small scales on the left side, by 2 scales on the right side. In the male paratype in this area at

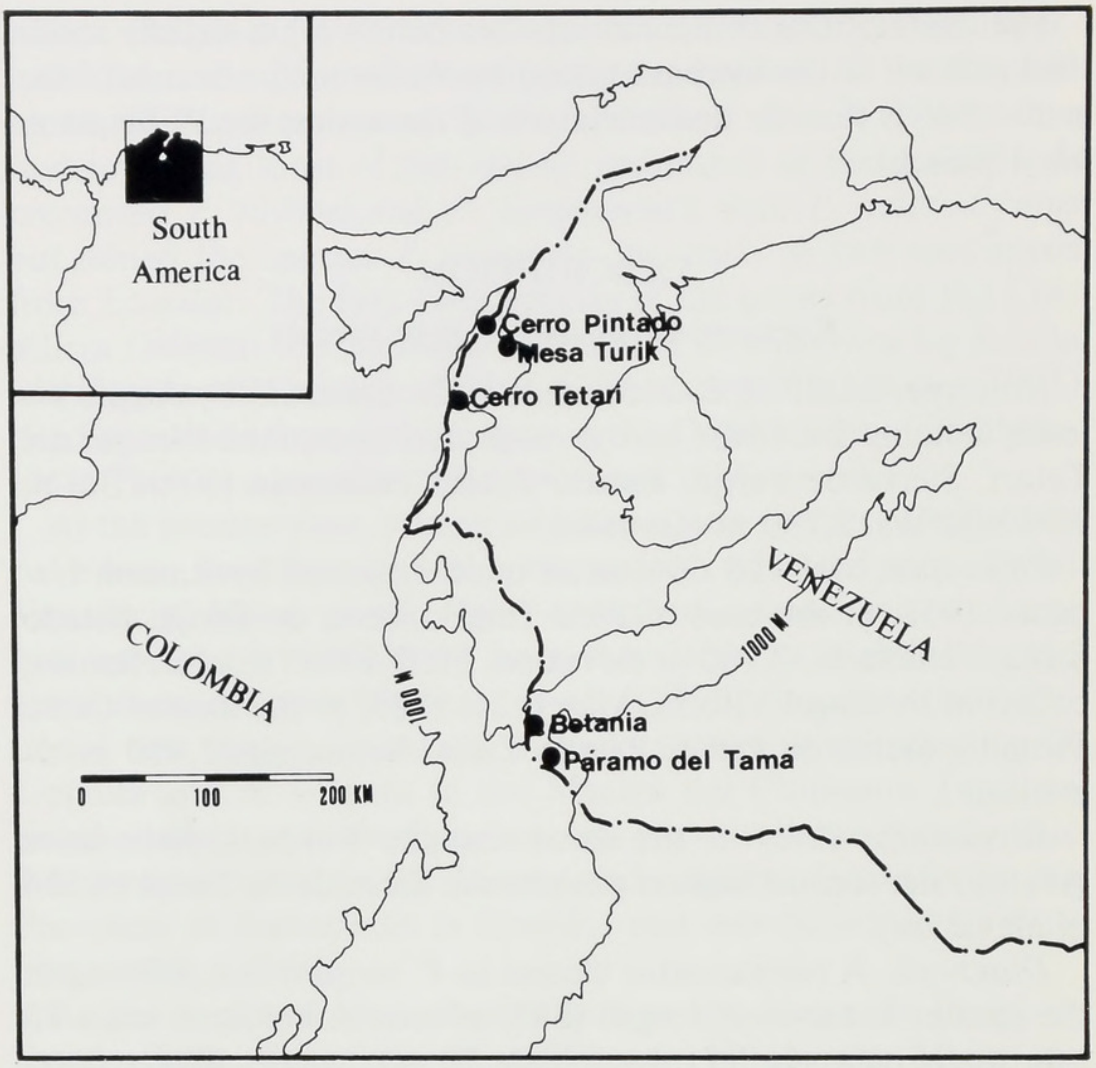


Figure 1. Map of the localities mentioned in this paper.

least 6 small scales on the left, 5 on the right. In the female paratype 2 scales on the left, 1 on the right. Four scales between the second canthals in all specimens. Rostral wider than high, bordered posteriorly by 4 or 6 postrostrals, 2 of which are in contact with the first supralabials. The circumnasal on each side in contact with the first supralabial and separated from the rostral by the postrostral that overlies the sulcus between the first supralabial and rostral. In the male holotype dorsally between the circumnasals, a single large scale in a central position posterior to the postrostrals, flanked by 2 smaller scales. In the female paratype 2 subequal scales in this position. In the male paratype 6 scales in 2 rows. Between the second canthals 2 (male holotype)

the largest scales of the head and, indeed of the entire animal, 3 (male and female paratypes).

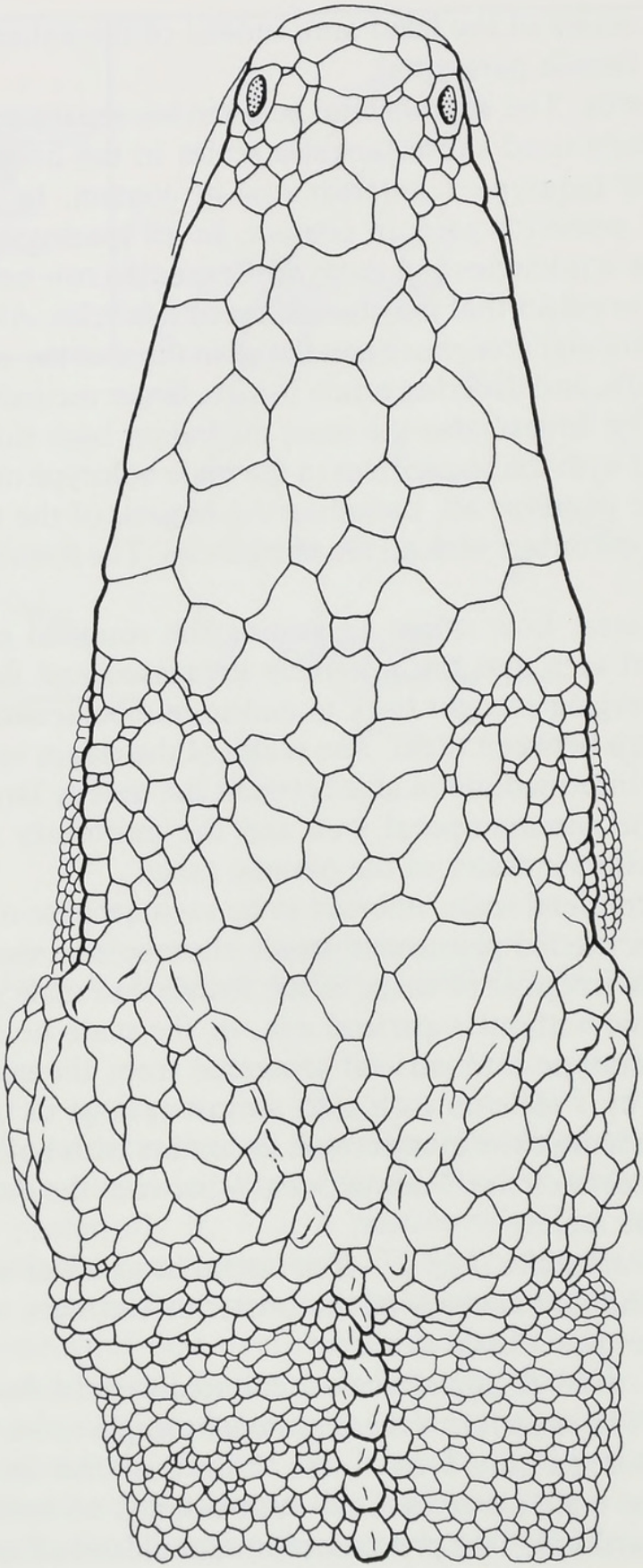
Orbital area: The supraorbital semicircles separated by 1 row of moderately sized subrectangular scales in the holotype male. In the male paratype 1 anterior row in contact. In the female paratype 2 posterior pairs in contact. In all specimens both the scales of the semicircles and those of the median row being bluntly tubercular or ridges that may be coalesced tubercles. All the scales of the supraocular area much smaller than those of the semicircles, quite smooth, and differing much in size, larger medially, smaller laterally. The largest, also the most medial on both sides, in narrow contact with the semicircles in the male holotype on the right. In the male paratype all, including the largest, of the medial supraoculars in contact with all the semicircles. The female paratype obscure.

Parietal area: Low ridges separating the rounded convex supratemporal area and the relatively depressed and flat parietal table, converging straight back to end in low bosses that leave a narrow notch between them. The scales of the ridges very bluntly keeled and intermediate in size between the mostly large smooth scales of the supratemporal area and the uniformly small and strongly pustulate scales of the parietal table.

The interparietal scale, inferred to be such because of its shape and anterior medial placement, small, rhomboid in the male holotype, more irregular in shape in the female and male paratypes, all specimens without a parietal eye. In the male holotype and the male paratype interparietal separated from the supraorbital semicircles by 1 scale on each side, almost as large or larger than itself. In the female the interparietal in contact with both adjacent scales of the semicircles. Four or 5 scales between the interparietal and the nape scales.

Lateral head scales (Fig. 2)—The lateral head scales all smooth except for the lateral faces of the posterior canthals, which are pustular like their dorsal surfaces.

One to 3 rows of loreal scales, counted just in front of the preoculars. The anterior of these always in single rows. The total number of loreals only 6 on 1 side, 7 on the other in the male holotype, the male paratype 6 on both sides, 8 on both sides in the female paratype. Two preoculars on each side in all specimens.



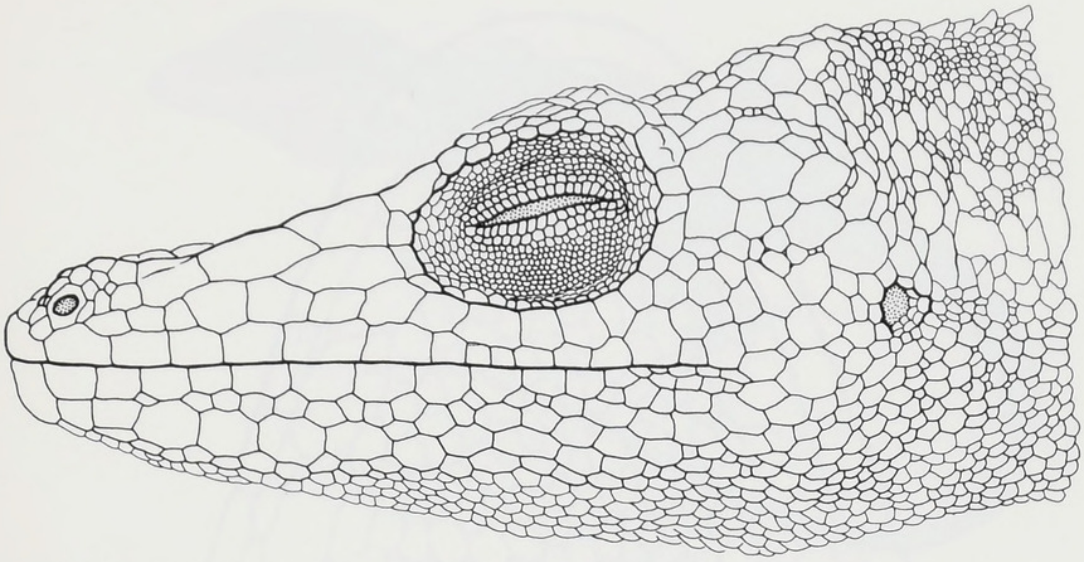


Figure 3. *Phenacosaurus tetarii,* holotype, MBLUZ R-215: Lateral view of head.

Eight supralabials to below the center of the eye in the male holotype, 9 in the male paratype, 10 in the female paratype. Six to 9 postoculars on each side arch round the back of the orbit, the uppermost in contact dorsally with the posteriormost scale of semicircle of its side and laterally with the posteriormost superciliary.

The temporal region divided into supra- and infratemporals by an intertemporal ridge, covered by 2–4 scales. The ridge strongly convex but not shelf-like.

The supratemporals larger, but variable in size close to the parietal ridges, smaller near the intertemporal ridge. The infratemporals are larger close to the intertemporal ridge, smallest in a narrow zone in the center of the region, then again larger, almost as large as the uppermost infratemporal scales in a band from the ear to the corner of the mouth.

The ear small, inconspicuous, smaller than many of the scales surrounding it, smaller also than the inferred interparietal.

Ventral head scales (Fig. 3)—The mental incompletely divided, in contact with only 2 differentiated sublabials between the in-

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Figure 2. *Phenacosaurus tetarii,* holotype, MBLUZ R-215: Dorsal view of head.

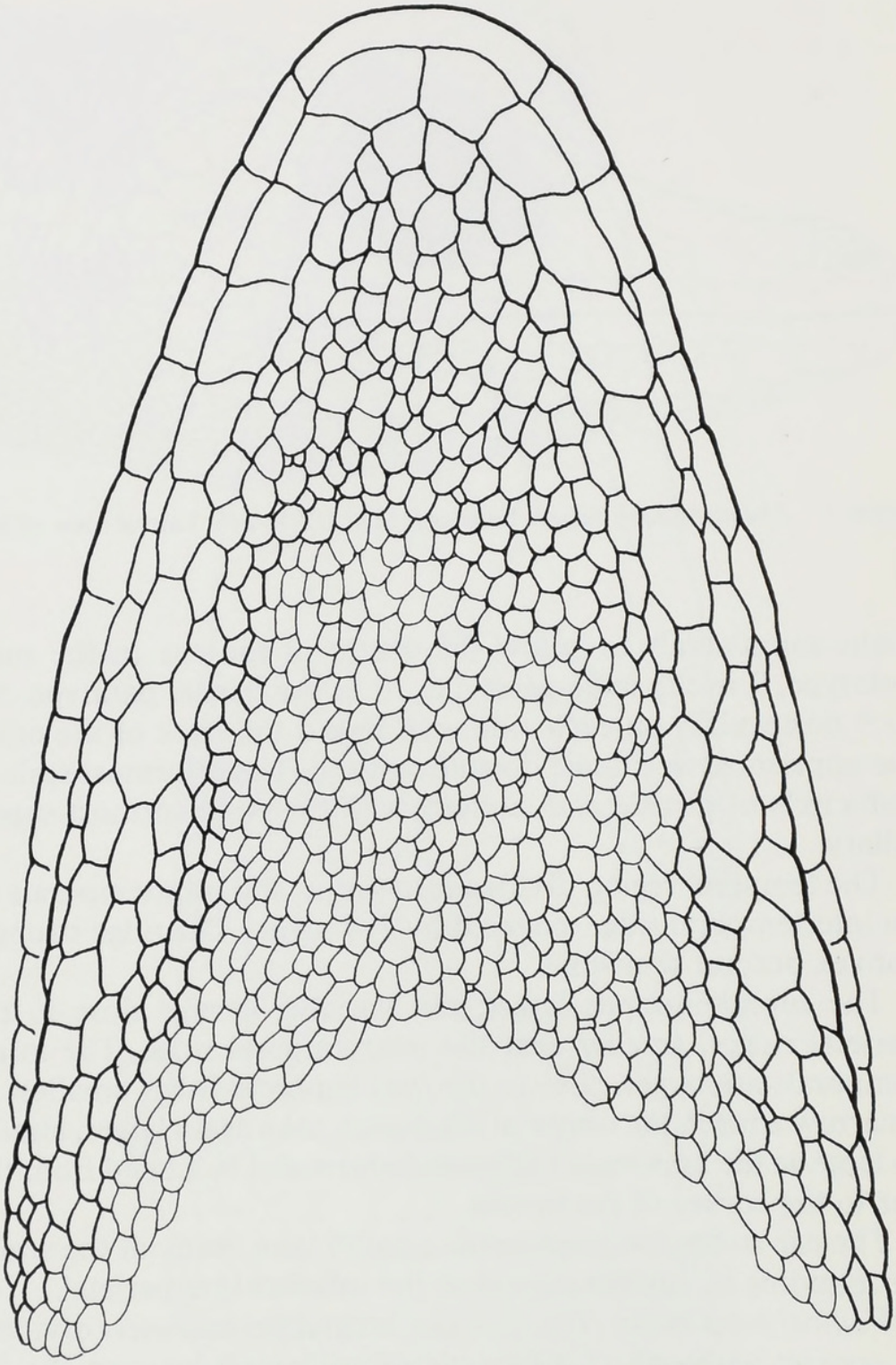

Figure 4. *Phenacosaurus tetarii,* holotype, MBLUZ R-215: Ventral view of head.

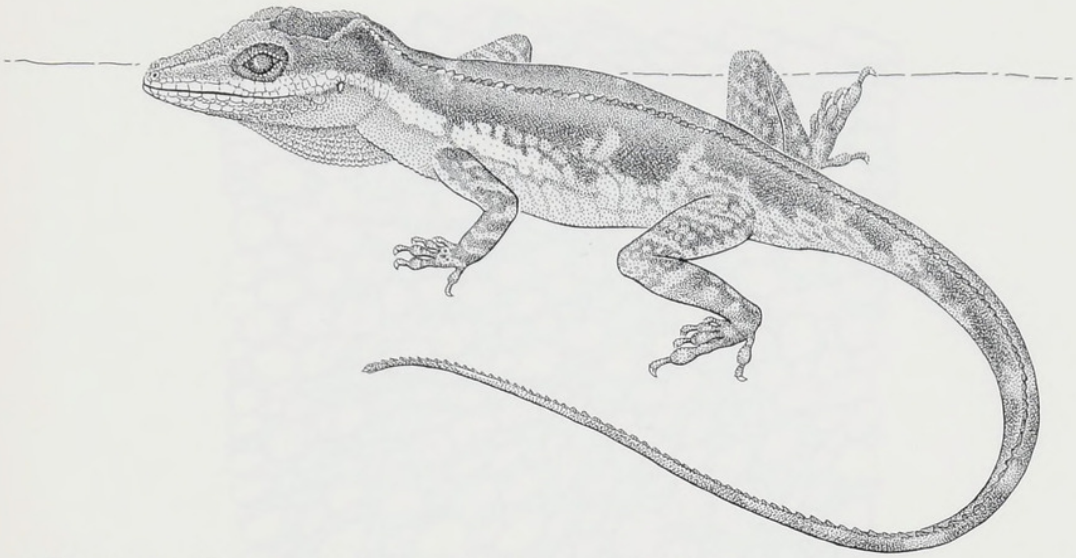

Figure 5. *Phenacosaurus tetarii,* holotype, MBLUZ R-215: Lateral view of entire animal.

fralabials (male holotype and male paratype). Five sublabials on each side in contact with the infralabials in the male holotype, the first sublabials only by their corners. In the male paratype 2 sublabials are in contact with the infralabials, 3 on the left. The female paratype obscure. The swollen medial gulars grading posteriorly into swollen gulars less than half their size.

Trunk (Figs. 4 and 5): The middorsal scales, a dorsal crest of Type 3 *sensu* Lazell (1969, fig. 1), a single series of vertebral scales, swollen keeled cones, at irregular intervals each such scale separated from other vertebrals by a pair of flat or slightly swollen paravertebrals that meet middorsally. In the male the sequence of the 2 types of middorsals is nearly regular until the region of the sacrum, where the cones are in contact. About 4–5 rows of paravertebrals, rounded and flat, varying somewhat in size, in contact or slightly overlapping and showing little or no intervening skin. Below this on each flank a zone of distinct granules, mostly fully separating round flat scales that differ little from the paravertebrals in size but tend to be somewhat smaller. Below this, beginning at about the middle of the flank patches of slightly larger round flat scales in partial contact appear; they appear to be concentrated in irregular areas that are more lightly pigmented than the rest of the flank. Ventrals smooth and strongly imbricate,

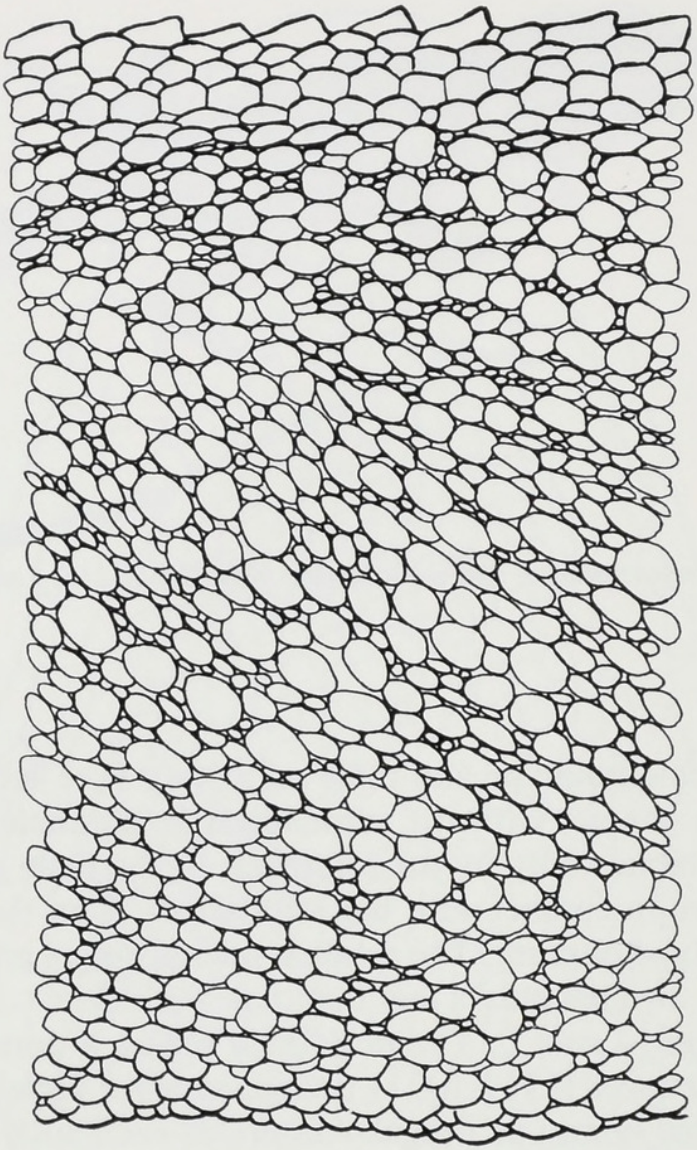

Figure 6. *Phenacosaurus tetarii,* holotype, MBLUZ R-215: Flank scales behind shoulder.

bluntly pointed and about equivalent in size to the round flat scales of the flanks.

Limbs (Fig. 4): All limb scales smooth, differing primarily in size. The scales of the anterior face of upper arm and of the thigh

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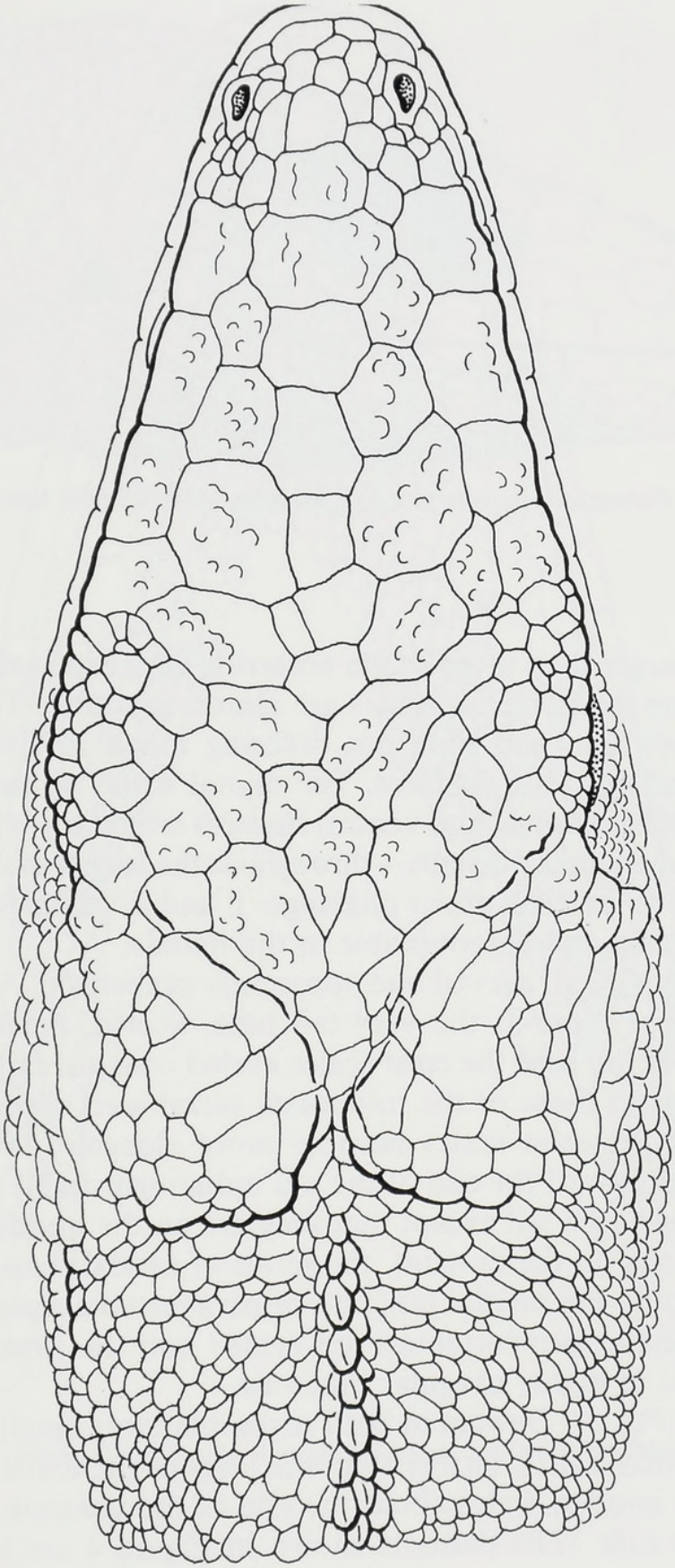
Figure 7. *Phenacosaurus tetarii,* male paratype, MHNLS 664: Dorsal view of head.



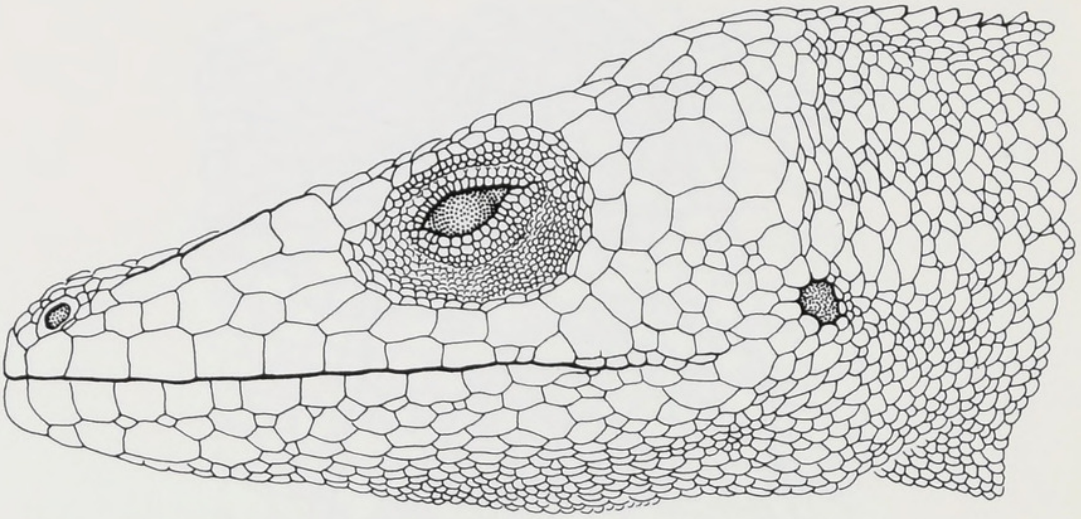


Figure 8. *Phenacosaurus tetarii,* male paratype, MHNLS 664: Lateral view of head.

distinctly larger than those of the posterior face, especially on the thigh, where the posterior scales are almost granular. The scales of the lower arm and tibia not differing much in size on the anterior and posterior surfaces. The digital scales of both hands and feet with the dorsal and ventral surfaces lamellar—wider than long, and overlapping distally—throughout the length of the digits. The adhesive lamellae under phalanges ii and iii of the fourth toe 23 in the male, not determinable in the female.

Tail (Fig. 4): Tail curved and apparently prehensile. All caudal scales, except those at the very tail base, keeled, most sharply ventrally. At the base the crest scales keeled cones as large as and very similar to those of the middorsal sacral area. Farther back on the tail the crest scales become more elongate, lower, and smaller and toward the end of the tail indistinguishable from the other scales of the tail except that they are on the middorsal line of the tail. As on the dorsum, the series of caudal crest scales is interrupted by the medial juncture of paravertebral caudals, but in this case the paravertebrals are keeled and the interruptions are few and at highly irregular intervals.

Dewlap (Fig. 4): Dewlap in both sexes relatively small, extending posteriorly a little farther than the level of the axilla, densely scaled, the swollen scales about the size of the ventrals.

Color in Life. (The patterns shown in Figure 4 are long after

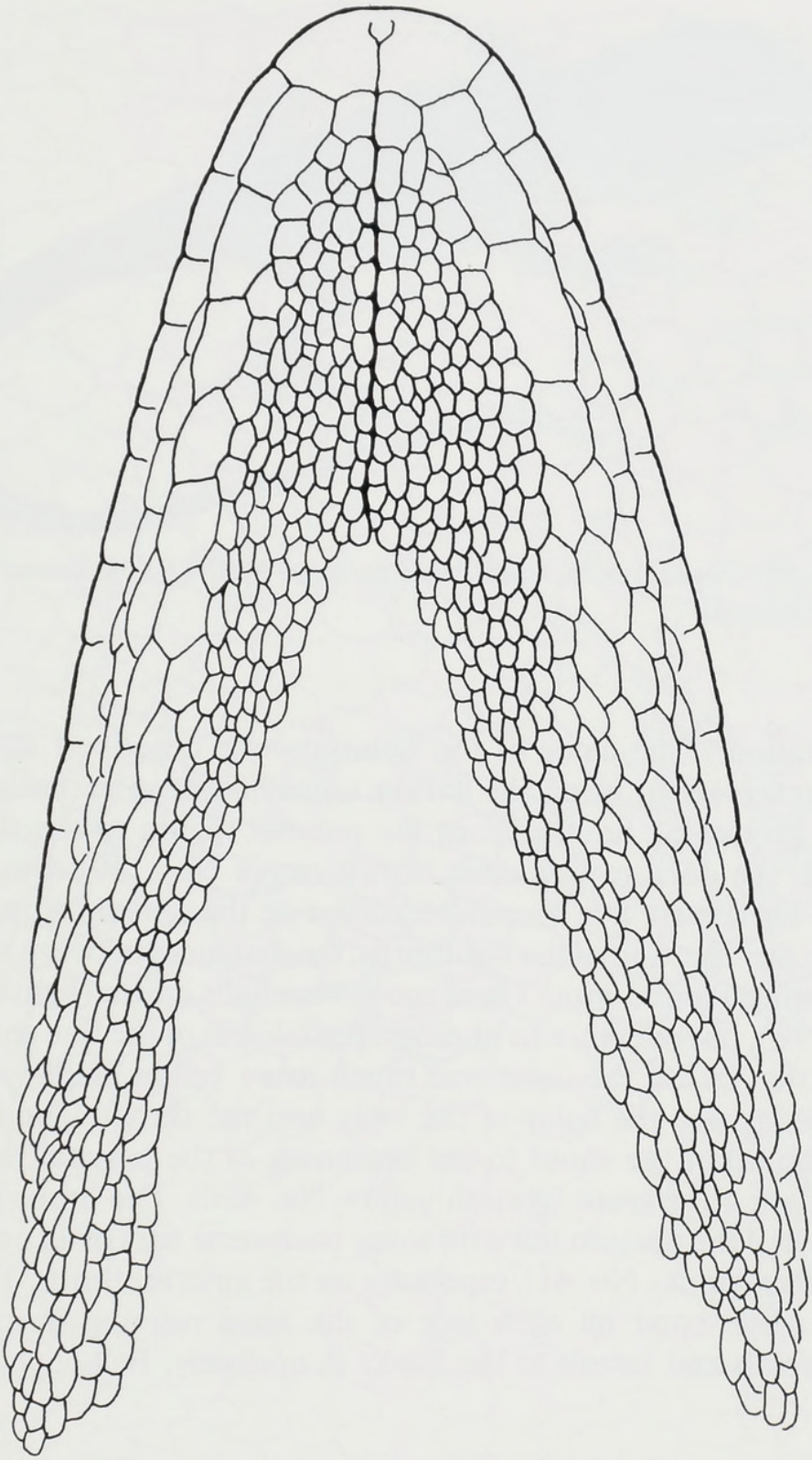


Figure 9. *Phenacosaurus tetarii,* male paratype, MHNLS 664: Ventral view of head.

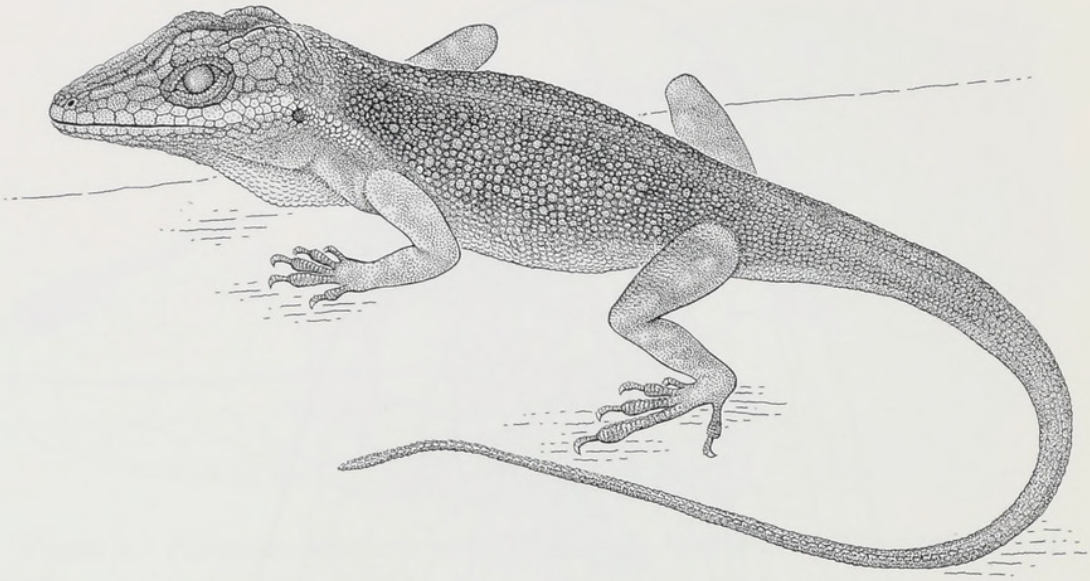


Figure 10. *Phenacosaurus tetarii,* male paratype, MHNLS 664: Lateral view of entire animal.

preservation.) The color of the holotype was described shortly after preservation, when the darker tones had been accentuated by the preserving liquid. From the parietal region to the tip of the tail, the dorsum was dark brown (sepia No. 119) (Smithe, 1975). There were five rounded blotches on the dorsum from the nape to the insertion of the hindlimbs, the distances between these spots being about 5 mm. These spots were light cream (light drab No. 119C), but reference to photographs (slides) of the live animal shows that in life the color was much more yellow (buff-yellow No. 53), as was the color of the belly and the throat. The head from the tip of the snout to the beginning of the parietal region was a dark olive green (grayish yellow No. 430). The limbs have the color of the dorsum but with some transverse bars of an orange color (ferruginous No. 41), especially on the anterior limbs. There was a white band on each side of the head running from the supralabials and loreals to the flanks at midbody. Belly light, the

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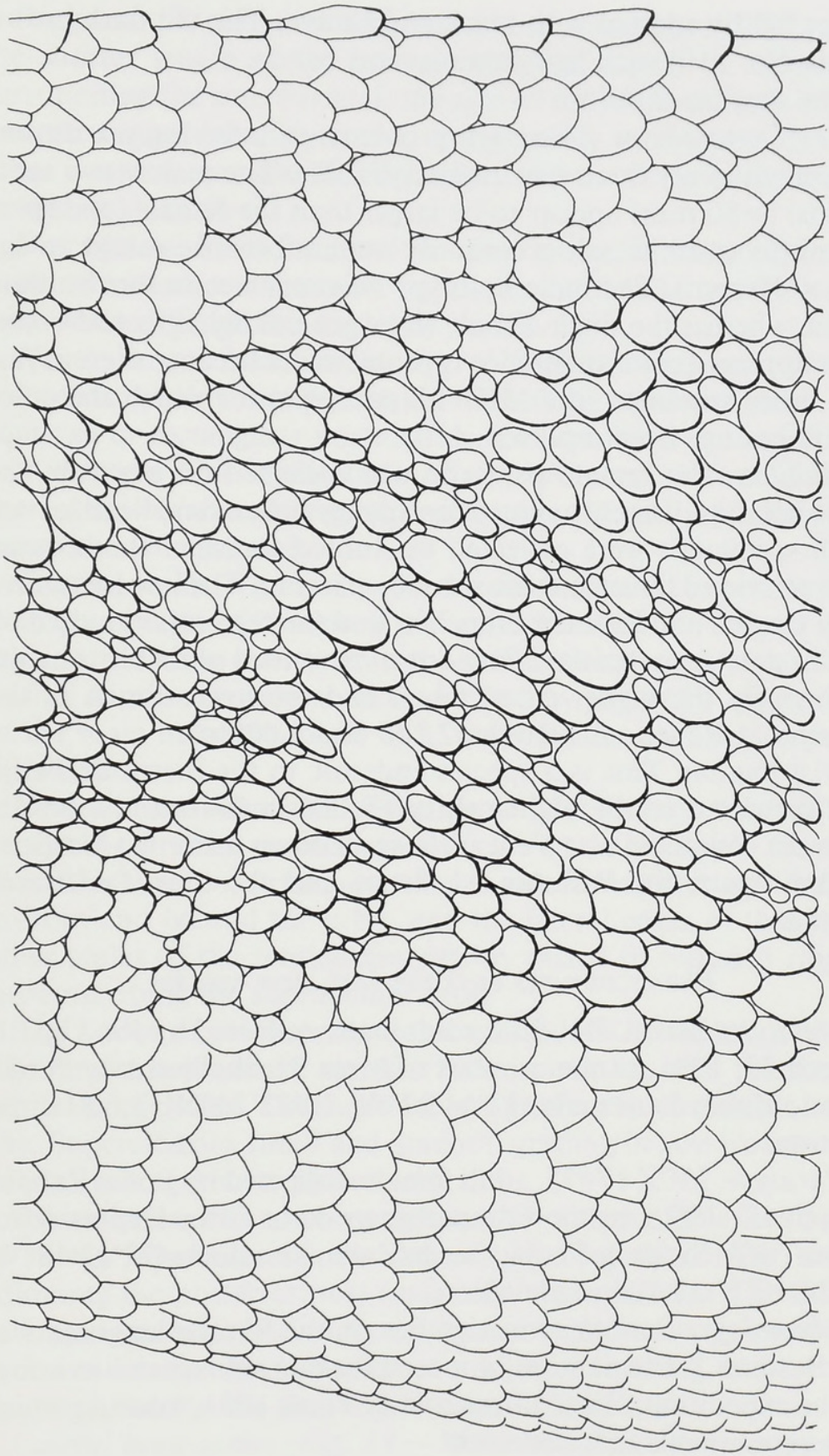
Figure 11. *Phenacosaurus tetarii,* male paratype, MHNLS 664: Flank scales behind shoulder.



scales lightly spotted with black and brown. The tail dark brown (sepia No. 119) with lighter transverse bands.

The dewlap is yellow.

Sex Dimorphism. There are problems in inferring sex dimorphism with only three specimens available. The males (two specimens) (>80 mm) appear to be larger than the female (one specimen) (69 mm), which is certainly mature because it laid an egg (15 × 10 mm). The male holotype was much more brown than green, whereas the single female was a general light green in color. This apparent color difference is problematic because there is just one other specimen (the MHNLS paratype) for which the color in life has not been reported.

Habitat. The female paratype was collected on a shrub; the male holotype was encountered on spongy lichens and dead leaves. Both specimens were collected in stunted forest in the ecotone between cloud forest and the shrubby páramo. The low trees have very tangled and leathery branches, and the region is cloudy during the greater part of day. *Phenacosaurus tetarii* probably inhabits exclusively the higher cloud forest and the lower limits of the páramo at elevations between 2,200 and 3,000 m.

Distribution. This is a species endemic to the Sierra de Perijá and restricted to the higher altitudes that constitute the border between Colombia and Venezuela and known from two localities 22 km apart, the Páramo del Tetari and the massif of Cerro Pintado.

Phenacosaurus euskalerriari, new species

Holotype. MBLUZ R-308, adult male, collected by Jon Ugarte, March 22, 1991, in the canyons of Mesa Turik, Sierra de Perijá, Estado Zulia, Venezuela (72°44′27″W, 10°22′23″N), 1,600 m elevation.

Paratype. MCZ 17475, adult female, collected by Javier Zabala, March 17, 1991, in the Campamento de la Gran Depresión of Mesa Turik, Sierra de Perijá, Estado Zulia, Venezuela (72°42′48″W, 10°24′10″N), 1,700 m elevation.

Etymology. Euskalerriari signifies, in the Basque language, "of the Basques." The name is proposed for this new species in honor of the expedition "Vasco-venezolana Turik 1991," during which these specimens were collected.

Diagnosis. A phenacosaur closest to *P. orcesi* but differing in the shorter length of the interparietal, the aspect of the scales surrounding the interparietal, the size of the uniform flank scales and the higher lamellar count, and possibly in the blue dewlap (blue is a very unusual dewlap color, and the color of the *orcesi* dewlap is unknown).

Description. As in the previous description, this description is primarily based on the male holotype; the female is mentioned only when differences are clearly visible.

Head: Dorsal head scales (Fig. 12)—Antorbital area: Scales smooth or weakly rugose, smaller toward the tip of the snout. Six squarish or rectangular postrostrals. Circumnasals in broad contact with the first supralabials of each side and separated from the rostral by the outermost postrostrals. Dorsally 4 scales between the circumnasals.

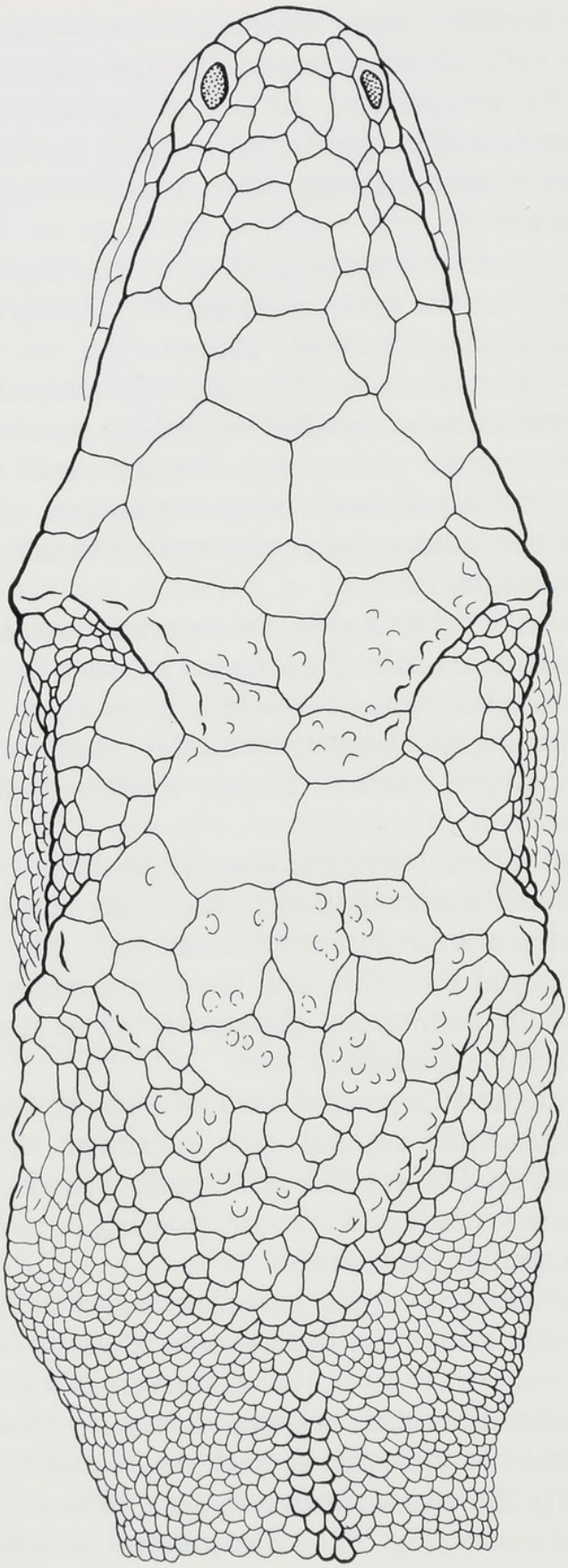
Canthal scales, 6 on each side, the anteriormost in contact with the circumnasal of its side. Two scales between the second canthals in the male holotype, in the female paratype 3 scales. The frontal depression very shallow, formed by parts of 4 large scales in the male holotype, parts of 6, only slightly smaller scales, in the female.

Orbital area: All scales of the semicircles heavily tuberculate, except the 2 most posterolateral in the male holotype. The anteriormost and posteriormost of each side form prominent bulges in front and behind the orbit, and the lateral edges of these and other scales of the semicircles slightly raised in rounded ridges, circumscribing the supraocular area.

The scales of the supraocular area smooth or slightly rugose. The largest supraocular on each side in contact with the supraorbital semicircles. The supraoculars grading in size mediolaterally. Superciliaries small and smooth, grading in size from larger anteriorly to granular posteriorly.

Parietal area: The converging boundary ridges of this area begin as strong tuberculations on flat or only slightly convex scales adjoining the posteriormost scales of the semicircles. The tuberculate or pustulate boundary ridges converge to meet posteriorly in 2 small raised blunt bosses at midline. Notching in this case minimal, merely the groove between the 2 bosses.

Lateral head scales (Fig. 13)—Most lateral scales smooth, but



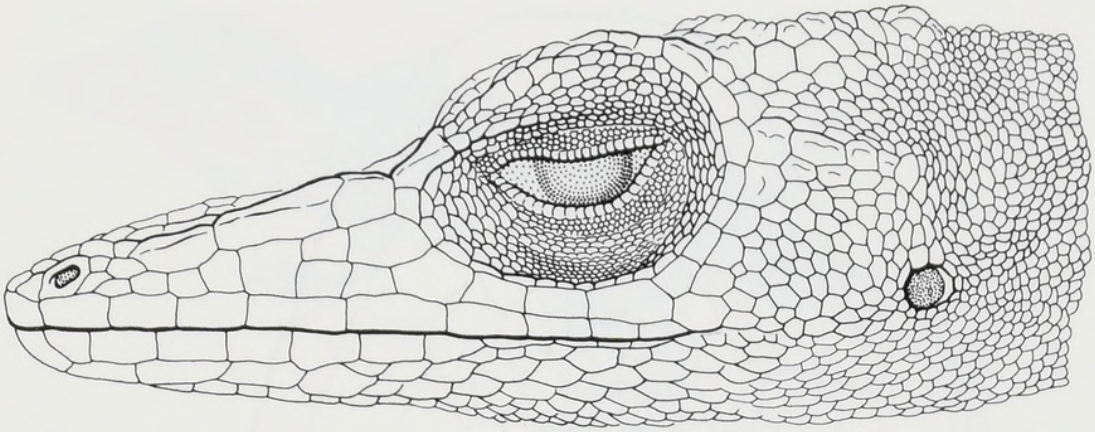


Figure 13. *Phenacosaurus euskalerriari,* holotype, MBLUZ R-308: Lateral view of head.

the lateral faces of 2 canthals, the scales of the intertemporal ridge and the postoculars more or less heavily tuberculate, some suboculars weakly tuberculate. In the male, 2 rows of loreals—total of 8—on each side, arranged as follows, counting from the front a single row of 5 scales, increasing in size posteriorly, a double row of 2 scales one precisely above the other, then again a single row, 1 scale underneath the single preocular. In the female on the right side, precisely the pattern seen in the male; on the left side, however, only 6 loreals, with the single preocular in contact not only dorsally with the second canthal, but also in ventral contact with fifth and sixth supralabials.

One preocular on both sides in both specimens. Three suboculars on both sides in the female, and also on the right side in the male, but 4 on the left. Both posteriormost suboculars in the female with 2 or 3 tubercles. Seven heavily tuberculate postoculars. The suboculars broadly in contact with the supralabials. Seven supralabials to below the center of the eye on both sides of both specimens.

The intertemporal ridge moderately prominent, covered by 4 scales, each with 1 or more tubercles. Supratemporals and infratemporals smooth and flat, moderate in size.

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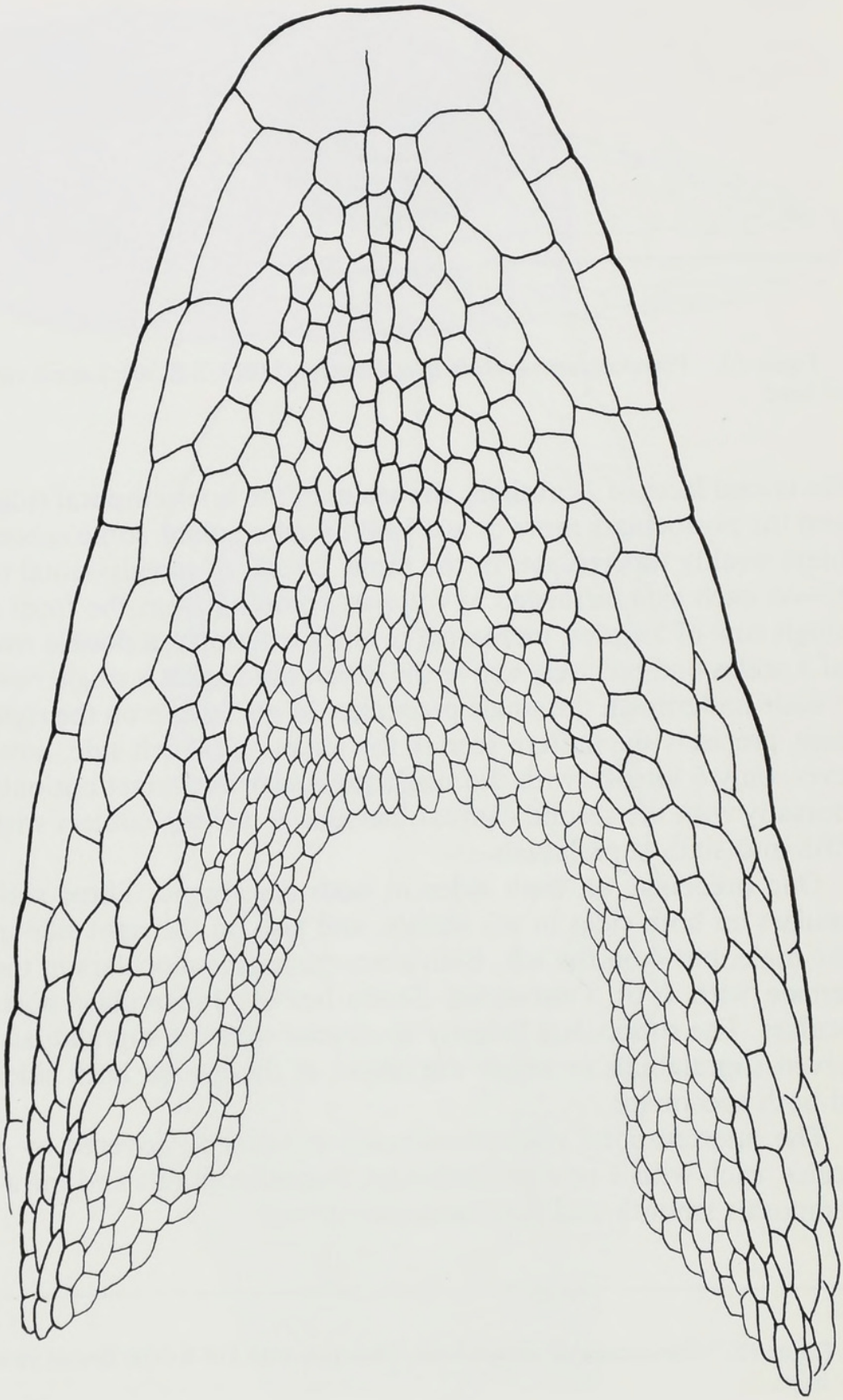
Figure 12. *Phenacosaurus euskalerriari,* holotype, MBLUZ R-308: Dorsal view of head.



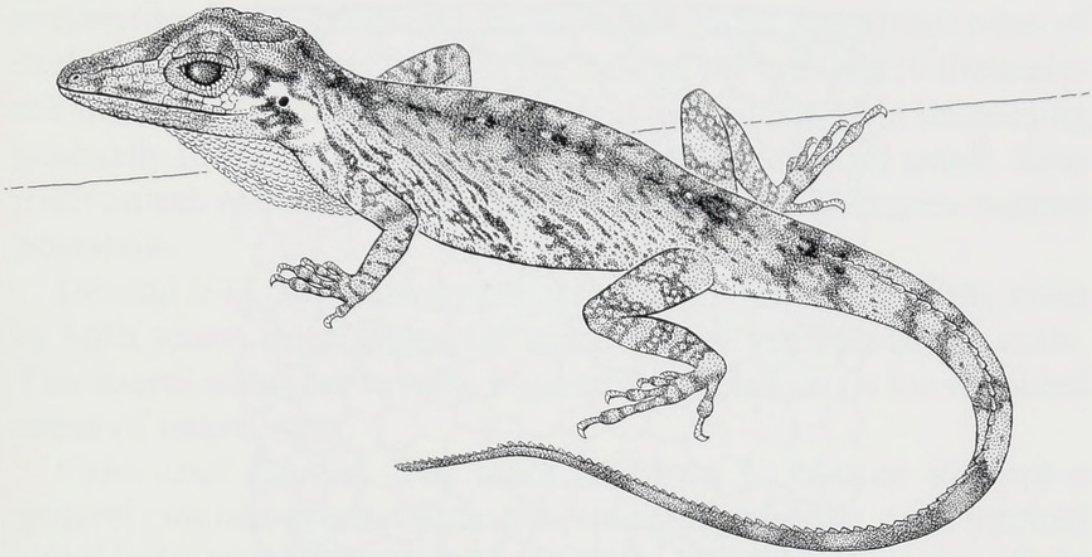


Figure 15. *Phenacosaurus euskalerriari,* holotype, MBLUZ R-308: Lateral view of entire animal.

Ear conspicuous, oval or ovoid, the greater dimension vertical, larger than adjoining scales, smaller but not greatly smaller than interparietal.

Ventral head scales (Fig. 14)—Mental semidivided in male with a nearly transverse posterior margin. Five postmentals (2 of them differentiated sublabials) between the infralabials. Three or 4 scales in the sublabial series on each side are in contact with infralabials. The postmental gulars larger than the more posterior central gulars but smaller than the rows of labials just medial to the sublabials.

Trunk (Figs. 15 and 16): No dorsal crest in either specimen, but on the nape patches of very low subconical scales. At middorsum and meeting in the midline hexagonal smooth scales only little larger than and very little different from the uniform flank scales. Ventrals smooth, larger than dorsals, subimbricate, and in transverse rows.

Limbs (Fig. 15): All limb scales smooth, but differing in size. Those of the anterior faces of upper and lower arms and of thigh

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Figure 14. *Phenacosaurus euskalerriari,* holotype, MBLUZ R-308: Ventral view of head.

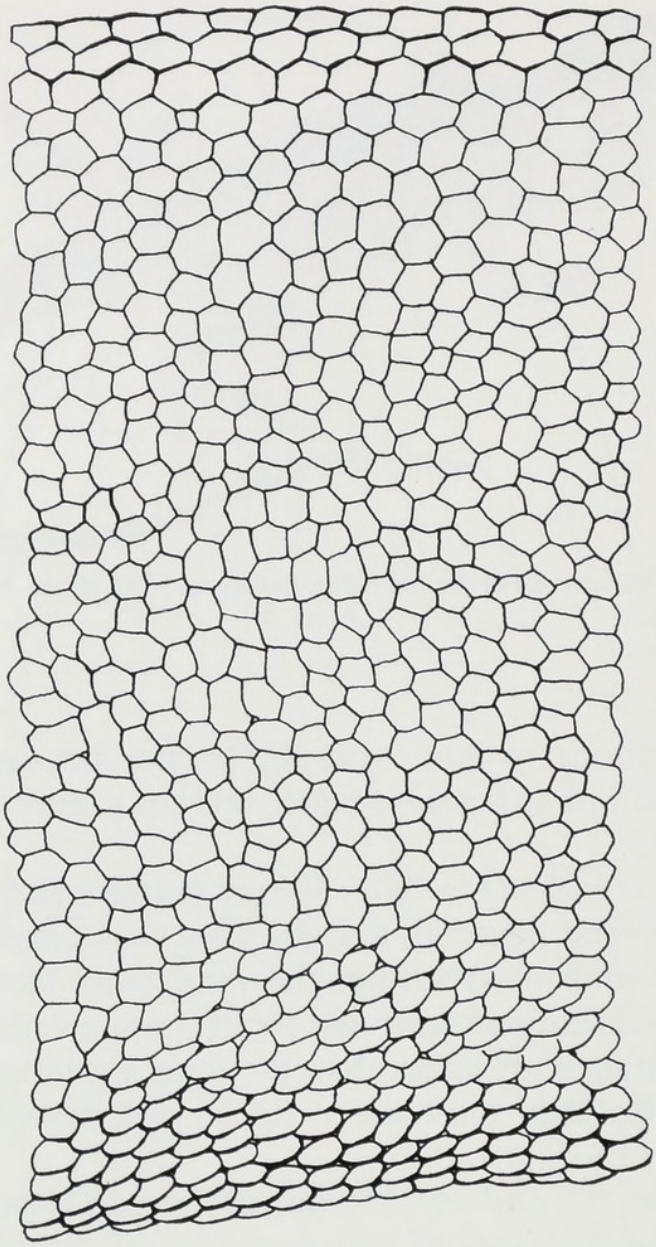


Figure 16. *Phenacosaurus euskalerriari,* holotype, MBLUZ R-308: Flank scales behind shoulder.

and tibia about as large as flank scales, their ventral and posterior faces more nearly granular. The digital scales of both dorsal and ventral surfaces are lamellar—wider than long, and overlapping distally throughout the length of all digits. The adhesive lamellae under phalanges ii and iii of fourth toe 21 in the male and 25 in the female.

Tail (Fig. 15): The tail strongly compressed, curved, apparently

prehensile. Large postanals in the male only. A distinct crest of keeled swollen scales begins at the base of the tail, where the scales are small then distinctly larger beyond the tail base, but decreasing gradually in size to tail tip. Lateral scales smooth and small. Four midventral rows of keeled scales begin about 30 scales behind postanals.

Dewlap (Fig. 15): Dewlap posterior to the insertion of the arms in both sexes. Edge scales are smaller than ventrals in the male. The lateral scales are in rows separated by relatively wide wrinkled areas of naked skin.

Color and Pattern. The male is shown by a slide to have a general emerald green coloration (emerald green No. 163) marked irregularly with brownish (dark drab No. 119BB), very likely highly cryptic in its habitat. Head brownish in the parietal area and at the tip of the snout. On the flanks more prominent brown blotches that project on the belly as triangles that resemble the peaks of a mountain range. The tail is banded green and brown. The limbs present the same pattern as the body.

The dewlap is light lead-colored blue.

Habitat. This species inhabits the forests of Perijá and has been encountered at approximately 1,700 m elevation, both specimens on bushes in scrub/dwarf forest. It appears to be a species of the cloud forests below 2,000 m in elevation, and its coloration of green and brown in life suggests a cryptic aspect appropriate to its silvicolous habit. In view of the altitudinal amplitude of the cloud forests in which it lives, the species could be distributed between 1,600 and 2,500 m elevation, uniquely in very humid forests. It is possible then that it is parapatric with the larger species of higher and more open formations.

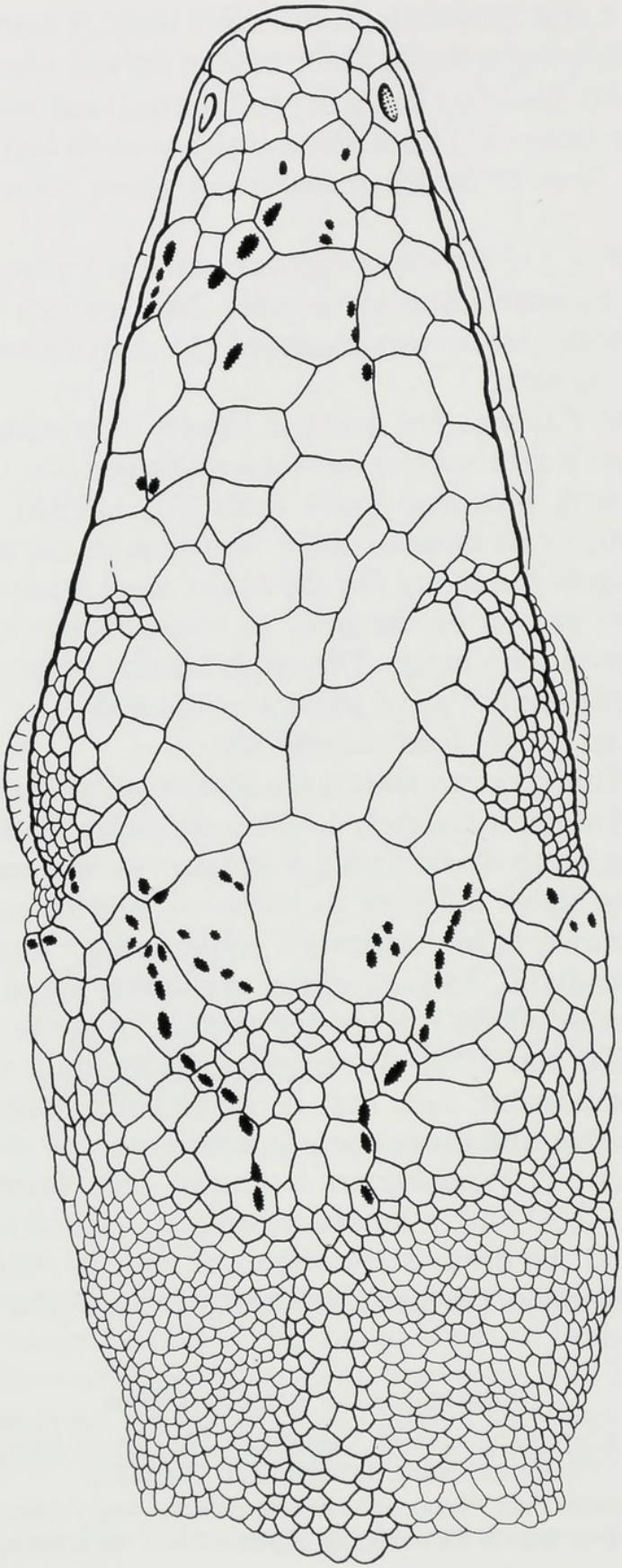
Distribution. P. euskalerriari is known only from the Mesa Turik (1,600–2,300 m), a limestone meseta, located between the Río Apón and the headwaters/origins of the Río Palmar on the Venezuelan slopes of the Sierra de Perijá, Estado Zulia, Venezuela.

Phenacosaurus nicefori Dunn

Phenacosaurus nicefori Dunn, 1944, Caldasia, **3**: 59. Type: ILS 64.

Type Locality. Pamplona, Norte de Santander, Colombia.

Diagnosis. Smaller than *Phenacosaurus heterodermus* and *P. tetarii* (maximum SVL: male 63 mm, female 58 mm) and differing from the giant species and *P.*



heterodermus by fewer large (as does *P. tetarii*) round flat scales on the flanks and with the posterior notch between parietal crests especially wide, wider than any other species in the genus.

Description. Head: Dorsal head scales (Fig. 17)—Antorbital area: Six to 8 canthals; if 7 or 8, 1–2 small canthals have been intercalated in the series. The third canthal largest. One small scale or none between anteriormost canthal and the circumnasal. Four to 5 squarish scales border the rostral posteriorly. The circumnasal on each side in broad contact with the first supralabial and separated from the rostral by 1 postrostral or in contact. Four scales between the circumnasals dorsally. Small scales behind the circumnasals occur in 1 or 2 rows medial to the anterior canthals.

Orbital area: The scales of supraorbital semicircles always at least weakly tuberculate. There are 1 or 2 pairs in contact, or 2 scales on one side may contact with one on the other. The scales of the supraocular area, which are always smooth, decrease in size laterally. Two or 3, rarely 4, of the larger supraoculars are in contact with the semicircles medially. These scales are separated from the superciliary margin by 2–3 granular rows. Superciliaries are mostly subgranular, but the 1 or 2 anteriormost of the series are slightly larger.

Parietal area: Lyre-shaped and tubercular lateral parietal ridges arise from the scales that are in contact with the posteriormost scales of the supraorbital semicircles and terminate in bluntly swollen boss-like scales separated by low, wide notch, relatively wider and lower than in other species of the genus. All scales of parietal table distinctly lower than the bounding parietal ridges and more or less strongly tuberculate. Interparietal with or without an eye, larger than the very small ear, round, subrhomboid or subhexagonal, are separated from the semicircles by 1 or 2 scales or in contact. Scales lateral to the interparietal tend to be about as large as the interparietal. Four to 6 scales intervene between interparietal and the notch, which is filled by a transverse row of 2–3 smooth scales.

Lateral head scales (Fig. 18)—There are 1 or 2 rows of loreals; if 2, the upper row is posterior only or is intercalated at intervals above the lower row. Total loreals vary from 4 to 9. Only 1 preocular is present, usually small and in contact only with the anterior subocular and the second canthal; if larger and additionally in contact with the sublabial series, it perhaps implies a fusion of a lower loreal with the preocular. There are 4–5 suboculars and 6 to 8 usually tuberculate postoculars. Seven to 9 supralabials extend to below the center of the eye.

A moderately prominent intertemporal ridge is covered by 3 or 4 scales. Supratemporals smooth, mostly small, largest toward the parietal ridges. Infratemporals smooth, mostly largest near the intertemporal ridge and toward the corner of the mouth.

Ventral head scales (Fig. 19)—Mental semidivided, in contact with 4 postmentals between the infralabials: 2 sublabials, 1 on each side and 2 medial gulars.

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Figure 17. *Phenacosaurus nicefori,* KU 181131, Betania, Táchira, Venezuela: Dorsal view of head.

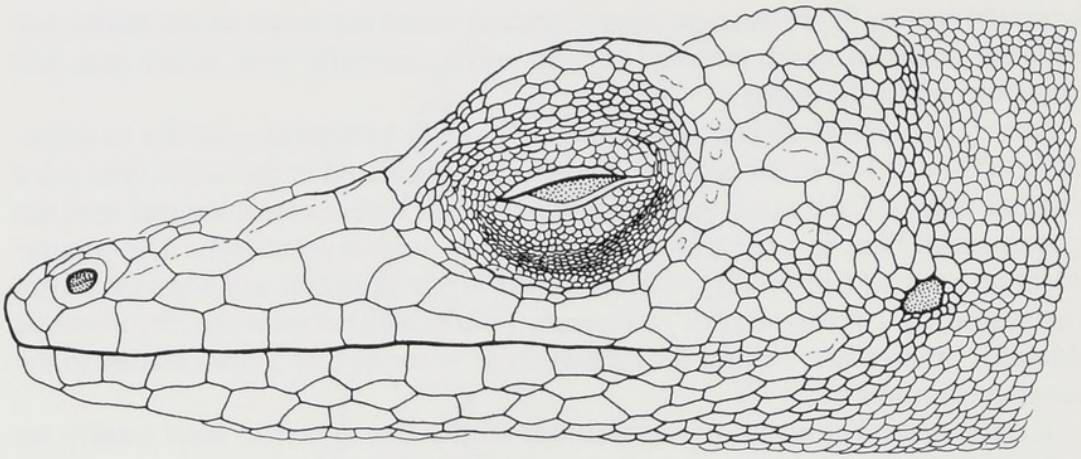

Figure 18. *Phenacosaurus nicefori,* KU 181131, Betania, Táchira, Venezuela: Lateral view of head.

Three or 4 of the sublabial series on each side in the contact with the infralabials. Central gulars smooth, small, longer than wide or as wide as long, juxtaposed, becoming larger polygonal adjacent to the sublabial series.

Trunk (Figs. 20 and 21): Dorsal crest variable, absent or interrupted (Type 3 of Lazell) or consisting of adjoining keeled scales on the middorsum. On the nape, the crest usually comprises small cones irregularly arranged. Flank scales are smooth, juxtaposed or even subimbricate, sometimes weakly separated, variable in size, but the larger round scales are relatively few. Ventrals smooth, imbricate to subimbricate, in transverse rows.

Limbs (Fig. 20): Limb scales smooth, including supradigitals. All subdigitals lamellar. Lamellae under phalanges ii and iii of fourth toe 15–22.

Tail (Fig. 20): Tail weakly compressed. Enlarged postanals present in the male. A Type 3 or Type 4 crest on the tail, with the crest scales much larger than laterals, about as large as 2 ventralmost rows. Lateral scales are weakly rugose, becoming distinctly keeled before midlength. The 4 ventralmost caudal scale rows are keeled, the 2 medial ventral rows largest, a bit larger than the scales of the tail crest.

Dewlap (Fig. 20): In the male extending a short distance posterior to the level of the axilla, densely scaled, with crowded rows of scales. In the female represented by a densely scaled fold extending only to the level of the axilla.

Color in Life. There is just one description of color in life for a specimen that we have examined. It is by William Duellman for a specimen (KU 181130) from Betania on the eastern slopes of Cerro Tamá, Estado Táchira, Venezuela: "Dorsum grayish tan to dark brown. Labial region and venter creamy white. Dewlap creamy white with pale orange stripes." A slide shows that the dorsum is banded.

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Figure 19. *Phenacosaurus nicefori,* KU 181131, Betania, Táchira, Venezuela: Ventral view of head.

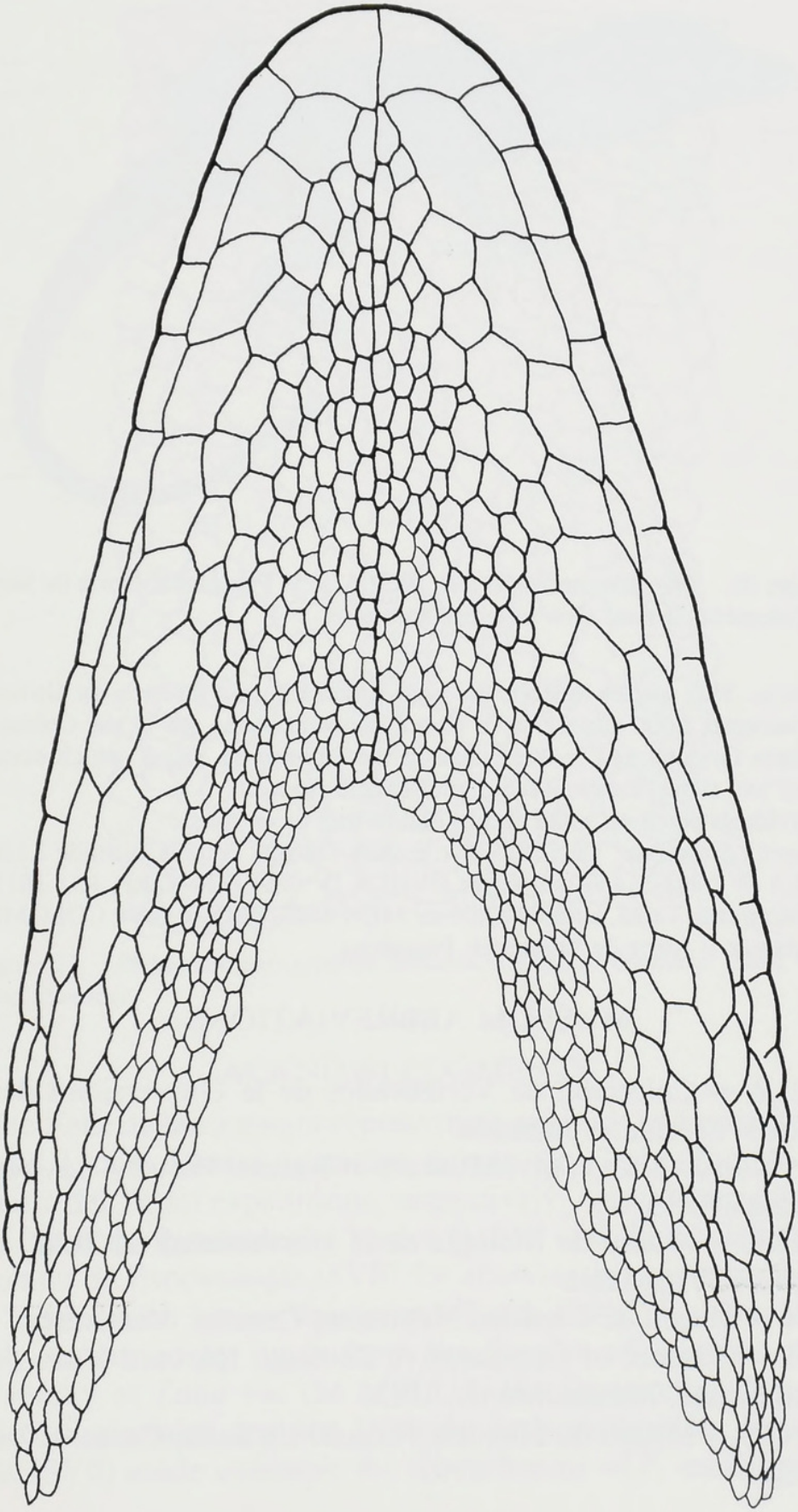

Figure 20. *Phenacosaurus nicefori,* MCZ 67979, Pamplona, Norte de Santander, Colombia: Lateral view of entire animal.

Habitat. This species inhabits the high-Andean humid forest in an altitudinal band between 2,000 and 2,600 m above the level of the sea in the Colombian Cordillera Oriental and in Venezuela in the Páramo de Tamá, which occupies parts of two states, Estado Táchira and Estado Apure.

Individuals perch on small shrubs and bushes or on moss.

Material Examined. VENEZUELA: Estado Táchira: Betania, altitude 2,150 m: CVULA IV 0898-218V-219-VJEP; CVULA IV 0899-220-VJEP; KU 181130–132; Páramo de Tamá, altitude 2,400 m: MCN 4529, FMNH 5684; COLOMBIA: Departamento Norte de Santander: Pamplona.

MUSEUM ABBREVIATIONS

CVULA = Colección de Vertebrados de la Universidad de los Andes, Mérida, Venezuela

KU = Kansas University, Museum of Natural History, Lawrence, Kansas, USA

MBLUZ = Museo de Biologia de la Universidad de Zulia, Maracaibo, Venezuela

MCN = Museo de Ciencias Naturales, Caracas, Venezuela

MCZ = Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts, USA

MHNLS = Museo de Historia Natural La Salle, Caracas, Venezuela

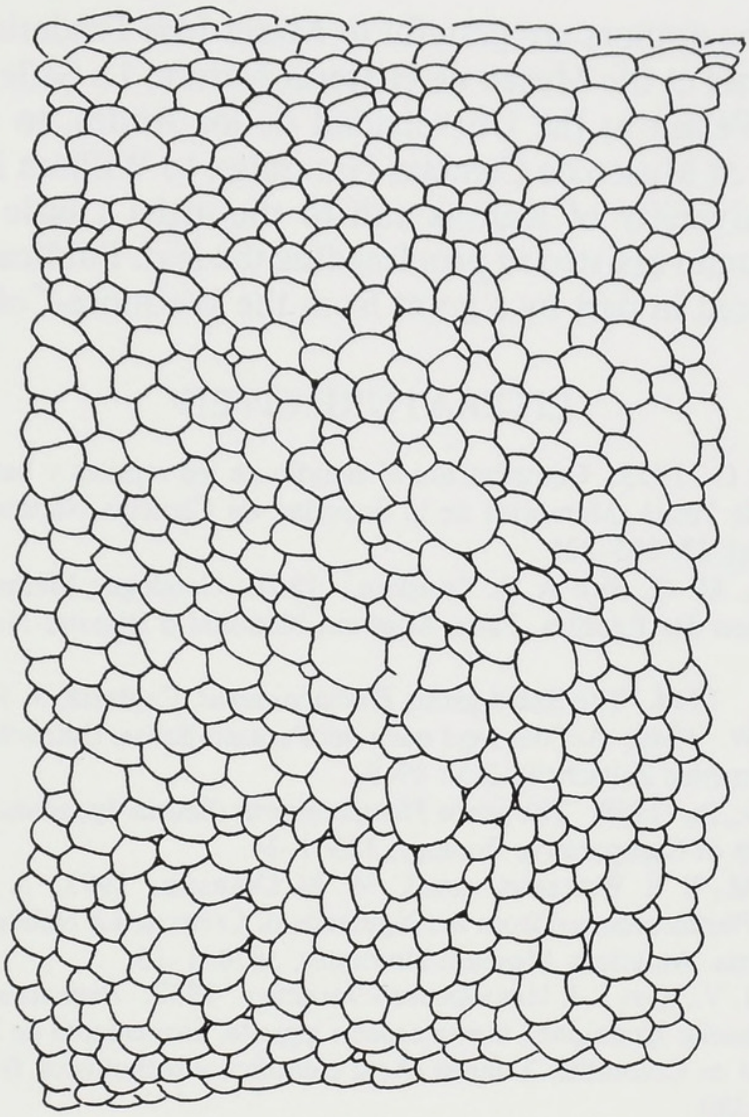

Figure 21. *Phenacosaurus nicefori,* Betania, Táchira, Venezuela: Flank scales behind shoulder.

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