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A NEW SPECIES OF *TAPINURUS* FROM THE CAATINGA OF PIAUI, NORTHEASTERN BRAZIL (SQUAMATA: TROPIDURIDAE)

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ABSTRACT: *Tapinurus helenae* sp. nov. is described from northeastern Brazil. The species is characterized by a dorsoventrally depressed body three bluish-white longitudinal stripes, the mid-dorsal one interrupted at the scapular area, and an ochre colored dorsum that is lacking in larger males. *Tapinurus helenae* is easily distinguished from the other two known species, *T. semitaeniatus* and *T. pinima*, by its interrupted middorsal stripe. The new species inhabits calcareous massifs and sandstones in forested caatinga at the Toca de Cima dos Pilão, São Raimundo Nonato, Piauí, northeastern Brazil.

Key words: Reptilia; Squamata; Tropiduridae; *Tapinurus helenae* sp. nov.

TAPINURUS is a distinctive member of the radiation of lizards of the family Tropiduridae, formerly known as tropidurine iguanids (Frost and Etheridge, 1989). This genus is endemic to the arid caatinga of northeastern Brazil, living in rocky outcrops. It is characterized by a flattened body and the habit of seeking shelter in rock crevices (Vanzolini et al., 1980) and is reminiscent of the agamid *Platysaurus*

imperator of Africa (Gans, 1975). The taxonomy of *Tapinurus* was reviewed by Rodrigues (1984), who described a second species, *T. pinima*, based mainly on the distinctive color pattern. Recently, one of us (PRM) was invited to study the reptiles in the area of São Raimundo Nonato, in northeastern Brazil, as part of the archeological project "The Men in Southeastern Piauí, from Prehistory to Present Days: In-

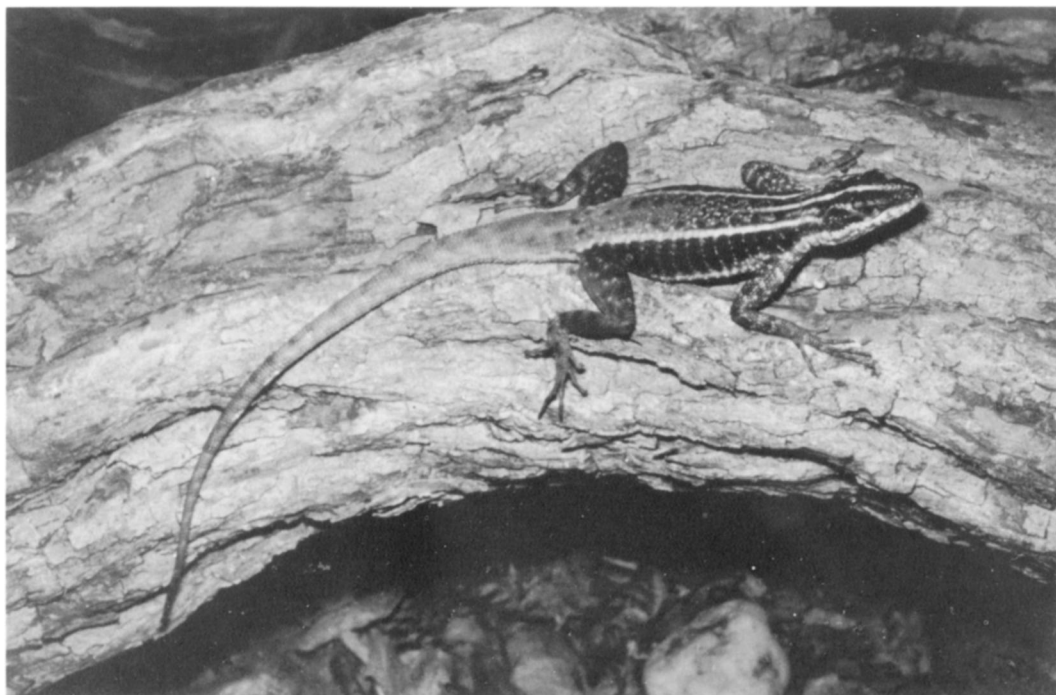


FIG. 1.—*Tapinurus helenae*, holotype ZUEC 0700, male, 70 mm SVL, in life.

teraction Men–Environment”. Among the lizards collected, there was another new, strikingly colored species of *Tapinurus*:

Tapinurus helenae sp. nov.

Holotype.—Museu de História Natural of the Universidade Estadual de Campinas (ZUEC), ZUEC-0700, adult male (Fig. 1), collected near Toca de Cima dos Pilão (Fig. 2), approximate altitude of 450 m, municipality of São Raimundo Nonato, State of Piauí (09°00'23" S, 42°36'30" W) in November 1988 by Maria Fátima B. Souza.

Paratypes.—Six males (ZUEC 0686, 0691–0692, 0702, 0733–0734), five females (ZUEC 0687–0688, 0690, 0693–0694), and eight unsexed juveniles (ZUEC 0689, 0695–0697, 0699, 0701, 0703–0704) all from the same locality, collected in June 1988 by P. R. Manzani and November 1988 by Maria Fátima B. Souza.

Diagnosis.—*Tapinurus helenae* differs from *T. semitaeniatus* and *T. pinima* in having a short middorsal stripe extending from the snout back to the scapular region rather than continuing back to the base of

the tail. *T. helenae* also has 5–6 supralabials instead of 7–8 as in *T. semitaeniatus* and *T. pinima*. The profile of the head in *T. semitaeniatus* is noticeably more convex than in the other two species (Fig. 3B), between the nostrils and at the level of the transversal line in front of the eye. The loreal scales in *T. helenae* are smooth and larger than in *T. pinima*. These scales in *T. helenae* are similar in shape to those of *T. semitaeniatus*. Subocular scale is in contact with the first canthal in *T. helenae* and *T. semitaeniatus*, but separated by a small keeled scale in *T. pinima*. The keels on the serrate tarsum of *T. semitaeniatus* are much higher than in *T. helenae* and *T. pinima*. the supralabials in *T. helenae* are larger than those of *T. pinima*.

Description of holotype.—Body and tail dorsoventrally flattened (Fig. 1); snout-vent length (SVL) = 70 mm; tail length = 122 mm; dorsal scales smooth, varying in shape and size towards the body side; ventrals smooth, flat, imbricate, and larger than dorsals. Dorsal surface of the head with scales asymmetrically distributed, mostly

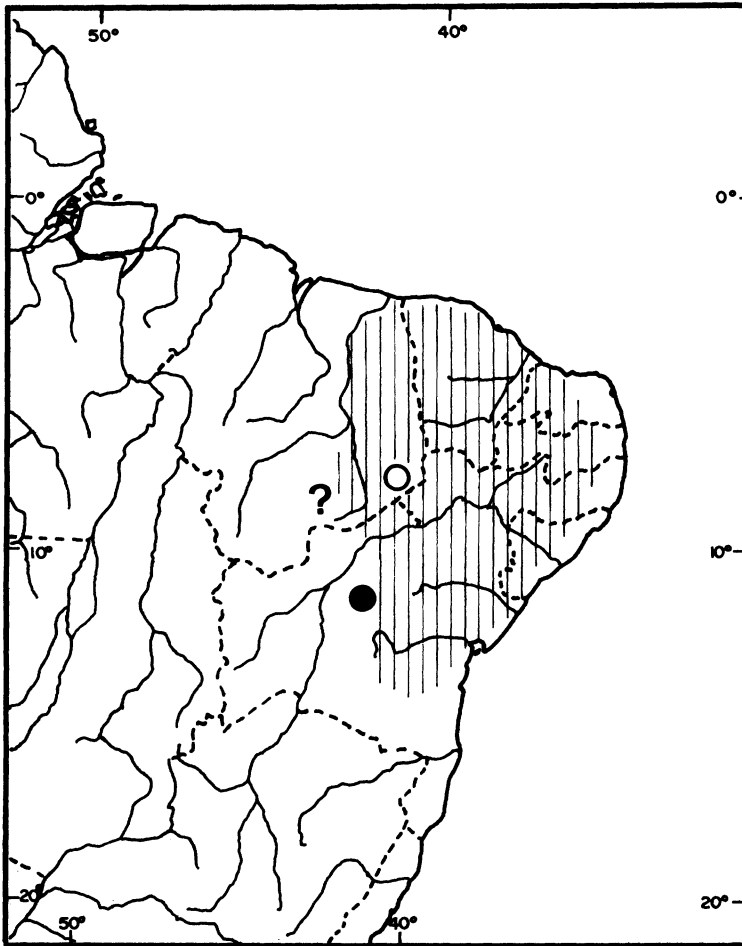


FIG. 2.—Distribution of the genus *Tapinurus* in northeastern Brazil. *T. helenae* (open circle), *T. pinima* (black dot), and *T. semitaeniatus* (hatching). Question mark represents possible area of occurrence of *T. semitaeniatus*.

smooth. Two oblique folds on each side of the neck beginning from the laterodorsal stripe, a fronthumeral well defined down to the ventral side, and separated from the symmetric fold by nine rows of ventral scales; and more anteriorly a second fold which runs down to the first ventral scales of the neck. Anterior third of tail covered laterally with keeled scales, each with a long spine, grading posteriorly into smaller scales. Scales of anterior dorsal and ventral surface of the tail smooth, becoming slightly keeled posteriorly. Dorsal surface of forearm with weakly keeled scales among others with small spines.

Anterior side of the arm with keeled and

spinose scales, especially in adults. Scales of anterior and dorsal surface of thigh smooth, becoming smaller, conical, and spinous posteriorly; dorsal scales of tibia keeled; dorsal scales of tarsum with a high keel, forming a serrate margin between tibiotarsal joint and base of the fourth toe. Infradigital lamellae of fingers bi- and tricarinate, 29 on the fourth toe and 24 under the fourth finger. Scales smooth on the ventral surface of the limbs. Three well defined granular depressions in the posthumeral well on the right side, and four on the left side; three prefemoral depressions similar to the "mite pocket" described by Rodrigues (1987) for *Tropidurus*. Super-

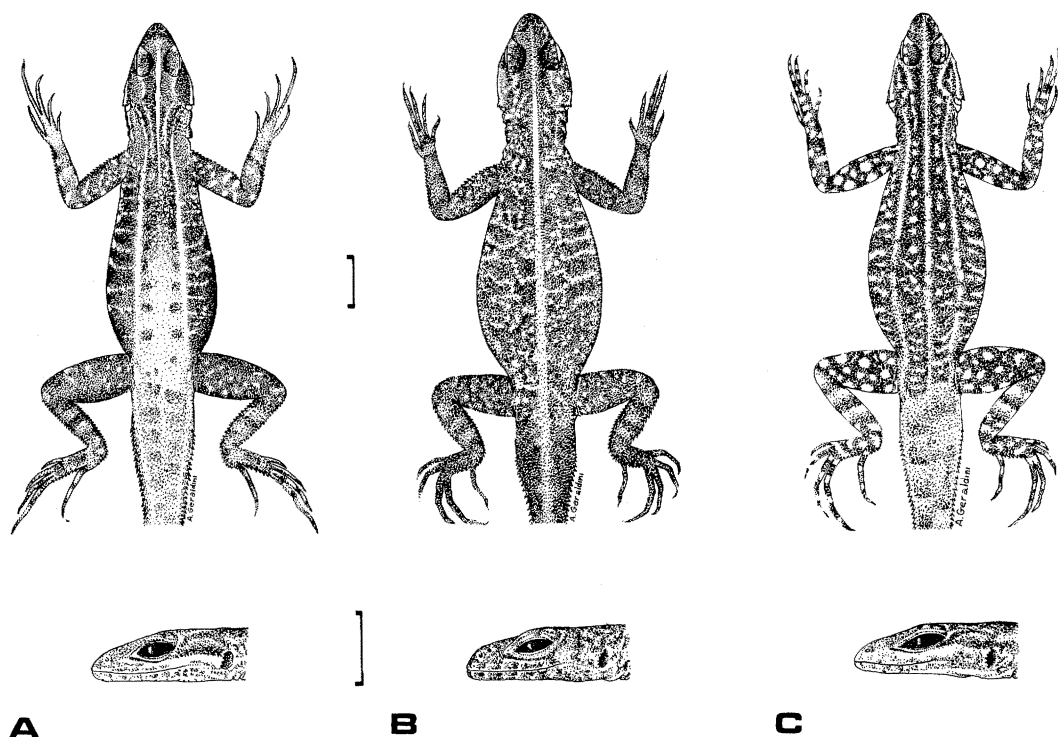


FIG. 3.—Dorsal pattern and head profile of the three species of *Tapinurus*: (A) *T. helenae*; (B) *T. semitaeniatus*; (C) *T. pinima*. Scale bars = 1 cm.

ciliaries oblique, narrow, laminar, and elongated; anterior supraoculars small, light in color, and placed in semicircles, followed by three rows, four times larger than the anterior supraoculars, with many sensorial organs. Supraorbital area surrounded by a semicircular row of scales and separated from each other by two medial rows of larger scales, black bordered and in contact with orbital semicircle, the rest of the surface of the larger scales bluish-white, forming part of the middorsal stripe. Occipital large. Temporals irregular and with sensorial organs. Scales of supratemporal area rough, some slightly convex and smooth. A series of light scales forming a semicircle at the supratemporal area, between the posterior border of the eye and the superior edge of the ear. Two canthals and two rows of large loreals. Subocular area with a large light scale, bowed, seven times as long as the greatest width, with black, conspicuous keel at the superior edge. Two keeled suboculars posterior to the bowed scale, forming the posterior edge

of the orbit. Six narrow, smooth, elongate supralabials with sensorial organs, continuing to the level of the posterior part of the subocular. Six elongate smooth infralabials with sensorial organs. Mental smooth, as wide as long, with sensorial organs, followed posteriorly by two pairs of divergent postmentals. One row of irregular shields, from the midpoint of the second postmental, parallel, and in contact to infralabials, to the level of sixth infralabial.

Coloration.—Dorsal ground color greyish-brown with three longitudinal bluish-white stripes: one dorsolateral on each side, from the upper border of the ear to the base of the tail; the third, middorsal, from the tip of the snout to the scapula; an ochre band on the posterior half of the pelvic-scapular region, between the dorsolateral stripes. Dorsum ochre showing eight paired and symmetric black blotches, medial to the dorsolateral stripes, from the scapular area to the base of the tail. The ochre band fades in alcohol, becoming brownish as the rest of the dorsal ground color. Perpen-

dicular to the dorsolateral stripes, a series of nine light dots form parallel lines on the trunk side. The limbs of the same general color as the body; arms and forearms with small light dots aligned in five transverse, parallel bands fading out ventrally; thigh with light longitudinal bars anteriorly and irregular dots on the dorsal side, medial portion of the posterior side with a longitudinal black bar; tibia with black transversal bars; tarsus and toes with black spots. Belly greyish, darker on the border; chest spotted with white, umbilical scar and area anterior to the vent straw-yellow; gular area greyish, densely spotted with white. Ventral side of thigh and anterior vent sulfur-yellow. Infratemporal area with a bluish-white lateral strip, from the tip of the snout to the sharpened scales on the anterior border of the ear. Infralabials grey with the posterior half of the 2nd to 5th dark brown.

Variation.—The paratypes agree closely with the holotype in scalation, with minor differences in lamellae number of fourth toe and finger; pairs of divergent postmentals varied from 2–3, and infralabials 5–7. In large males, the ochre band is missing and is replaced by irregular spots on a greyish-brown background. Five to nine perpendicular dorsolateral stripes, parallel to the trunk line, were present. Ventral side of thigh of females lacks sulfur-yellow.

Etymology.—The specific name *helenae* is an expression of our deep friendship and honors the memory of Helena Ribas Lopes, a distinguished adviser and teacher.

Habitat.—*Tapinurus helenae* often lives associated with calcareous rocky formations, locally known as “lajeiros”, and on sandstones, although on occasion it can be found on the ground far from these rocky formations or even climbing on tree trunks. This lizard was observed to be active mainly during the morning, between 0730 h to 1100 h and more seldom from 1500 h to 1700 h. *Tapinurus helenae* retreats to rock ledges at noon time. *Tapinurus helenae* was seen feeding on termites, and courtship and mating were observed at 0730 h, air temperature 27 C, on 9 July 1989.

Distribution.—*Tapinurus helenae* is known from the type locality, Boqueirão

Grande, Serra Branca, in the municipality of Canto do Buriti, Piauí (Fig. 2). An individual of *T. helenae* (ZUEC 0867) was observed and collected at Boqueirão Grande, Canto do Buriti where it is syntopic with *T. semitaeniatus* (ZUEC 0853–0855) living in the same rocky outcrop. The latter species seems to be warier because it fled more readily in the presence of humans.

DISCUSSION

Rodrigues (1984) commented on the morphological similarity between *Tapinurus semitaeniatus* and *T. pinima*; the same holds true for *T. helenae*, as the three species are very similar to each other (Fig. 3). *Tapinurus helenae* shares more scalation characters with *T. semitaeniatus* than with *T. pinima*. The new species does not show appreciable meristic differences when compared to *T. semitaeniatus* and *T. pinima*.

The color pattern of live specimens of *T. helenae* is unmistakable due to the ochre color on the back and the three stripes, the bluish-white middorsal one ending at the level of the scapula. Even in the larger males or in the preserved specimens, which lack the ochre color, the arrangement of the three stripes is diagnostic for this species. Among the three known species of the genus, *T. pinima* is the most distinctive not only in scalation but also geographically and in habitat use, as it seeks shelter under stone blocks when pursued (see Rodrigues, 1984, for accounts of habits).

Tapinurus helenae was observed on calcareous cliffs and on sandstones with many crevices, where the lizards hide whenever threatened. The large-sized males without ochre coloration are warier than the females and smaller males, not allowing human approach. The morphological specialization of *Tapinurus* to rock crevices, described by Vanzolini et al. (1980) and Vitt (1981), is conspicuous in *T. helenae*, especially the high keel of the tibia and fringes which may make it difficult to remove these lizards from crevices by a predator, as suggested by Rodrigues (1984).

The specimens of *T. semitaeniatus* from Piauí do not differ from individuals of the

same species from other distant localities like Irecê, Paulo Afonso, and Uauá in Bahia, and Petrolândia and Floresta in Pernambuco, northeastern Brazil.

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A NEW SPECIES OF SMALL COLORFUL HYLA FROM THE LOWLAND RAINFOREST OF AMAZONIAN ECUADOR

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ABSTRACT: *Hyla miyatai* is described from the upper Rio Napo region of Ecuador. This new species is characterized by its small size, short truncate snout, concealed tympanum, and dorsal color pattern of bright red and yellow. It apparently breeds in deep, vegetation-choked streams.

Key words: Amphibia; Anura; Hylidae; *Hyla miyatai*; Amazon; Ecuador; Rainforest

WHILE on a brief visit to a resort hotel in a remote area of Amazonian Ecuador, we obtained a series of specimens of an undescribed species of *Hyla*; upon comparing this species with other small *Hyla* known from the upper Amazon basin, it appears to be most similar to species placed into a poorly known group by Duellman (1982) including *Hyla minima*, *H. rossalleni*, *H. leali*, *H. riveroi*, and *H. aperomea*. This new species is unique within this group

in having the dorsum patterned bright red and yellow. Additional information on the tadpoles, mating call, and chromosomes will be necessary to further elucidate the relationships of this tiny frog.

Owing largely to the efforts of William E. Duellman and co-workers, the anuran fauna of eastern Ecuador is perhaps the best studied in the entire Amazon basin. Thus we find it surprising that this beautiful frog, which breeds in dense aggre-