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A New Microhylid Frog, Genus *Elachistocleis* (Amphibia, Anura), from Northeastern Brasil

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Whole Specimens

Kinosternon bauri: AMNH 64656, 93197; AUM 2706, 6389, 16873; CM 91128-36; UF 127-29, 130-34, 241, 244-46, 248, 252, 262, 264-66, 268, 270, 766, 768, 771, 1416-17, 1653, 1726, 2222, 9206, 9822, 14640-43, 17669, 28311, 28313, 32630-31, 32635, 32639, 32652-54, 32811, 32849, 36940-43, 44315, 50337, 50351, 50640, 50749-52, 50756, 92132, 96541-44, 10069, 12017-18, 12020-22; TL 001-009; UGAMNH 3283, 3789-93, 3795; UMMZ 67707; USNM 55757.

Kinosternon subrubrum: CHM 161-63, 165-69, 171-73, 176, 181-82, 54.49.6 (12), 56.52.10 (13); EBP (letter coded)—ABCV, ACM, BHM, BKM, BLM, BMO, BVX, CMNV, HIN, JNO, JNOV, NWX; TL 013-032; UGAMNH 3260-61, 3269, 3270, 3273-76, 3278, 3281, 3291-95, 3297-99, 3478, 3701-02, 3709, 3714-16, 3718, 3726, 3731, 3734, 3751, 3754, 3756, 3761, 3765-66, 3768, 3770-71, 3773-75, 3778, 3780-81, 4259-67.

Steel Creek *Kinosternon*: TL 064-069; SREL 2270, 2525-31; UGAMNH 3706, 3708.

Georgia *Kinosternon*: Baker Co.—6.4 km NE Emory Univ. field station; data highly questionable (UGAMNH 395). Bulloch Co.—Lower Black Creek;

11.7 km S Stilson (SSM 5733). Candler Co.—Fifteen Mile Creek; 4 km E Metter (SSM 5763). Chatham Co.—Black Creek; 4.8 km E Monteith (SSM 6226). Dodge Co.—US 280 at Ocmulgee River bridge (SSM 6039). Emanuel Co.—McKinney's Pond (UGAMNH 3280, 3285-86). Jefferson Co.—Kelly's Mill Pond; 6.4 km E Louisville (UGAMNH 3745). Johnson Co.—GA 57; 15.2 km NNW Wrightsville (SSM 8509). Liberty Co.—US 17 at Baker Swamp; 1.6 km N Midway (SSM 5922). McIntosh Co.—1.6 km E Ft. Barrington (UGAMNH 3786, formerly GSU 1300). Wilcox Co.—(UGAMNH 3796). Osewichee Springs, 17.6 km S Abbeville (UGAMNH 3259). Georgia—Ogeechee River between Millen and Richmond Hill (UGAMNH 3258).

Additional South Carolina *Kinosternon*: Jasper Co.—B + C Landing; Savannah River, 12.8 km WNW Tillman (SSM 9528).

Skulls

Kinosternon bauri: FSM 18987-88, 44187; TL 033-45.

Kinosternon subrubrum: TL 46-63.

Steel Creek *Kinosternon*: SREL 2525-31.

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A NEW MICROHYLID FROG, GENUS *ELACHISTOCLEIS* (AMPHIBIA, ANURA), FROM NORTHEASTERN BRASIL

ULISSES CARAMASCHI AND JORGE JIM

ABSTRACT: *Elachistocleis piauiensis* sp. nov. is described from Picos, State of Piauí, Northeastern Brasil. This new microhylid species inhabits the "caatinga" region and is characterized by small size, color and habits.

Key words: Amphibia; Anura; Microhylidae; *Elachistocleis*; Brasil, northeastern

AS recognized by Nelson (1973), there is considerable confusion regarding the number of species of *Elachistocleis* (see, for example, Bokermann, 1952; Carvalho, 1954; Cei, 1956, 1980; Cochran, 1955; Cochran and Goin, 1970; Dunn, 1949; Gallardo, 1961, 1964, 1966; Miranda-Ribeiro, 1920, 1926; Parker, 1927, 1934; Vellard, 1948). However, it is agreed that two easily distinguishable color morphs exist, these being treated either as full species, as subspecies of a single species, or as mere synonyms. One of the two col-

or morphs has an immaculate yellow (white in preservative) belly, a narrow red (white in preservative) femoral stripe, and no inguinal spots. The other has a more or less profusely spotted (marbled) belly, a broad femoral stripe, and some light spots in the groin, behind the knees and on the feet. We are not yet able to determine which name, *ovalis* or *bicolor*, applies to either color morph, but we are convinced that the two forms are distinct species.

During a survey project in Northeast-

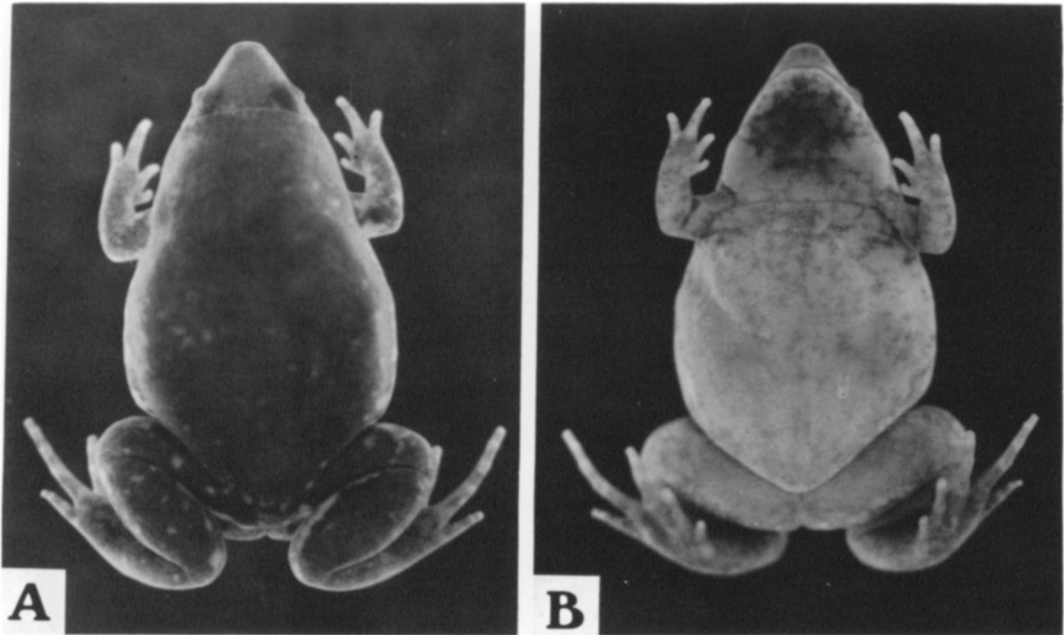


FIG. 1.—*Elachistocleis piauiensis* sp. nov., holotype JJ 6024. (A) Dorsal view. (B) Ventral view.

ern Brasil in 1979, we collected at Picos, State of Piauí, specimens of a small microhylid frog of the genus *Elachistocleis*. These are obviously different from all other recognized taxa in the genus and are here described as a new species.

The following abbreviations are used in the account below: JJ (Jorge Jim Collection), SVL (snout-vent length), HW (head width), IND (internarial distance), IOD (interorbital distance), ED (eye diameter) and E-N (eye to nostril distance). All measurements are given in millimeters.

Elachistocleis piauiensis sp. nov.

Holotype.—JJ 6024 (Fig. 1), an adult male, collected at Picos, State of Piauí, Northeastern Brasil (ca. 07°05' S and 41°30' W), on 15 January 1979, by Ulisses Caramaschi and Jorge Jim.

Paratypes.—JJ 6025, an adult male, and JJ 6026, a gravid female, collected with the holotype.

Diagnosis.—*Elachistocleis piauiensis*

is readily distinguished from the two other recognized congeners by its much smaller size (Fig. 2), slender build, and dorsal and lateral profile. The color of the new species readily distinguishes it from the first (unspotted) color morph, but is similar to that of the second (spotted) morph. *E. piauiensis* is distinguished from the latter by details in the distribution of the light spots on the venter, axillae and groin, and by the shape of the femoral light stripe.

Description.—Body ovoid; head triangular, broader than long; HW 25.8–27.8% SVL in males, 24.0% in female; snout pointed, the tip truncate in dorsal view, protruding in profile; snout long, E-N 113.3–120.0% ED in males, 111.4% in female; nostrils not protuberant, directed laterally, IND 77.8–82.3% E-N in males, 78.9% in female, IND 93.3% ED in males, 88.2% in female; canthus rostralis rounded; loreal region flat, sloping abruptly to lips; lips not flared; eyes small, only slightly projecting, ED 83.3–88.2% E-N

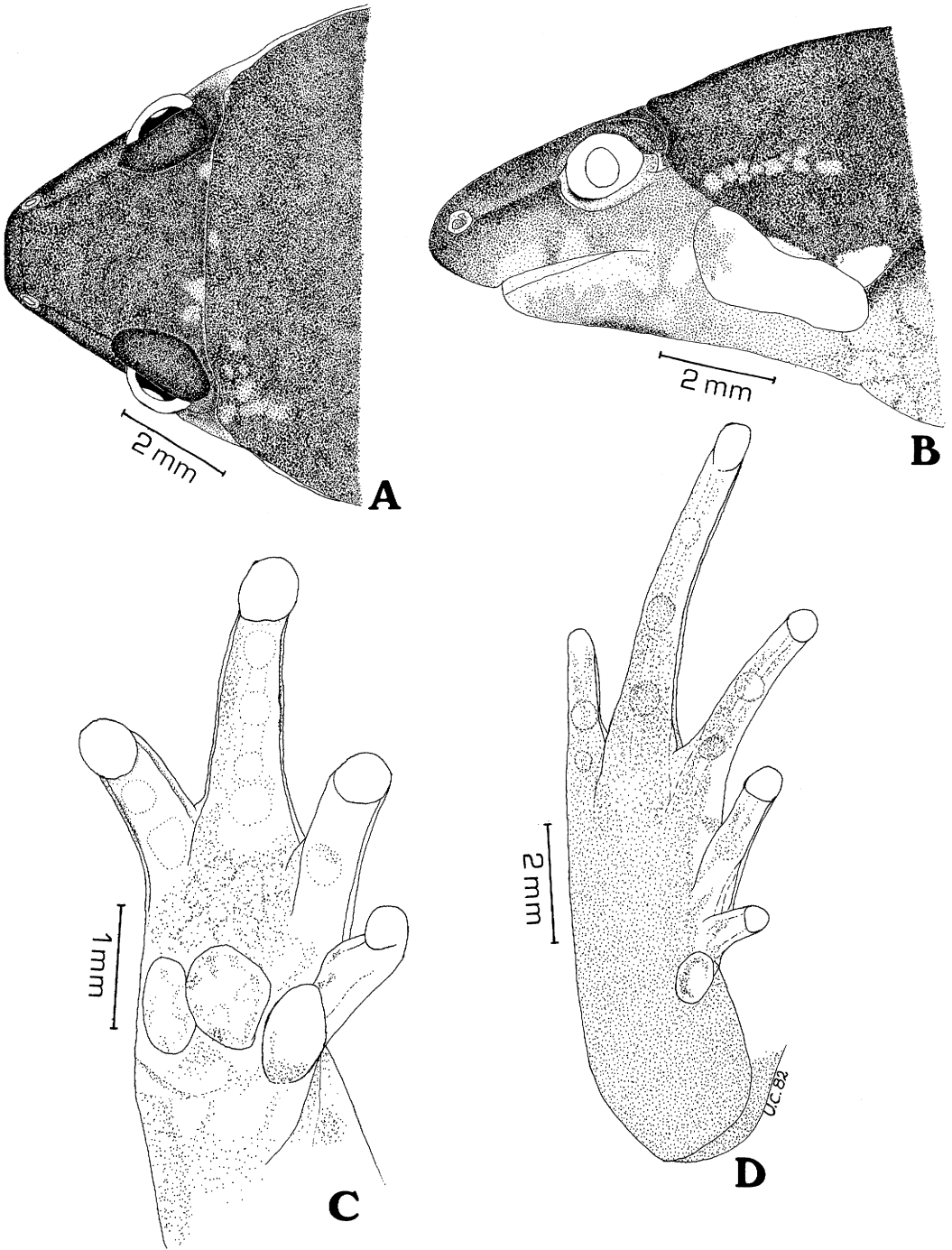


FIG. 2.—*Elachistocleis piauiensis* sp. nov., holotype JJ 6024. (A) Dorsal view of head. (B) Lateral profile. (C) Palm. (D) Sole.

in males, 89.5% in female; upper eyelid width 30.7–32.0% IOD in males, 35.7% in female; interorbital space flat; no cranial crests; a transversal skinfold across back of the head, bending backwards slightly behind eyes and running above shoulders to groin; tympanum concealed; a massive gland just behind the corner of mouth, more prominent in males than in female; upper jaw projecting beyond lower, which has truncate, trilobed anterior margin; tongue large, long and oval, without a notch on its posterior border; choanae large, widely separated; a skinfold crosses chest between axillae.

Arms moderately robust, no tubercles or crests on forearm; palmar tubercle large, divided longitudinally, twice as large as oval thenar tubercle; fingers short, free, with not much distinct lateral ridges; first finger much shorter than second, the latter subequal to the fourth and much shorter than the third; subarticular tubercles developed, rounded; supernumerary tubercles absent; tips of fingers not expanded.

Legs short, robust; knee and heel lacking tubercles; no tibial or tarsal ridges; an oval inner, but no outer, metatarsal tubercle; toes short, slightly webbed and with well marked lateral fringes; toes, in crescent order of size, 1-2-5-3-4; subarticular tubercles developed, subconical; supernumerary tubercles absent; tips of toes not expanded; heel of adpressed legs fails to reach axilla; knee and elbow separated when limbs are laid along the sides; heels touch when flexed legs are held at right angles to body; thigh length 36.3–37.3% SVL in males, 36.4% in female; tibial length 36.4–37.6% SVL in males, 35.6% in female.

Skin smooth above and beneath; anal opening not modified, no para-anal tubercles; few glands around anus and on posterior femur.

In preservative, uniform grayish dark above, with scarce minute irregular bright dots; no light mid-dorsal stripe; ventrolateral region and venter dull white, heavily grayish spotted, marbled; axilla

and groin lightly spotted; a broad, not well defined, femoral light stripe; male throat infuscated; gland behind the corner of mouth, white; lower surfaces of hands and feet, pale grayish.

Measurements of holotype.—SVL 22.5; HW 5.8; head length 3.2; IND 1.4; E–N 1.5; IOD 2.5; upper eyelid width 0.8; thigh length 8.4; tibial length 8.2.

Etymology.—The species is named for the State of Piauí, Brasil, where the specimens were found.

Remarks.—*Elachistocleis piauiensis* was found in a region of open vegetation, typical of “caatinga,” at altitudes of 200–400 m. The specimens were collected in an open area, where the soil was being prepared for use as a rice field. The area was divided in talions, all of them containing recent rain-water 10–20 cm deep. The animals were scattered in the water, but not on the margins. The call is a buzzing sound like those of other species of the genus. The male calls with the body almost entirely out of water, the hind feet supported by the vegetation and the arms grasping stems.

In the same area, the following anuran species were also collected: *Bufo granulatus*, *Ololygon x-signata*, *Leptodactylus labyrinthicus*, *Leptodactylus macrosternum*, *Physalaemus albifrons*, *Pleurodema diplolistris* and *Pseudopaludicola falcipes*.

Discussion.—Nelson (1973) stated (without naming the species) that male *Elachistocleis* typically call from a position similar to that of *Gastrophryne carolinensis*, that is, floating in the water with their forefeet supported on a stem or other objects and with their backs strongly arched with their heads held in vertical positions. This behavior differs conspicuously from that of *Elachistocleis piauiensis*.

It is possible that this distinctive, geographically isolated form represents a geographic race of a previously described species. However, in view of its diagnostic characters, including its distinct calling behavior, we choose to regard it as a

distinct species until an adequate taxonomic revision elucidates the relationships among the forms of *Elachistocleis*.

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A REEVALUATION OF THE NORTH AMERICAN GEKKONID GENUS *ANARBYLUS* MURPHY AND ITS CLADISTIC RELATIONSHIPS TO *COLEONYX* GRAY

L. LEE GRISMER

ABSTRACT: A cladistic analysis of *Anarbylus switaki* and of all the species of *Coleonyx* was conducted using skeletal material. Based on this analysis, *A. switaki* is placed between the more primitive *C. elegans* and the more derived *C. reticulatus*.

Key words: Gekkonidae; *Anarbylus*; *Coleonyx*; Osteology; Synonymy; Cladistics

MURPHY (1974) described the new genus and species *Anarbylus switaki* based on a single specimen obtained in the vicinity of San Ignacio, Baja California Sur, México. Since this description, further field work has recovered additional specimens from Baja California Sur, Baja Cal-

ifornia Norte, and southern California (Fritts et al., 1982). Fritts et al. (1982) only commented on the relationships between *Anarbylus* and *Coleonyx*, basing their remarks on foot morphology and the position of the cloacal spur. This paper reports on a detailed cladistic analysis of