A NEW GENUS AND SPECIES OF EUBLEPHARINE GECKO
(SAURIA: GEKKONIDAE)
FROM BAJA CALIFORNIA, MEXICO

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ABSTRACT: A new genus and species of eublepharine gecko, *Anarbylus switaki*, from central Baja California, Mexico is described and figured. Karyotype data is given.

During a photographic expedition through Mexico, Mr. Karl H. Switak of the California Academy of Sciences’ Steinhart Aquarium, collected an unusual ground gecko in central Baja California, Mexico. Cytological and morphological characters of this specimen are unique among eublepharine geckos. Thus the description of a new genus and species, on the basis of a single specimen, seems justified. All descriptive color references refer to those taken from the living animal and are compared with the standardizations of Ridgeway (1912).

*Anarbylus* Murphy, new genus

TYPE-SPECIES. *Anarbylus switaki* Murphy.

DEFINITION. A monotypic genus of the subfamily Eublepharinae; moderate in size; body largely covered with granular scales interspaced with enlarged keeled tubercles except on head, limbs, and venter. Skin soft, unattached to bones of skull. Eyes large, pupils vertically elliptical; eyelids well developed and functional, inner surface pigmented with black. All gulars equal in size. Ventral surface of digits sheathed with strongly peaked granular scales, sometimes forming longitudinally parallel rows; claws partially hidden by a pair of lateral scales and a single elongate dorsal terminal scute. Ventral scales flat, imbricate. Preanal pores in angular series. Parietal single; retroarticular process
recurved. Karyotype composed primarily of metacentric chromosomes; diploid number 24.

ETYMOLOGY. *Anarbylus* (treated as a masculine noun) from the Greek "without shoes" refers to the lack of transverse lamellae on ventral surface of digits.

**Anarbylus switaki** Murphy, new species.  
Switak’s Barefoot Gecko  
(Figures 1–2.)

**Holotype.** CAS 139472, an adult male, from 5.5 miles west of San Ignacio (27° 27' N., 112° 51' W.) along Mexican Highway 1, Baja California Sur, Mexico, 500 feet elevation, collected by Karl H. Switak on 20 June 1974.

**Diagnosis.** Characters of the genus but also having nine crossbands of yellow spots between limb insertions and a single enlarged postnasal scale.

**Etymology.** This species is named for Karl H. Switak, Supervising Herpetologist of the Steinhart Aquarium, who discovered and collected the sole specimen.

**Description.** (All bilateral counts are given as left-right.) Head and snout uniformly covered above and below with juxtaposed circular granules which are larger on snout. Rostral pentagonal, two times wider than deep, two short
sides contacting first supralabials; longer concave edges contact prenasals and are rounded at apex, in contact with 1 of 2 internasals. One prenasal on each side, convex distally and twice concave proximally to supranasals and nasals; supranasals number 1-1, as long as broad, lateral side concave, medial side convex; postnasals slightly smaller than supranasals, triangular, and numbering 1-1; single nasal scale on either side twice as tall as wide; nostril round; subnasals absent; granules in contact with nasal series from rostral to supralabials number 11-12. Imbricate scales with serrate edges border well developed functional eyelids and number 18-18 above, 19-19 below; inner surface of eyelids black except outer border which is brownish drab with warm blackish brown serrate edges above and pallid neutral gray bordered with brownish drab below; pupils vertically elliptical; in life eye grayish black with dense light speckling on outer and inner area of iris, otherwise speckles few. Ear vertically oval, two times longer than wide, ventral edge anterior to dorsal. Enlarged supralabials number 9-8, decrease in size posteriorly, terminate beneath center of eye, the first two times longer than following scales. Infralabials number 12-12. Mental largest head scale, slightly narrower than rostral, quadrilateral, as wide as deep, posterior side narrower than anterior and comprising a short circular arc contacted by 9 gulars; 14 gulars contact mental plus first infralabials on both sides. First infralabial quadrilateral, longest side along mental, wider and much deeper than succeeding infralabials; remaining infralabials decreasing in size posteriorly.

Dorsum covered by granules of similar size with interspaced enlarged tubercles in irregular rows posterior to head; about 16 tubercles transverse on midbody; about 41 tubercles between limb insertions adjacent to middorsal line; tubercles keeled, increasing in size from neck to tail, some peaked posteriorly.

Dorsal and lateral granules and tubercles replaced ventrally with flat triangular scales, larger posteriorly, slightly larger than dorsal granules; short umbilical line interrupts regularity of adjacent scales; approximately 41 imbricate scales across venter, about 100 midventral scales from center of arm insertion to enlarged preanal scales; scales in preanal region further enlarged with 6 conspicuous preanal pores; pore-containing scales obtusely angular in arrangement, pointing forward, two median scales in contact.

Arm scales juxtaposed, strongly peaked, base size equal to dorsal granules; tubercles absent; dorsum of hand covered with imbricate scales; palmar surface granular; third and fourth fingers longest, equal in length; ventral surface of digits without series of transverse lamellae; slightly enlarged peaked granules in longitudinal parallel rows, except on fifth finger, blend to palmar granules, numbering approximately 14 on fourth finger; fingers terminating in a pair of large shell-like lateral scales, capped by a long wedge-shaped terminal scute; claws clearly evident. Legs covered in granular and imbricate scales; tubercles absent; toes sheathed as fingers; fourth toe longest; 18 scale rows on fourth toe; claws clearly evident.
Bifurcated cloacal spurs placed on each side of and slightly posterior to vent, 1.4 mm. long, 1.4 mm. wide at base; 2 postanal sacs present.

Tail base sheathed dorsally and laterally in granular scales with interspaced tubercles and ventrally in wide imbricate scales; regenerated tail begins 6.5 mm. posterior to vent, round in section, covered both dorsally and ventrally with granular scales of equal size to midbody granules, tubercles lacking.

Pattern and color. (In life.) Anterior portion of head with pallid neutral gray spots on mottled base of warm blackish brown and brownish drab; spots blend to sulphur yellow on head above ears. Lightly pigmented canthal ridges pallid neutral gray; ridges extend from eyes to rostral where they converge; second set of slightly darker snout lines lying adjacent to supralabials and extending from postnasals to below eyes. Supralabials pigmented with alternating bands of warm blackish brown and brownish drab; infralabials identical to supralabials. Two crossbands of sulphur yellow spots transverse on parietal region. Neck lightly mottled with warm blackish brown on brownish drab with 3 distinct crossbands of 8 to 10 sulphur yellow spots. Pallid neutral gray gular and throat scales lack dark pigmentation.

On dorsum between limb insertions nine crossbands of sulphur yellow spots blend to pallid neutral gray laterally with warm blackish brown spots concentrated near crossbands; first 2 crossbands form an ‘X’ pattern behind arm insertion; fifth crossband located at midbody, composed of fourteen spots. Light middorsal stripe extends from base of parietal to tail. Lateral pallid neutral gray spots form two longitudinal rows; each spot encircled, at least partially, by warm blackish brown pigmentation; some spots blend to venter and are not distinct from it; nine spots in both lateral rows offset anteriorly to nine dorsal crossbands. Ventral scales pallid neutral gray, immaculate.

Tail base with 2 crossbands of spots, one lateral and anterior to cloacal spurs, one adjacent to regenerated portion of tail, coloration identical to body crossbands. Regenerated tail pale purplish gray with randomly dispersed large blackish brown spots.

Hands brownish drab, slightly lighter on tips of fingers; forearms lightly mottled; upper arm identical to lower but with heavier mottling and pallid neutral gray spots at insertion. Feet mottled at region of metacarpals; lower leg heavily mottled, few sulphur yellow spots occur on posterior surfaces; upper leg heavily mottled, containing 3 crossbands of sulphur yellow spots which fade to pallid neutral gray laterally, first crossband at leg insertion, second and third almost equidistant between insertion and knee.

Karyotype. Chromosome pattern (fig. 2) is a diploid complement of 24 chromosomes consisting of a graded series of 22 metacentric and 2acrocentric chromosomes. When ranked in size sequence each 2 pairs of chromosomes are conspicuously larger than the following pair.

These data represent chromosome complements analyzed from 39 intestinal
cells taken from the holotype: cells were prepared by colchicine/hypotonic citrate technique. Centromeric position classification follows that of Levan, et al. (1964).

**Measurements.** (In mm.) Snout-vent length, 87; tail length, 48 (regenerated); head width, 16.4; head length, 26.7; width between eyes, 2.8; distance snout to eye, 10.5; distance snout to ear, 20.0; eye width, 5.0; internarial width, 2.9; fourth finger length, 4.3; fourth toe length, 5.3; arm length, 24; leg length, 35.

**Range.** Known only from type locality.

**Remarks.** *Anarbylus switaki* is readily distinguished from all other eublepharine geckos in having a single enlarged postnasal scale. It is further distinguished from *Aelurosalabotes*, *Coleonyx*, and *Eublepharis* in not having enlarged transverse lamellae; from *Aelurosalabotes*, *Eublepharis*, and *Hemithoeconyx* in having numerous small gulars in contact with the mental and infralabials; and from *Holodactylus* and *Coleonyx (brevis-variegatus complex)* in having tubercles.

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**Figure 2.** The karyotype of *Anarbylus switaki*. Note the single pair of acrocentric chromosomes (no. 5).
Though the karyotypes of only a few species of gekkonids are known, Gorman (1973) speculated that the "typical karyotype" is sufficient to serve as a cytological definition. Such a definition consists of three elements: 1) a range in diploid number of 32 to 46; 2) a graded series of acrocentric chromosomes with no distinct break between macrochromosomes and microchromosomes; 3) large metacentric elements infrequent with the majority of two-armed chromosomes having subterminal centromeres. The karyotype of Anarbylus switaki (fig. 2) does not agree with any criterion of Gorman's definition. Such cytotaxonomic data strongly support the view that this species is neither an aberrant Coleonyx nor can it be referred to any currently recognized genus within the subfamily. The preliminary results of a cytotaxonomic study of the eublepharine geckos, in which the karyotypes of Anarbylus switaki, Coleonyx brevis, C. variegatus, C. elegans, C. reticulatus, Eublepharis macularius, and Hemitheconyx caudicinctus have been examined, support the above conclusions.

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