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An Unusual New *Sphaerodactylus* from Hispaniola (Squamata: Gekkonidae)

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ABSTRACT.—A new species of *Sphaerodactylus* is described from xeric limestone scrub of the Barahona Peninsula of Hispaniola. Its combination of small body size and very large, flattened, keeled dorsal scales distinguish it from other species in the genus.

Five of the 82 species in the lizard genus *Sphaerodactylus* are known from lowlands of the Barahona Peninsula in southwestern Dominican Republic (Schwartz, 1977): *S. difficilis* Barbour, *S. armstrongi* Noble and Hassler, *S. randi* Shreve, *S. streptophorus* Thomas and Schwartz, and *S. thompsoni* Schwartz and Franz. *Sphaerodactylus difficilis* is found only along the more mesic eastern margin of the peninsula, and *S. armstrongi* is a species of the eastern mesic lowlands as well as uplands throughout the Sierra de Baoruco. Localities for the remaining three lowland species are predominantly in eastern and western parts of the peninsula (Schwartz and Henderson, 1991). Although two species, *S. streptophorus* and *S. thompsoni*, are known from xeric habitats, no *Sphaerodactylus* is known from the extremely xeric limestone platform scrub of

the west-central portion of the peninsula. In that habitat, we recently found a small *Sphaerodactylus* that is one of the most distinctive members of the genus. After Nicholas Plummer, who helped collect the type series, we propose the name

Sphaerodactylus plummeri sp. nov.

Fig. 1A

Holotype.—USNM (United States National Museum) 317892, an adult female, from 10.6 km N Cabo Rojo on the Alcoa road (2.6 km N Pedernales-Oviedo road), Pedernales Province, Dominican Republic, elevation 80 m, 28 July 1991, one of a series collected by Nicholas Plummer, S. Blair Hedges, and Richard Thomas.

Paratopotypes.—USNM 317893-901, same data as holotype.

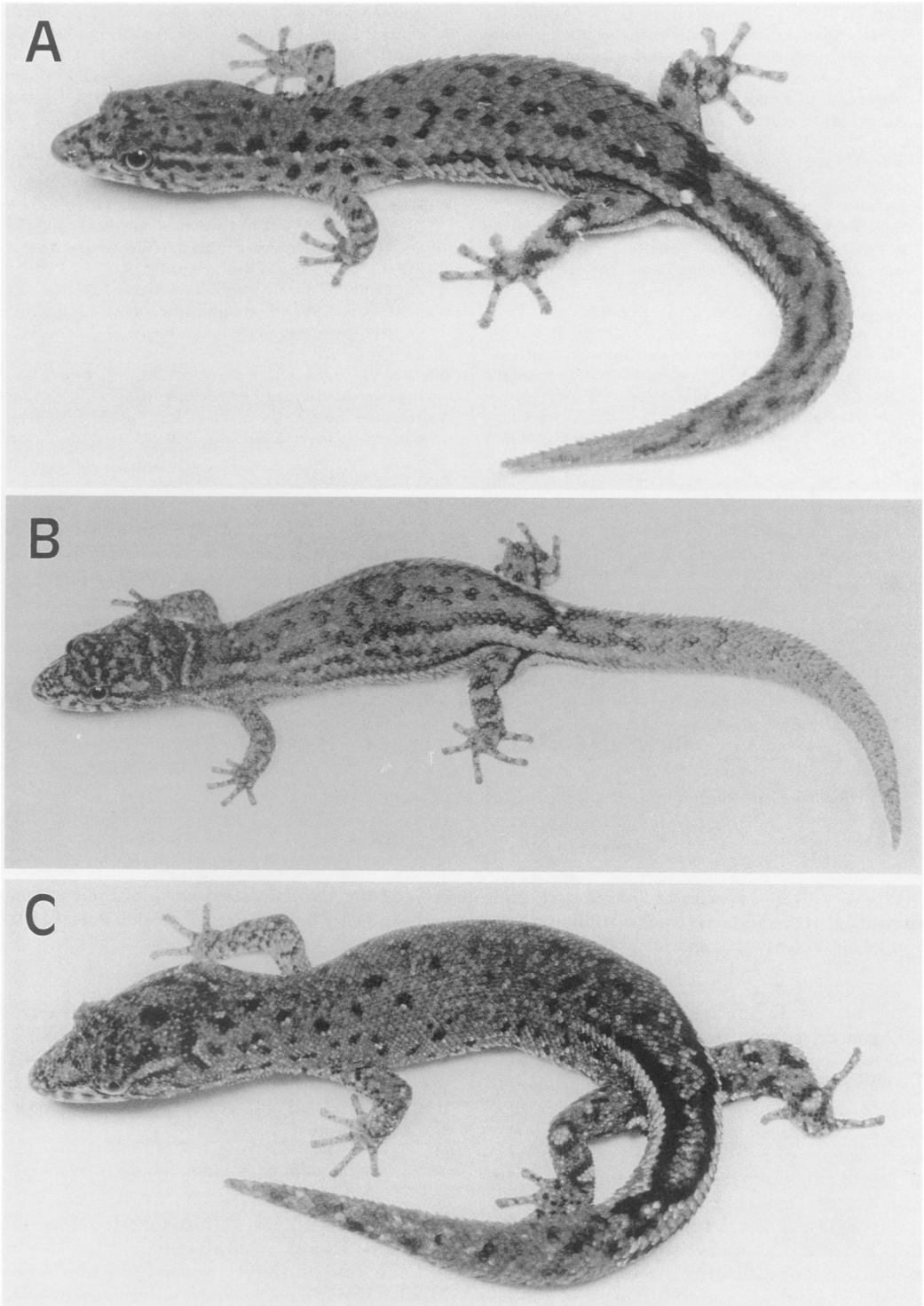


FIG. 1. Three species of *Sphaerodactylus* from the Barahona Peninsula of Hispaniola: (A) *S. plummeri* (21 mm SVL; Dominican Republic, Pedernales, 10.6 km N Cabo Rojo); (B) *S. streptophorus* (22 mm SVL; Dominican Republic, Pedernales, Hoyo de Pelempito); and (C) *S. armstrongi* (24 mm SVL; Dominican Republic, Pedernales, 44.6 km N Cabo Rojo).

Diagnosis.—A small, short, but acute-snouted species of *Sphaerodactylus* (18–22 mm SVL, snout-vent length) with large, flattened, keeled, imbricate dorsal body scales and unusually large cobblelike (broad, rounded, and raised) snout scales (snout averages 36% head length); with only two toe pad bracket scales; a four-lined head pattern, with the two postocular lines extending onto the body as dorsolateral and mid-flank stripes (indistinct in most specimens); and with minute precapular ocelli in line with the head stripes.

Sphaerodactylus plummeri is unique in several respects: it has the lowest dorsal and midbody scale counts of any Hispaniolan species (among the lowest of any species); the snout scales are the largest (with the exception of *S. elasmorhynchus*); it has only two toe pad bracket scales (only one other species of *Sphaerodactylus* that we have examined has fewer than three); and females undergo ontogenetic head pattern modification in which the striped pattern becomes broken into spots.

Sphaerodactylus streptophorus (Fig. 1B) is a small, dark or dull-colored species and superficially resembles *S. plummeri*; however, it is larger than *S. plummeri* with a maximum SVL of 26 mm. The two differ in details of coloration: *S. s. streptophorus*, the Barahona Peninsula subspecies, has a pale transverse collar across the neck, no dorsolateral lines, and much smaller body scales (midbody scales 41–62; Thomas and Schwartz, 1983); it also has smaller snout scales and three toe pad bracket scales. A larger species, *S. armstrongi* (Fig. 1C), occurs in the upper elevations of the Sierra de Baoruco and Massif de la Selle (it occurs at higher elevations on the Alcoa road). Although it is dark like *S. plummeri*, *S. armstrongi* usually has Y or V-shaped markings on the head, various ocelli on the body, and has a much greater number of midbody scales (49–75; Thomas and Schwartz, 1983). *Sphaerodactylus randi* also is a larger species with smaller scales; its basic pattern involves the trilineate head pattern (as in *difficilis*), a dark scapular patch, and a pair of ocelli. We compare *S. plummeri* with these species because they occur in the area and might be confused with *plummeri* on superficial examination.

Description.—Size of adults 18 to 22 mm SVL ($\bar{x} = 20.1 \pm 0.52$ [SE], $n = 8$). Snout short and acute; rostral broadly rounded (wider than long), with a semicircular depressed flat area set off by a sharply-defined but low ridge before the peripheral declivity; median cleft extends to ridge; ridge extends onto supranasals; one large, usually subpentagonal internasal, barely indenting rostral, flanked by short, pentagonal but roughly triangular supranasals. Upper postnasal short, oblong, oriented dorsoposteriorly;

lower postnasal, small, granular. First upper labial roughly pentagonal, emarginate on anterior half of upper edge, high point about midway along scale; second and third (to mideye) narrow rectangles. Eyelid spine well developed; pupils round to oval with narrow pale edge. Mental subpentagonal (rounded anteriorly) with two large subpentagonal or subhexagonal postmentals followed by a short zone of large flat, smooth, cobblelike gulars quickly changing to smaller, more granular but imbricate scales on throat (gulars between the ear openings 22–38, $\bar{x} = 33.8 \pm 1.53$, $n = 10$); becoming flattened and imbricate on posterior throat; a few anterior gulars weakly keeled, the rest smooth. First lower labial subrectangular, somewhat wider anteriorly, the second subtriangular, and the third small and narrow (roughly pentagonal). Snout scales very large (broad, rounded, swollen), smooth (weak keels on upper snout), and slightly imbricate (scales between 1st interlabial sutures 7–10, $\bar{x} = 9.1 \pm 0.38$, $n = 10$); usually with at least two enlarged snout scales, most specimens with an enlarged scale behind supranasal and upper postnasal on each side; snout scales becoming narrower between eyes, more symmetrically granular but loping upwards on top of head, more conical on neck, flattening onto trunk and becoming large, flat, imbricate, acute to slightly mucronate, and strongly keeled; no middorsal zone of granules or granular scales; dorsal scales axilla to groin 17–21 ($\bar{x} = 18.1 \pm 0.46$, $n = 10$); dorsal scales reducing in size on lower sides before transition to ventrals. Pectoral and ventral scales smooth, flat, angled to rounded, ventrals axilla to groin 22–24 ($\bar{x} = 22.4 \pm 0.36$, $n = 10$); scales around midbody 34–36 ($\bar{x} = 35.1 \pm 0.31$, $n = 10$). Unregenerated dorsal scales of tail acute, keeled, slightly swollen, flat-lying, imbricate, and verticillate; ventral caudals larger, more rounded on posterior edge, smooth and flat with midventral row enlarged. Escutcheon prominent and well developed with large central area extending onto posterior abdomen and broad extension well onto thigh (6×15 –20). Toe pad moderately expanded, wider than adjacent phalangeal segment; two toe pad bracket scales; subdigital lamellae of fourth digit 9–11 ($\bar{x} = 10.1 \pm 0.19$, $n = 10$); 10–12 single hair-bearing scale organs along free edge of dorsal scale.

Coloration.—Basic pattern (females, juveniles, and immature males), a pair of narrow, pale upper postocular stripes on each side of head becoming indistinct on body; a median pale stripe on head ending at occiput; minute postoccipital ocelli within each of three dorsal-most stripes, the median one terminating. Each upper postocular stripe proceeding beyond ocel-

lus to another minute prescapular ocellus then continuing onto trunk as indistinct dark-edged stripes with centers the same hue as the ground color. Lower edge of dorsolateral stripe more continuous and forming dark dorsal margin of midlateral stripe on each side; lower postocular stripe continues past forelimb as midlateral stripe. Dorsolateral dark stripes (upper edges of dorsolateral stripes) crossing sacral region, somewhat intensified; a bridge of black pigment between the two stripes just past sacrum with two tiny included ocelli in-line with stripes (well developed in USNM 317892); stripes continue onto tail (both upper and lower stripes). Forelimbs with dark brown marbling; a small elbow ocellus often present; hindlimbs with prominent knee ocelli, other contrasting marbling, and a prominent, dark posterior thigh line continuous with dark ventrolateral tail line. Throats patterned with a series of about three posteriorly curved dark lines converging from each side of jaw. Two adult females (USNM 317896, 317899), one egg-bearing, with head pattern obscured by ontogenetic spotting also with throat spotting obscuring lines. In life, ground color brown to gray brown with dark brown to black markings. Two males with uniformly dull yellow heads in life; bodies with scattered flecking, lines weakly indicated or absent; throats unpatterned or with only faint indications of lines; venters hazily stippled with pigment.

Remarks.—Because of its unusual scalation, *S. plummeri* is not easily placed in any known species group of *Sphaerodactylus*. However, it shares some pattern features with species of the *difficilis* complex (e.g., the lineate dorsal head pattern), and therefore it might be placed, tentatively, in the large *notatus* group of the *argus* series (Hass, 1991).

The specimens of *S. plummeri* were taken from dead agaves and other vegetation litter that had accumulated at the base of road cuts along the Alcoa road in very xerophytic habitat. The locality lies on a large limestone escarpment located in the west-central portion of the Barahona Peninsula which receives <750 mm of annual rainfall (de la Fuente Garcia, 1975). It is primarily exposed and highly dissected limestone with xerophytic vegetation growing directly on rock.

Sphaerodactylus streptophorus and *S. thompsoni* have been taken elsewhere on the Barahona Peninsula in xeric habitats (Schwartz and Hen-

derson, 1991). Both species occur syntopically at a nearby locality to the west, and we recently collected both species in the Hoyo de Pelem-pito, a large topographic depression just south of the Sierra de Bahoruco (in Pedernales Province) and northeast of the type-locality of *S. plummeri*. *Sphaerodactylus streptophorus* also is known from localities on the east coast of the Peninsula, near Juancho. However, no species of *Sphaerodactylus* is known from the central portion of the limestone escarpment northeast of Cabo Rojo. It is possible that *S. plummeri* has evolved in situ on the limestone escarpment and is distributed throughout that formation. If that is the case, then it is remarkable that this species has not been taken previously along the Alcoa Road or the Oviedo-Pedernales Road, both of which have been frequented by collectors in the past.

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