

NUMBER 239
FEBRUARY 28, 1973

A NEW SPECIES OF THE GENUS
LEPIDOPHYMA (REPTILIA:
XANTUSIIDAE) FROM GUATEMALA

By ROBERT L. BEZY

CONTRIBUTIONS IN SCIENCE



NATURAL HISTORY MUSEUM • LOS ANGELES COUNTY

A NEW SPECIES OF THE GENUS *LEPIDOPHYMA*
(REPTILIA: XANTUSIIDAE) FROM GUATEMALA¹

By ROBERT L. BEZY²

ABSTRACT: A new species, *Lepidophyma mayae*, is described from eight specimens from the El Petén-Alta Verapaz lowlands of Guatemala. At its type locality, *L. mayae* is sympatric with *L. flavimaculatum*, from which it differs in several aspects of scalation and color pattern.

Studies of the systematics of the lizards of the genus *Lepidophyma* indicate that eight specimens from the El Petén-Alta Verapaz lowlands of Guatemala represent a previously unnamed species. This new species is described here in advance of the completion of a review of the genus.

I thank Dr. William E. Duellman for loan of specimens from the Museum of Natural History, University of Kansas (KU), and for generously making available field notes and a color slide of the type material. I am also grateful to Miss Alice G. C. Grandison and Dr. E. N. Arnold of the British Museum (Natural History), London, Dr. Jean Guibé of the Museum National d'Histoire Naturelle, Paris, and Dr. Eugen Kramer of the Muséum d'Histoire naturelle, Basle, (MHNH) for permission to examine specimens in their care and for the hospitality they extended during my visit to their respective institutions. I thank Dr. and Mrs. Jerry Nilsson for the financial support which enabled me to travel to these museums.

Lepidophyma mayae, new species

Figures 1-3

Holotype.—KU 59554, an adult female collected near Chinajá, elev. 140 m, Depto. Alta Verapaz, Guatemala by William E. Duellman and John Wellman on 24 June 1960.

Paratypes.—KU 55863, 59556, 59558-9; LACM 75194-5 (formerly KU 59553 and 59557, respectively) all topotypes; MHNH 3751 from "Vera Paz," Guatemala.

Diagnosis.—*Lepidophyma mayae* differs from *L. gaigeae*, *radula*, *dontomasi*, and *sylvaticum* (all included by Smith, 1942, in the genus *Gaigeia*) in having conspicuously enlarged tail whorls separated dorsally by 4-5 interwhorls (vs. poorly differentiated tail whorls separated dorsally by 2-3 interwhorls); from

¹REVIEW COMMITTEE FOR THIS CONTRIBUTION

Roy W. McDiarmid

John R. Meyer

John W. Wright

²Associate Curator of Herpetology, Natural History Museum of Los Angeles County, Los Angeles, California 90007

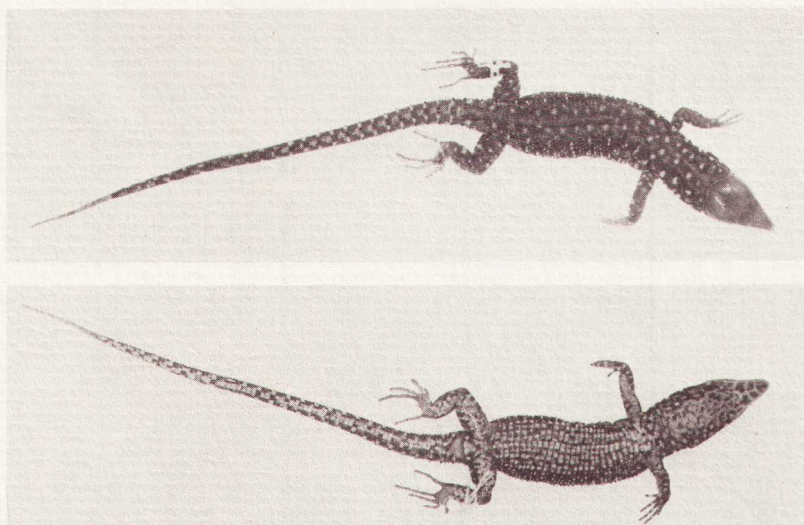


FIGURE 1. Dorsal and ventral views of the holotype (KU 59554) of *Lepidophyma mayae*, new species.

L. smithii and *occulor* in having 29-35 (vs. 16-27) total femoral pores³ and 33-46 (vs. 16-24) tubercle rows along side of the body between axilla and groin; from *L. micropholis* in having 4.0-5.0 (vs. 5.5-7.0) dorsal scales between paravertebral rows of tubercles and 38-43 (vs. 57-68) gulars between the fold and the second pair of infralabials; from *L. tuxtlae* in having 29-35 (vs. 20-29) femoral pores, 35-38 (vs. 38-42) ventrals, including preanals, and 1-2 (vs. 4-9) temporals between seventh supralabial and postocular, total of both sides; from *L. pajapanensis* in having 1-2 (vs. 6-10) temporals and 23-25 (vs. 26-30) fourth toe lamellae; from *L. flavimaculatum* in having 33-46 (vs. 25-35 for all examined, 25-29 for specimens from Guatemala) tubercle rows.

Description of Holotype.—Measurements (in mm): snout-vent length, 64.4; tail length, 92.1 (of which 17.6 is regenerated); head length, 15.3; head width, 9.1; head depth, 7.0; eye diameter, 2.6; fourth toe length, 8.3.

Scales on dorsal surface of head.—Rostral, pentagonal, broader than high, scarcely visible from above; nasals, rectangular, meeting on a short middorsal suture; frontonasal, octagonal, in contact with the pentagonal median which separates the pentagonal prefrontals; frontals, hexagonal, meeting on a long middorsal suture, and contacting the median and prefrontals anteriorly, and the parietal and interparietals posteriorly; parietals, pentagonal, separated by an elongate, hexagonal interparietal in the posterior third of which the parietal

³Definitions of meristic characters given here are followed throughout the paper and terminology for scalation is largely that of Savage (1963).

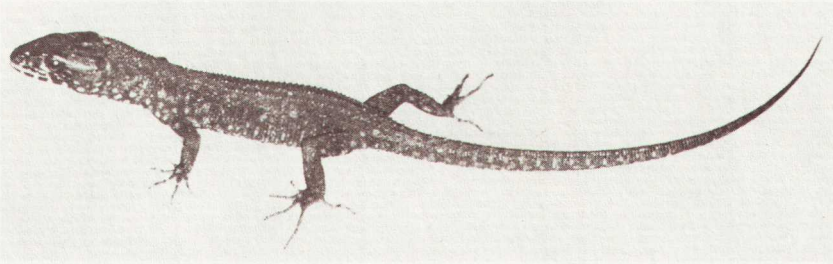


FIGURE 2. Paratype of *Lepidophyma mayae*, new species (KU 55863, snout-vent length, 50 mm). From a Kodachrome slide taken by William E. Duellman.

"eye" is faintly visible; postparietals, hexagonal, meeting on a long middorsal suture, but lacking anomalous postparietal sutures.

Scales on right lateral surface of head.—Rostral followed by seven supralabials; first, fifth and sixth supralabials higher than the others; fifth supralabial entering the orbit; nostril bordered by first supralabial, nasal, and postnasal; anterior loreal higher than postnasal and separating it from the prefrontal; posterior loreal large, only slightly longer than high; most of the scales of the orbit indistinct; upper preocular, high and narrow; lower preocular, rectangular, and in contact with upper preocular, posterior loreal, and fourth and fifth supralabials; pupil, round; supraoculars, long, narrow, and indistinct; two postoculars, both rectangular, except that the upper one has a long thin dorsal extension between the orbit and the upper first temporals; lower first temporal (=enlarged pretympenic) approximately equal in size to the upper first temporal; a large second temporal, in contact with the third temporal, postparietal, parietal, upper first temporal, and 11 pretympenic scales; third temporal, one-third the size of the upper second temporal; seven enlarged auriculars along the anterior ear margin; 65 granular pretympenics in the area anterior to the ear opening, postero-ventral to the enlarged temporals, and dorsal to the last supralabial and the angle of the jaw.

Scales on ventral surface of head.—Mental followed by four pairs of enlarged infralabials, the first two pairs larger and each with a midventral suture; third infralabials smaller and separated by the granular gulars (pregulars); the fourth infralabials, one-fourth the size of the third and followed on each side by five granular infralabials; 36 granular gulars (includes pregulars) between the ears, 42 between gular fold and midventral contact of second infralabials.

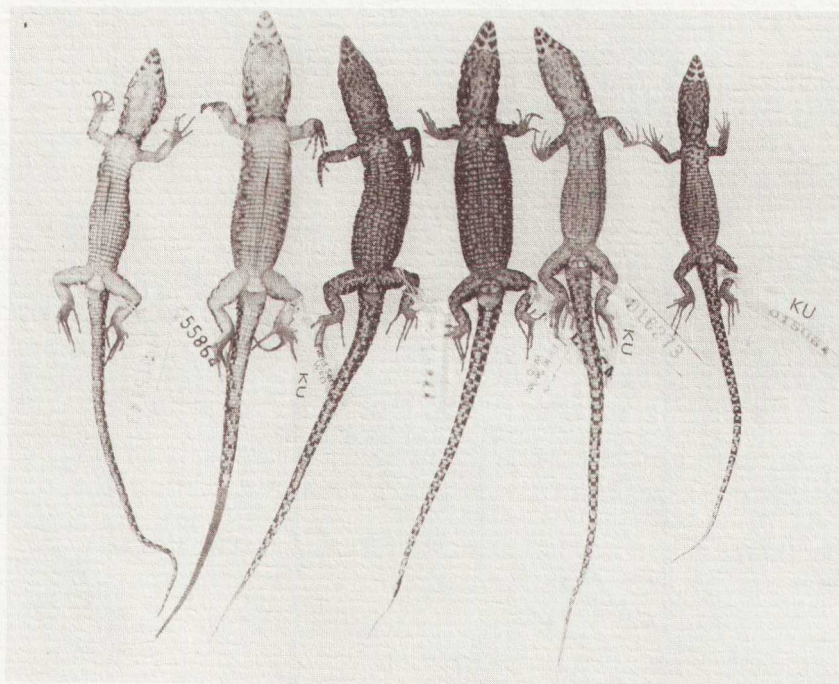
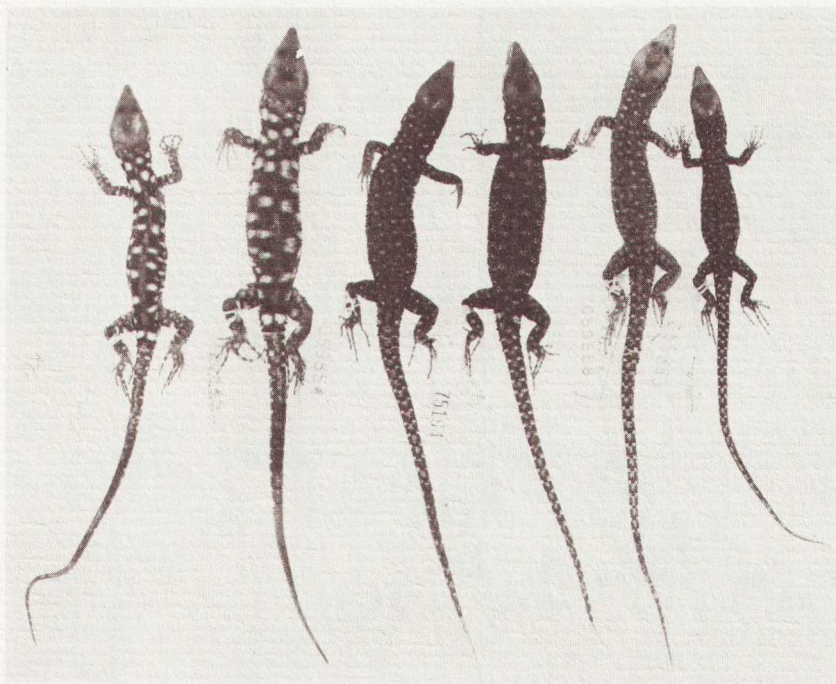
Scales on body.—Two rows of enlarged, trihedral, paravertebral tubercles, separated by five rows of middorsal granular scales; scales of paravertebral rows heterogeneous with some of the enlarged trihedral tubercles separated by smaller more granular scales; 32 enlarged tubercles in right paravertebral row from above axilla to above groin; row of scales immediately dorsal to each of the two paravertebral rows, slightly enlarged (one to two times the size of other middorsal granules) and weakly keeled; 188 middorsal granular scales between

occiput and rump; two to three rows of granular scales bordering the paravertebrals laterally, and separating them from the enlarged, nearly homogeneous, trihedral tubercles that cover the sides of the body in the area above the ventrals and between the axilla and groin; 40 vertical rows of enlarged tubercles along the right side of the body between axilla and groin; ten longitudinal rows of large, square, ventral plates at midbody; outer row of ventrals, smallest and only 15 scales long; 38 transverse rows of ventral scales (including preanals) between gular fold and vent.

Scales on appendages.—Forelimbs covered by subequal, small, conical tubercles; fourth finger with 18 undivided subdigital lamellae; dorsal surface of hind limb with enlarged, trihedral tubercles, interspaced with smaller, more granular scales; ventral surface of hind limb with small, smooth scales; 17 femoral pores on each leg; the femoral pores are "undeveloped" and consist of shallow pits with little evidence of glandular secretion; fourth toe with 25 subdigital lamellae of which eight are entire (i.e., lack a midventral suture); tail with rings of enlarged trihedral tubercles (whorls) separated by rings of smaller, weakly trihedral scales (interwhorls); four interwhorls dorsally (between each whorl), with two incomplete and two complete across midventral line.

Color and color pattern.—Dorsal surface of head, dark brown, darkest in the interorbital and parietal area; tan parietal spot on posterior two thirds of interparietal; labials, dark brown to black, sutures marked with pale yellow-tan; gular region mottled with pale yellow-tan, dark brown, and tan; dorsum of body obscurely mottled with dark brown to black and lighter tan-brown; a row of small (ca. three scales in diameter) pale tan, round spots separated by larger (ca. five scales long) dark brown to black rectangular spots, along outer (lateral) side of row of paravertebral tubercles; side of body, dark brown with many small (ca. two scales) pale, dirty yellow flecks, becoming more numerous nearer the venter; venter, pale yellow-tan with numerous small dark brown spots; tail with a checkered pattern due to the alternation of the light and dark spots on the whorls with those on the interwhorls; light spots on the interwhorls, nearly continuous on middorsal and midventral lines.

Variation.—The hypodigm (1♂, 4♀, 3 juveniles) of *L. mayae* varies as follows: femoral pores, 29 (32.6 ± 0.8) 35; tubercle rows, axilla to groin, 33 (38.3 ± 1.3) 46; scales between paravertebral tubercle rows, 4 (4.2 ± 0.1) 5; dorsal caudal interwhorls, 4 (4.1 ± 0.1) 5; ventral caudal interwhorls 2 (2.1 ± 0.1) 3; median prefrontal present in all; temporals, 1 (1.9 ± 0.1) 2; gulars, 38 (40.6 ± 1.0) 43; middorsal scales, occiput to rump, 162 (170.0 ± 3.4) 188; large paravertebral tubercles (right row) from above axilla to above groin, 21 (28.4 ± 2.2) 42; ventrals, 35 (36.3 ± 0.4) 38; fourth toe lamellae, 23 (23.6 ± 0.3) 25; divided fourth toe lamellae, 10 (12.9 ± 0.7) 16. The color patterns of the paratypes are similar to that of the holotype (Fig. 3). Duellman (field notes, 1960) recorded that in life KU 55863 had dull brown spots, lips barred with cream, and a dull reddish brown iris. The sex ratio of the type series of *L. mayae* was published earlier under "species novum" (Bezy 1972:20).



Distribution and Ecology.—*Lepidophyma mayae* is presently known only from the type locality and "Vera Paz," Guatemala. Duellman (1963) published descriptions and photographs of the rain forest at Chinajá and notes on the habitat, activity, color patterns, and sizes of the specimens of *Lepidophyma* collected there. Duellman (field notes, 1960) recorded that all seven specimens of *L. mayae* collected were found in the forest; two were active by day, three were taken under logs, and two under rocks.

The specimen from "Vera Paz" was collected by Gustav Bernoulli (Müller 1878a) and may be from either the lowlands (probably between Chisec and Cobán) or the highlands (probably Cobán; see Müller 1878b and Stuart 1948:9).

Etymology.—The species is named for the Maya of El Petén.

Discussion.—Nearly a century ago Müller (1878a) called attention to a specimen of an unknown species of *Lepidophyma* from "Vera Paz," Guatemala, pointing out its differences from the specimens of *L. smithii* for which he had earlier (1877) inadvertently published his manuscript name *Akleistops guatemalensis*. In 1971 I visited Basle to examine this specimen (MHN 3751 from "Vera Paz") and the "type series" of *A. guatemalensis* (MHN 3748-50, 3752, 8039-40 from Mazatenango). Comparisons with data from 570 specimens (including all holotypes) of all nominal taxa of the genus *Lepidophyma* indicated that: (1) *Akleistops guatemalensis* Müller (1877) is a "synonym" of *Lepidophyma smithii* Bocourt (1876) and (2) the specimen from "Vera Paz" (MHN 3751) represents *L. mayae*, the species described in the present paper.

Duellman (1963) reported a series of *Lepidophyma f. flavimaculatum* collected at Chinajá and 15 km NW Chinajá near the Petén-Alta Verapaz border in Guatemala, noting that there was considerable variation in color pattern among the specimens included. Examination of this series (Fig. 3) suggested to me that two species are present. The two specimens from 15 km NW Chinajá (KU 55864 and 59552) and one from Chinajá (KU 59555) are assignable to *L. flavimaculatum*, while seven from Chinajá (KU 55863, 59554, 59556, 59558-59; LACM 75194-95) represent *L. mayae*. The specimens of *L. mayae* were initially segregated from those of *L. flavimaculatum* by their more numerous lateral tubercles (33-46 vs. 26-27) arranged in less discrete rows. When thus segregated, the *L. mayae* also differ from the *L. flavimaculatum* of this series in having fewer femoral pores (30-35 vs. 38-44), temporals (1-2 vs. 6-7), gulars (38-43 vs. 44-49), fourth toe lamellae (23-25 vs. 27-28), and a less distinctly spotted dorsum and a more punctate venter (Fig. 3).

Of the other nine species of the genus, *L. mayae* is most similar to *tuxtlae*, *pajapanensis*, and *flavimaculatum*. The question of whether or not *L. mayae*

←

FIGURE 3. Dorsal and ventral views of a series of *Lepidophyma flavimaculatum* (two specimens on the left) and *L. mayae*, new species (four specimens on the right). From left to right: KU 55864 (from 15 km NW Chinajá, El Petén, Guatemala); KU 59555, 59554; LACM 75194; KU 59558, 55863 (all from Chinajá, Alta Verapaz, Guatemala).

should be considered specifically distinct from all three of these is greatly simplified by the fact that it is sympatric with *L. flavimaculatum* to which it is most similar (see *Diagnosis*, above). My decision to consider it specifically distinct from the allopatric *L. tuxtlae* and *L. pajapanensis* is somewhat more arbitrary, made after consideration of (1) the morphological differences between known pairs of sympatric species (*L. tuxtlae* and *pajapanensis* in Veracruz, *L. tuxtlae* and *flavimaculatum* in Chiapas, *L. gaigeae* and *flavimaculatum* in Querétaro, and *L. flavimaculatum* and *mayae* in Guatemala) and (2) the geographical variation in the wide-ranging species, *L. smithii* and *L. flavimaculatum*.

RESUMEN

Una nueva especie es descrita de ocho ejemplos de las tierras bajas en El Petén y Alta Verapaz, Guatemala. A la localidad típica, *L. mayae* es simpátrico con *L. flavimaculatum*, del cual se distingue por escamación y coloración.

LITERATURE CITED

- BEZY R. L. 1972. Karyotypic variation and evolution of the lizards in the family Xantusiidae. *Contrib. Sci.* 227:1-29.
- BOCOURT, M. 1876. Note sur quelques reptiles de l'Isthme de Tehuantepec (Mexique) donnés par M. Sumichrast au Muséum. *J. de Zool., Paris* 5:386-411.
- DUELLMAN, W. E. 1963. Amphibians and reptiles of the rainforests of southern El Petén, Guatemala. *Univ. Kans. Publ. Mus. Nat. Hist.* 15:205-249.
- MÜLLER, F. 1877. Mittheilungen aus der herpetologischen Sammlung des Basler Museums, I. Ueber einige seltene und neue Reptilien aus Guatémala. *Verh. Naturforsch. Ges. Basel* 6:390-411.
- . 1878a. Katalog der im Museum und Universitätskabinet zu Basel aufgestellten Amphibien und Reptilien nebst Anmerkungen. *Ibid.*, 6:559-709.
- . 1878b. Dr. Gustav Bernoulli. Gestorben den 18. Mai 1878 in S. Francisco. *Ibid.*, 6:710-736.
- SAVAGE, J. M. 1963. Studies on the lizard family Xantusiidae IV. The genera. *Los Angeles Co. Mus., Contrib. Sci.* 71:1-38.
- SMITH, H. M. 1942. Mexican herpetological miscellany. *Proc. U.S. Nat. Mus.* 92:349-395.
- STUART, L. C. 1948. The amphibians and reptiles of Alta Verapaz Guatemala. *Misc. Publ. Mus. Zool. Univ. Mich.* 69:1-109.

Accepted for publication September 26, 1972