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A new dune-dwelling lizard of the genus *Leiocephalus* (Iguania, Leiocephalidae) from the Dominican Republic

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Abstract

We describe a new species of *Leiocephalus* from the coastal dunes of Bahía de las Calderas in the southwestern Dominican Republic. In external morphology, *Leiocephalus sixtoi* **sp. nov.** is most similar to *L. schreibersii* and *L. inaguae*. *Leiocephalus sixtoi* differs from *L. inaguae* in having a U-shaped bony parietal table (vs. V-shaped in *L. inaguae*), 3 or 4 enlarged postcloacal scales in males (vs. 2 in *L. inaguae*), most scales on snout posterior to internasal scales rugose to keeled scales (vs. smooth in *L. inaguae*), and a patternless throat in males, spots on the throat in females (vs. throat with dark streaks and bars in males and females of L. inaguae). *Leiocephalus sixtoi* differs from *L. schreibersii* in having the scales of the lateral fold only slightly smaller than adjacent scales (vs. scales of lateral fold distinctly smaller than adjacent scales), having prominent caudal crest scales in adult males (vs. caudal crest scales of moderate size, even in very large males in *L. schreibersii*), a pattern of dark gray bars on a grayish brown background in the region above the lateral body fold (vs. dense turquoise blue mottling with heavy suffusion of red pigment in *L. schreibersii*), a darker dorsal ground color (vs. paler in *L. schreibersii*), and a red iris in adult males (vs. pale grayish blue in adult male *L. schreibersii*). *Leiocephalus sixtoi* differs further from *L. schreibersii* in several osteological characters as follows: in *L. sixtoi* the nasal process of the premaxilla reaches to mid-level of the bony external nares (vs. to level of posterior margin of the bony external nares in *L. schreibersii*), lacking a constriction at the base of the nasal process of the premaxilla (vs. such a constriction present in *L. schreibersii*), and having a reduced nasal-prefrontal contact leaving the nasal processes of the frontal bone exposed (vs. nasal and prefrontal bones contact one another, thereby obscuring the nasal processes of the frontal bone in *L. schreibersii*). We designate SMF 26228, an adult male from Saint Marc, Province Artibonite, Haiti, as the neotype of *L. schreibersii*.

Key words: Caribbean, Dune habitat, Hispaniola, taxonomy, West Indies

Introduction

The genus *Leiocephalus* contains 22 extant species distributed across Cuba (6 species), Hispaniola (11 species), the Bahamas Bank (6 species), and the Cayman Islands (1 species) (Hedges 2016). Three additional species are known to have become extinct in recent times, one of them known only from skeletal remains (i.e., *L. eremitus* (Cope 1868) from Navassa Island, *L. herminieri* Duméril & Bibron 1837 from Martinique, and *L. cuneus* Etheridge 1964 from the Leeward Islands, Lesser Antilles). All of these species, except *L. carinatus* Gray 1827, which occurs in Cuba, the Bahamas Bank, and the Cayman Islands, are endemic to their respective islands or island banks. Within their island banks, only a few of these species are widely distributed, while the remaining exhibit even higher degrees of endemism, being restricted to specific regions within one island bank. This phenomenon is especially noticeable in Hispaniola, where only two species of *Leiocephalus* have relatively wide distributions across the island: *L. personatus* (Cope 1863), present in most of the mesic to semi-mesic areas of the island, and *L. schreibersii* (Gravenhorst 1838), occupying most of the xeric lowlands. The latter species is known to occur as far east as Azua province, extending it's distribution to the west into the Valle de Neiba/Cul de Sac as far as Ça Ira, at the base of the Tiburon peninsula. It's range extends to the north, following the coast through most of northwestern Haiti, including Île de La Tortue, and the western portion of Valle del Cibao in the Dominican Republic.

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Throughout most of its distribution, *Leiocephalus schreibersii* shows little geographic variation with only one subspecies, *L. schreibersii nesomorus* Schwartz 1968, recognized from La Tortue Island, Haiti. For this reason, we were surprised to encounter an undescribed species related to *L. schreibersii* in proximity to other localities where *L. schreibersii* is known to occur. This locality is in the vicinity of Las Salinas, a fishing village at the Bahía de las Calderas, an area composed mostly of coastal sand dunes and xeric scrub located in the southwestern end of the Llanos de Peravia. This region is the easternmost outreach of the extensive dry forest and xeric scrub characteristic of the lowlands of southwestern Hispaniola. This habitat begins to be noticeable in the area west of the Río Nizao, which separates it from the more mesic areas of San Cristobal and Santo Domingo, and extends almost continuously into the llanos de Azua, and farther into Valle de Neiba and the Cul de Sac Plain, separated from the former only by a small series of dry hills belonging to the southernmost outreaches of the Sierra de Ocoa. This xeric-scrub is occupied by several endemic species of a xerophilic herpetofauna, that exhibit a continuous distribution that includes the area between the Cul de Sac Plain and the Llanos de Peravia. Apparently this is not the case for *L. schreibersii*, which we failed to encounter in the Llanos de Peravia. Instead, we found the new species in this area, which apparently has similar habitat preferences as *L. schreibersii*. A comparison with all known congeners confirmed our initial assumption that the Las Salinas population of *Leiocephalus* represents an undescribed species.

Materials and methods

We preserved specimens by injecting a solution of 5 ml absolute (i.e., 36%) formalin in 1 liter of 96% ethanol into the body cavity and thighs, and stored them in 70% ethanol. Whenever possible, we everted the hemipenes of males by injecting 70% ethanol into the hemipenial pockets after manually pre-everting the hemipenes. Measurements were made with digital calipers and recorded to the nearest 0.1 mm except for snout-vent length and tail length, which were measured with a ruler and recorded to the nearest 0.5 mm. Sex was determined by dissection or by noting the presence of hemipenes. Additional morphological data for all species of *Leiocephalus* with which we made comparisons were taken from Schwartz (1967, 1968), Schwartz & Henderson (1991), and Pregill (1992). We follow the terminology of Pregill (1992) for morphological characters. Abbreviations used are HL (head length), IFL (infralabials to level of mideye), IN (internasals), SAM (scales around midbody), SPL (supralabial scales to level of mideye), SVL (snout–vent length), and TL (tail length). All coordinates are in decimal degrees, WGS 1984 datum, and rounded to the fifth decimal place.

Dry skulls were prepared of three specimens of the Las Salinas population (SMF 99151, MNHNSD 23.2193, 23.2196) as well as of four individuals of *L. schreibersii* (SMF 26131–32, 26179, 26278). These skulls were examined for variation in skeletal characters.

The specimens collected from the Las Salinas population have been deposited in the Senckenberg Forschungsinstitut Frankfurt, Germany (SMF), and in the Museo Nacional de Historia Natural "Prof. Eugenio de Jesús Marcano", Santo Domingo, Dominican Republic (MNHNSD). For additional specimens examined, see the Appendix. Abbreviations for museum collections follow Sabaj Pérez (2012) except for MNHNSD. The capitalized colors and color codes (the latter in parentheses) are those of Köhler (2012).

As lines of evidence for species delimitation, we apply a phenotypic criterion (external morphology: coloration, morphometrics, and pholidosis) and a criterion for reproductive isolation (genetic distinctness as reflected in mitochondrial DNA sequence divergence). New DNA sequences of three mitochondrial gene fragments (Cytochrome b, 12S ribosomal RNA, and 16S ribosomal RNA) from 12 ingroup samples were collected and analyzed with an outgroup taxon, *Sceloporus occidentalis* (Genbank AB079242), comprising a total of 1,672 aligned sites. Genbank numbers of the new sequences are GenBank KU710285–KU710320. Alignments (MUSCLE) and best-fit model selection were performed in MEGA 6.06 (Tamura *et al*. 2013). A maximum likelihood (ML) analysis was performed using MEGA 6.06, unpartitioned, using the evolutionary model GTR + I + Γ. Gaps were treated as missing data. All parameters for the ML analyses were estimated by the program during the run. Branch support in the trees was provided by standard bootstrap analysis (2,000 replicates). A Bayesian phylogenetic analysis using MrBayes 3.2.5 (Ronquist *et al*. 2012) also was performed, also using the GTR + I + Γ model. The Bayesian analysis was set to two parallel runs for five million generations and sampled every 100 generations; each run employed three heated and one cold chain, with a temperature parameter of 0.10. The first

10% of samples were discarded as burn-in. Convergence was assessed by the standard deviation of split frequencies (< 0.01 in all cases).

Results

The results of a molecular genetic analysis based on Cyt b, 12S, and 16S sequence data demonstrate the genetic distinctness of the Las Salinas population of *Leiocephalus*. In our phylogenetic tree (Fig. 1), specimens of this population form a separate cluster, which is basal to a cluster containing individuals of *L. inaguae* and *L. schreibersii*. Examination of the available osteological material supplemented with published data (Pregill 1992) revealed obvious differences between the Las Salinas population and *L. inaguae* and *L. schreibersii*, respectively (see Diagnosis section below and Figs. 2 and 3). Furthermore, the Las Salinas population differs from *L. inaguae* and *L. schreibersii* in several scalation characters, supporting the hypothesis that they represent an undescribed species. Therefore, we provide a formal description of this new species below.

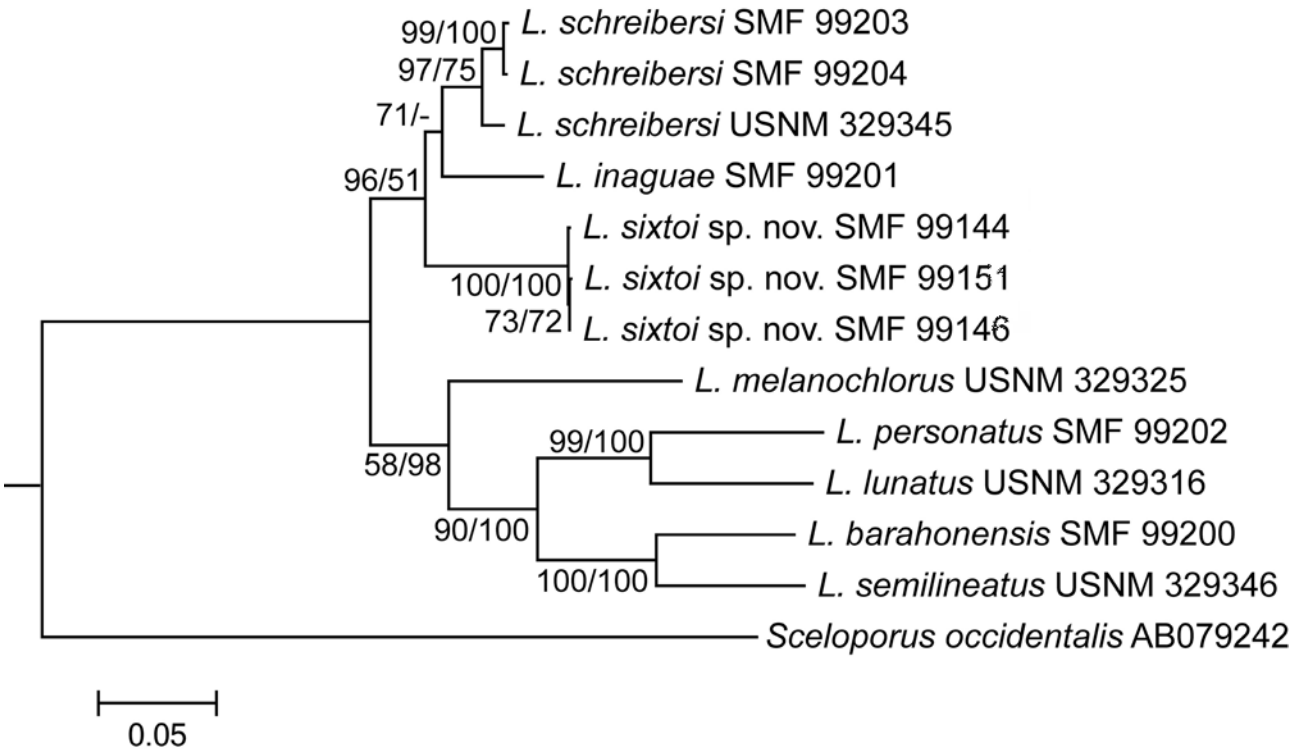

FIGURE 1. Phylogenetic tree of specimens of the genus *Leiocephalus* from a maximum-likelihood analysis of DNA sequences of three mitochondrial genes: 12S, 16S, and cytochrome b. A scale bar is indicated. The numbers at nodes are bootstrap values (left) and Bayesian posterior probabilities (right). The tree is rooted with the species *Sceloporus occidentalis* (AB079242).

Leiocephalus sixtoi sp. nov.

Figs. 2a–d, 3a,c, 4a,c, 5–8

Holotype. SMF 99143, an adult male from Dunas de Baní, near the village of Las Salinas, 18.21285°, -70.53131°, 5 m asl, Provincia de Peravia, Dominican Republic, collected 22 March 2014 by Marcos Rodriguez Bobadilla. Field tag number GK-5061.

Paratypes. SMF 99144–51, same collecting data as the holotype; MNHNSD 23.2193–202, same locality as the holotype but collected 6 July 2012 by Marcos Rodríguez, Luis M. Díaz, and Nils Navarro. MNHNSD 23.202, SMF 99145, 99147, 99150–51 are adult males, the remaining specimens are adult females.

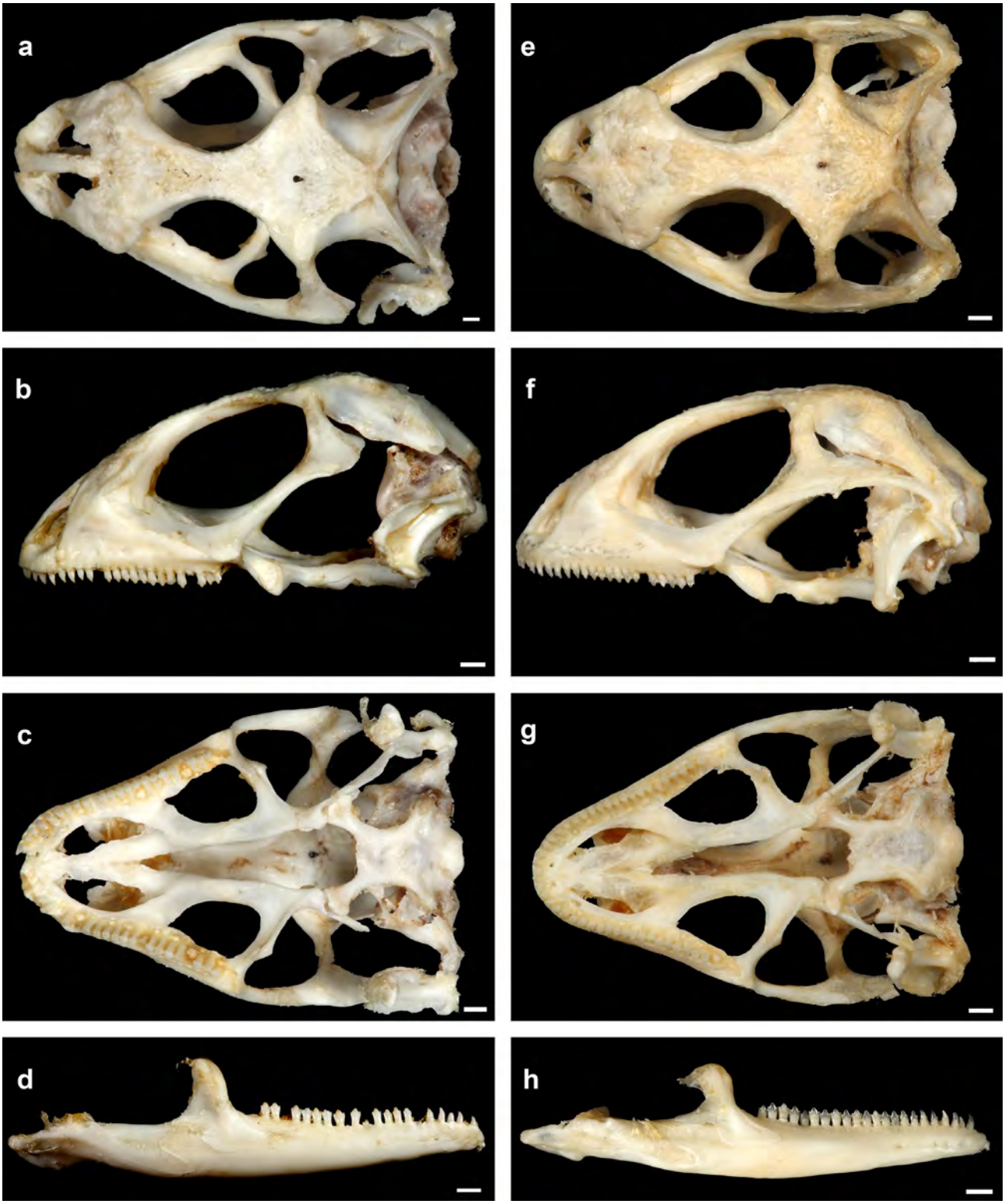

FIGURE 2. Cranial osteology of *Leiocephalus sixtoi* (SMF 99151): (a) dorsal view; (b) lateral view; (c) ventral view of upper cranium; (d) right mandible in lateral view. Cranial osteology of *Leiocephalus schreibersii* (SMF 26278): (e) dorsal view; (f) lateral view; (g) ventral view of upper cranium; (h) right mandible in lateral view. Scale bars equal 1.0 mm. Photographs by G.K.

Diagnosis. *Leiocephalus sixtoi* differs from all other congeners except *L. schreibersii, L. melanochlorus, L. psammodromus, L. inaguae,* and *L. macropus* by the presence of a lateral fold. It differs from *L. melanochlorus, L. psammodromus,* and *L. macropus* in having 3 internasals (vs. 2 in *L. melanochlorus* and *L. macropus,* and 4 in *L.*

psammodromus, respectively). It further differs from *L. melanochlorus* and *L. psammodromus* in having 4 lorilabial scales anterior to the enlarged subocular (vs. 5–6). *Leiocephalus sixtoi* differs from *L. inaguae* in having a U-shaped bony parietal table (vs. V-shaped in *L. inaguae*), 3 or 4 enlarged postcloacal scales in males (vs. 2 in *L. inaguae*), most scales on the snout posterior to the internasal scales rugose to keeled (vs. smooth in *L. inaguae*), and a patternless throat in males, spots on the throat in females (vs. throat with dark streaks and bars in males and females of *L. inaguae*). *Leiocephalus sixtoi* differs from *L. schreibersii* in having the scales of the lateral fold only slightly smaller than adjacent scales (vs. scales of lateral fold distinctly smaller than adjacent scales; Fig. 4a,b), having prominent caudal crest scales in adult males (vs. caudal crest scales of moderate size, even in very large males in *L. schreibersii*; Fig. 4c,d), a pattern of dark gray bars on a grayish brown background in the region above the lateral body fold (vs. dense turquoise blue mottling with heavy suffusion of red pigment in *L. schreibersii*), a darker dorsal ground color (vs. paler in *L. schreibersii*), and a red iris in adult males (vs. pale grayish blue in adult male *L. schreibersii*). *Leiocephalus sixtoi* differs further from *L. schreibersii* in several osteological characters as follows: in *L. sixtoi* the nasal process of the premaxilla reaches to mid-level of the bony external nares (vs. to level of posterior margin of the bony external nares in *L. schreibersii*), lacking a constriction at the base of the nasal process of the premaxilla (vs. such a constriction is present in *L. schreibersii*), and having a reduced nasal-prefrontal contact that leaves the nasal processes of the frontal bone exposed (vs. nasal and prefrontal bones in contact, thereby obscuring the nasal processes of the frontal bone in *L. schreibersii*).

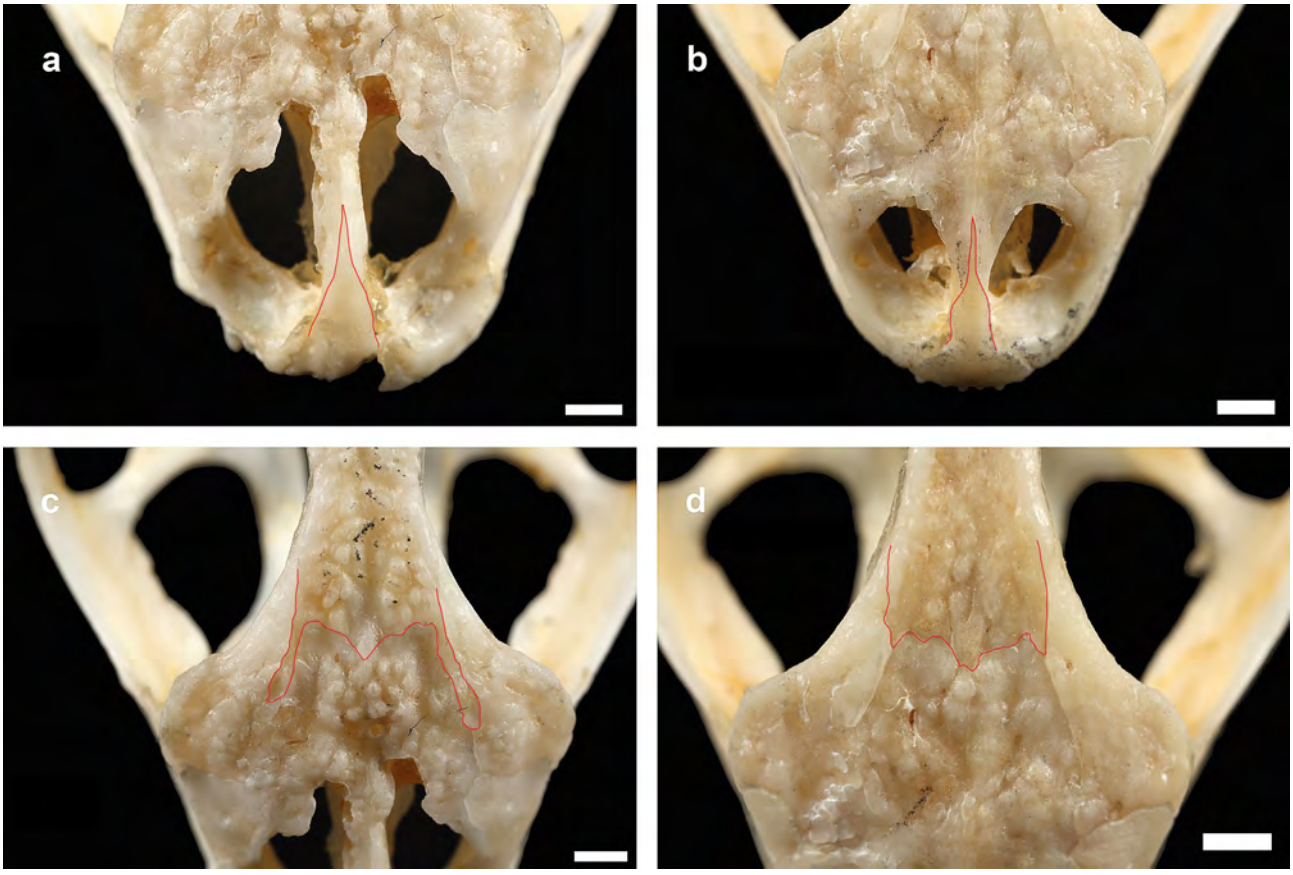

FIGURE 3. Shape and extension of the nasal process of the premaxilla in (a) *Leiocephalus sixtoi* (SMF 99151) and (b) *L. schreibersii* (SMF 26278). Shape and extension of the nasal processes of the frontal bone in (c) *L. sixtoi* (SMF 99151) and (d) *L. schreibersii* (SMF 26278). Relevant sutures highlighted with red lines. Scale bars equal 1.0 mm. Photographs by G.K.

Description of the holotype (Figs. 5 and 6). Adult male, as indicated by partly everted hemipenes; SVL 87.0 mm; tail length 125.0 mm (incomplete); tail strongly compressed in cross section, tail height 12.3 mm, tail width 5.6 mm; axilla to groin distance 38.5 mm; head length 20.0 mm, head length/SVL ratio 0.23; snout length 8.2 mm; head width 14.0 mm; head height 11.1 mm; shank length 23.1 mm, shank length/head length ratio 1.16; scales on parietal and occipital regions large, rugose to wrinkled, juxtaposed; parietal eye visible; supraoculars in a single row, multicarinate, total number 6; circumorbital row complete, separating supraoculars from supraorbital

semicircles; 3 overlapping superciliaries, posteriormost longest; canthals two; anteriormost canthal separated from nasal by a small scale; internasals 3, 2 in contact with rostral; postrostrals, much longer than wide; supralabials 4 to point level of mideye, supralabial series slightly sloping down after this point; 8 (right) / 6 (left) lorilabials in a single row; 4 (right) / 3 (left) lorilabials anterior to enlarged subocular; infralabials 5 to point below center of eye; 4 loreals in two rows; 1 preocular; single, large, elongate subocular scale, in contact with one supralabial; lateral temporals keeled, subimbricate; transverse count of gular scales 29 between tympanic openings; all gulars cycloid, smooth, imbricate, some slightly pointed; first pair of sublabials in contact with anteriormost infralabials; first pair of postmentals in contact medially; interparietal scale very elongate, subtriangular; parietal scales large, almost rectangular, inner pair almost equal to size of outer one; 2–3 scales between parietals and dorsal scales; dorsal scales of neck and body large, strongly keeled, imbricate, mucronate, keels mostly orientated longitudanally, with the vertebral scales forming a serrated crest that continues along body onto tail; lateral scales of neck somewhat heterogeneous in size and shape, mostly small, weakly keeled and subimbricate, granular at base lateral neck folds; lateral scales of body mostly strongly keeled, imbricate, mucronate, keels oriented obliquely upwards, becoming smaller and less keeled toward axilla and toward groin, respectively; scales of longitudinal fold mostly large, keeled, imbricate, micronate, except at lower base of fold where they are slightly smaller and less distinctly keeled; scales around midbody 68; vertebral crest scales from occiput to level of posterior margin of thigh 77; ventrals smooth, cycloid, imbricate, distinctly larger than dorsals; preauricular fringe present with 4–5 projecting scales; antegular, antehumeral, gular, longitudinal, postauricular, supra-auricular, and transverse antegular neck folds present; dorsal scales of forelimbs and hindlimbs keeled, mucronate, imbricate; scales on ventral surfaces of limbs smooth to slightly keeled, imbricate, cycloid to pointed; lamellae on Finger IV 15/16; lamellae on Toe IV 25/25; lateral caudal scales strongly keeled, mucronate, imbricate, dorsal caudal scales greatly enlarged, forming a high, serrated crest; ventral caudal scales in a double series of pointed scales, smooth on base of tail, becoming strongly keeled on middle and distal portions; posthumeral mite pocket present as 2–3 vertical folds [Type 1 of Torres-Carvajal (2007)]; postfemoral mite pocket absent; a pair of enlarged, elongate postcloacal scales present.

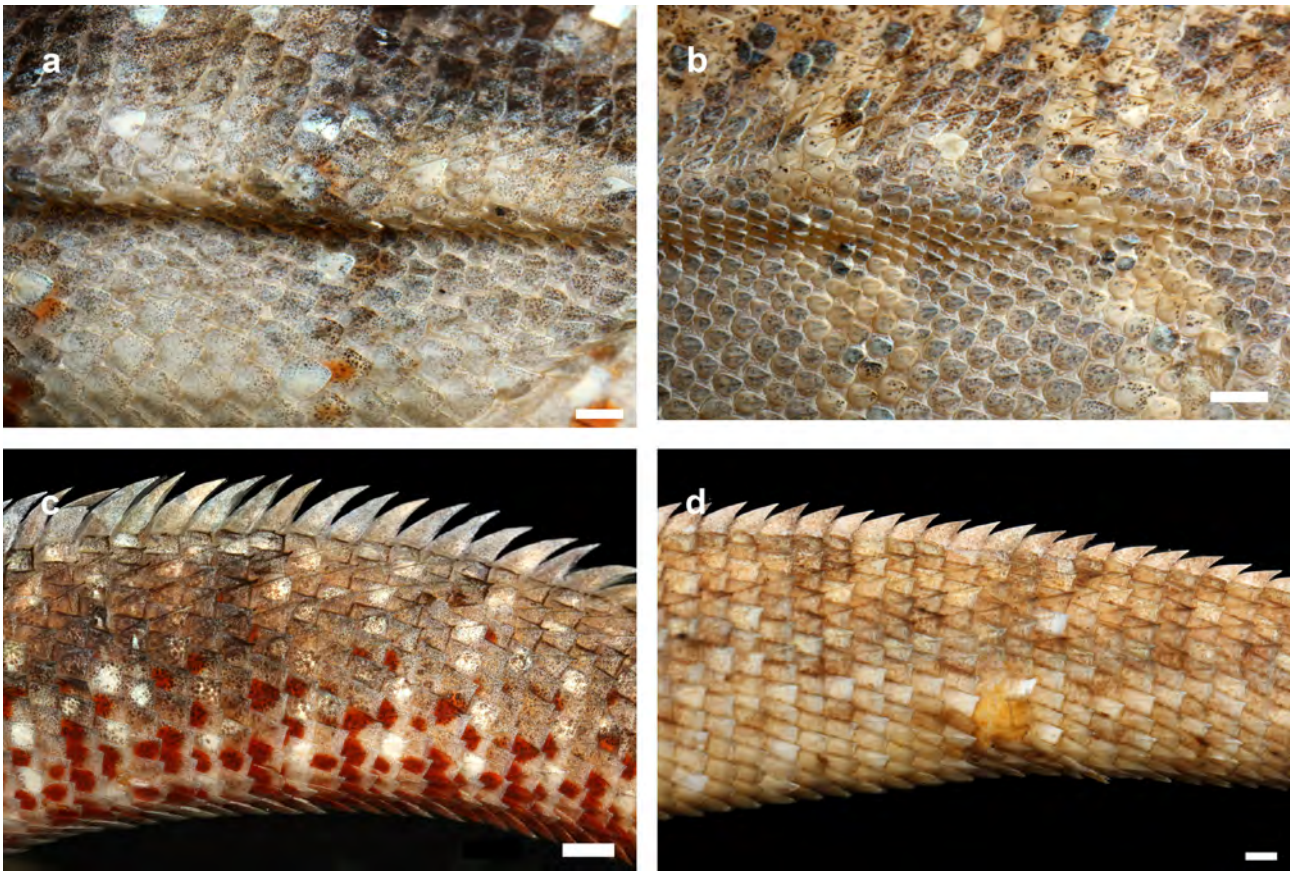

FIGURE 4. Region of the lateral fold in (a) *Leiocephalus sixtoi* (SMF 99143) and (b) *L. schreibersii* (SMF 26132). Lateral tail surface in (c) *Leiocephalus sixtoi* (SMF 99143) and (d) *L. schreibersii* (SMF 26133). Scale bars equal 1.0 mm. Photographs by G.K.

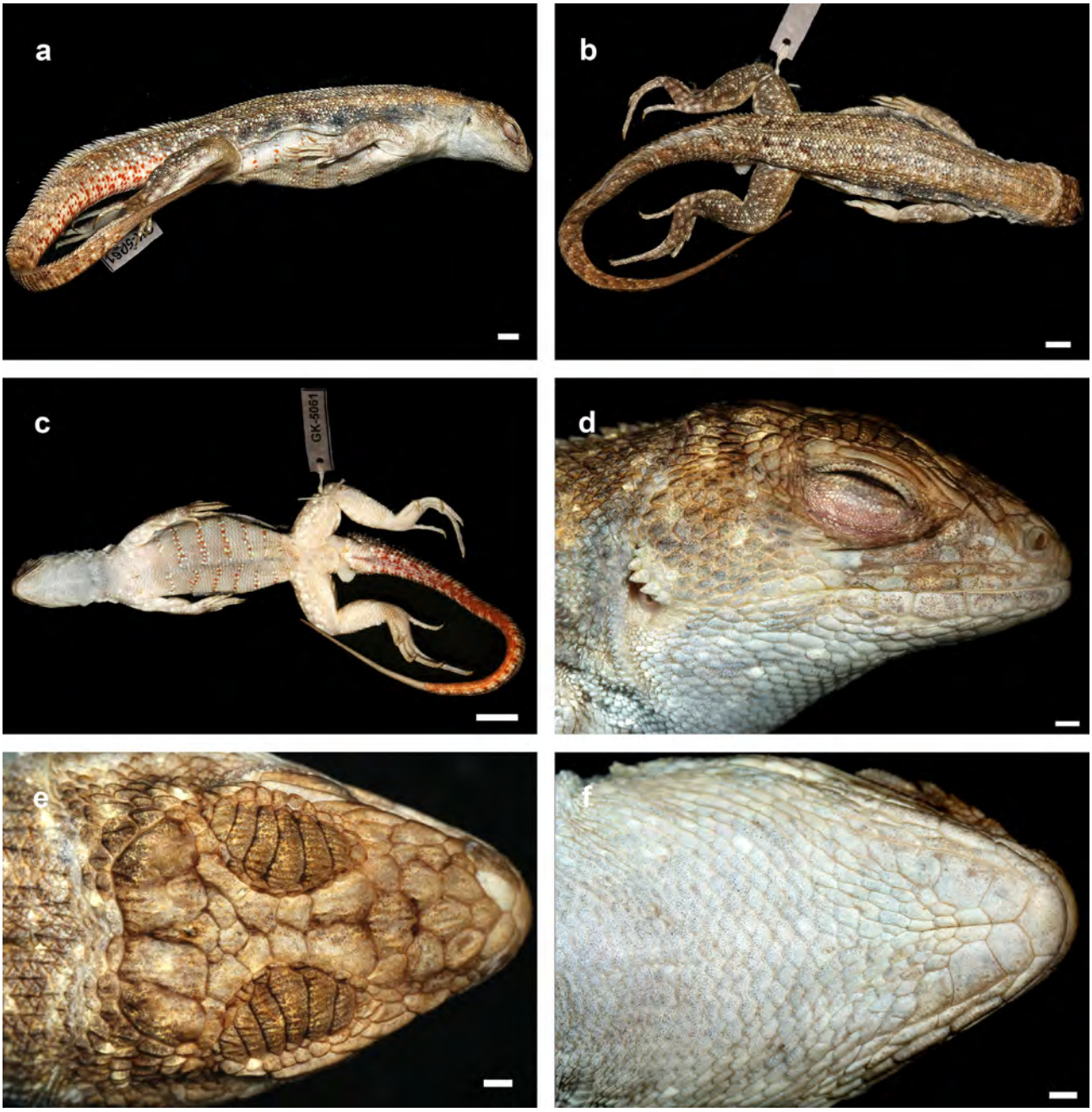

FIGURE 5. Holotype of *Leiocephalus sixtoi* (SMF 99143): (a) lateral view; (b) dorsal view; (c) ventral view; (d) lateral view of head; (e) dorsal view of head; (f) ventral view of head. Scale bars equal 5.0 mm in (a–c) and 1.0 mm in (d–f), respectively. Photographs by G.K.

Coloration in life was as follows (Fig. 7a, b): Dorsal surface of head Olive Brown (278) with Pale Cinnamon (55) suffusions; lateral surfaces of head Army Brown (46) above, grading into Straw Yellow (53) in labial regions, and with Olive Brown (278) and Greenish Glaucous (271) splotches and suffusions; ventral surface of head Smoky White (261); dorsal surface of neck Drab (19) suffused with Salmon Color (58); dorsal suface of body Drab (19) with Raw Umber (22) longitudinal dorsolateral bands with Creme Color (12) speckles; lateral surfaces of body with Sepia (286) transverse bands and Light Bluish Gray (288) speckles; ventral surface of body Smoke Gray (266) with transverse bands composed of Medium Paris White (140) and Pratt's Rufous (72) scales; dorsal surfaces of limbs Drab (19) with Olive Horn Color (16) speckles; dorsal surface of tail Drab (19) with Light Bluish Gray (288) and Creme Color (12) speckles; caudal crest scales Light Bluish Gray (288) with Glaucous (289) suffusions; ventral surface of tail Medium Fawn Color (257), heavily suffused with Carmine (64); iris Orange-Rufous (56).

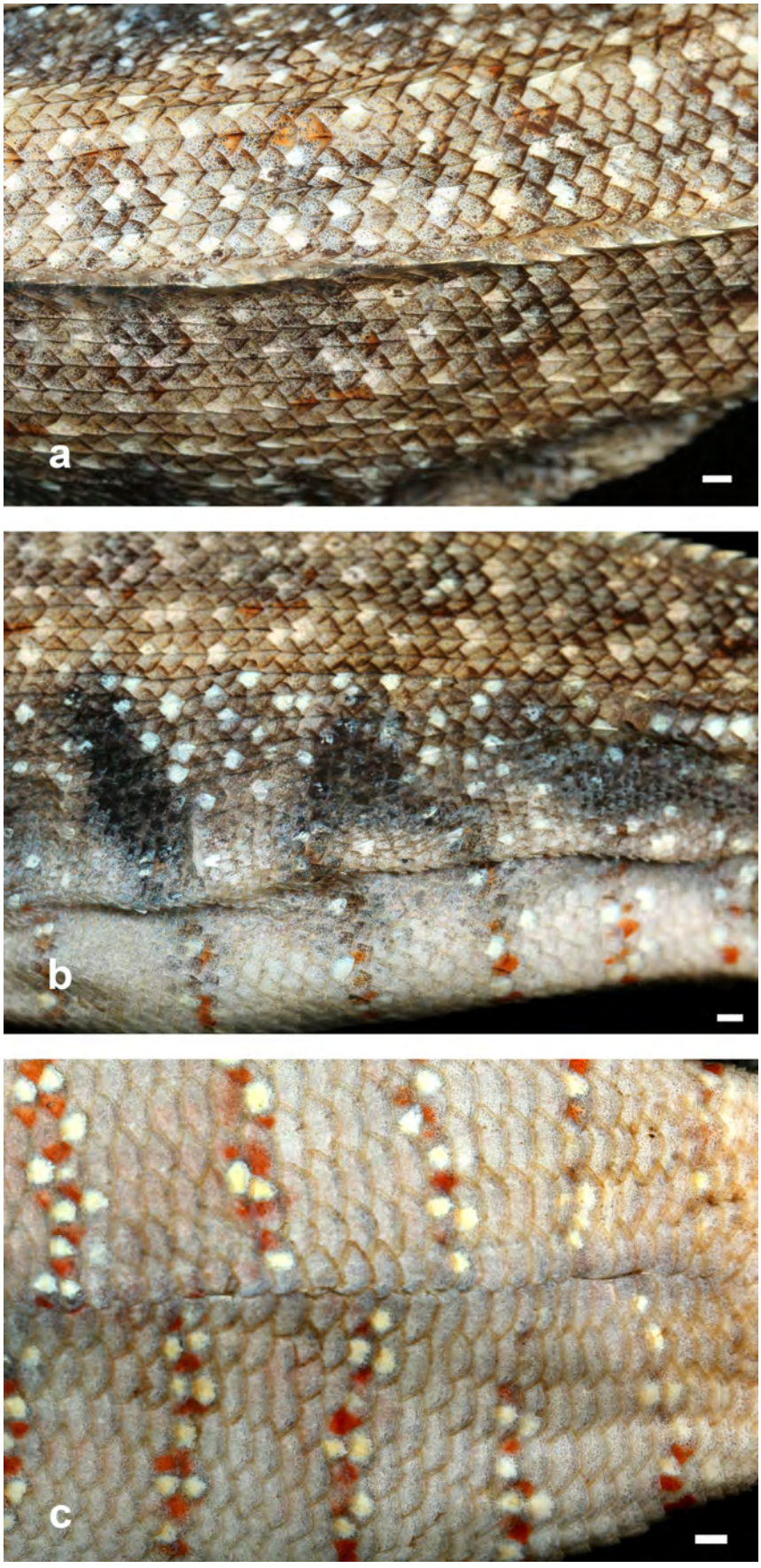

FIGURE 6. Holotype of *Leiocephalus sixtoi* (SMF 99143): (a) dorsal region (b) flank; (c) midventer. Scale bars equal 1.0 mm. Photographs by G.K.

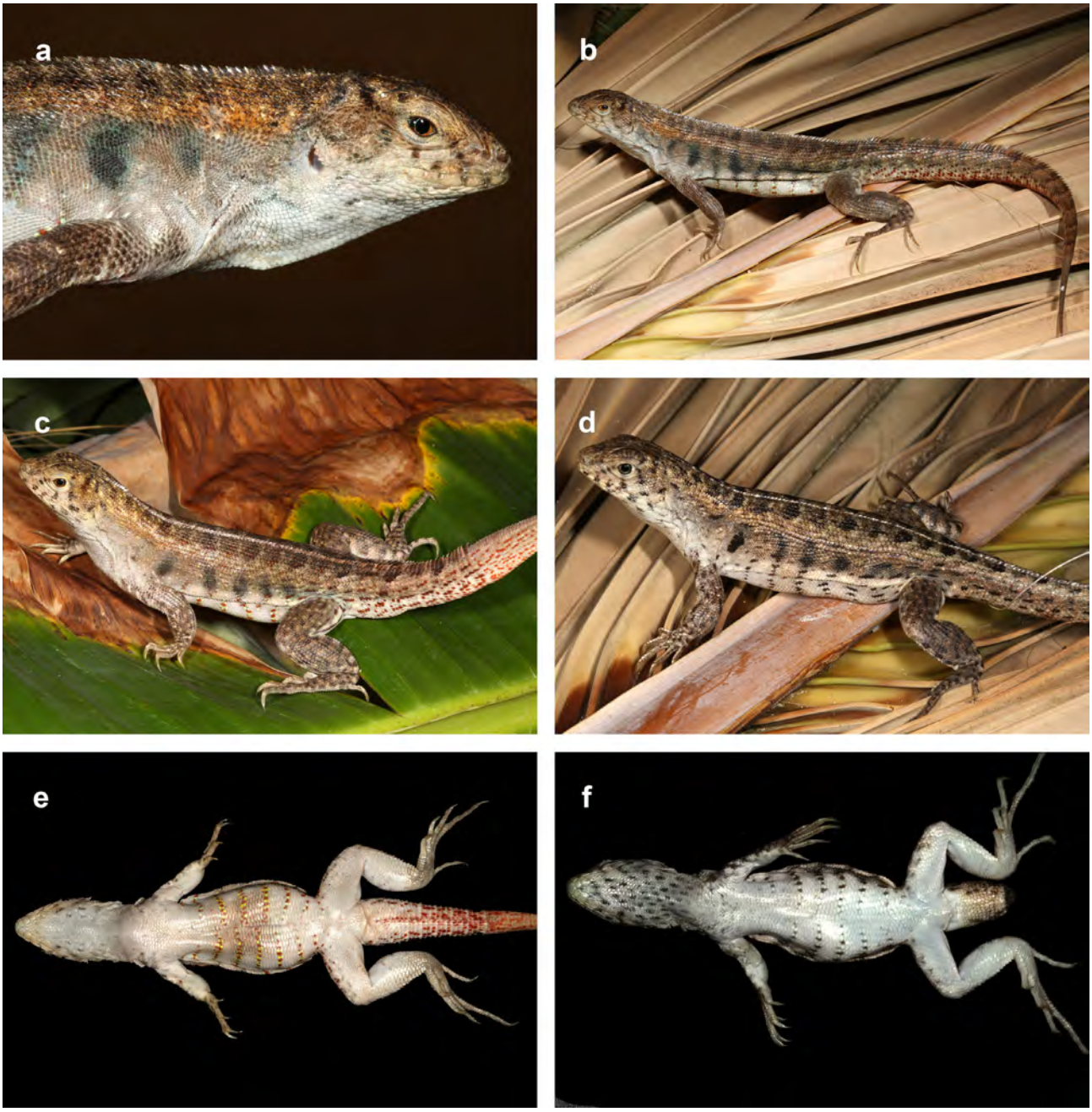

FIGURE 7. *Leiocephalus sixtoi* in life. (a,b) SMF 99143 (holotype, male); (c) SMF 99150 (male); (d) SMF 99144 (female); (e) SMF 99150 (male); (d) SMF 99146 (female). Photographs by G.K.

Variation. The paratypes agree well with the holotype in general appearance, morphometrics, and scalation. The largest male (SMF 99151) in the paratype series has a SVL of 88 mm, the largest female is 70 mm SVL. Variation in selected scalation characters: SAM in 68–79 (74.2 ± 3.4); median dorsal crest scales 72–80 (75.1 ± 2.5); number of IN is 3 in all, except SMF 99147 that has 4 IN; number of lorilabials anterior to enlarged subocular 3–4 (3.7 ± 0.4); number of SPL 4; number of IFL 5–6 (5.2 ± 0.4), number supraoculars 6–8 (7.0 ± 0.8); and subdigital lamellae on Phalanges II–IV of Toe IV 25–28 (26.3 ± 0.9). Only one specimen (SMF 99147) has a complete tail with a ratio tail length/SVL of 1.64.

All specimens in the type series have a distinct series of dark grayish brown blotches on the lateral surfaces of the body (see Fig. 7). The ventral surface of head and neck is mostly immaculate in males, but with distinct dark spots in females. Coloration in life of an adult female (SMF 99144; Fig 7d) was recorded as follows: Dorsal surface of head Grayish Horn Color (286) with a suffusion of Sepia (286), especially on supraoculars; lateral surfaces of

head Drab (19) above, grading into Smoky White (261) in labial regions, and with Jet Black (300) blotches; ventral surface of head Smoky White (261); dorsal suface of Smoke Gray (267) with Sepia (286) paravertebral and lateral blotches with Pale Buff (1) speckles; ventral surface of body Smoky White (261) with transverse rows of Sepia (286) blotches; dorsal and lateral surfaces of limbs Grayish Horn Color (286) with Sepia (286) splotches and Pale Buff (1) speckles; ventral surfaces of limbs Smoky White (261); dorsal surface of tail Smoke Gray (267) anteriorly, grading into Ground Cinnamon (270) with Sepia (286) chevrons, bordered distally by Smoky White (261); ventral surface of tail Smoky White (261), heavily suffused with Pale Pinkish Buff (3); iris Warm Sepia (40).

The almost completely everted hemipenis of SMF 99150 (Fig. 8) is a stout, medium-sized, slightly bilobed organ; sulcus spermaticus bordered by well-developed sulcal lips and opening into a broad concave area at base of apex; distal region of apex covered by large calyces, lower apex has 4–5 large flounces.

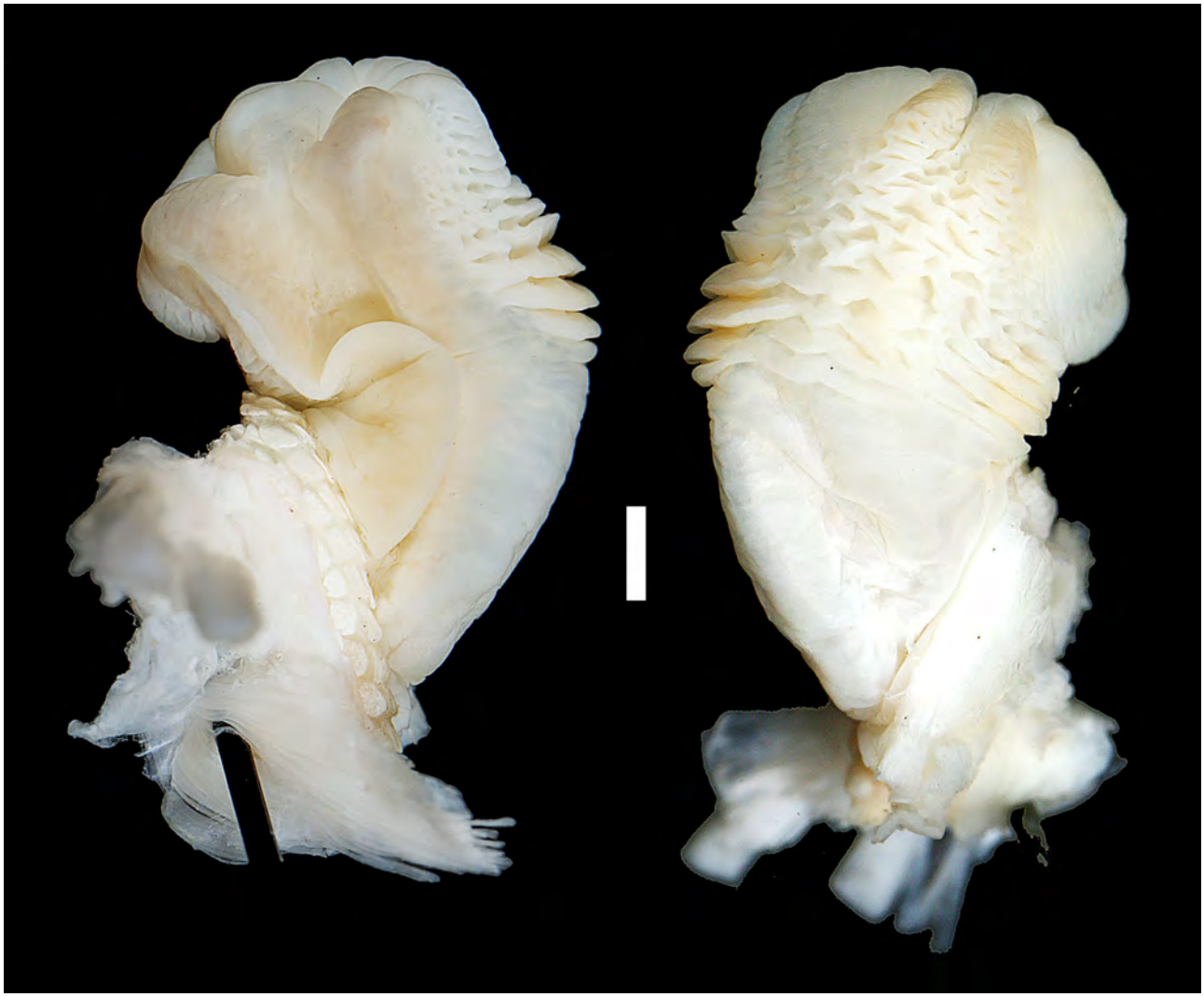

FIGURE 8. Hemipenes of *Leiocephalus sixtoi* (SMF 99150): sulcate view left, asulcate view right. Scale bar equals 1.0 mm. Photographs by G.K.

Etymology. The name *sixtoi* is a patronym honoring our friend and colleague Sixto Incháustegui, who has contributed substantially to our knowledge of Hispaniolan amphibians and reptiles. Sixto is professor at the Universidad Autónoma de Santo Domingo, Dominican Republic, where he teaches herpetology and history of biology. For more than 35 years, he has been involved as a major player in biological research and nature conservation on a national and international level.

Geographic distribution. *Leiocephalus sixtoi* is presently only known from the surroundings of its type locality (Fig. 9).

Natural history notes. The habitat at the type locality is sandy dunes with low Tropical Dry Forest (Fig. 10).

This dune area streches about 15 km in length with a maximum width of about 3 km. The accumulation of sand for the formation of the dunes is a product of the waves from the Caribbean Sea and a more or less steady wind blowing mostly from the same direction. These dunes reach a maximum height of about 35 m. The vegetation in the vicinity of the dunes consists mostly of trees (*Simarouba berteroana, Coccoloba uvifera, Ziziphus reticulata,* and *Acacia macracantha*), cacti (*Consolea moniliformis, Opuntia dillenii, Cylindropuntia caribaea, Opuntia antillana, Harrisia nashii, Lemairecereus hystrix, Pilocereus polygonus, Melocactus lemairei,* and *Mammillaria prolifera*), shrubs, and grasses (Anomymous 2016). The type specimens of *Leiocephalus sixtoi* were collected during the morning hours on and under rocks in a grassy area. As the other species in this genus, this is a diurnal, terrestrial lizard that feeds mostly on a variety of arthropods.

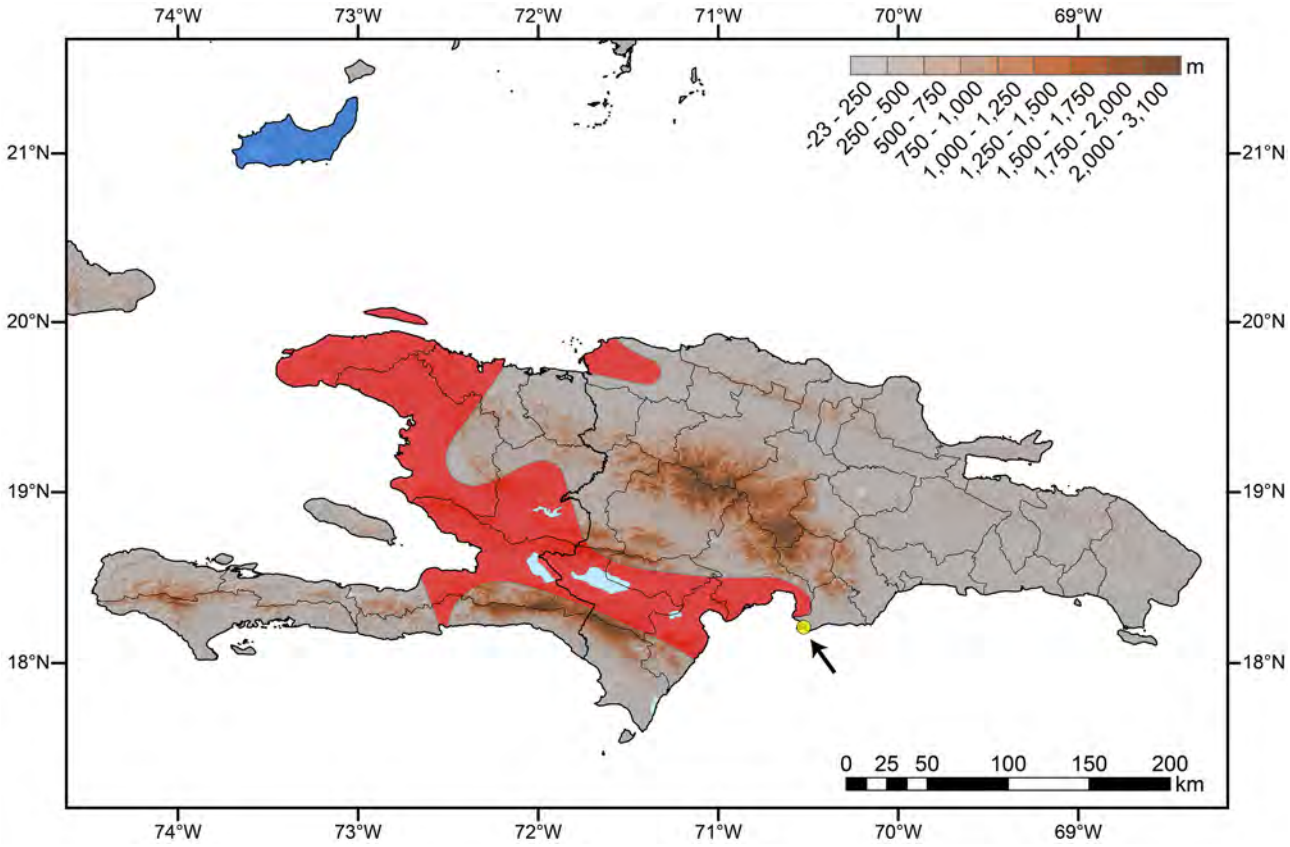

FIGURE 9. Map indicating the geographic distribution of *Leiocephalus sixtoi* (yellow dot) and its closest relatives, *L. inagua* (blue) and *L. schreibersii* (red).

Designation of a neotype for *Leiocephalus schreibersii* (Gravenhorst 1838). According to Pregill (1992:51), the type material of *Leiocephalus schreibersii* was unlocatable, apparently deposited in the Breslau Museum (= now Museum of Natural History at Wrocław University). Upon request by G.K., the present curator of herpetology at the Museum of Natural History at Wrocław University, Andrzej Jablonski, informed us that the type of *L. schreibersii* is not among the specimens in the collection under his care. Therefore, we consider it to be lost. We designate SMF 26228 (Figs. 11 and 12), an adult male from Saint Marc, Province Artibonite, Haiti, collected 19 April 1939 by Robert Mertens, as the neotype of *L. schreibersii*.

Discussion

In the phylogenetic tree (Fig. 1), *Leiocephalus sixtoi* forms a clade with *L. schreibersii* and *L. inaguae*. However, the relationships of those three species are not resolved with these data. In morphology, the new species resembles *L. schreibersii* and *L. inaguae*. For example, the three species share the following combination of characters: (1) presence of a lateral fold; (2) usually 3 internasals; and (3) usually 4 lorilabial scales anterior to the enlarged

suboculars. Nonetheless, the fact that the ranges of *L. sixtoi* and *L. schreibersii* are relatively close, and they have a large genetic difference (12% at cytochrome b) indicates that they are reproductively isolated, and this is further confirmed by the diagnostic morphological traits noted above.

Because of the intense herpetological surveys that have been conducted on Hispaniola, especially over the last five decades (Schwartz & Henderson 1991), the discovery of a new species of *Leiocephalus* is somewhat surprising, and suggests that the new species probably has a highly localized distribution. If that is the case, further study on the ecology and conservation status of this species is warranted to determine if its habitat and survival are threatened.

FIGURE 10. Habitat of *Leiocephalus sixtoi* at Dunas de Baní, near the village Las Salinas, Provincia de Peravia, Dominican Republic. Photograph by Eladio Fernández.

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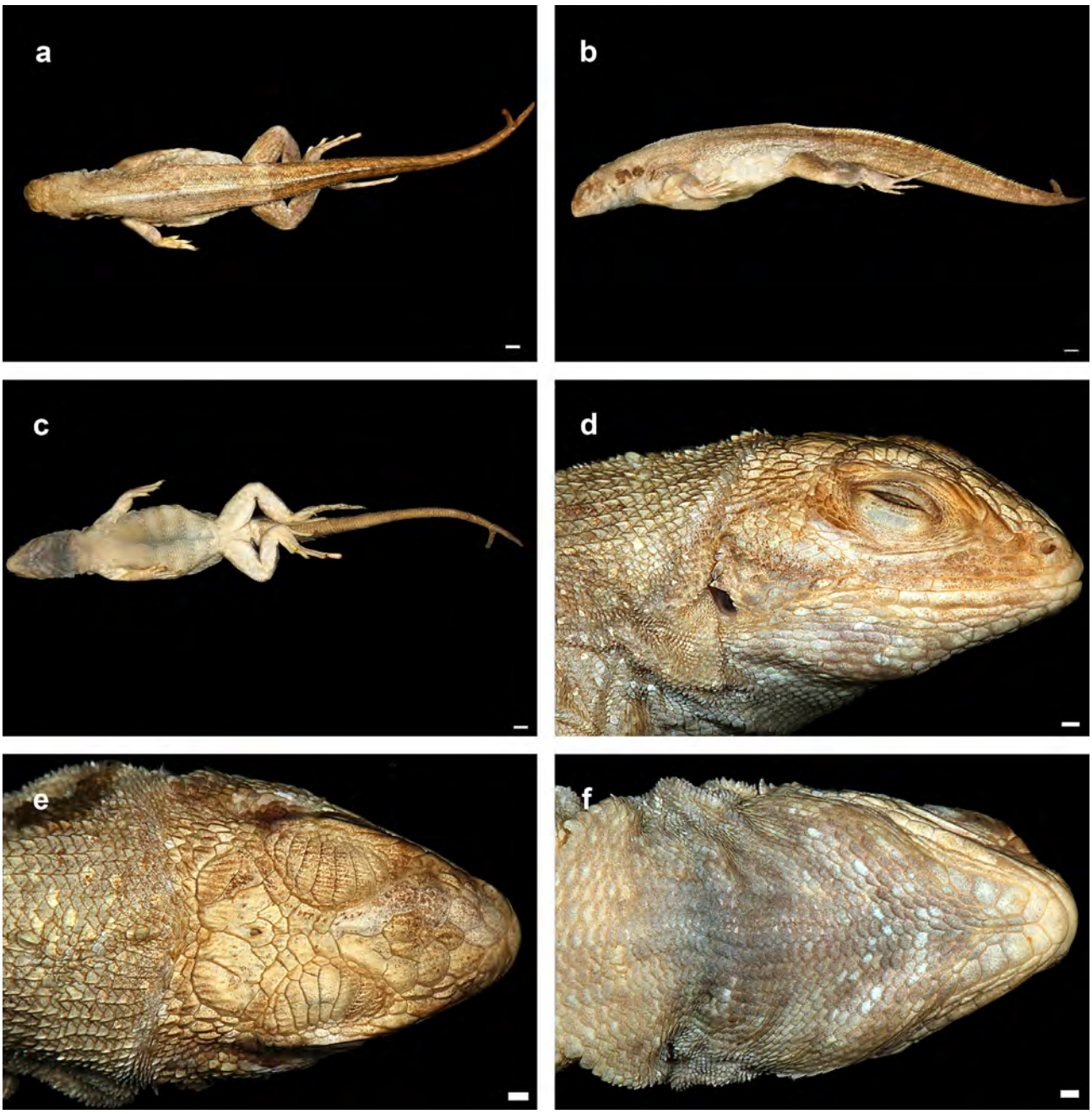

FIGURE 11. Neotype of *Leiocephalus schreibersii* (SMF 26228): (a) dorsal view; (b) lateral view; (c) ventral view; (d) lateral view of head; (e) dorsal view of head; (f) ventral view of head. Scale bars equal 5.0 mm in (a–c) and 1.0 mm in (d–f), respectively. Photographs by G.K.

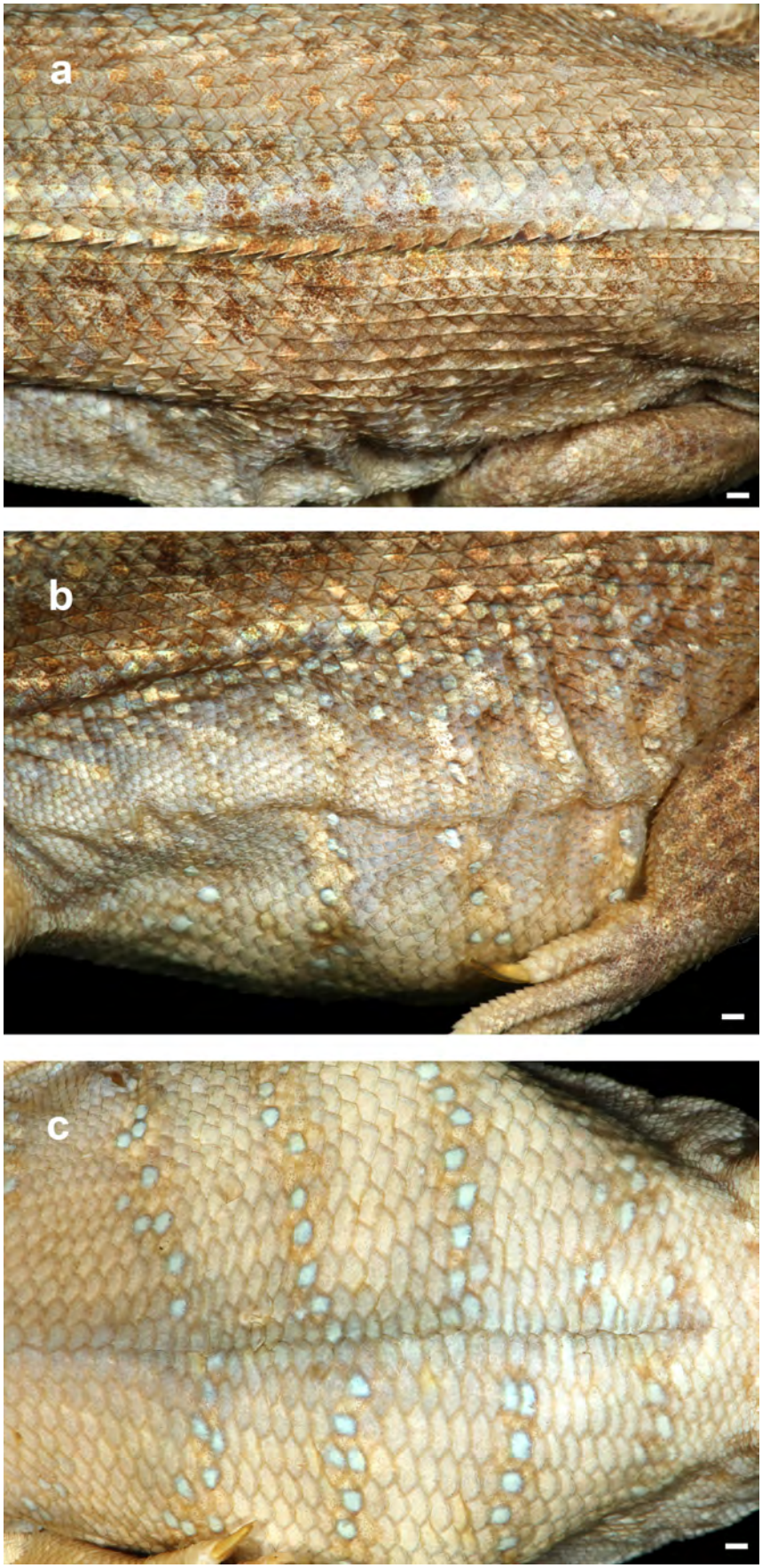

FIGURE 12. Neotype of *Leiocephalus schreibersii* (SMF 26228): (a) dorsal region; (b) flank; (c) midventer. Scale bars equal 1.0 mm. Photographs by G.K.

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APPENDIX 1. Comparative specimens examined

Leiocephalus barahonensis—**Dominican Republic:** Azua: Azua: SMF 24957; Barahona: Barahona: SMF 26161–64; Fondo Negro: SMF 24956; Pedernales: Troudiye: SMF 99200.

Leiocephalus carinatus—**Cuba:** La Habana: Havanna: SMF 24901, 60339; Pinar del Río: Limestone Cave Balneario San Vicente, Sierra de los Organos: SMF 51533. **Grand Cayman:** SMF 11049, 11154–59. **Honduras:** Isla del Cisne: SMF 78868; Isla del Cisne Grande: SMF 90444–47, 90442–43. **Bahamas:** Elizabeth Island, south of Stocking Island: SMF 48100, 76275–76.

Leiocephalus cubensis—**Cuba:** La Habana: Havanna: SMF 24902–07, 30374.

Leiocephalus inaguae—**Bahamas:** Inagua: 1.9 km S of Mathew Town at lighthouse: SMF 99201.

Leiocephalus lunatus—**Dominican Republic:** Altagracia: 1 km W Boca de Yuma: USNM 329316; San Pedro de Macoris: beach near San Pedro de Macoris: SMF 25688–89, 25691–92, 25715; Santo Domingo: seacoast west of La Caleta: SMF 25561, 25590–96; Tres Ojos, east of Ciudad Trujillo: SMF 25552.

Leiocephalus melanochlorus—**Haiti:** no further data: SMF 11150–51; Grande Anse: ca. 3 km N Bois Sec: USNM 329325.

Leiocephalus personatus—**Haiti:** Nord: Cap Haytien: SMF 11149. **Dominican Republic:** Altagracia: Juanillo, 7 m: SMF 99202; Espaillat: Moca: SMF 25955, 26118–23, 26318; Hato Mayor: Sabana de la Mar: SMF 26033–47; 26288; La Vega: Constanza: SMF 24944; pinewood between Jarabacoa and La Vega: SMF 25684; Puerto Plata: Balneario Colón: SMF 25891–92; Monte Cristi: Cayo Pablito near Monte Cristi: SMF 25832; Monte Cristi: SMF 24958–59; Santiago Rodriguez: Monción: SMF 25748–57, 25782–84; San Cristóbal: 37 km at the road from Santo Domingo to La Vega: SMF 25747; beach at the mouth of Rio Jaina: SMF 25528, 25539–41, 26114–26, 26228–29; Santo Domingo: Santo Domingo: SMF 11152; Santo Domingo, coast at German Dominican Tropical Institute: SMF 26213, 25522–24; stone pit, 2 km behind the German Dominican Tropical Institute: SMF 26214, 26320.

Leiocephalus punctatus—**Bahamas:** Acklins and Crooked Islands: Pitstown Point Landing: SMF 75988.

Leiocephalus raviceps—**Cuba:** La Habana: Havanna: 24913–14.

Leiocephalus schreibersii—**Dominican Republic:** Azua: Azua: SMF 24908; Barahona: Fondo Negro: SMF 24909–12 Independencia: Tierra Nueva: USNM 329345; near La Azufrada: MNHNSD 23.2190–92; Monte Cristi: Monte Cristi, old boarding bridge: SMF 25834–40, 26291. **Haiti:** Artibonite: Saint Marc: SMF 26238, 26328; 10.2 km W Cą Soleil, 120 m: SMF 99203–04.

Leiocephalus semilineatus—**Dominican Republic:** Peravia: 3 km W Galcón: MCZ 163292–95. **Haiti:** Quest: 16 km SE Fond Parisien: USNM 329346