

**LIOLAEMUS HELIODERMIS, A NEW LIZARD FROM
NORTHWESTERN ARGENTINA WITH REMARKS ON THE
CONTENT OF THE *ELONGATUS* GROUP
(IGUANIA: TROPIDURIDAE)**

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ABSTRACT: We provide a diagnosis for the *Liolaemus elongatus* group which currently includes six species (including the species described herein) of midsized, long-tailed, primarily saxicolous lizards. Most of these species are distributed along the Andean Cordillera of western Argentina where they principally occur at elevations above 1000 m. Here we describe *Liolaemus heliodermis*, a new species belonging to this group from the region where the Cumbres Calchaquías and the Sierra del Aconquija mountain ranges converge in northwestern Tucumán Province. The new species differs from all other members of the *elongatus* group in several meristic characters and in the distinct coloration of the males: black heads with vibrant yellow torsos. *Liolaemus heliodermis* is the most northerly distributed member of the *elongatus* group and is the only member of the group known to occur in Tucumán Province. Preliminary data on the biology of *L. heliodermis* and the relationships of the new species to other members of the *elongatus* group are discussed.

Key words: Argentina; *Liolaemus heliodermis*; *Liolaemus elongatus* group; New species; Taxonomy; Tropiduridae

THE lizard genus *Liolaemus* (Iguania: Tropiduridae) is the most species-rich group of lizards in the Southern Hemisphere. The >160 members of this genus are distributed throughout the arid and semiarid regions of South America from the high Andes of central Perú to the beaches of Tierra del Fuego (Etheridge, 1995; Etheridge and Espinoza, unpublished data). Moreover, the number of new species being described has steadily increased and, within the last decade, an average of four new species of *Liolaemus* has been described each year (Etheridge and Espinoza, unpublished data). Although some species within the genus have broad geographic ranges (Cei, 1986, 1993; Donoso-Barros, 1966), others appear to be restricted to specific regions or even single mountaintops (e.g., Donoso-Barros and Cei, 1971; Hulse, 1979; Laurent, 1985;

Lobo and Kretzschmar, 1996; Lobo and Laurent, 1995). Many of the recently described taxa are from remote, less-accessible regions which are just beginning to be explored by herpetologists.

Members of the *elongatus* group belong to the more-inclusive *chiliensis* group (sensu Etheridge, 1995; Lobo, unpublished data) and share with that group two synapomorphies: a fused Meckel's groove and four or fewer preloacal pores (Etheridge, 1995). Cei (1986:243) considered the *elongatus* group to constitute a "línea natural," but he did not provide a formal diagnosis of the group. Recent morphological and molecular analyses suggest that this lineage is indeed monophyletic (Espinoza and Lobo, unpublished data; Lobo, unpublished data; Schulte et al., 2000), but comparisons among the different data sets suggest slightly different intragroup relationships. For the purpose of diagnosing the new species described herein, we recognize members of the *elongatus* group as those species of the *chiliensis* group (sensu Etheridge, 1995; Lobo, unpublished data) that are of moderate to large

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TABLE 1.—Maximum body sizes (snout–vent length) and geographic distributions of members of the *elongatus* group. *Liolaemus therarum* is included here because it can be diagnosed as a member of the *elongatus* group (see text for discussion). Data are from specimens deposited in museums and records published in the literature (see also Schulte et al., 2000).

Species	Maximum SVL (mm)	Latitude range (degrees S)	Elevation range (m)
<i>Liolaemus austromendocinus</i>	103	34–37	900–2310
<i>L. capillitas</i>	93	27	2500–3900
<i>L. elongatus</i>	85	29–45	700–3000
<i>L. petrophilus</i>	100	41–44	900–1400
<i>L. therarum</i>	85	32–35	1680–2500

body size (80–105 mm SVL; Table 1), elongate, but with a robust body form, possess small body scales (>55 scales around the midbody) that are nonoverlapping or subimbricate and do not terminate in a spine, and tails that tend to be circular in cross section and longer than 1.5 times the length of the head and body. The five species that we currently consider members of the group (Table 1; see also Cei, 1974, 1975, 1986, 1993) lack obvious sexual dimorphism in body size (Cei, 1993), and only pregnant females of *L. capillitas* are known to exhibit sexual dichromatism (Hulse, 1979). Members of the *elongatus* group primarily inhabit the semiarid highlands of the east Andean Cordillera of the west-central and northwestern provinces of Argentina; however, the latitudinal ranges of *L. elongatus* and *L. petrophilus* also extend southward to the volcanic mesetas of the Patagonian Steppe (Table 1). Most members of this group can be found at elevations >1000 m, and their geographic distributions overlap the Monte, Prepuna, and Pampas phytogeographic provinces (Cabrera and Willink, 1980). These are agile lizards that are most frequently found on or near large rock outcrops. When approached, they retreat under large boulders or into deep crevices (Espinoza and Lobo, personal observations). Members of this group are primarily insectivorous (Cei, 1986; Hulse, 1979), and those for which the reproductive mode has been determined are viviparous (Cei, 1986, 1993).

In the process of collecting distributional and biological information for two other recently described species of *Liolaemus* (Lobo and Espinoza, 1999), we encoun-

tered an undescribed, distinctive member of the *elongatus* group. Here we describe this new species based on three specimens collected from the region where the Cumbres Calchaquíes and the Sierra del Aconquija mountain ranges converge in western Tucumán Province. Like the majority of species of *Liolaemus* that have been described recently, the new species is known only from the type locality and appears to be restricted to large rock outcrops within that region.

MATERIALS AND METHODS

For purposes of diagnosing the new species, we examined a series of each of the five species (Table 1) that we classified as members of the *elongatus* group based on our diagnosis (see above). In our taxonomic analysis, we considered external morphology including lepidosis, coloration, and color patterns. When possible, live specimens were examined to record color in life. Additional specimens were examined after fixation in 10% formalin and preservation in 70% ethanol. All specimens examined were from the herpetological collection of the Fundación Miguel Lillo (FML), Tucumán, Argentina. Some character states were determined with the aid of a binocular dissecting microscope (10–40×). Measurements were taken with electronic calipers to the nearest 0.01 mm. Terminology for the description of scales is that of Smith (1946), features of body color patterns are from Lobo and Espinoza (1999), and for neck-fold terminology we follow Frost (1992).

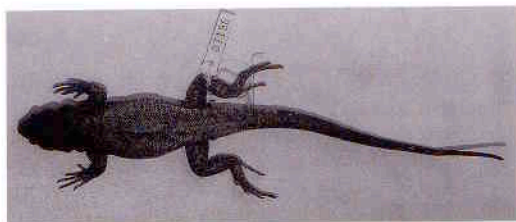


FIG. 1.—Holotype of *Liolaemus heliodermis* (FML 7196; 75.6 mm SVL).

SPECIES DESCRIPTION

Liolaemus heliodermis sp. nov.

Holotype.—Fundación Miguel Lillo (FML) 7196 (Figs. 1, 2), an adult male from km marker 95, Ruta Provincial 307, approximately 32 km (by road) from Taff del Valle, Departamento Tañi del Valle, Provincia de Tucumán, Argentina (26° 40.82' S, 65° 48.74' W, 2820 m); collected by F. B. Cruz and F. Lobo, 2 October 1997.

Paratypes.—FML 6006 (adult male; Fig. 3) and 6007 (juvenile female; Fig. 4) from same locality as holotype. Collected by C. Abdala, F. Cruz, R. Espinoza, and F. Lobo, 11 November 1996.

Diagnosis.—A moderately large and robust *Liolaemus* belonging to the *elongatus* group which is itself nested within the monophyletic *chiliensis* group (Etheridge,



FIG. 3.—Adult male of *Liolaemus heliodermis* in life (FML 6006, paratype; 81.4 mm SVL).

1995; Lobo, unpublished data). The new species can be distinguished from all other members of the *elongatus* group, except *L. capillitas*, by its larger and therefore lower number of midbody scales [*L. heliodermis*: 62–69; versus 76–82 in *L. austromendocinus*; 72–90 in *L. elongatus*; 71–95 in *L. petrophilus* (Donoso-Barros and Cei, 1971); 84–89 in *L. thermarum* (Videla and Cei, 1996); Table 2]. Adult males of *L. heliodermis* also differ from all other members of the *elongatus* group (and all other *Liolaemus* except *L. andinus*) in possessing both black heads (Cei, 1998) and sulfur-yellow torsos (Table 2). *Liolaemus capillitas*, *L. elongatus*, and *L. petrophilus*

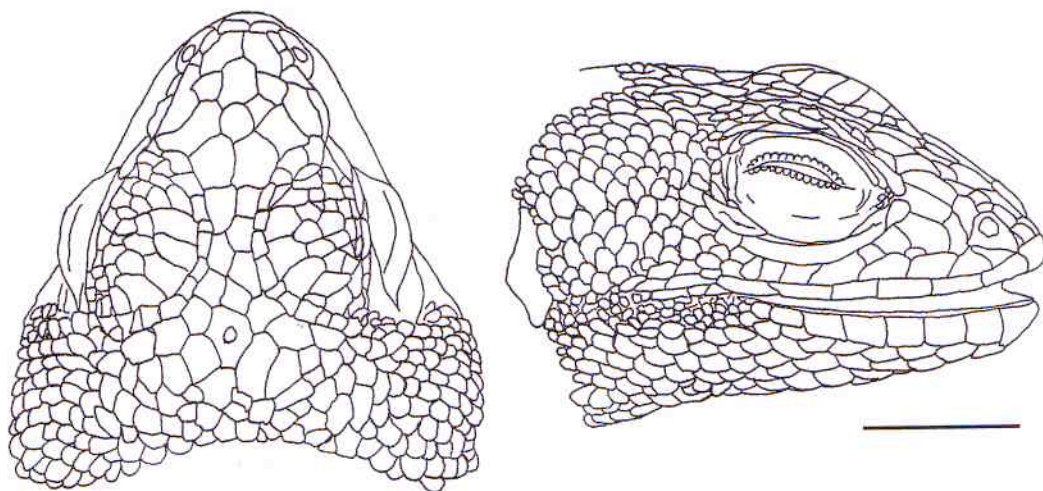


FIG. 2.—Dorsal and lateral views of the head of the holotype of *Liolaemus heliodermis* (FML 7196). Scale bar = 5 mm.

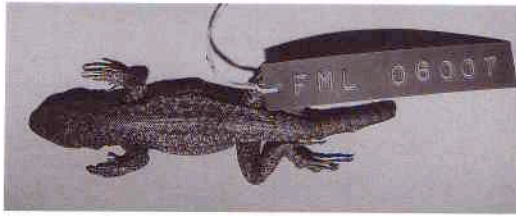


FIG. 4.—Juvenile female of *Liolaemus heliodermis* (FML 6007, paratype; 47.4 mm SVL).

have dorsal scales that are more distinctly imbricate than those of *L. heliodermis*, and the former three species have keels that occupy the entire scale, whereas the scales of *L. heliodermis* are only weakly keeled (Table 2). *Liolaemus elongatus* usually has dark-brown, irregular, longitudinal stripes (6–12 scales wide) that extend along the vertebral and lateral fields, whereas *L. heliodermis* lack stripes or similar body patterns. Although some populations of *L. petrophilus* also exhibit intense-yellow body color (Ceï, 1986), all have a distinct dorsal pattern of transverse dark bars that form a “tigroid” pattern (Ceï, 1975; Donoso-Barros and Ceï, 1971) which are lacking in the new species. Further, unlike *L. heliodermis* and other members of the *elongatus* group, adults of *L. petrophilus* and some individuals of *L. austromendocinus* have distinctly ringed tails. In contrast to *L. heliodermis*, *L. therrmarum* has dark, wide stripes on the lower flanks, and lacks precloacal pores (Videla and Ceï, 1996).

Description of the holotype.—Adult male (Figs. 1, 2), 75.6 mm snout-vent length (SVL); tail length 118.7 mm (about half regenerated). Axilla-groin distance 35.1 mm. Head 16.7 mm long (from anterior border of auditory meatus to tip of snout), 15.0 mm wide (at anterior border of auditory meatus), 9.4 mm high. Snout length 5.4 mm (posterior margin of canthal to tip of snout). Interorbital distance 1.27 mm. Eye-nostril distance 3.62 mm. Tibial length 16.22 mm. Foot length 25.1 mm (ankle to tip of claw on fourth toe).

Dorsal head scales smooth, 15 between occiput at the level of the anterior border of auditory meatus and rostral. Nine smooth temporals, most with a scale organ at their posterior margin. Interparietal

TABLE 2.—Diagnostic character states for currently recognized members of the *Liolaemus elongatus* group. Data gathered on specimens examined in this study were combined with information from the type series and descriptions of additional specimens (i.e., Donoso-Barros and Ceï, 1971; Ceï, 1974, 1975, 1986, 1993; Hulse, 1979; Videla and Ceï, 1996). Precloacal pores are for males only. Descriptions of body color and patterns were taken from preserved lizards, but these characteristics are comparable in live specimens. Dichromatism may be ontogenetic, or sexual, or both in *L. heliodermis* (see text for discussion).

Character	<i>austromendocinus</i> (n = 7)	<i>capillatus</i> (n = 16)	<i>elongatus</i> (n = 10)	<i>heliodermis</i> sp. nov. (n = 3)	<i>petrophilus</i> (n = 3)	<i>therrmarum</i> (n = 3)
Midbody scales	76–82	58–67	72–90	62–69	71–95	84–89
Dorsal scales	weakly keeled	keeled	keeled	weakly keeled	keeled	weakly keeled
Precloacal pores	2–3	0–4	1–4	3–4	3	0
Head color	brownish gray	black	brown/black	black	brownish gray	light brown/gray
Body color	brownish gray	brown/black	brown/black	sulfur yellow	dark brown/ochre yellow	brownish gray
Dorsal body pattern	indistinct	indistinct	usually striped ¹	indistinct	transverse bars	indistinct
Adult tail pattern	not ringed	not ringed	weakly ringed	not ringed	distinctly ringed	not ringed
Dichromatism	absent	present ²	absent	present	absent	absent

¹ Stripes in lateral or dorsolateral field.

² Dichromatism exhibited as a patch of vibrant red in the cloacal region of pregnant females (Hulse, 1979; Espinoza and Lobo, personal observations).

subpentagonal, of similar size to the parietals, surrounded by seven scales. Frontal scale divided longitudinally, forming two scale rows between circumorbitals. Five scales between frontal and rostral. Two postrostrals. Each postrostral with 12–13 scale organs. Supraorbital semicircles complete. Four/five (right/left) enlarged supraoculars. Five scales between frontal and supercilliaris. Five/six flat, elongate supercilliaris. Canthal separated from nasal by one or two scales. Loreal region flat. Eight scales surrounding nasals. Nasal in slight contact with rostral. Eight/nine lorilabials, fourth through eighth/nine in contact with subocular. Six/seven supralabials. Fourth/fifth supralabial curved upward posteriorly but not in contact with subocular. Infralabials five, slightly taller than supralabials. Four internasals. Orbit with 16 upper and 15 lower ciliaries. Orbit diameter 3.5 mm (measured between upper and lower ciliaries). Subocular scale elongate. Preocular unfragmented. Longitudinal ridge along upper margin of the three ocular scales. Rostral scale wider (4.35 mm) than high (1.15 mm), fragmented along left side. Mental wider (2.94 mm) than long (2.16 mm), followed posteriorly by two rows of 4/5 chinshields. Chinshields in contact with first infralabial. Scales of throat between chinshields juxtaposed, becoming slightly imbricate toward the auditory meatus. Fifty gulars between auditory meatus. Three/four scales along anterior border of auditory meatus project outward. Auditory meatus higher (3.8 mm) than wide (2.5 mm). Lateral scales of neck granular. Subdermal fat bodies give inflated appearance to neck region. Antehumeral fold distinct. Rictal, postauricular, and longitudinal folds present but less conspicuous than antehumeral. Thirty-nine scales between auditory meatus and antehumeral fold (counted along postauricular and longitudinal folds).

Scales of neck region smaller than dorsals. Sixty-four dorsal scales between occiput and anterior surface of thighs. Dorsal body scales round to rhomboidal, very weakly keeled. Fifteen to seventeen longitudinal keeled scale rows over dorsum of trunk. Scales become increasingly rounded

laterally and along flanks. Sixty-nine scales around midbody. Ventral scales of similar size to dorsals, 110 between mental and precloacal pores. Three precloacal pores, each with a waxy, yellowish-orange exudate. Ventral surface of thighs with enlarged, laminar imbricate scales anteriorly, abruptly changing to smaller granular scales posteriorly at mid thigh.

Fourth finger with 23 tridentate, subdigital lamellae. Claw relatively straight, moderately short, pointed, opaque brown. Fourth toe with 28 subdigital lamellae. Claw similar to that of fourth finger.

Color of holotype in preservative.—Head black dorsally, grading to blackish-gray laterally and ventrally. Black extends to shoulders, beyond which dorsal scales grade to pale cream-yellow on torso. Yellow color of torso extends to mid-tail thereafter grading to brownish black. Underside of tail darkens distally. Ventrally light gray with irregular charcoal-gray flecks becoming denser laterally. Throat darker than belly, densely flecked with gray marks especially along perimeter. Ventral surfaces of thighs with a wide longitudinal band of pale-yellow scales.

Variation.—Based on an additional adult male (FML 6006; paratype) and a juvenile female (FML 6007; paratype). SVL 47.4–81.4 mm. Midbody scales 62–69. Dorsal scales round to rhomboidal, usually smooth, bluntly or weakly keeled, weakly or not pointed, subimbricate, numbering 62–65 between occiput and anterior surface of thighs. In male paratype, interstitial granules at dorsal midbody grade laterally into smooth convex scales with large and prominent interstitial granules. Holotype with very few interstitial granules between scales along flanks, and none apparent in juvenile female. Dorsal head scales 13–16, variable in size but usually small, some irregular in shape (in male paratype), most convex. Ventrals 109–116. Scales around the interparietal 6–8. Five enlarged supraoculars. Preocular not divided and in juvenile fused with subocular. Temporals 9–10, smooth. Scales between auditory meatus and antehumeral fold 39–41. Gulars 47–50, smooth, imbricate, circular to elliptical. Supralabials 6–8. Infra-

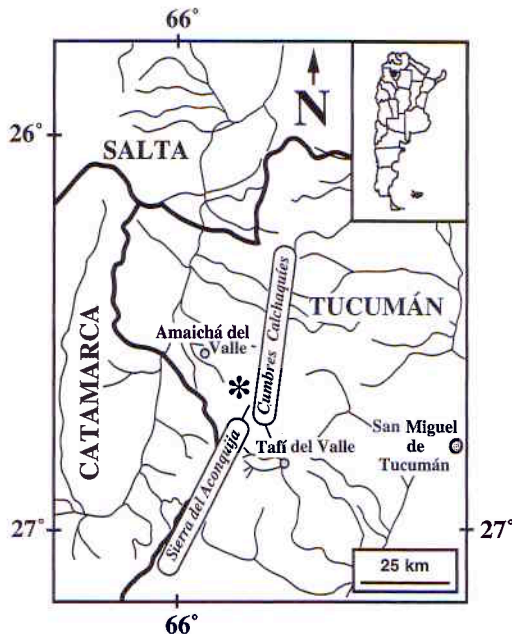


FIG. 5.—Type locality (asterisk) of the only known population of *Liolaemus heliodermis*. Insert = Argentina.

labials 5–6. Posterior tip of supralabial 4–7, upturned. Scales around nasal 7–9. Nasal only in slight contact with rostral. Internasals 5–6. Scales between rostral and frontal 5–6. Rostral barely visible from above. Postrostrals 2–3, with 8–12 scale organs each. Fourth through sixth or eighth lorilabials in contact with the subocular. Supercilliaris 5–7. Subdigital lamellae on fourth finger 22–25; on fourth toe 28. Preloacal pores 3–4 in males, lacking in female paratype. Male paratype with distinctly trilobate hemipenes (everted). Lobes of hemipenes inadequately preserved for examining details of ornamentation, but bearing calices as in other *chiliensis* group taxa (Lobo, unpublished data), and lacking the plicae found in members of the *signifer* group (sensu Etheridge, 1995; Lobo, unpublished data).

Color in life.—The head color of the adult males is black dorsally, and grades to black-gray laterally and ventrally. The black color of the head extends to the neck (rectal fold; male paratype; Fig. 3) or shoulders (holotype; Fig. 1). Posterior to the neck or shoulders, dorsal scales grade

to pale sulfur yellow. In both males, the proportion of yellow in each dorsal scale increases down the length of the torso to about mid-tail. Thereafter, the yellow grades to brown-black towards the tail tip. In the male paratype, the majority of the area of each dorsal scale is yellow which gives this individual a more vibrant sulfur-yellow hue than the holotype. Ventrally, all three specimens are cream to gray with irregular charcoal-gray to black flecks. Ventral color becomes lighter toward the abdomen and on the base of the tail. The underside of the tail darkens from about mid-tail to the tip. The throat is slightly darker than the belly and more densely flecked. Males have an ochre-yellow, medial band of scales along their ventral thighs. The juvenile female has a brown head with a body that is slightly lighter tan-brown. The dorsal torso of this individual has numerous irregular cream flecks that are scattered from the neck to the base of the tail (Fig. 4). These flecks become increasingly aggregated distally where they form fine (one-scale wide) rings that encircle the tail.

Color in preservative.—Males: ventral surfaces generally gray, irregularly flecked with diffuse darker gray marks. Flank with larger dark gray marks than on dorsum. Ventral surface of thighs of with a medial cream band fading to dark gray anteriorly and posteriorly. Head and nuchal region black, fading to dull cream or yellow towards shoulders. Dorsal and flank scales posterior to shoulders dark gray anteriorly with dull-yellow posterior margins. Color darkens to nearly black anteriorly and in the axils. Anterior surface of dorsal thighs and first third of dorsal tail with similar dull-yellow to gray coloration. Juvenile female: as in life but darker brown dorsally and darker gray ventrally.

Etymology.—The specific epithet *heliodermis* is a noun in apposition and is derived from the Greek nouns *helio*, meaning “sun,” and *derm*, meaning “skin.” The literal translation “sun skin,” refers to the bright, sulfur-yellow dorsal color of the torso in males of the species (Fig. 3).

Distribution.—*Liolaemus heliodermis* is known only from the type locality (Fig. 5).

The habitat in this area corresponds to the Prepuna phytogeographic region of Cabrera and Willink (1980). The region where the type series was collected is only sparsely vegetated (see also Lobo and Espinoza, 1999). Dominant plant species include the open, woody shrub *Parastrephia phyllicaeformis* (Asteraceae) and creosote bush (*Larrea*). To the east, and at slightly higher elevations, *Parastrephia* and another small, spiny shrub (*Adesmia* sp.) co-occur with bunch grass (*Festuca hieronymi*) and pampas grass (*Coraderia* sp.). Moderately small (roughly 2 m²) to massive (approximately 10 m long × 5 m high) aggregations of dark-colored, basaltic-rock outcrops are scattered throughout the region, and these seemingly provide habitat for *L. heliodermis*.

Despite >35 person hours of searching in the area where the types were collected, no additional specimens were encountered. It is also highly unlikely that the species described herein is in another institutional collection given that this area has not been extensively surveyed, and all specimens from Tucumán Province are typically deposited in the collection at the Fundación Miguel Lillo. Until this species was discovered, no members of the *elongatus* group were known from Tucumán Province (Lavilla et al., 1993). The new species occurs approximately 100 km northeast of the type locality of *L. capillitas* (near Mina Capillitas, Catamarca Province; Hulse, 1979) which makes *L. heliodermis* the furthest north and east occurring member of the *elongatus* group.

Natural history.—The holotype was found at about 1000 h in a crack between two large basaltic rocks (roughly 1 × 1 × 2 m) approximately 0.5 m above ground level. It was inactive and still cool to the touch when captured. The adult male paratype was encountered about midday, and was wedged approximately 0.2 m deep in a basaltic rock crevice that formed between two halves of a large (roughly 2 × 3 × 3 m) split rock. This specimen was found about 10 m from where the holotype was collected. The crevice faced the ground and lacked another opening. The animal had wedged itself so far up in the

crevice that only its tail was visible. The juvenile female was found at about 1400 h approximately 20 m from the male paratype. This individual was first seen basking on a small rock outcrop at the edge of a moderately sloping hillside. Upon our approach, she quickly fled to another cluster of rocks. Both paratypes autotomized portions of their tails when they were captured.

DISCUSSION

Because *Liolaemus heliodermis* is known from only two adult males and a single juvenile female, little more than anecdotal comments can be offered regarding the biology of the species. Nevertheless, some aspects of their biology may be inferred based on the natural history of close relatives. For example, *L. heliodermis* appears to be restricted to the basaltic rock outcrops which are patchily distributed in the region of the type locality. This is consistent with the microhabitat selection of other members of the *elongatus* group which are also saxicolous (Ceï, 1974, 1986, 1993), and particularly *L. capillitas* (Hulse, 1979) which is strictly saxicolous and may be the sister taxon of the new species (see below). The fact that no individuals of *L. heliodermis* were found in the sandy-scrub regions that surround the rock outcrops where we had been collecting other species of *Liolaemus* (*L. pagaburoi*, *L. quilmes*, and *L. ramirezae*) for several days further supports our presumption of a saxicolous lifestyle.

The sulfur-yellow color of adult male *L. heliodermis* is in contrast to the cryptic coloration (i.e., usually matching the color of local basaltic rock outcrops) of all other members of the *elongatus* group except some populations of *L. petrophilus* (Ceï, 1986; Table 2). The contrasting cryptic color of the juvenile female paratype relative to the males suggests three possibilities: (1) *L. heliodermis* is sexually dichromatic, (2) the bright-yellow color exhibited by adults is acquired ontogenetically, or (3) this species is both sexually and ontogenetically dichromatic. However, another interpretation is that, despite their bright color, males of *L. heliodermis* may never-

theless be cryptic. The dark basaltic outcrops in this region are covered by bright-orange and sulfur-yellow crustose lichens (*Caloplaca* sp.). Interestingly, the sulfur-yellow color of *Caloplaca* is matched remarkably well by the dorsal coloration of adult males of *L. heliodermis* (Fig. 3). This suggests that, despite their vibrant coloration, males may be cryptic when basking on lichen-encrusted rocks. Similar matching with the substratum has been described for the liolaemine lizards *Liolaemus famatinae* and *Phymaturus mallimacii* from the Sierra de Famatina of La Rioja Province, Argentina (Cei, 1982).

All members of the *elongatus* group for which reproductive mode has been determined are viviparous and live at moderate to high latitudes or elevations (Cei, 1986; Hulse, 1979; Schulte et al., 2000; Table 1). This correlation is consistent with the hypothesis that viviparity is an adaptation to reproducing in cold climates (e.g., Guillette, 1993; Shine, 1985; Tinkle and Gibbons, 1977). Because *L. heliodermis* is known from a locality with a moderately high elevation (2820 m), and because its closest relatives are viviparous, we predict that this species is also viviparous. Other members of the *elongatus* group are primarily insectivorous, but may periodically include some plant matter in their diets (Donoso-Barros and Cei, 1971; Hulse, 1979; Espinoza, unpublished data). Feces produced by the three individuals of *L. heliodermis* that we collected contained the remains of insects and some plant tissues. This observation suggests that the new species has similar dietary preferences to other members of the *elongatus* group. Our inability to locate additional specimens of *L. heliodermis* despite extensive and repeated searches at the type locality and contiguous regions suggests that *L. heliodermis* may be an uncommon lizard. The apparent scarcity of *L. heliodermis* is in contrast to our experience with other *Liolaemus* lizards—which are typically locally abundant—including other members of the *elongatus* group as well as the other three species of *Liolaemus* found near the type locality of *L. heliodermis*. Evaluation of these predictions and support for these

preliminary inferences will require additional specimens.

Content of the *elongatus* Group

The *Liolaemus elongatus* group was first defined by Cei (1974; see also Cei, 1975, 1986, 1993) who included three species: *L. austromendocinus* from Mendoza Province in west-central Argentina; *L. [elongatus] elongatus*, a wide-ranging and morphologically variable species; and *L. [elongatus] petrophilus*, a species with a restricted distribution in northern Patagonia. Hulse (1979) described *L. capillitas* from Catamarca Province, Argentina and considered this species to be a member of the *elongatus* group (see also Cei, 1993). Most recently, Videla and Cei (1996) described *L. thermarum* from the volcanic Cordillera of Mendoza Province. In their diagnosis, they differentiated *L. thermarum* from other species in the *chiliensis* group that also lack precloacal pores (see also Videla and Cei, 1998), but they apparently did not consider *L. thermarum* to be allied with the *elongatus* group. Although Cei (1986, 1993) had previously noted that members of the *elongatus* group either lacked or possessed relatively few precloacal pores (0–4; see Table 2), Videla and Cei (1996) did not compare *L. thermarum* with any species in the *elongatus* group despite its morphological similarity and geographic proximity to other members of this lineage (particularly *L. austromendocinus*). Nevertheless, our definition of the *elongatus* group (see above) recognizes *L. thermarum* as a member of this lineage.

Recent phylogenetic analyses using morphological (Lobo, unpublished data), molecular (Espinoza, unpublished data; Schulte et al., 2000), and combined molecular and morphological data sets (Espinoza and Lobo, unpublished data) provide convincing evidence for monophyly of the *elongatus* group. Among the members of this group, both molecular and morphological evidence support a sister-taxon relationship between *L. heliodermis* and *L. capillitas* (Espinoza and Lobo, unpublished data)—the two northern-most distributed species in the group. The inclusion of *L. thermarum* in the *elongatus*

group is also strongly supported, as is its sister-taxon relationship with *L. austromendocinus* (Espinoza and Lobo, unpublished data). Therefore, we currently consider the *elongatus* group to constitute a natural lineage (as originally suggested by Cei, 1986) which includes the six species listed in Table 2. Inferring the phylogenetic relationships among members of the *elongatus* group, closely related outgroup taxa, and descriptions of additional species are the subjects of studies now in progress.

RESUMEN

El grupo *Liolaemus elongatus* actualmente incluye seis especies (incluyendo la que aquí se describe) de tamaño medio, de cuerpos elongados, siendo principalmente saxícolas. La mayoría de estas especies se distribuyen a lo largo de la Cordillera Andina, del lado argentino, principalmente en elevaciones que exceden los 1000 m. Aquí nosotros describimos *Liolaemus heliodermis*, una especie nueva que pertenece a este grupo, de la región donde las Cumbres Calchaquies y la Sierra del Aconquija convergen en el noroeste de la provincia Tucumán. La especie nueva difiere de todos los otros miembros del grupo *elongatus* en tener machos con cabeza negra y el torso amarillento además de varios caracteres merísticos. *Liolaemus heliodermis* es el miembro distribuido más al norte del grupo *elongatus*, y es el único miembro del complejo presente en la provincia de Tucumán. Se aportan datos preliminares sobre la biología de *L. heliodermis* y sus relaciones con otros miembros del grupo *elongatus*.

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APPENDIX I

Specimens Examined

Liolaemus austromendocinus (7).—ARGENTINA: *Provincia de Mendoza*: Departamento Malargüe, Ruta Nacional 40, 47 km S Malargüe (35° 46' 10.4" S, 69° 38' 46.8" W, 1920 m): FML 3432 (1–7).

L. capillitas (16).—ARGENTINA: *Provincia de Catamarca*: Departamento Andalgalá, Mina Capillitas (3000–3600 m): FML 1229 (1, 2, 4, 6, 7, 11, 12, 16, 18–21); Morro El Arenal (El Ingenio) (3100 m): FML 2029 (1–4).

L. elongatus (10).—ARGENTINA: *Provincia de Mendoza*: Departamento Las Heras, Paramillo de Uspallata (2800 m): FML 1103 (1–10).

L. heliodermis (3).—ARGENTINA: *Provincia de Tucumán*: Departamento Tafí del Valle, Ruta Provincial 307, approximately 32 km (by road) from Tafí del Valle at km marker 95 (26° 40.82' S, 65° 48.74' W, 2820 m): FML 6006–6007 (paratypes), 7196 (holotype).

L. petrophilus (3).—ARGENTINA: *Provincia de Chubut*: Ruta 25, 10 km S Puesto Espinal (350 m): FML 793 (1–3).

L. thermanum (3).—ARGENTINA: *Provincia de Mendoza*: Departamento Malargüe, Laguna "Niña Encantada" (35° 09' 37.4" S, 69° 52' 09.0" W, 1680 m): FML 7189–7191.