**New Patagonian species of *Liolaemus* (Iguania: Liolaemidae) and novelty in the
lepidosis of the southernmost lizard of the world: *Liolaemus magellanicus*.**

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Abstract. We describe a new species within the genus *Liolaemus* from southeast Argentine Patagonia. This new taxon, *Liolaemus yatel* sp nov., presents anatomical traits shared with the *Liolaemus lineomaculatus* section within the *Liolaemus lineomaculatus* group, especially the absence of precloacal pores in both sexes. However, *Liolaemus yatel* sp nov. does not exhibit trifold dorsal scales, which is a diagnostic character of the *L. lineomaculatus* group. Moreover, this new species differs from other taxa of the *L. lineomaculatus* group in that dorsal and nuchal scales either completely lack keels or are slightly keeled. We also report, for the first time, the presence of trifold scales in *Liolaemus magellanicus*, another species included in the *L. lineomaculatus* section but constituting an independent lineage regarding the *L. lineomaculatus* group. The phenotypic traits of *L. yatel* sp nov. and the presence of trifold scales in *L. magellanicus* provide additional information for the study of evolutionary relationships among the species of the *L. lineomaculatus* section, especially the establishment of their diagnostic character states.

Key words: *Liolaemus lineomaculatus* section, *Liolaemus lineomaculatus* group, Morphology, New taxon, Patagonia, Argentina.

Resumen. Describimos una nueva especie para el género *Liolaemus* del sureste de la Patagonia, Argentina. Este nuevo taxón, *Liolaemus yatel* sp nov., presenta rasgos anatómicos compartidos con la sección de *Liolaemus lineomaculatus*, dentro del grupo de *Liolaemus lineomaculatus*, especialmente la ausencia de poros precloacales en ambos sexos. Sin embargo *Liolaemus yatel* sp nov. no exhibe escamas dorsales trífidas, que es uno de los caracteres diagnósticos del grupo de *L. lineomaculatus*. Asimismo, esta nueva especie se diferencia de los demás taxones del grupo de *L. lineomaculatus* en que las

escamas dorsales y nucas son lisas sin quilla o levemente quilladas. También reportamos, por primera vez, la presencia de escamas trífidas en *Liolaemus magellanicus*, otra especie incluida en la sección de *L. lineomaculatus*, pero que constituye un linaje independiente respecto al del grupo de *L. lineomaculatus*. Los rasgos fenotípicos de *L. yatel* sp nov. y la presencia de escamas trífidas en *L. magellanicus* provee información adicional en el estudio de las relaciones evolutivas entre las especies de la sección de *L. lineomaculatus*, especialmente en el establecimiento de sus estados de caracteres diagnósticos.

Palabras clave: Sección de *Liolaemus lineomaculatus*, grupo de *Liolaemus lineomaculatus*, Morfología, Nuevo taxón, Patagonia, Argentina.

Introduction

The genus *Liolaemus* is a group of highly diversified lizards currently comprising 258 species (Lobo *et al.*, 2010; Abdala *et al.*, 2011, 2012, Quinteros, 2012; Avila *et al.*, 2013; Abdala & Quinteros, 2014), a figure that has increased exponentially during the last years (Abdala *et al.*, 2010, 2011, 2012; Avila *et al.*, 2010; Quinteros & Abdala, 2011; Breitman *et al.*, 2011a; Quinteros, 2012). On the basis of morphological and molecular characters, two subgenera have been recognized within *Liolaemus*: *Eulaemus* or Argentine group and *Liolaemus sensu stricto* or Chilean group (Laurent, 1983; Lobo *et al.*, 2010, Schulte *et al.*, 2000). Species assigned to each subgenus have been further classified into clades and subclades and, whereas considerable progress has been made in their classification, hypotheses about the phylogenetic relationships among these clades and about the species that constitute each of them are not entirely clear (Morando *et al.*, 2004; Lobo, 2005; Avila *et al.*, 2006; Abdala, 2007; Breitman *et al.*, 2011b, 2013; Quinteros, 2012; Olave *et al.*, 2014).

Etheridge (1995) reviewed the taxonomy of the genus *Liolaemus* and proposed, among others, the *Liolaemus lineomaculatus* group, characterized by the absence of precloacal pores in both sexes and the high density of dorsal trifold scales. According to the phylogenetic hypothesis proposed by Breitman *et al.* (2011b, 2013), the *L. lineomaculatus* group would consist of six taxa: *Liolaemus lineomaculatus* Boulenger, 1885, *Liolaemus hatcheri* Stejneger, 1909, *Liolaemus silvanae* Donoso-Barros & Cei, 1971, *Liolaemus kolengh* Abdala & Lobo, 2006, *Liolaemus avilae* Breitman *et al.*, 2011a and *Liolaemus morandae* Breitman *et al.*, 2011a. The *Liolaemus silvanae* group contains three species (*Liolaemus hatcheri*, *Liolaemus kolengh* and *Liolaemus silvanae*) and species within this group are characterized by the presence of keeled and imbricated nuchal scales and post-

femoral subimbricated scales (Abdala & Lobo, 2006). Previous studies by Etheridge (1995) and Abdala & Lobo (2006) suggest that the *Liolaemus silvanae* group should best be placed within the *L. lineomaculatus* group. According to Etheridge (1995) the *L. lineomaculatus* group would be sister to *Liolaemus magellanicus* Hombron & Jacquinot, 1847. From its general appearance, *Liolaemus magellanicus* resembles the species within the *L. lineomaculatus* group, which are also small lizards, with bodies almost as long as wide, usually with apparent dorsolateral bands, paravertebral subquadrangular blotches and markedly keeled dorsal scales. However, males of *L. magellanicus* have precloacal pores, a morphological character state which is absent in the *L. lineomaculatus* group (Etheridge, 1995), whereas several studies have reported the absence of dorsal trifold scales in *L. magellanicus* (Cei, 1986; Etheridge, 1995; Abdala & Lobo, 2006; Breitman *et al.*, 2013).

A number of different taxonomic relationships have been proposed for the *Liolaemus lineomaculatus* section (Breitman *et al.*, 2011a,b; 2013; Olave *et al.*, 2014) within the genus *Liolaemus*. Etheridge (1995) placed the *L. lineomaculatus* group as well as *L. magellanicus* within the *nitidus* group, including species belonging to the subgenus *Liolaemus sensu stricto* or Chilean group. Subsequent studies suggested that the *L. lineomaculatus* group and *L. magellanicus* would be members of the subgenus *Eulaemus* or Argentine group (Young Downey, 1998; Morando, 2004; Schulte *et al.*, 2000). Breitman *et al.* (2011b) proposed a molecular hypothesis concerning the *L. lineomaculatus* section, which would be composed of the *L. lineomaculatus* group and a large clade comprising the groups of *L. magellanicus*, *L. somuncurae* and *L. kingii - archeforus*. Recently, the hypothesis by Breitman *et al.* (2013) that the *L. somuncurae* and *L. kingii – archeforus* groups should be included within the *L. kingii* group has been supported by Olave *et al.* (2014).

In this paper we describe a new species belonging to the *Liolaemus* *lineomaculatus* section that was found in the north-central region of Santa Cruz Province, Argentine Patagonia. Here, we use an integrative approach based on color pattern, morphometric, meristic, and qualitative characters to describe this new species. We also examine specimens of *L. magellanicus* in order to assess the presence of dorsal trifold scales in this species.

Materials and methods

We examined series of specimens from the *Liolaemus lineomaculatus* clade, particularly those of the *L. lineomaculatus* group (specimens from different collections, see Appendix I). *Liolaemus avilae* (n = 2), *L. hatcheri* (n = 27), *L. kollegh* (n = 17), *L. lineomaculatus* (n = 18), *L. magellanicus* (n = 46), *L. morandae* (n = 13), *L. silvanae* (n = 11), and bibliographic data of *L. caparensis* and *L. avilae* (Breitman *et al.*, 2011c; 2013), were compared with nine specimens of the new species. We captured lizards with permission of the National Parks Administration and the Wildlife Agency of Santa Cruz Province. We collected the specimens with a noose and killed them with over-anaesthesia. Fresh lizard bodies were fixed in 10% formalin and then stored in 70% ethanol. Appendix I lists the specimens studied for this work.

We used 144 external morphological characters describing primarily lepidosis, color patterns, and body proportions used in phylogenetic analyses by Abdala (2007) and Paz (2012), and defined or cited by Laurent (1985), Cei (1986), Etheridge (1995; 2000), Lobo (2001), Abdala (2007), Abdala *et al.* 2012, and Paz (2012). When characters were bilateral, data were taken from the right side of the specimen. We recorded these characters in all specimens analyzed to carry out the present study. Color description was done on live

animals and inspection of photographs taken in the field. The observations of lepidosis characters and the body measurements were done with the aid of a stereo microscope and a caliper with a precision of 0.02 mm. Nomenclature for neck folds follows Frost (1992) and Abdala (2007), and that for color patterns follows Lobo & Espinoza (1999) and Abdala (2007).

We performed statistical tests for both morphometric and meristic characters, and compared frequencies of qualitative characters. Kruskal-Wallis and Dunn's tests ($\alpha = 0.05$) were carried out to evaluate the significance of character differences between the putative new species and described species (Zar, 1984). We performed a discriminant-function analysis (DFA) in order to present a visualization of differences and similarities among species (Zar, 1984).

Results

Liolaemus yatel sp nov.

(Fig. 1-3)

1986, *Liolaemus lineomaculatus*, Cei (*partim*); Museo Regionale di Scienze Naturali, Torino. Monografia IV: 527 pp.

2011, *Liolaemus lineomaculatus*, Breitman, Parra, Pérez, Sites (*partim*); Zootaxa. 3120: 1–28.

2014, *Liolaemus lineomaculatus* Breitman, Minoli, Avila, Medina, Sites, Morando (*partim*); Cuadernos de Herpetología. 28 (2); first online.

Holotype (Fig. 1): FML 24646 (CIPD 628). Adult female. Monumento Natural Bosques Petrificados, Puerto Deseado department, Santa Cruz province, 47° 41' 21'' S; 68° 01' 03'' W. D. Procopio Col. 03/03/2009.

Paratypes All individuals were collected in the Monumento Natural Bosques Petrificados, Puerto Deseado department, Santa Cruz province, Argentina.

FML 24647 (CIPD 329). Adult male. 47° 41' 11'' S; 68° 00' 36'' W. D. Procopio and O. Stelletti cols. 27/10/2006.

FML 24648 (CIPD 629) Adult female. 47° 41' 15'' S; 68° 00' 38'' W. D. Procopio col. 06/03/2009.

FML 24649 (CIPD 394). Adult male. 47° 41' 39'' S; 68° 00' 13'' W. D. Procopio col. 11/03/2007.

FML 24650 (CIPD 396): Adult female. 47° 41' 42'' S; 68° 00' 33'' W. D. Procopio col. 11/03/2007.

MLP.R. 5704 (CIPD 395). Adult male. 47° 41' 48'' S; 68° 00' 22'' W. D. Procopio col. 11/03/2007.

MLP.R 5705 (CIPD 643): Adult female. 47° 41' 34'' S; 68° 00' 21'' W. D. Procopio col. 11/03/2007.

MLP.R 5706-07 (CIPD 644-45): Juveniles. 47° 41' 40'' S; 68° 00' 11'' W. D. Procopio col. 11/03/2007.

Diagnosis:

Liolaemus yatel sp nov. belongs to the *L. lineomaculatus* section (Breitman *et al.*, 2011b; 2013) and, within this section, it belongs to the *L. lineomaculatus* group (Etheridge, 1995; Abdala & Lobo, 2006), along with the *L. kingii* and *L. magellanicus*

groups (Breitman *et al.*, 2013). The most striking differences between *Liolaemus yatel* sp nov. and species of the *L. kingii* group (*L. archeforus*, *L. baguali*, *L. chacabucoense*, *L. escarchadosi*, *L. gallardoi*, *L. kingii*, *L. sarmientoi*, *L. scolaroi*, *L. somuncurae*, *L. tari*, *L. tristis*, *L. uptoni*, and *L. zuliyi*) are the absence of precloacal pores in males, a shorter snout-vent length (max SVL 61.1 mm vs. range between 67 and 112 mm, respectively; an exception is *L. scolaroi*: max SVL: 61 mm), and clearly contrasting dorsal and ventral coloration patterns. Further, *L. yatel* sp nov. and the species of the *L. kingii* group also differ in scalation patterns and morphometry (Breitman *et al.*, 2013).

Among other diagnostic traits *Liolaemus yatel* sp nov. differs from *L. magellanicus* and *L. caparensis*, that belong to the *L. magellanicus* group (Breitman *et al.*, 2013), by the absence of precloacal pores in males.

Morphology showed differences between the new species and the other taxa of the *L. lineomaculatus* group (Tables 1, 2). Within this group, the absence of trifold scales distinguish the new taxon from all members of the *L. lineomaculatus* group and *L. magellanicus* (trifold scales present in: 58 % of the examined specimens of *L. magellanicus* (Fig. 4), 67 % of *L. lineomaculatus*, and 100% in *L. avilae*, *L. hatcheri*, *L. kolengh*, *L. morandae*, and *L. silvanae*) (Table 1).

Liolaemus yatel sp nov. also differs from *L. hatcheri*, *L. kolengh* and *L. silvanae* (*L. silvanae* group) for lacking either keeled nuchal scales or imbricate and subimbricated postfemorals (Table 1). In addition, body dorsal scales are subimbricated, slightly keeled and without mucron in *L. yatel* sp nov., in contrast to *L. magellanicus* (Fig. 4), *L. caparensis*, and species of the *L. lineomaculatus* group whose scales are imbricated, strongly keeled and mucronated. Table 1 shows further differences in scalation and color patterns of body spots with other species of that group.

Morphological tests showed significant differences between the new species and the other taxa of the *L. lineomaculatus* group. Means and ranks for meristic and qualitative characters are summarized in Table 1. Univariate tests showed that the number of scales around midbody could be used to tell between *L. yatel* sp. nov. and all other species but *L. silvanae*, whereas the number of dorsal scales differed significantly between *L. yatel* sp. nov. and *L. silvanae* (Table 2). The DFA indicated that the first two discriminant functions were statistically significant (Table 3). The first discriminant function accounted for 63.70 % of the total variance; this function was significantly correlated with the number of scales around midbody, as well as the number of dorsal and ventral scales (Table 3; Fig. 5). The second discriminant function was significantly correlated with the number of nuchal scales (Table 3; Fig. 5). Based on both discriminant functions, the number of scales around midbody, and the number of dorsal, ventral and nuchal scales contributed significantly to separate the centroids of most species (Table 3; Fig. 5). Our analysis allowed the identification of *L. yatel* sp. nov. based on meristic traits. Table 4 indicates that the nine species (i.e. *L. avilae*, *L. caparensis*, *L. hatcheri*, *L. kolengh*, *L. lineomaculatus*, *L. magellanicus*, *L. morandae*, *L. silvanae*, and *L. yatel* sp nov.) were each correctly classified with 95.86 % accuracy. All specimens of *L. yatel* sp nov. were correctly classified (Table 4). These results indicate that this species possesses morphological characteristics which distinguish it from the other known species of the *L. lineomaculatus* group.

Description of the holotype. Adult female. Snout vent length (SVL) 60.3 mm. Head 1.14 times longer (11.4 mm) than wide (10.0 mm). Head height 6.9 mm. Interorbital distance 7.9 mm. Eye-auditory meatus distance 4.0 mm. Auditory meatus height 1.6 mm; width 1.2 mm. Trunk length 32.4 mm; width 17.1 mm. Tail length

227 48.9 mm, and not regenerated. The tail is shorter than the SVL. Width tail base 7.0 mm.
228 Arm length 8.0 mm; forearm length 6.6 mm; and hand 7.6 mm. Thigh length 10.2 mm; leg
229 10.1 mm; Foot length 12.9 mm; IV toe 9.2 mm.
230 Dorsal surface of head smooth. Rostral scale wider (2.7 mm) than high (1.6 mm), in contact
231 with six scales. Mental scale trapezoidal, wider (3.1 mm) than high (2.8 mm), in contact
232 with four scales. Lateral postrostral scale does not contact the first supralabial scale. There
233 is no contact between nasal and rostral scales. Distal end of frontal scale separated from
234 superciliaries by six scales. Six scales between rostral and frontal scales. Frontal scale is
235 divided into three parts. Two postrostral scales, with one and two scale organs respectively.
236 Interparietal scale shorter than parietals, in contact with seven scales. Eight smooth,
237 juxtaposed or subjuxtaposed temporals. Subocular (length 4.2 mm) is white, with the
238 posterior end and the upper edge dark, and in contact with four lorilabials. Eye diameter 3.1
239 mm. The postocular scale is not divided. Five supraocular scales. The supraorbital scales
240 form an incomplete semicircle. Six supralabial scales, the fifth is the largest and is curved
241 upwards at its posterior end, without contacting the subocular scale. Four infralabial scales,
242 the second one contacts three scales. Seven lorilabial scales. One scale between preocular
243 and lorilabials. Seven scales surround the nasal scale, which is separated from the canthal
244 scale by two scales. Four internasal scales. Two postmental scales. Six superciliaries.
245 Twelve upper cilliaris. Hellmich index (dorsal scales in head, from occiput to mental
246 scale) 12. Scales around midbody 60. Seventy eight round, slightly keeled or without keels,
247 without mucron and juxtaposed or subjuxtaposed dorsal scales (from occiput to forelimbs).
248 Thirty-four rows of scales on the dorsum. Thirty-seven granular and smooth neck scales
249 (counted from the posterior margin of the auditory meatus to the shoulder, along the
250 longitudinal fold). Antehumeral scales subtriangular and differentiated. Neck folds

(auricular, antehumeral and longitudinal) evident. Scales of longitudinal fold granular, juxtaposed and without keel. Thirty gular scales. Eighty-eight larger than dorsals, laminar and imbricated ventral scales (from mental scale to cloaca). Thirteen pigal scales. Without precloacal pores. Sixteen infradigital lamellae on fourth finger and 22 on fourth toe. The scales of sides of the body are laminar and without keel. Anterior edge of the auditory meatus with one projected scale. Auricular scale (located in the antero-superior edge of the auditory meatus) absent. The central and lateral nuchal scales are undifferentiated, granular and without keel. Without trifold scales between nuchal areas and lateral cephalic.

Coloration (Fig. 1): The dorsal pattern of the head is a pale brown background with hints of gray and a few dark, irregularly scattered spots. The body back is light brown with 11 pairs of paravertebral, dark brown, crescent-shaped spots that show an anterior indentation. Flanks have spots that follow the same pattern, color and shape than that of paravertebral design. The contact between paravertebral and lateral spots forms streaks transverse to the body axis. Paravertebral spots do not contact in the vertebral region. Vertebral line, dorsolateral stripes, antehumeral arch and scapular spots are absent. Some fuzzy spots appear along the lateral body midline. The background color of the body back continues in the dorsal region of limbs and tail. A few ring-shaped dark spots appear on dorsal areas of forelimbs and hindlimbs. In the distal region of the tail, lateral and dorsal spots touch and form pseudo-rings. Ventral regions of the head and abdomen are white, with scattered black spots and scales that become denser towards the center of the ventral region, which also shows a very light orange background color. A few dark scales in the limbs and the gular region. The holotype preserved in 70% ethanol maintains the color pattern observed in life, but shows a more grayish and less intense coloration.

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276 *Variation:* Based on eight paratypes. *Liolaemus* small, with SVL in adult males and
277 females from 45.7 to 61.1 mm ($\bar{x} = 55.2$ mm). The tail length is shorter than or equal to
278 the SVL, from 48.9 to 56.4 mm ($\bar{x} = 53.1$ mm, $n = 5$). Body length 18.3 - 32.4 mm ($\bar{x} =$
279 24.3 mm) and body width 14.1-18.5 mm ($\bar{x} = 16.2$ mm). The head is almost as wide as
280 long (length: 10.4 - 12.8 mm, $\bar{x} = 11.7$ mm; width: 9.3 - 10.9 mm, $\bar{x} = 10.2$ mm). Head
281 height 6.9 - 8.4 mm ($\bar{x} = 7.6$ mm). Dorsal surface of head smooth, with 12–15 ($\bar{x} = 13.5$)
282 scales (Hellmich index). Six to nine ($\bar{x} = 7.0$) scales between the frontal and rostral scales.
283 One or two ($\bar{x} = 1.7$) scales between the nasal and canthal scales. Nasal surrounded by
284 seven scales. Minimal contact between nasal and rostral scales observed in only two
285 individuals. Interparietal lesser than or equal to parietals, surrounded by 6 - 8 ($\bar{x} = 7.1$)
286 scales. Three to five ($\bar{x} = 3.5$) supraocular scales. Eight to nine ($\bar{x} = 8.8$) smooth and
287 round temporal scales. Nine to ten ($\bar{x} = 9.5$) superciliar scales. The ear is always higher
288 than wide (high: 1.6 - 2.5, $\bar{x} = 1.9$; width: 0.9 - 1.6, $\bar{x} = 1.2$). One to three auricular
289 scales. Without differentiated supero-posterior auricular scale and supero-anterior auricular
290 scale. Eleven to fourteen upper cilliar scales ($\bar{x} = 12.5$). Preocular scale separated by one scale
291 from the loreolabial scales. Postocular not divided. Six to seven ($\bar{x} = 6.5$) loreolabials.
292 Three to four loreolabials ($\bar{x} = 3.7$) are in contact with the subocular. Five to six ($\bar{x} = 5.8$)
293 supralabial scales. Mental scale in contact with four scales. Three to four ($\bar{x} = 3.7$)
294 infralabial scales. The second infralabials are in contact with 2 - 3 ($\bar{x} = 2.7$) scales. Neck

295 with 29 - 37 ($\bar{x} = 33.5$) granular scales and without keel. Neck folds (auricular,
296 antehumeral and longitudinal) evident. The longitudinal fold contains 20 - 29 ($\bar{x} = 24.5$)
297 scales. Antehumeral scales are imbricated, without keel, subtriangular and differentiated.
298 Gulars 29 - 31 ($\bar{x} = 30$). Without gular fold. Nuchal central scales are cone-shaped, are
299 granular and without keel, like lateral nuchal scales. Body dorsal scales are laminar, slightly
300 keeled or without keel, without mucron, juxtaposed or subjuxtaposed. Scales around
301 midbody 59 - 66 ($\bar{x} = 62.3$). Dorsal scales between occiput and hind limbs 60 - 78 ($\bar{x} =$
302 65.2). Ventral scales 85 - 92 ($\bar{x} = 87.1$). Pigal scales 11 - 14 ($\bar{x} = 12.6$). Males and
303 females without precloacal pores. Sixteen to seventeen infradigital lamellae on fourth finger
304 and 17-22 on fourth toe. Scales of the dorsum of the tail are slightly keeled, laminar,
305 imbricated and the ventral scales are without keel, laminar and imbricated.
306 Without sexual dichromatism in *Liolaemus yatel* sp nov. (Fig. 2). Dorsal and lateral regions
307 of the head are uniformly light brown to light gray although some specimens show dark
308 specks. The background color of the dorsal regions of the body, limbs and tail is light
309 brown or light gray. Vertebral line absent. Dark brown or faded black paravertebral and
310 lateral spots of varied shapes occur. In most specimens paravertebral spots and lateral spots
311 have a crescent shape with an anterior indentation whereas these spots have a
312 subquadrangular shape in other specimens. In most individuals paravertebral spots join
313 lateral spots forming irregular streaks or lines, transverse to the major body axis, that vary
314 considerably in thickness across specimens. Several individuals show reddish-brown
315 specks anterior to each paravertebral or lateral spot. Some specimens have pale yellow or
316 pale reddish brown faint and discontinuous dorsolateral stripes with diffuse contours. Some

dark rosettes, or discontinuous ring-shaped spots, occur in the dorsal regions of the limbs. Only a few specimens show a reddish brown coloration on the posterior flank of the thigh. The color pattern of the body back continues along most of the dorsal region of the tail. Near the end of the tail paravertebral and lateral spots approach without contact and form incomplete rings or pseudo-rings. In most cases the ventral region is pristine white in females, while males exhibit a few black scales against white background irregularly scattered across the gular region, abdomen or cloaca. Some males show a reddish and / or slightly yellowish tone in the ventral areas of the body, the hind limbs and the cloaca.

Distribution (Fig. 3): *Liolaemus yatel* sp nov. has been found only in its type locality, the Monumento Nacional Bosques Petrificados National Park, Puerto Deseado county, Santa Cruz Province, Argentina.

Natural history. From a biogeographical point of view, the area inhabited by *Liolaemus yatel* belongs to the Patagonian province, Central Patagonian District (Cabrera & Willink, 1973), which is characterized by a mixed steppe of grasses and low-lying thorny shrubs (Soriano, 1983) with cover <10% in the driest areas and >60% in the valleys and lowlands (Bertiller & Bisigato, 1998). In arid sites, vegetation is dominated by the shrubs *Chuquiraga avellanedae*, *Nassauvia glomerulosa*, and *Junellia tridens* and by *Stipa* spp. grasses. In protected and relatively mesic lowland sites, vegetation is characterized by meadows and dense grasslands dominated by *Distichlis spicata* and *Schoenoplectus* spp., and shrubs such as *Prosopis denudans*, *Berberis heterophylla*, *Schinus* spp., *Junellia tridens* and *Colliguaja integerrima*. Climate is cold, dry and very windy. Winter frosts are frequent and the mean summer temperature is 17 °C. Annual rainfall ranges between 100

and 300 mm, and concentrates during autumn and winter; snowfall is rare. Prevailing western winds are often strong. Topography is characterized by plateaus defined by cliffs and steep slopes, narrow valleys and flat or rolling depressions, sometimes quite extensive.

In the locality where *Liolaemus yatel* sp nov. was found soil is made of sandy clay interspersed with small basalt clasts. The scarce woody vegetation of this open landscape consists of isolated individuals of *Atriplex lampa* and *Suaeda divaricata*.

The rolling ground becomes remarkably muddy in the rain and large mud crusts are typical during dry periods. This type of habitat (locally known as "guadal") is representative of the type locality (47° 41' 415" S, 68° 00' 06" W), placed between an intermittent lagoon (Laguna Grande) and a barren geological formation (Bajo Pobre).

Specimens of *Liolaemus yatel* were collected between 11:30 and 15:00. In the spot where specimen ICPD 329 was found, air temperature at ground level ranged between 23 °C and 33 °C in the mid-day hours. At the beginning of March, when the remaining individuals were collected, temperatures ranged from 15 °C to 20 °C. Most individuals were found on bare ground, where they perfectly camouflaged against the background. Escape behavior consisted in seeking shelter under bushes or in the cracks of the dry mud. We saw some individuals inside burrows dug in small mounds of sand and mud, or in the walls of small dry streams.

We observed other lizard species, apparently in low density, near the spot where *Liolaemus yatel* sp nov. was found. Species that coexist with *L. yatel* sp nov. include *Liolaemus boulengeri*, *L. fitzingeri*, *L. kingii*, *L. bibronii*, *Diplolaemus bibronii*, *D. darwinii*, and *Homonota darwini*. All of them were found in the ecotone between Guadal and shrub-steppe.

Etymology: The species name refers to the term that the native Tehuelche people uses to name the rocky ground that surrounds the sites where the specimens were collected.

Discussion

The species we describe in this paper is phenotypically similar to other species that make up the *Liolaemus lineomaculatus* group within the *L. lineomaculatus* section, with which it shares morphometric, lepidosis and coloration characters (Tables 1, 2). However, the fact that males do not have precloacal pores should be considered a singular character. In the genus *Liolaemus*, the absence of precloacal pores in males has been reported only in two small groups of species: firstly, in *L. cristiani*, *L. coeruleus*, *L. neuquensis*, *L. thermarum* and *L. tregenzai*, that belong to the subgenus *Liolaemus sensu stricto* or Chilean group; and secondly, in some species of the *L. lineomaculatus* group: *L. avilae*, *L. hatcheri*, *L. kolengh*, *L. lineomaculatus*, *L. morandae*, and *L. silvanae*.

Considering that males lack precloacal pores in only 11 out of the 246 (4.5%) species so far described within the genus *Liolaemus* (Avila *et al.*, 2013), we conclude that the absence of precloacal pores in males is a rare character state with high diagnostic value to members of the *L. lineomaculatus* group. Even within the family *Liolaemidae*, this character can be considered exceptional because males of species within the other two genera (*Phymaturus* and *Ctenoblepharys*) always exhibit precloacal pores (Cei, 1986; Lobo *et al.*, 2010).

Given the color pattern (distinctive dorsal coloration and absence of ventral melanism), the lepidosis characters exhibited by *Liolaemus yatel* sp nov. (high number of dorsal and ventral scales, and absence of mucronate or trifold dorsal scales), as well as the comparison of these characters with those of other species of the group *L. lineomaculatus*,

we propose *L. yatel* sp nov. to be considered a member of the *L. lineomaculatus* group, or as an intermediate lineage between this group and the *L. magellanicus* group (Breitman *et al.*, 2013).

The characters proposed as synapomorphies by Etheridge (1995) and further endorsed by Abdala & Lobo (2006) and Breitman *et al.* (2011a; 2013) should be formally tested through a cladistic phylogenetic analysis of morphological traits, because one of the proposed synapomorphies for the *L. lineomaculatus* group, i.e. the presence of trifold scales in the body back, lacks in the taxon described in this paper but occurs in several specimens of *L. magellanicus* (Fig. 4). The absence of dorsal trifold scales in *Liolaemus yatel* sp nov. could be a secondary loss within the *L. lineomaculatus* group. *Liolaemus magellanicus* was considered by Etheridge (1995) as a sister species of the *L. lineomaculatus* group, whereas Breitman *et al.* (2011c; 2013) considered *L. magellanicus*, together with *L. caparensis*, as a member of the *L. magellanicus* group. In turn, this group is considered by Breitman *et al.* (2011 a,b; 2013) as a sister clade of the *L. kingii* groups. The presence of trifold scales in *Liolaemus magellanicus* and in the species included within the *L. lineomaculatus* group indicates that the hypothesis by Etheridge (1995) that this should be a diagnostic character is not supported. *Liolaemus magellanicus* is the southernmost lizard in the world and, according to Breitman *et al.* (2014), phylogeographic patterns suggest that this taxon actually includes two species, one in the continent, the other in Tierra del Fuego island. Trifold scales in *L. magellanicus* specimens have been reported only in material from the continent which might support the hypothesis enunciated by Breitman *et al.* (2014).

The taxonomic composition of the *Liolaemus lineomaculatus* group has been modified as a result of the description of new species and the diagnostic characters of the groups which these new species were assigned to. The taxonomic and phylogenetic

hypotheses about the composition of the *L. lineomaculatus* group are summarized in Table 5. Among these, however, the only formal phylogenetic hypothesis was put forward by Breitman *et al.* (2011b) on the basis of molecular characters. These authors proposed that the *L. lineomaculatus* section should include four groups of Patagonian species that are phylogenetically related as follows: ((*L. kingii*-*archeforus* group + *L. somuncurae* group) + *L. magellanicus* group)) + *L. lineomaculatus* group. More recently, Breitman *et al.* (2013) did not find either morphological or genetic differences between species of the *L. kingii*, *L. kingii*-*archeforus* and *L. somuncurae* groups, and consequently suggested that the two latter groups should be assimilated to the *L. kingii* group. However, in their comprehensive study, Breitman *et al.* (2013) did not mention the occurrence of trifold scales in *L. magellanicus*. The phylogenetic relationships proposed by Breitman *et al.* (2013) for the *L. lineomaculatus* section have been further supported by Olave *et al.* (2014).

We formally described a new species and found that some of the morphological characters commonly recognized as diagnostic for the *L. lineomaculatus* group must be revised for use in taxonomic classifications. After that, we believe that performing a taxonomic revision and a formal phylogenetic analysis based on morphological characters is a priority in order to assess the phylogenetic position of *Liolaemus yatel* sp. nov., the relationships between all species of the Patagonian groups of the genus *Liolaemus*, and the congruence between molecular and morphological hypotheses about the composition of the *L. lineomaculatus* section.

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References

- Abdala, C. S. (2007) Phylogeny of the *boulengeri* group (Iguania: Liolaemidae, *Liolaemus*) based on morphological and molecular characters. *Zootaxa*, 1538, 1–84.
- Abdala, C. S. & Lobo, F. (2006) Description of a new Patagonian lizard species of the *Liolaemus silvanae* group (Iguania: Liolaemidae). *South American Journal of Herpetology*, 1, 1–8.
- Abdala, C. S., Quinteros, A. S., Scrocchi, G. J. & Stazzonelli, J. C. (2010) Three new species of the *Liolaemus petrophilus* group (Iguania: Liolaemidae) from Argentina. *Cuadernos de Herpetología*, 24, 25–40.
- Abdala, C. S., Quinteros, A. S., Arias, F., Portelli, S. & Pallavechino, A. (2011) A new species of the *Liolaemus darwinii* group (Iguania: Liolaemidae) from Salta Province, Argentina. *Zootaxa*, 2968, 26–38.
- Abdala, C. S., Semhan, R. V., Moreno, Azocar D. L., Bonino, M., Paz, M. M. & Cruz, F. (2012) Taxonomy study and morphology based phylogeny of clade *Liolaemus*

461 *melanops* group (Iguania: Liolaemidae), with the descriptions of three new taxa.
 462 *Zootaxa*, 3163, 1–32.

463 Abdala, C. S. & Quinteros, A. S. (2014). Los últimos 30 años de estudios de la familia de
 464 lagartijas más diversa de Argentina. Actualización taxonómica y sistemática de
 465 Liolaemidae. *Cuadernos de Herpetología*, 28: First online.

466 Avila, L. J., Morando, M. & Sites, Jr J. W. (2006) Congeneric phylogeography:
 467 hypothesizing species limits and evolutionary processes in Patagonian lizards of the
 468 *Liolaemus boulengeri* group (Squamata: Liolaemini). *Biological Journal of the Linnean*
 469 *Society*, 89, 241–275.

470 Avila, L. J., Pérez, C. H. F, Morando, M. & Sites Jr., J. W. (2010) A new species of
 471 *Liolaemus* (Reptilia: Squamata) from southwestern Río Negro Province, northern
 472 Patagonia, Argentina. *Zootaxa*, 2434, 47–59.

473 Avila, L. J., Martínez, L. E. & Morando, M. (2013) Checklist of lizards and
 474 amphisbaenians of Argentina: an update. *Zootaxa*, 3616, 201–238.

475 Bertiller, M. B. & Bisigato, A. (1998) Vegetation dynamics under grazing disturbance. The
 476 state-and-transition model for the Patagonian steppes. *Ecología Austral*, 8, 191–199.

477 Boulenger, G. A. (1885) Catalogue of the lizards in the British Museum (Natural History).
 478 Volume II. *Trustees of the British Museum, London*, 497 pp., 24 plates.

479 Breitman, M. F., Parra, M., Fulvio Pérez, C. H. & Sites Jr., J. W. (2011a) Two new species
 480 of lizards from the *Liolaemus lineomaculatus* section (Squamata: Iguania: Liolaemidae)
 481 from southern Patagonia. *Zootaxa*, 3120, 1–28.

482 Breitman, M. F., Avila, L. J., Sites Jr., J. W. & Morando, M. (2011b) Lizards from the end
 483 of the world: Phylogenetic relationships of the *Liolaemus lineomaculatus* section
 484 (Squamata: Iguania: Liolaemini). *Molecular Phylogenetics and Evolution*, 59, 364–376.

485 Breitman, M. F., Pérez, C. H. F., Parra, M. , Morando, M., Avila, L. J. & Sites Jr., J. W.
 486 (2011c) New species of lizard from the *magellanicus* clade of the *Liolaemus*
 487 *lineomaculatus* section (Squamata: Iguania: Liolaemidae) from southern Patagonia.
 488 *Zootaxa*, 3123, 32–48.

489 Breitman, M. F., Morando, M. & Avila, L.J. (2013) Past and present taxonomy of the
 490 *Liolaemus lineomaculatus* section (Liolaemidae): is the morphological arrangement
 491 hypothesis valid?. *Zoological Journal of the Linnean Society*, 168, 612–668.

492 Breitman, M. F., Minoli, I., Avila, L. J. Medina, C., Sites Jr., J. W. & M. Morando. 2014.
 493 Lagartijas de la provincia de Santa Cruz, Argentina: distribución geográfica, diversidad
 494 genética y estado de conservación. *Cuadernos de Herpetología*, 28: First online.

495 Cabrera, A. L. & Willink, A. (1973) Biogeografía de América Latina, *Monografía 13, Serie*
 496 *de Biología. Secretaría General de la Organización de los Estados Americanos*,
 497 Washington DC., USA, 120 pp.

498 Ceí, J. M. (1986) Reptiles del centro, centro-oeste y sur de la Argentina. Herpetofauna de
 499 las zonas áridas y semiáridas. *Museo Regionale di Scienze Naturali, Torino*,
 500 *Monografie IV*, 527 pp.

501 Ceí, J. M. & Scolaro, J. A. (1982) A new species of the Patagonian genus *Vilcunia*, with
 502 remarks on its morphology, ecology and distribution. *Journal of Herpetology*, 16, 354–
 503 363.

504 Donoso-Barros, R. & Ceí, J. M. (1971) New lizards from the volcanic Patagonian plateau
 505 of Argentina. *Journal of Herpetology*, 5, 89–95.

506 Etheridge, R. E. (1995) Redescription of *Ctenoblepharys adspersa* Tschudi, 1845, and the
 507 taxonomy of Liolaeminae (Reptilia:Squamata: Tropiduridae). *American Museum*
 508 *Novitates*, 3142, 1–34.

509 Etheridge, R. (1998) Redescription and status of *Liolaemus hatcheri* Stejneger, 1909
510 (Reptilia, Squamata, Tropiduridae). *Cuadernos de Herpetologia*, 12, 33–36.

511 Etheridge, R. E. (2000) A review of the *Liolaemus wiegmannii* group (Squamata, Iguania,
512 Tropiduridae), and a history of morphological change in the sand-dwelling species.
513 *Herpetological Monographs*, 14, 293–352.

514 Frost, D. (1992) Phylogenetic analysis and taxonomy of the *Tropidurus* group of lizards
515 (Iguania: Tropiduridae). *American Museum Novitates*, 3033, 1–68.

516 Frost, D. R. & Etheridge, R. E. (1989) A phylogenetic analysis and taxonomy of iguanian
517 lizards (Reptilia: Squamata). *Miscellaneous Publications of the Museum of Natural*
518 *History, University of Kansas*, 81, 1–65.

519 Hombron, J. & Jacquinot, H. (1847) Reptiles. In: Dumont d'Urville, M.J. (Ed.) *Voyage au*
520 *Pole Sud et dans l'Océanie sur les corvettes l'Astrolabe et la Zéélé*. Paris 1837–40.

521 Laurent, R. F. (1983) Contribución al conocimiento de la estructura taxonómica del género
522 *Liolaemus* Wiegmann (Iguanidae). *Boletín de la Asociación Herpetológica Argentina*,
523 1, 15–18.

524 Laurent, R. F. (1984) Fenogramas de algunas especies representativas del género *Liolaemus*
525 y géneros vecinos (Iguanidae, Reptilia). *Acta Zoologica Lilloana*, 38, 5–17.

526 Laurent, R. F. (1985) Segunda contribución al conocimiento de la estructura taxonómica
527 del género *Liolaemus* Wiegmann (Iguanidae). *Cuadernos de Herpetología*, 1, 1–37.

528 Lobo, F. (2001) A phylogenetic analysis of lizards of the *Liolaemus chilensis* group
529 (Iguania: Tropiduridae). *Journal of Herpetology*, 11, 137–150.

530 Lobo, F. (2005) Las relaciones filogenéticas en el grupo *chiliensis* de *Liolaemus* (Iguania:
531 *Liolaemidae*). Sumando nuevos caracteres y taxa. *Acta Zoológica Lilloana*, 49, 67–89.

532 Lobo, F. & Espinoza R. E. (1999) Two new cryptic species of *Liolaemus* (Iguania:
 533 Tropiduridae) from northwestern Argentina: resolution of the purported reproductive
 534 bimodality of *Liolaemus alticolor*. *Copeia*, 1999, 122–140.

535 Lobo, F., Espinoza, R. E. & Quinteros, S. (2010) A critical review and systematic
 536 discussion of recent classification proposals for liolaemid lizards. *Zootaxa*, 2549, 1–30.

537 Lobo, F. Abdala, C. S & Valdecantos S. 2010. Taxonomic studies of the genus *Phymaturus*
 538 (Iguania: Liolaemidae): Description of four new species. *South American Journal of*
 539 *Herpetology*, 5, 102-126.

540 Morando, M. (2004) Sistemática y Filogenia de grupos de Especies de los Géneros
 541 *Phymaturus* y *Liolaemus* (Squamata: Tropiduridae: Liolaeminae), *Tesis Doctoral*,
 542 *Universidad Nacional de Tucumán*, 276 pp.

543 Morando, M., Avila, L. J., Baker, J. & Sites Jr., W. (2004) Phylogeny and phylogeography
 544 of the *Liolaemus darwini* complex (Squamata: Liolaemidae): Evidence for
 545 introgression and incomplete lineage sorting. *Evolution*, 58, 842–861.

546 Olave, M., Avila, L. J., Sites, J. W. & Morando, M. (2014). Multilocus phylogeny of the
 547 widely distributed South American lizard clade Eulaemus (Liolaemini, *Liolaemus*).
 548 *Zoologica Scripta*. DOI: 10.1111/zsc.12053

549 Paz, M. (2012) Actualización sistemática y filogenética del grupo de *Liolaemus boulengeri*
 550 (Iguania: Liolaemidae), *Tesina de grado de la Universidad Nacional de Tucumán*, 62
 551 pp.

552 Quinteros, A. S. (2012) Taxonomy of the *Liolaemus alticolor–bibronii* group (Iguania:
 553 Liolaemidae), with descriptions of two new species. *Herpetologica*, 68, 100–120.

- Quinteros, A. S. & Abdala, C. S. (2011) A new species of *Liolaemus* of the *Liolaemus montanus* section (Iguania: Liolaemidae) from northwestern Argentina. *Zootaxa*, 2789, 35–48.
- Schulte, J. A., Macey, J. R., Espinoza, R. E. & Larson, A. (2000) Phylogenetic relationships in the iguanid lizard genus *Liolaemus*: multiple origins of viviparous reproduction and evidence for recurring Andean vicariance and dispersal. *Biological Journal of the Linnean Society*, 69, 75–102.
- Soriano A. (1983) Deserts and semi-deserts of Patagonia. In West, N.E. (Ed.), *Temperate deserts and semi-deserts*. Elsevier, Amsterdam, The Netherlands, pp. 440-454.
- Stejneger, L. (1909). Batrachians and reptiles, Part II, 1905-1911: 211-224. In: Scott, W. B (Ed.), *Reports of the Princeton University expeditions to Patagonia, 1896–1899*. Zoology, Princeton University, xiii + 374 pp.
- Young Downey, A. R. (1998) Phylogenetic studies on *Liolaemus* (Sauria: Tropiduridae): an interpretation based on molecular data and a biochemical test of biogeographic hypothesis. *Ph.D. Dissertation, University of Miami*, pp. 84.
- Zar, J.H. (1984) Biostatistical Analysis. Prentice Hall, New Jersey, 718 pp.

Appendix 1

List of species, number of specimens, localities and acronyms of the Argentine museums where the material used in this paper is deposited. Acronyms are as follows: Colección Herpetológica de la Fundación Miguel Lillo (FML), Tucumán; Colección Herpetológica del Museo de Ciencias Naturales de Salta (MCN); Instituto de Biología Animal de Mendoza (IBA); Colección Herpetológica del Museo de La Plata (MLP.R), y Centro de Investigaciones de Puerto Deseado (CIPD).

***Liolaemus avilae* (2): Santa Cruz.** Departamento Lago Buenos Aires. FML 20404, road from Estancia La Vizcaína to Laguna del Sello, Meseta del Lago Buenos Aires (46°57'11"S; 71°06'44"W; 1340 m). Departamento Lago Buenos Aires. FML 20384, 5,5 km from Laguna Honda to Laguna del Sello (road to Estancia La Vizcaína), Meseta del Lago Buenos Aires (47°01'13"S; 71°05'46"W; 1274 m).

***Liolaemus hatcheri* (27): Santa Cruz.** Departamento Río Chico. FML 19257-70, road to Estancia Laguna Verde, detour from 30 km to Lake Cardiel from route 40, meseta of the Lake Strobel (48°39'51"S; 71°07'24"W; 858 m). Departamento Río Chico. MCN 837-42, Cerro Beltza (47°59'37.0" S; 71°41'11.2' W). Departamento Río Chico. MCN 843; 848-51, 6 km S of Estancia Belgrano. Departamento Río Chico. MCN 844, Meseta de La Siberia (49°09'8.63" S; 71°47'6.98" W; 1062 m). Departamento Río Chico. MCN 845-846, 13 km E of Estancia Belgrano (47°54'46.9' S; 71°57'47.2' W).

***Liolaemus kolengh* (17): Santa Cruz.** Departamento Lago Buenos Aires. FML 10870-79: Monte Ceballos, next to río Ceballos (S 47°10.02.0'; W 71°55'55.0', 1485 m).

597 Departamento Lago Buenos Aires. MCN 811-13; 817; 827-28; 833: Monte Ceballos next to
598 río Ceballos (S 47°10.02.0'; W 71°55'55.0', 1485 m).

599

600 ***Liolaemus lineomaculatus* (18): Santa Cruz.** Departamento Lago Argentino. MCN 883,
601 on the National Road 40, 50 km S of El Calafate, road to Esperanza. Departamento Lago
602 Argentino. MCN 1553-556, 40 km S of lago Cardiel (49°11' 05.8'' S; 71°20' 44.8'' W).
603 Departamento Lago Argentino. FML 20394- 98, Between El Calafate and Glaciar Perito
604 Moreno, on the Provincial Road 11, 42 km from El Calafate (50°22'45'' S; 72°44'38'' W;
605 201 m). Departamento Lago Argentino. FML 2118, approximately 70 km E of El Calafate.
606 FML 1797-99, Estancia Tapi-Aike. Departamento Deseado. FML 21291-3, Punta
607 Maqueda, 35 Km S of Comodoro Rivadavia. Departamento Deseado. FML 23299, on the
608 National Road 3, 3 km N of Tres Cerros.

609

610 ***Liolaemus magellanicus* (46): Santa Cruz.** Departamento Lago Argentino. MCN 581-
611 586; 852-878; 888-894, Cordón de Los Escarchados, road to La Martina (50°22' 42.1'' S;
612 71°36'52.1'' W; 960 m). FML 17981-3, estancia Tapi-Aike. **Tierra del Fuego.**
613 Departamento Río Grande. FML 24161-3, Bahía of San Sebastián.

614

615 ***Liolaemus morandae* (13): Santa Cruz.** Departamento Lago Buenos Aires. FML 20385-
616 86, 81 km N of Perito Moreno, road to Ingeniero Palavicini (46°15'16'' S; 71°39'05'' W;
617 315 m). Departamento Lago Buenos Aires. FML 20387- 90, 60 km N of Perito Moreno, on
618 the Provincial Road 45 (46°13'58'' S; 71°26'58'' W; 688 m). Departamento Lago Buenos
619 Aires. MCN 879, Perito Moreno (46°30'24.1'' S; 71°00'25.4'' W). Departamento Lago
620 Buenos Aires. MCN 880-883, road to el Portezuelo, 12 km past Perito Moreno

621 (46°30'24.1'' S; 71°00'25.4'' W). Departamento Lago Buenos Aires. MCN 884-885,
622 before arriving at Perito Moreno (46°33'24.5'' S; 70°52'22.9'' W).

623

624 *Liolaemus silvanae* (11): **Santa Cruz**. Departamento Lago Buenos Aires. IBA 519, Puesto
625 Lebrum, plateau of Buenos Aires lake, 1500 m. Departamento Lago Buenos Aires. IBA
626 520, Laguna Del Sello, meseta del lago Buenos Aires, 1500 m. Departamento Lago Buenos
627 Aires. IBA 893, meseta del lago Buenos Aires, 1500 m. Departamento Lago Buenos Aires.
628 FML 10311-3, Puesto Lebrun, Plateau of Buenos Aires lake, 1500 m. Departamento Lago
629 Buenos Aires. FML20399-403, Laguna del Sello road of la Estancia La Vizcaína, Plateau
630 of Buenos Aires lake (46°57'56'' S; 71°06'32'' W; 1340 m).

631

Figure legends

Figure 1. Dorsal and ventral views of the holotype of *Liolaemus yatel* sp nov. (female FML 24646)

Figure 2. Dorsal view of paratypes of *Liolaemus yatel* sp nov.

Figure 3. Distribution of the species of *L. lineomaculatus* and *L. magellanicus* groups in Santa Cruz province and southern Chubut province, Argentina (see geographic details in Appendix 1). Black square: *Liolaemus yatel* sp nov. Black circles: *Liolaemus lineomaculatus*. Black star: *Liolaemus morandae*. Open star: *Liolaemus caparensis*. Black triangle: *Liolaemus silvanae*. Black diamond: *Liolaemus kolengh*. Black pentagons: *Liolaemus hatcheri*. Open circles: *Liolaemus avilae*. Open diamonds: *Liolaemus magellanicus*. Arrows point to the type locality of each species.

Figure 4. Trifid scales present in the back of *Liolaemus magellanicus* (A= specimen MCN 891, B= specimen MCN 878).

Figure 5. Functions 1 and 2 of the discriminant function analysis (DFA) performed on the morphological characteristic of *Liolaemus yatel* sp. nov. and the other members of the *L. lineomaculatus* group.