

# Speciation of the “darwinii Complex” (genus *Liolaemus*, “patch group”) in the southernmost area of its distribution (Reptilia: Tropicuridae)

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Fig. 1. - Holotype of *Liolaemus telsen* (adult male): dorsal view.  
Holotype de *Liolaemus telsen* (mâle adulte) : vue dorsale.

## Abstract

A new species of the *Liolaemus darwinii* complex is reported and described, for the northern Chubut Province, Argentina, from the rocky southern slopes of the Somuncura plateau. It is the first case of speciation in this complex for the southernmost region of the very extensive distribution area of the its nominal species, which was however splitting in several other mainly allopatric taxa in the northwestern Argentine provinces, as reported in the results of a recent careful research.

## Résumé

Une nouvelle espèce de *Liolaemus* du Nord de la Province du Chubut, Argentine est décrite ici. Elle fait partie d'une espèce du « Groupe darwinii », appartenant même au groupe d'espèces pourvues d'une « bosse post-fémorale ». L'espèce la plus proche est la forme nominale *L. darwinii* (Bell, 1843), dont elle ne s'écarte que par des différences dans les dimensions des écailles dorso-ventrales et par la coloration tout à fait distincte. C'est la première fois qu'on rencontre une nouvelle espèce du « Groupe darwinii » dans les régions australes de la distribution très étendue de la forme nominale qui était la seule présente depuis la Province de Mendoza jusqu'aux limites sud du Chubut.

## Introduction

A relatively recent research and discussion by Etheridge (1993) was dealing with the *Liolaemus darwinii* complex as a subset of one group of species characterized in having a patch of enlarged scales on the proximal posterior surface of the thigh, swollen in adult males.

We will thus refer to such a careful morphological analysis for any diagnostic definition of the above mentioned “complex” and the “patch group”. As result of this wide comparative research, carried out on a very extensive region of the Argentine Republic, we will point out that the ancient Bell's species (1843) *Liolaemus darwinii* was splitting in several distinct northern specific taxa. They spread along the montanous and ecologically diversified territories of the Northwestern Argentine provinces, from Jujuy, Salta and Tucumán northward to Catamarca, La Rioja and San Juan southward.

Formerly considered as local “morphs” of *L. darwinii* (cfr. Cei, 1986, 1993), five new taxa have been described by Etheridge (1992, 1993), mainly on typical color pattern, besides of other features of the integument or body proportions. These species are: *laurenti*, *quilmes*, *koslowskyi*, *olongasta* and *abaucan*. Some of them spread on larger extensions, such as *quilmes* or *koslowskyi*; other is topographically limited, such as *abaucan* in Catamarca province (see Etheridge 1993: Figs 2,3,4). Very recently another species restricted to the montane relief of the Tucumán province (at about 3600 m a.s.l.) has been added to the complex (Lobo and Kretzschmar 1996). It was named *Liolaemus calchaqui* being easily recognized from *L. darwinii* and the other related species by its peculiar coloration and dichromatism.

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**Fig. 2.** - A male adult specimen of *Liolaemus darwini* (dorsal view) from the dunes of the Atlantic shore, near Puerto Madryn, Chubut.  
Mâle adulte de *Liolaemus darwini* (vue dorsale) des dunes du rivage atlantique, près de Puerto Madryn, Chubut.



**Fig. 3.** - Ventral view of *Liolaemus darwini* adult male from Atlantic shore near Puerto Madryn Chubut (Top), and the same of *Liolaemus telsen*, holotype (Bottom).

Vue ventrale de *Liolaemus darwini*, mâle adulte du rivage atlantique, près de Puerto Madryn, Chubut (en haut) et de *Liolaemus telsen*, holotype (au dessous).

It is remarkable that no speciation processes have been reported in the very extensive distribution area of the typical **Bell's** species (*L. darwini*) south of Mendoza province until northern Chubut in the Patagonian region (cfr. **Etheridge** 1993: Fig. 1). In spite of its noticeable geographic and individual variation, given the natural diversity of the environments, no recognizable taxa have been still distinguished among the several observed populations. But, during recent herpetological field works in the southern basaltic slopes on the neighbors of Somuncurá plateau borders, peculiar specimens of a *Liolaemus* belonging to the “**darwini**” Complex were discovered. They were clearly diverging from the common patterns of the nominal species, frequent in the nearby sandy coastal environments of the Atlantic shore. At a careful examination, the few collected specimens don't show the typical dorsal and ventral color pattern of *L. darwini*, lacking its characteristic antehumeral black fold and the enlarged supra-posthumeral black squared spot, usually present in all known populations of such a taxon. This evident feature and other significant characters in coloration and lepidosis, suggest a specific status for these rare, localized *Liolaemus* lizards which shall be described below as.

#### *Liolaemus telsen* sp. nov.

**Holotype.** MRSN-R 1648-1, adult male, collected at 900 m a.s.l. Chubut, Argentina (some 80 km to west from Telsen), on southern rocky slopes of the basaltic Somuncurá plateau. Collected by **J.A. Scolaro, J. Upton** and **J.M. Cei** on 25/02/97.

**Paratypes.** MRSN-R 1648-2, subadult male; MRSN-R 1648-3,4, two adult females; MRSN-R 1648-5, juvenil specimen; all collected in the same locality on 15/04/98 by **J.A. Scolaro** and **J. Upton**.

#### **Etymology**

Named in reference to the most important locality of the rocky area in which this rare species apparently is restricted. The name Telsen in the native language (Tehuelche Meridional) refers to *Cortaderia* sp. bushes, a very common grass in the nearby valley.

## Diagnosis

*Liolaemus telsen* is easily distinguished from *L. darwini* and any other species of the “**darwini**” Complex by its total different coloration. From *L. darwini* is also distinguished by its smaller dorsal and ventral scales (rows of 14-15 and 8 scales in 5 mm, versus 6-8 and 6-7 scales in 5 mm, respectively), as well as by other lepidosis characters. From all other species of the complex, save *L. darwini*, it is separated by thousands of kilometers.

## Description of the Holotype

Adult male, 60 mm snout-vent length, tail length 70 mm (regenerate). Dorsal head scales smooth; temporals smaller, lanceolate and smooth, in regular rows; nasals not contacting rostral, separated by 4 internasals; one azygous frontal; interparietal separated from very regular supraorbital circles and bordered posteriorly by irregular parietals about one time as larger as interparietal; loreolabials 6-6; supralabials 8-9; rostral wider than high; infralabials 6-6; mental subtriangular contacting 4 scales and followed by 6-6 postmentals. Supraoculars 8-9, separated from superciliaries by 2-3 small scale rows; external auditory meatus two times higher than wide. Nuchals and anterior scales very small, subimbricate, with a blunt keel and wider than long; scales near dorsal midline larger, indistinctly imbricate, sharply keeled, in 25-30 longitudinal rows, as well as at midbody; lateral scales in the nuchal and pre-postscapular region very small, granular; laterally small, irregularly imbricate and keeled; dorsal limb scales larger and softly keeled. Gular and ventral scales larger than dorsals, smooth, regularly imbricate; ventral limb scales smooth, as well as on the under surface of tail; upper scales of tail keeled. Scales around midbody 74-78. Precloacal pores 7. Pressed limb to the body reaches shoulder, and the arm pressed goes beyond midbody. Measurements (mm): head length 11; head width 11.4; axilla-groin length 24; hind limb length 37; fore limb length 31. Number of subdigital lamellae of fourth toe 30-32.

## Coloration

In preservative liquid gray-bluish ground with darker spots or marks. In living specimens (Figs 1-3) ground color of head and body, grayish or yellowish. Head with irregular brownish or whitish spots, scale organs unpigmented; an almost indistinct vertical dark bar through the orbit (strongly evident in *L. darwini*; Fig. 2); subocular and labials evident. Mid-dorsal stripe represented by narrow zone of ground color almost indistinct; dorso-lateral light stripes white, distinct and continuous on head neck and body, still evident on groin and base of tail. Para-vertebral whitish spots small but evident; lack of black pigmentation on pre-scapular fold; scapular and post-scapular dark spots indistinct; a series of confused continuous dark spots from the post-auricular region to the base of tail, with 13 evident round yellow spots along the dorso-lateral light stripe; smaller confused yellowish spots and marks along the ventro-lateral yellowish stripe and on the latero-ventral region; evident round light bordered dark spots on upper tail. Dorsal surface of limbs irregularly spotted with dark and light yellow. Ventral surface whitish on throat, deep yellowish on body, limbs and tail, irregularly scattered with short grayish marks, often indistinct. Gular surface with wide, black or brown marks, merged on the center and in the posterior region, very different from the same region of *L. dar-*

*wini* (Fig. 3); tail ventrally unspotted. Precloacal pores orange.

## Variation

In accordance with the small sample of this very rare species, no special data on variation are available. The subadult paratype (snout-vent length 50 mm) shows a dorsal and ventral pattern similar to the adult pattern, but the dark spots along the light dorso-lateral stripe are still not confused: 13 yellowish spots close to the dark spots are evident; 8 precloacal pores are present. The general features of the females (snout-vent length 65-52 mm) are somewhat similar to the general feature of the males, mainly to the general pattern of the subadult specimen. The longitudinal lateral brown spots are still distinct, but 12-13 yellowish or whitish lateral round spots are also evident. The ventral coloration is whitish or very faintly marked in this sex.

## Distribution

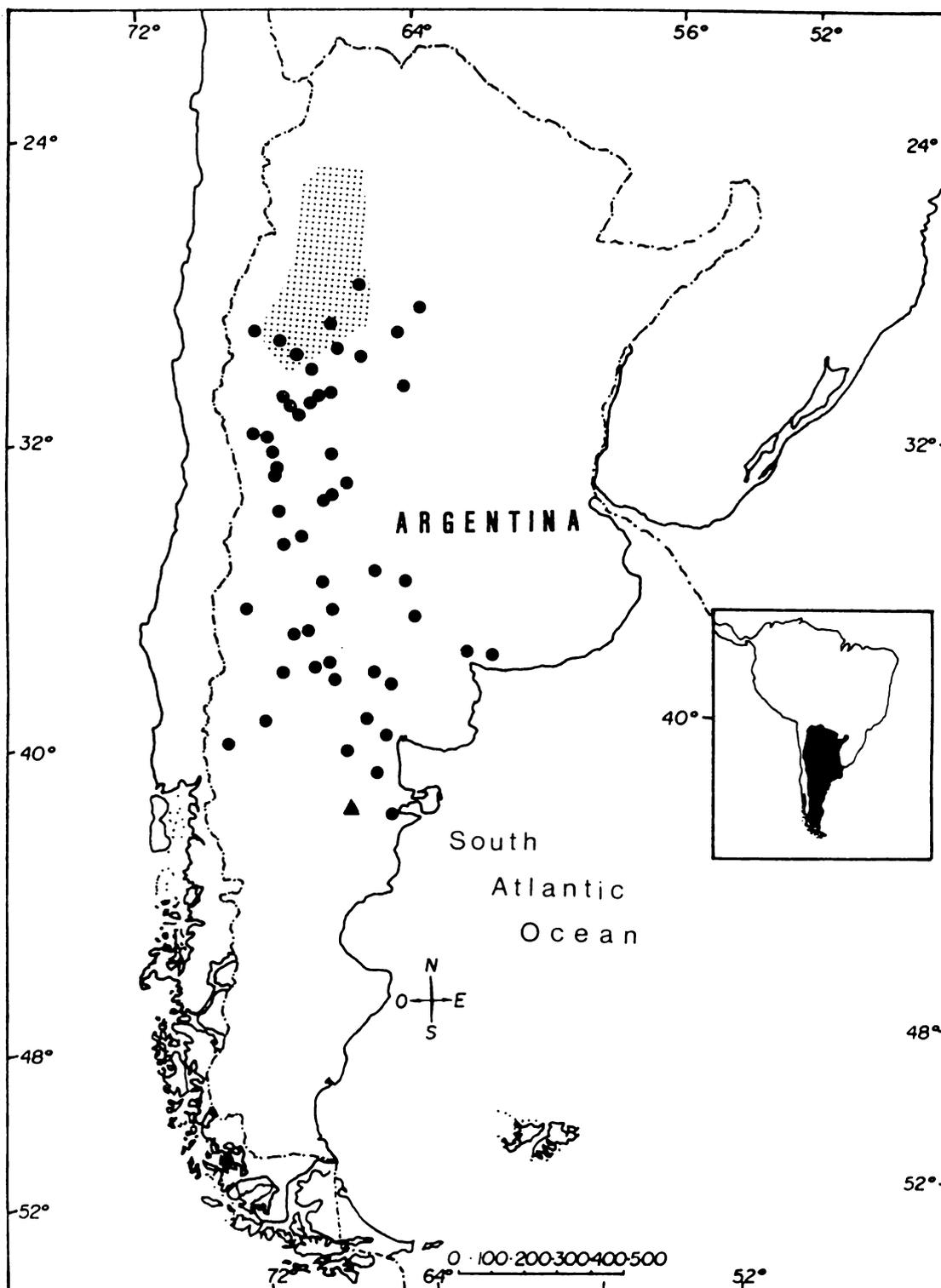
Apparently confined to the rocky habitat in the eroded landscape on the southern slopes of the Somuncurá plateau (Fig. 4), along the bed of the Telsen stream, ending into a dry sub-desertic flat or closed depression named “Bajo de la Tierra Colorada”. Altitudes of such a zone range between 860-940 m a.s.l.

## Natural History

Practically unknown. *Liolaemus telsen* is an inhabitant of the stony Patagonian steppe covering flat basaltic summits of one southern counterfort from the nearby Somuncurá plateau. It is interesting to note that, according to altitude, the species has been found in habitats where *Larrea* spp. are absent while, the closer form *L. darwini* prefers environments with high density of these bushes. *L. telsen* is mostly active in the summer from midday to late afternoon, foraging and basking between scarce bushes of *Stipa speciosa*, *S. humilis*, *S. tenuis* and spiny or cushion plants such as *Mulinum*, *Verbena*, *Lycium*, *Nassauvia*, etc. In its biocenotic community *Liolaemus petrophilus*, *L. bibroni*, *L. rothi*, *Diplolaemus darwini* and *Homonota darwini* are also present.

## General Remarks

As pointed out by Etheridge (1993), in spite of their rather generalized morphology, species of the *L. darwini* complex occupy a variety of habitats within their range. Several of them (*darwini*, *koslowskyi*, *abaucan*, *quilmes*) mainly occur on substrates of rock gravel or sand, flats or margin of dunes. Other, such as *laurenti* and possibly *olongasta*, appear to be restricted to sand. *Liolaemus telsen* belong to the first category, exhibiting moreover a sexual dichromatism to a noticeable degree. According to Etheridge (1993) *L. darwini* is known to be sympatric with only one other species of its complex, *L. laurenti*, with which it is occurring near the Talampaya sand flats of western La Rioja province. In the case of our *L. telsen* no sympatry with *L. darwini* can be still reported. However this latter species is a very common one on the Atlantic dunes close to Puerto Madryn, Chubut, at a lineal distance of about 250 km without noticeable barriers from the terra *typica* of the new species.



**Fig. 4.** - Map depicting the distribution of *Liolaemus darwini* (solid circles) and the related Northwestern forms of its complex (hatched area). Terra typica of *L. telsen* (black triangle).

Carte de la distribution de *Liolaemus darwini* (cercles pleins) et des formes nord-occidentales apparentées au complexe (zone ombrée). Localité type de *L. telsen* représentée par un triangle noir.

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