

Range extension of *Liolaemus torresi* (Núñez, Navarro, Garín, Pincheira-Donoso & Meriggio, 2003) (Squamata: Liolaemidae) in the Atacama Desert, Chile

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ABSTRACT: New records of *Liolaemus torresi* are reported, extending the range 156 km, based on live individuals and a mummified specimen. Old records assignable to the species are re-examined.

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Liolaemus torresi (Núñez *et al.* 2003) belongs to the *montanus* group of the subgenus *Eulaemus* (Lobo *et al.* 2010) and was first described as a species of the genus *Phrynosaura*. However, this genus was later considered as a synonym of *Liolaemus* (Etheridge 1995). The holotype and some paratypes were collected in Salar de Indio (22°23' S, 68°52' W; 2,430 m above sea level (a.s.l.)), near Chuquicamata, Antofagasta Region, Chile. Other paratypes were collected from Salar del Indio, tranque Talabre (22°27' S, 68°47' W; 2,485 m a.s.l.), and the upper Loa River (22°26' S; 68°53' W 2,222 m a.s.l.) (Núñez *et al.* 2003).

Liolaemus stolzmanni (Steindachner 1891), formerly *Phrynosaura reichei* (Werner, 1907), is a species that was thought to be widely distributed in Chile (Langstroth 2011), and the majority of the records of “phrynosaurid lizards” were assigned to it (*e.g.*, Donoso-Barros 1958; Núñez and Jaksic 1992; Núñez *et al.* 1998). Donoso-Barros (1966) proposed a distribution for *Phrynosaura reichei* from Calama (Antofagasta Region, Chile) along the Atacama Desert reaching some valleys near Arica (Arica and Parinacota Region, Chile). Following the description of *L. torresi* (Núñez *et al.* 2003) the specimens of *P. reichei* documented by Donoso-Barros (1969) in the Antofagasta Region, near Calama (22°27' S, 68°56' W; 2,250 m a.s.l.) were reassigned to this new taxon. Similarly, following the description of *Liolaemus poconchilensis* (Valladares 2004), the specimens of *P. reichei* from the vicinity of Arica (Donoso-Barros 1966; Núñez *et al.* 1998) were reassigned to it.

In this study, field work was done surveying the Atacama Desert, from the Antofagasta Region, near Calama, to the Tarapacá Region. Numerous individuals assignable to *Liolaemus torresi* were recorded, including a mummified specimen that was deposited in the Colección de Flora y Fauna Profesor Patricio Sanchez Reyes of Pontificia Universidad Católica de Chile, in Santiago (SSUC-Re 608). Some living specimens were photographed to confirm identification and

subsequently released.

Other species previously included in the genus *Phrynosaura*, now considered as *Liolaemus*, are: *L. audituvelatus* (Núñez & Yañez, 1983), *L. erroneus* (Núñez & Yañez, 1983), *L. manuli* (Núñez, Navarro, Garín, Pincheira-Donoso & Meriggio, 2003), *L. poconchilensis* (Valladares, 2004), and *L. stolzmanni* (Steindachner, 1891). The characters used to assign the recorded specimens to *L. torresi* are: “baby-bird” head with flat nose, prominent orbits (typical phrynosaurid form), dorsal scales small, light brown or grayish-white background, dorsal pattern spotted, and sexual dimorphism based on the presence of three precloacal pores and sulfurous yellow flanks in males. Also, *L. torresi* can be differentiated from *L. audituvelatus* and *L. manuli* by the absence of scales in the eardrum (Núñez and Yañez 1983; Núñez *et al.* 2003), from *L. erroneus* by the presence of eyelids with comb (Núñez and Yañez 1983), from *L. stolzmanni* by tail length significantly greater than SVL (Steindachner 1891; Langstroth 2011), and from *L. poconchilensis* by the presence of 9–10 supralabial scales and the absence of blue lateral scales (Valladares 2004) (Figure 1).

The four earlier localities for *Liolaemus torresi* are in close proximity to one another (Figure 2). This study found three new localities, one in María Elena (locality 5: 22°14' S, 69°32' W; 2,500 m a.s.l.) other near Quebrada Sama (locality 6: 21°24' S, 69°20' W; 1,038 m a.s.l.) and the last near Quebrada Guatacondo (locality 7: 21°09' S, 69°33' W, 790 m a.s.l.). The new records extend the range to the west and north. It is important to note that between locality 5 and locality 7 records of the species were continuous, so it can be stated that *L. torresi* occurs continuously along interior Desert of Antofagasta and Tarapacá. In all cases the records were made in desert habitat, with no other species of lizard observed. Considering the old records and the localities described in this work, *L. torresi* has a total area of occupancy of 5,302 km² based on a minimum convex polygon enclosing all records.

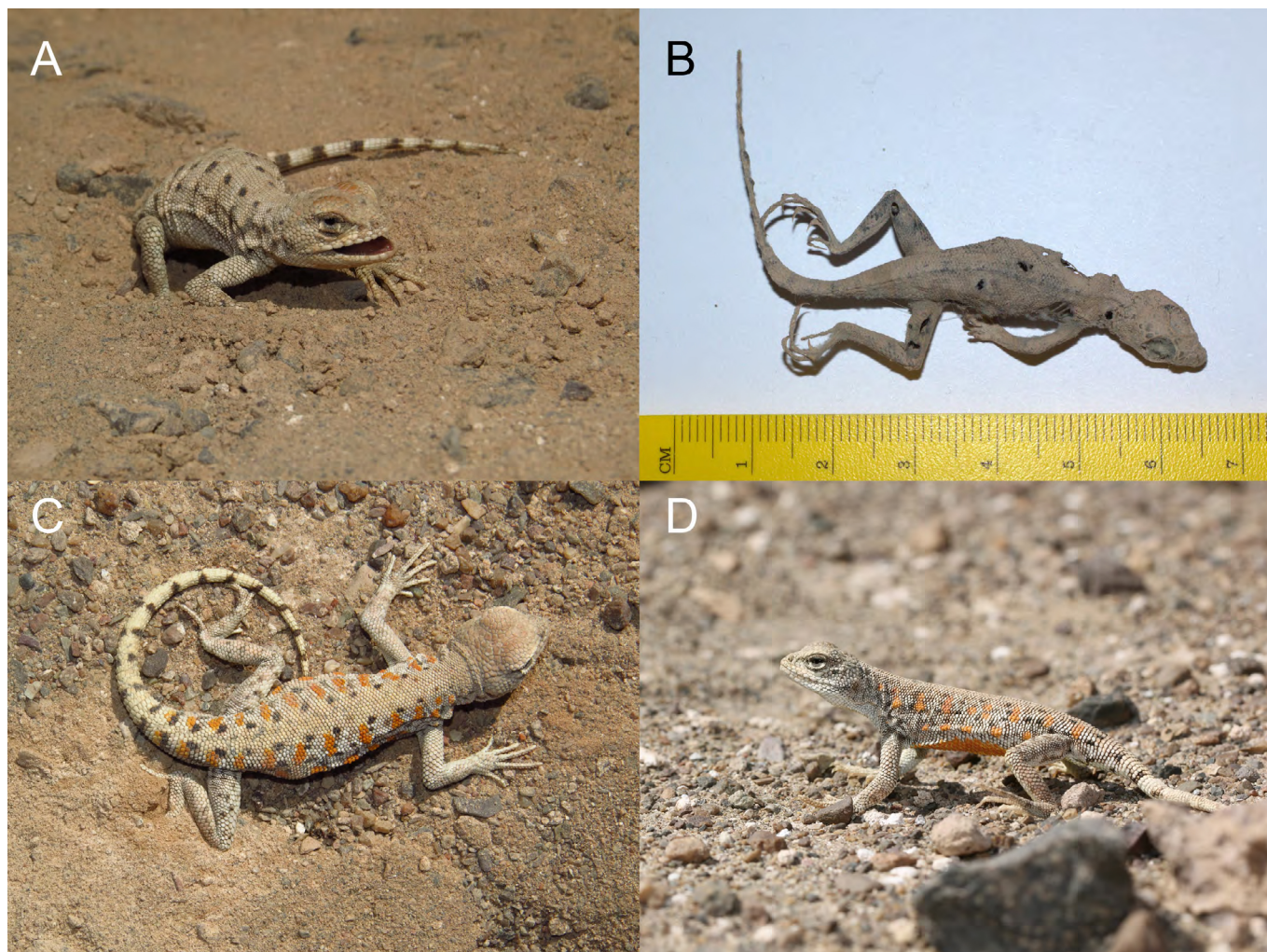


FIGURE 1. Specimens of *Liolaemus torresi* from the new localities. A, live female from locality 5 (María Elena); B, mummified specimen from locality 5 (María Elena); C, live male specimen from locality 6 (Quebrada Sama, Pozo Almonte); D, live male specimen from locality 7 (Quebrada Guatacondo, Pozo Almonte).

The importance of these findings are: i) two localities correspond to the lowest elevations recorded for the species, ii) the range of the species is extended 156 km north and 67 km west, iii) the presence of the species is confirmed for the Tarapacá Region, iv) part of the distribution proposed by Donoso-Barros (1966) and Núñez *et al.* (1998) for *Phrynosaura reichei* (Werner, 1907) is reassigned to new *Liolaemus torresi* populations.

The distribution of *Liolaemus torresi* covers the Antofagasta and Tarapacá regions, by the interior of Atacama Desert from 790 to 2,500 m a.s.l., and from near Calama to the southeast of Iquique. In Antofagasta the observations are from salt flats (with and without water), and the desert in the Loa river basin. In Tarapacá, the records are exclusively limited to desert.

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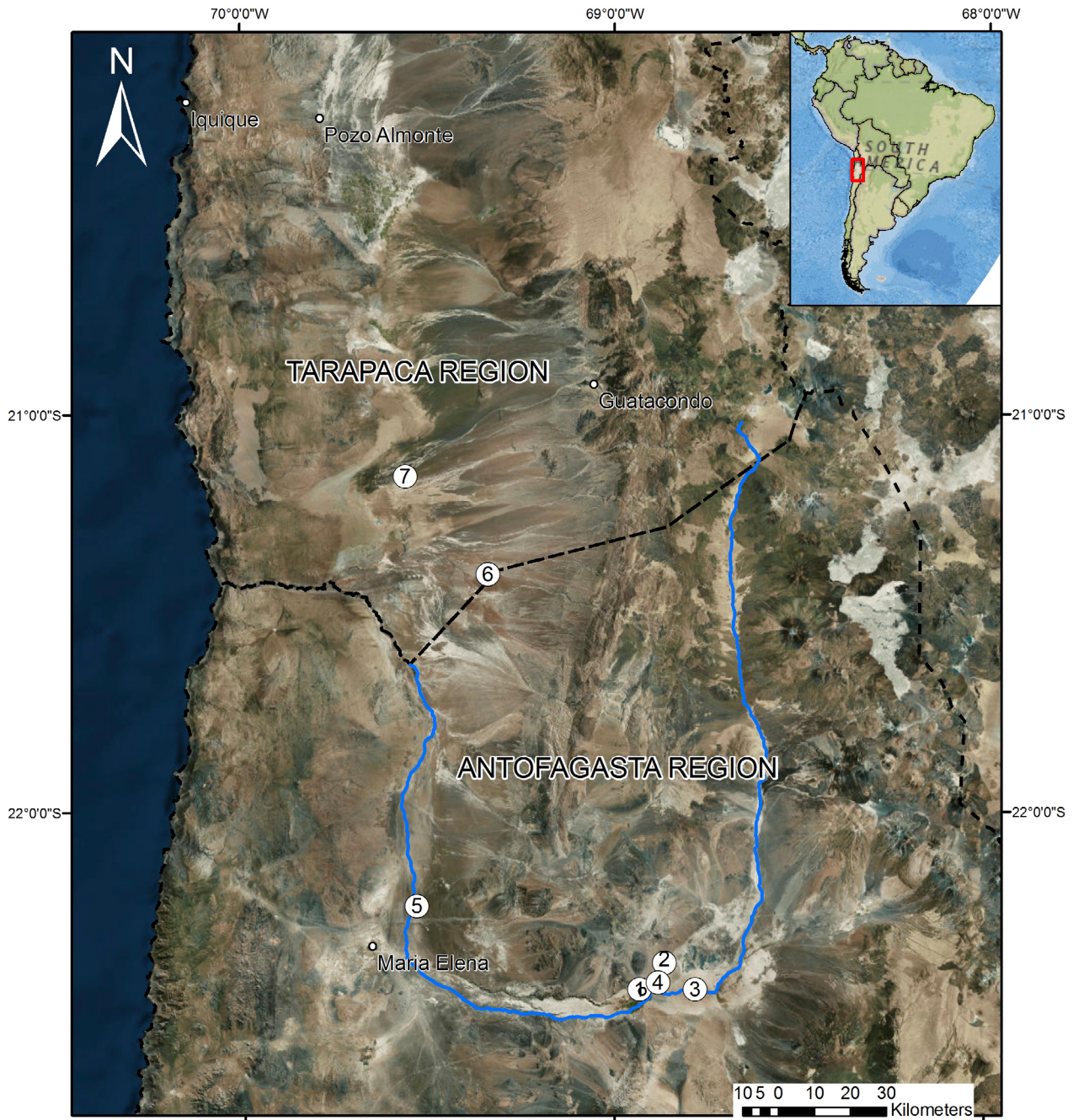
EDITORIAL RESPONSIBILITY: Ross MacCulloch

APPENDIX 1. Museum specimens examined.

NMW: Naturhistorisches Museum Wien, MNHNCL: Museo Nacional de Historia Natural de Chile, SSUC-Re: Colección de Flora y Fauna Profesor Patricio Sánchez Reyes of Pontificia Universidad Católica de Chile.

Liolaemus stolzmanni NMW 13580:1–3, Tarapacá, Vicinity of Iquique, Chile, 1891, Franz Steindachner col.

Liolaemus torresi MNHNCL 3382, 3383, Salar del Indio, 1 November 2001, H. Núñez and C. Garín cols; SSUC-Re 608, María Elena, 6 April 2013, R.I. Díaz-Vega col.



Liolaemus torresi localities

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|---------------------------------------|--|
| ① Near Calama (Donoso-Barros 1969) | ④ Upper Loa River (Núñez et al. 2003) |
| ② Salar del Indio (Núñez et al. 2003) | ⑤ María Elena (New locality) |
| ③ Tranque Talabre (Núñez et al. 2003) | ⑥ Quebrada Sama, Pozo Almonte (New locality) |
| | ⑦ Quebrada Guatacondo, Pozo Almonte (New locality) |
| — Loa River | |

FIGURE 2. Localities of *Liolaemus torresi*. Localities 1–4 are earlier records. Localities 5–7 are records made in this study.