

# Distribution extension and new record of *Myotis atacamensis* (Lataste, 1892) (Chiroptera: Vespertilionidae) in Chile

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**ABSTRACT:** *Myotis atacamensis* is a poorly known bat species endemic to the central portion of the pacific coast of South America, where it is known from the province of Lambayeque, Peru (latitude 5° S), to the province of Elqui (latitude 30° S), Chile. Here, we report the first record of *M. atacamensis* for the province of Choapa (latitude 31° S, Coquimbo Region) in Chile. This is the southernmost record of the species within Chile and South America, extending its geographic range ca. 200 km southward.

DOI: 10.15560/10.5.1164

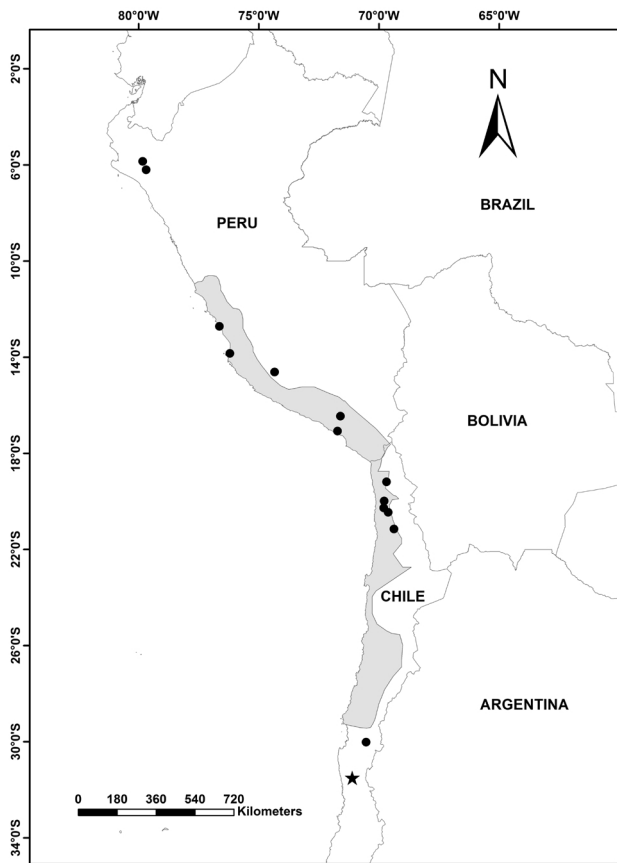
The Atacaman Myotis, *Myotis atacamensis* (Lataste, 1892), is a poorly known vespertilionid bat endemic to the central portion of the pacific coast of South America. It is found only in arid and semiarid environments, from western Peru to northern Chile (Simmons 2005; Iriarte 2008). Its type locality is San Pedro de Atacama, Antofagasta Region, northern Chile (Lataste 1892; LaVal 1973). *Myotis atacamensis* and the recently described *Myotis diminutus* Moratelli & Wilson, 2011, from Ecuador, are the smallest representatives of the genus *Myotis* in South America (Moratelli and Wilson 2011).

Osgood (1943) and Cabrera (1958) considered *Myotis atacamensis* as a subspecies of *Myotis chiloensis* (Waterhouse, 1840), but LaVal (1973) treated *atacamensis* at the species level, which was followed by Wilson (2008). Studies based on molecular and morphological data support the separation of *M. chiloensis* and *M. atacamensis*, even suggesting a quite distant relationship between both species (Jones *et al.* 2002; Stadelman *et al.* 2007). In Chile, *M. atacamensis* differs from its congeners by its lighter fur color with dark bases and light tips, its shorter forearm length, and tiny skull (Wilson 2008; Díaz *et al.* 2011). This species feeds exclusively on insects that are captured in flight (Galaz *et al.* 2009). Foraging activity begins one hour before dusk and lasts for about three hours (Galaz *et al.* 2009). The distribution of *M. atacamensis* in Chile extends from Tarapacá region (Latitude 19° S), southward to the province of Elqui (Latitude 30° S), in the Coquimbo Region, where this species can be found in sympatry with *M. chiloensis*. In this latter region, *M. atacamensis* has also been associated with coastal areas and watercourses surrounded by xeric vegetation, where rock crevices are probably used as roosts (Mann 1978; Iriarte 2008). However, the knowledge about the distribution of *M. atacamensis* is based mainly on information obtained from occasional or incidental collections, which probably might be due to

the lack of bat studies in the country. Here we report the first record of *M. atacamensis* for the province of Choapa, Coquimbo Region, Chile. This is the southernmost record of the species within Chile and South America, extending its known geographic range in ca. 200 km southward from the last previous record at the Coquimbo Region (Tamayo and Frassinetti 1980).

The record of the species was made during a bat survey in February 2013 at the Reserva Nacional Las Chinchillas 31°30'34.14" S, 71°06'23.92" W (Figure 1; Appendix 1) at 556 m of altitude. This Reserve is a protected area located 16 km N from the Comuna Illapel, Choapa province, Coquimbo Region, Chile. The climate of the study site is of a semiarid Mediterranean type, with most rainfall concentrated in the winter season (di Castri and Hajek 1976). The mean annual precipitation is about 185 mm, widely variable between years and alternating between long droughts and unusual years of high rainfall seemingly associated to El Niño events (di Castri and Hajek 1976; Jaksic 2001). The vegetation consists on thorny shrubs (Luebert and Plischoff 2006) and succulent species (Medel 2000; Hoffmann and Walter 2004).

Two adult females and two adult males of *M. atacamensis* were captured with a mist-net placed in the vicinity of the administrative offices of the park. The four individuals captured here were part of a colony with more than 30 individuals sheltering in the house roof at about 2.5 m above the ground level. The characters of the individuals captured are in agreement with those reported by Díaz *et al.* (2011), with general coloration pale ochraceous, and dorsal hairs with dark base and light tip. External measurements of the females captured are: body weight (g) 4.0, 4.0; total length (mm) 78, 76; forearm length (mm): 36.5, 34.0; wingspan (mm) 241, 250 (Figure 2). External measurements of males are: body weight (g) 5.0, 5.0; total length (mm) 77, 76; forearm length (mm) 37.0,



**FIGURE 1.** Locality records of *Myotis atacamensis* in South America. Circles indicate historical records until the present study. The star indicates the new record, which represents the southernmost locality for the species. The shaded area shows the distribution according to the IUCN (2008).



**FIGURE 2.** Female *Myotis atacamensis* captured close to a human building (reserve's administrative office) in the Reserva Las Chinchillas, Choapa province, Coquimbo Region, Chile. The white arrow indicates the contrasting bicolor pattern of the ventral fur, dark in the base and lighter in the tips, which gives the species a pale coloration. Photo: María L. C. Castillo.

39.5; wingspan (mm) 230, 236. Ranges of forearm length in this research are consistent with those reported by Galaz and Yáñez (2006) for *M. atacamensis* in Chile ( $n = 10$  individuals; 35–40 mm) and those reported by Eisenberg and Redford (2000) (38 mm), which support the identity of our individuals. Measurements of the skull length are not provided because we did not have a collection permit for voucher specimens.

*Myotis atacamensis* has been classified as Near Threatened by the IUCN (Barquez and Díaz 2008) because of its strong dependence on a habitat that has become severely fragmented. In Chile and Peru, however, the species has not been evaluated (CONAMA 2009; Pacheco et al. 2009). The new record presented herein is an important contribution to the knowledge of the geographic range of *M. atacamensis*, with some conservation implications for the species because it represents the addition of a second bat species for the Reserva Nacional Las Chinchillas, where only *M. chilensis* had been reported to date (CONAF 1996). Therefore, we recommend the inclusion *M. atacamensis* into the conservation goals and management plan of this natural reserve. This finding also reaffirms the knowledge gaps on *M. atacamensis* and on Chilean bat species in general. Further studies on bat species inhabiting Chile are needed, not only to contribute to a better understanding of their geographic distribution, but also to improve our knowledge on their conservation status.

**ACKNOWLEDGEMENTS:** Special thanks to Dr. Rubén Barquez (CONICET) who validated the identity of the specimens of *M. atacamensis*. We are grateful to Corporación Nacional Forestal IV Region for their assistance and for granting permits to work on the reserve and to Daniela Lühr for his help in fieldwork. This work was supported by a research grant from the BCI-RELCOM initiative for the Study and Conservation of Bats in Latin America.

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RECEIVED: March 2014

ACCEPTED: July 2014

PUBLISHED ONLINE: October 2014

EDITORIAL RESPONSIBILITY: Marcelo R. Nogueira