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La reciente expansión de *Loxosceles laeta* (Nicolet)
(Arachnida: Araneae) en la Patagonia Austral

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Abstract: The recent expansion of the Chilean recluse *Loxosceles laeta* (Nicolet, 1849) in southern Patagonia is commented and discussed in the light of current global change. New records are provided from both Región de Aysén and Región de Magallanes. In addition, Isla Dawson in Magallanes is the southernmost record for a sicariid spider in South America. Identification tips for health providers are included.

Keywords: Distribution, Faunistics, New record, Spider.

Resumen: La reciente expansión de la araña de rincón *Loxosceles laeta* (Nicolet, 1849) en la Patagonia austral chilena es comentada y discutida a la luz del cambio global actual. Se incluyen nuevos registros de las regiones de Aysén y Magallanes; adicionalmente Isla Dawson en Magallanes se convierte en la localidad más austral para un sicárido en Sudamérica. Se incluyen datos para su correcta identificación para trabajadores en el sector salud.

Palabras clave: Araña, Distribución, Faunística, Nuevo registro.

Sicariidae is a family of spiders comprising the genera *Loxosceles* Heineken & Lowe, 1832, *Sicarius* Walckenaer, 1847 and *Hexophthalma* Karsch, 1879 (World Spider Catalog, 2020). Within this family, *Loxosceles* is the most diverse genus, including 139 species (Brescovit et al., 2017; World Spider Catalog, 2020). Spiders in this genus are commonly known as “recluse spiders” “violinist spiders”, and “corner spiders”. These are distributed in the Nearctic, Palearctic, Afrotropical, Oriental, Neotropical and Andean regions, having some widespread species (Lotz, 2017; Carvajal & Faúndez, 2017). Species of *Loxosceles* are widely known for their necrotic bite, which produces a clinical condition

called loxoscelism. Consequences of loxoscelism range from local dermonecrosis to visceral damage causing even death (Isbister & White, 2004; Carvajal & Faúndez, 2018).

In Chile, *Loxosceles laeta* (Nicolet, 1849) is the most medically important species in this genus (Taucare-Ríos, 2012). It has been cited in all Chilean regions except Aysén. In Patagonia (Chile-Argentina) this species has experienced a recent expansion towards the south, which was not expected (Canals et al., 2016). The purpose of this contribution is to report the presence of *L. laeta* in Aysén as well as discuss its recent expansion in Southern Patagonia.

Records were obtained from specimens received for identification at Secretaría Regional Ministerial (SEREMI) de Salud, Aysén as well as collections made by the authors and specimens received for identification at Instituto de la Patagonia, Magallanes and citizen science platform "Insectos y Arácnidos de importancia médica y sanitaria en Patagonia". Identifications were made following Brescovit et al. (2017) and Carvajal & Faúndez (2017). The map was developed with Photoscape®. Photos were taken with a camera adapted to a stereomicroscope.

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Aysén reports	1	2	1	1	0	2	4	7	8	13
Aysén yearly frequency	0.026	0.051	0.026	0.026	0	0.051	0.102	0.179	0.205	0.333
Magallanes reports	1	0	0	1	0	2	0	12	13	11
Magallanes yearly frequency	0.025	0	0	0.025	0	0.050	0	0.300	0.325	0.275

Table I. Annual frequency of *Loxosceles laeta* reports in Chilean southern Patagonia.

Aysén Region

Up to 2017, considering the recent revision of Chilean *Loxosceles* and faunistics reports from Magallanes (Brescovit et al., 2017; Carvajal & Faúndez, 2017), *L. laeta* was absent in the Aysén Region. Even if it was recorded previously in Magallanes which is far southern than Aysén, it is not obvious to assume that the species is present in the distributional gap by two main reasons. First, most of the trade and human movement from and to Magallanes with the rest of Chile are either by airplane or ship. Thus, some invasive species, especially arthropods, may reach Magallanes but not Aysén (Faúndez & Carvajal, 2014). Second, records from Magallanes are all from Punta Arenas and neighboring localities, which are east of the Andes mountains, contrary to the majority of Chile. However, these Magellanic localities are contiguous with

Argentinean Patagonia. Therefore, species can passively reach Magallanes from Argentina, without extending to any Chilean Patagonian Region.

In Aysén, as well as Magallanes, we have recorded some isolated specimens in urban areas, indoors, since 2010, with no indication of naturalized populations. However, since 2016 the number and frequency of reports increased (Table I), having at least monthly records. From 2019 to early 2020 (Table I), several specimens have been collected from indoors of buildings and homes, including two females, one male and several immatures from Coyhaique. Additionally, three adult females have been recorded in 2019 from Puerto Ibañez from citizen science.

Four voucher specimens remain in the collection of the SEREMI de Salud Aysén (one male, one female, and two juveniles) and two males and one female at Instituto de la Patagonia collection. With these records, the current presence and naturalization of *L. laeta* in Aysén region is confirmed. This species can be recognized by the following combination of characters: six eyes disposed in pairs forming a triangle in frontal view; cephalothorax with a distinct design with a violin shape, sometimes diffuse in specimens; abdomen lacking any protuberances. In addition, specific identity must be confirmed by examination of genitalia, especially male pedipalp (Fig. 1)

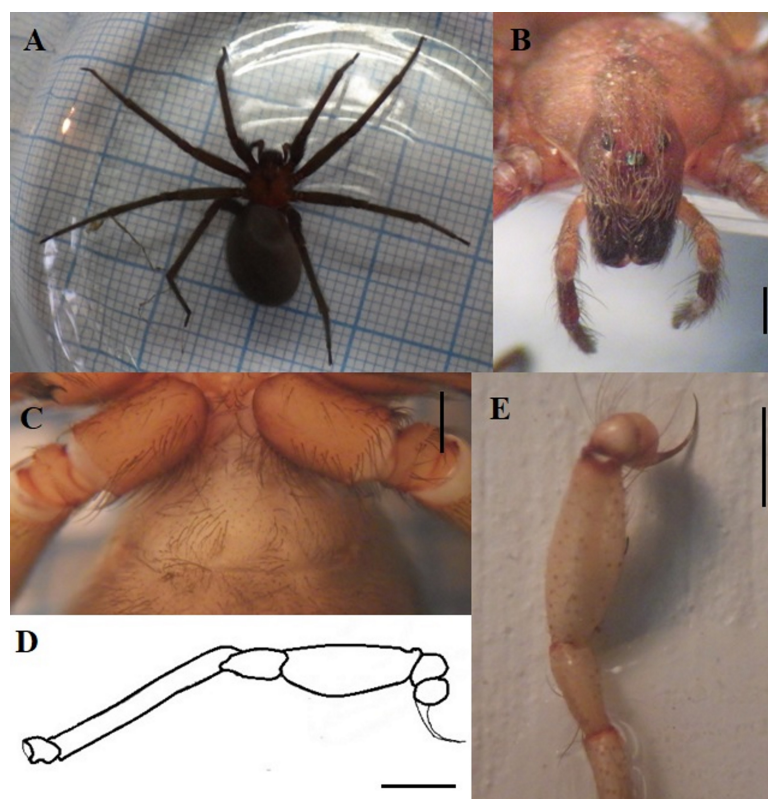


Fig.1. *Loxosceles laeta*. A. Live female from Punta Arenas, habitus. B. female from Coyhaique, cephalothorax, frontal view, showing eye disposition violin pattern. C. Female from Punta Arenas, external view of epygium. D. Schematic illustration of male pedipalp in lateral view. from Aysén specimen. E. Detail of male pedipalp from Punta Arenas specimen, ventrolateral view.

Scale bars = 1 mm.

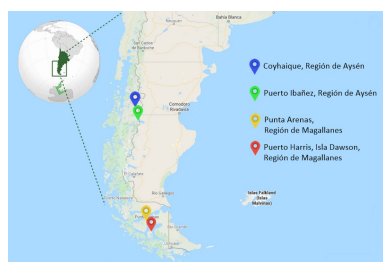


Fig. 2. Distribution of *Loxosceles laeta* in the Chilean Southern Patagonia.

Situation of *L. laeta* in southern Patagonia

The situation of *L. laeta* in Southern Patagonia responds to a recent (Table I) invasion/naturalization. This process has been observed recently for other spiders including the “false widow” *Steatoda grossa* (Koch, 1838) and *Tegenaria domestica* (Clerk, 1757) (Faúndez et al., 2017, 2019), which have been favored by current global change (Faúndez & Carvajal, 2014; Faúndez et al., 2017). The case of *L. laeta* follows this pattern of recent biological invasions, favored by warmer climatic conditions, improvement in human buildings, and increased human exchange and tourism. Up to this date, this species is only present in Chilean Regions of southern Patagonia; whereas in Argentinean provinces of Tierra del Fuego and Santa Cruz there are still not occurrences according to our research and southern collections data. In these provinces, we are still surveying by citizen science and sporadic collections. On the other hand, abundant records have been received from Chubut, Neuquén, Río Negro, having a gap in Santa Cruz.

In Magallanes, after its presence was confirmed (Carvajal & Faúndez, 2017), we received periodical records confirming its establishment. At this point, it is one of the less common spiders in homes in the region, but the situation may change over time. Additionally, we received specimens from an infestation at Puerto Harris (53°49'S; 70°27'W), Isla Dawson, Tierra del Fuego Archipelago (Chilean part), becoming the first record for this species in Tierra del Fuego, as well as the southernmost record for a sicariid spider in the continent (Fig. 2).

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