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Short Communication

Distribution extension of *Adistemia convexa* (Dajoz, 1974) (Coleoptera, Latridiidae) in Chile

Extensión distribucional de *Adistemia convexa* (Dajoz, 1974) (Coleoptera, Latridiidae) en Chile

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ABSTRACT

Here we reported the presence of a minute brown scavenger beetles (Coleoptera, Latridiidae), *Adistemia convexa* (Dajoz, 1974) in an urban forest located at Valdivia city of Chile, collected using tree-trunk flight intercept traps. Based on this finding, the distribution of this genus and species is extended at 900 km towards the south of Chile, expanding the forest association to the Temperate Valdivian Forest.

Keywords: new record, urban forest, Valdivian forest, saproxylic beetles.

RESUMEN

En este artículo reportamos la presencia del latrídido *Adistemia convexa* (Dajoz, 1974) (Coleoptera, Latridiidae) en un bosque urbano ubicado en la ciudad de Valdivia en Chile, colectado utilizando trampas de intercepción en vuelo. En base a este hallazgo, la distribución de este género y especie se extienden al menos 900 km hacia el sur del país, ampliando la asociación forestal hacia el bosque templado valdiviano.

Palabras clave: bosque urbano, bosque Valdiviano, escarabajos saproxílicos, nuevo registro.

The family Latridiidae Erichson, 1842, also called minute brown scavenger beetles, includes 29 genera and 1050 species with a cosmopolitan distribution that inhabited multiple terrestrial ecosystems (Lord *et al.* 2010). These beetles are mainly mycophagous (López 2014), although also can be observed on flowers (Urbina *et al.* 2021), moss (Elgueta *et al.* 2023), bird nests, tree cones or in galleries made by other beetles (Hammond & Chambers 2020). Additionally, some species may be associated with stored products, in barns, damp caves or cellars, among other habitats (López 2014). Imago and larvae feed exclusively on fungi mycelium, particularly mould. Morphologically, this group are characterized by a small size ranging from 1.0 to 3.0 mm; brown coloration; elongate or oval general body shape; convex pronotum, which in some cases may be smooth; elytra with conspicuously punctuated striae, with interstriae that may be carinate or smooth (Hartley & McHugh 2010; Solervicens 2014).

The fauna of Latridiidae in Chile is comprised by at least 40 described species belonging to 6 genera: *Adistemia* Fall, 1899, *Cartodere* Thomson, 1859, *Corticaria* Marsham, 1802, *Enicmus* Thomson, 1859, *Metophthalmus* Wallaston, 1854, and *Melanophthalma* Motschulsky, 1866 (Dajoz, 1974; Elgueta, 2000, 2008; Solervicens, 2014). In particular, the genus *Adistemia* in Chile is represented by the species: *A.*

bicarinata (Belon, 1897); *A. chilensis* Dajoz, 1974; *A. ciliata* Dajoz, 1967; *A. convexa* Dajoz, 1974; *A. jeanneli* Dajoz, 1962; *A. microphthalma* Dajoz, 1967; *A. minuta* Dajoz, 1967; *A. petiti* Dajoz, 1962; *A. prenanti* Dajoz, 1962; *A. pubescens* Dajoz, 1974; *A. rileyi* Hinton, 1967; *A. watsoni* Wallaston, 1871 (Dajoz 1974; Moroni 1975; Solervicens 2014).

The *Adistemia* species are characterized by being either apterous or brachypterous (Lord *et al.* 2010), as well as having reduced eyes (Andrews 1976). This genus has been previously reported distributed in Chile from Región de Antofagasta to Región Metropolitana (Fig. 1a), between approx. 23 to 34° S´ 71° W (Dajoz 1974; Solervicens 2014). In addition, one species of this genus is subcosmopolitan (*A. watsoni*), however, its distribution is also limited at the northern or central areas of Chile. The main goals of this scientific note are report a new distributional range for *Adistemia convexa* and described the habitat of this new record. The new locality corresponds to the city of Valdivia, Región de Los Ríos (Fig. 1a, 1c).

Adistemia convexa can be distinguished from the other species of the genus by elongated body, with a size of approximately 1.5 mm; coloration testaceous brown; pubescence short (0.1 mm long); head longer than wide; eyes large and prominent with few ommatidium; pronotum wider than large, strongly convex, with large constricted punctuation like head, disc with median depression behind middle; elytra longer than wider, with well-developed interstriae, separated by sharp striae (Dajoz, 1974; Solervicens, 2014). Males and females of some genera of latridids may be distinguishable due to males could or/not have modifications of the tibiae, while the female tibiae are simple (López, 2014).

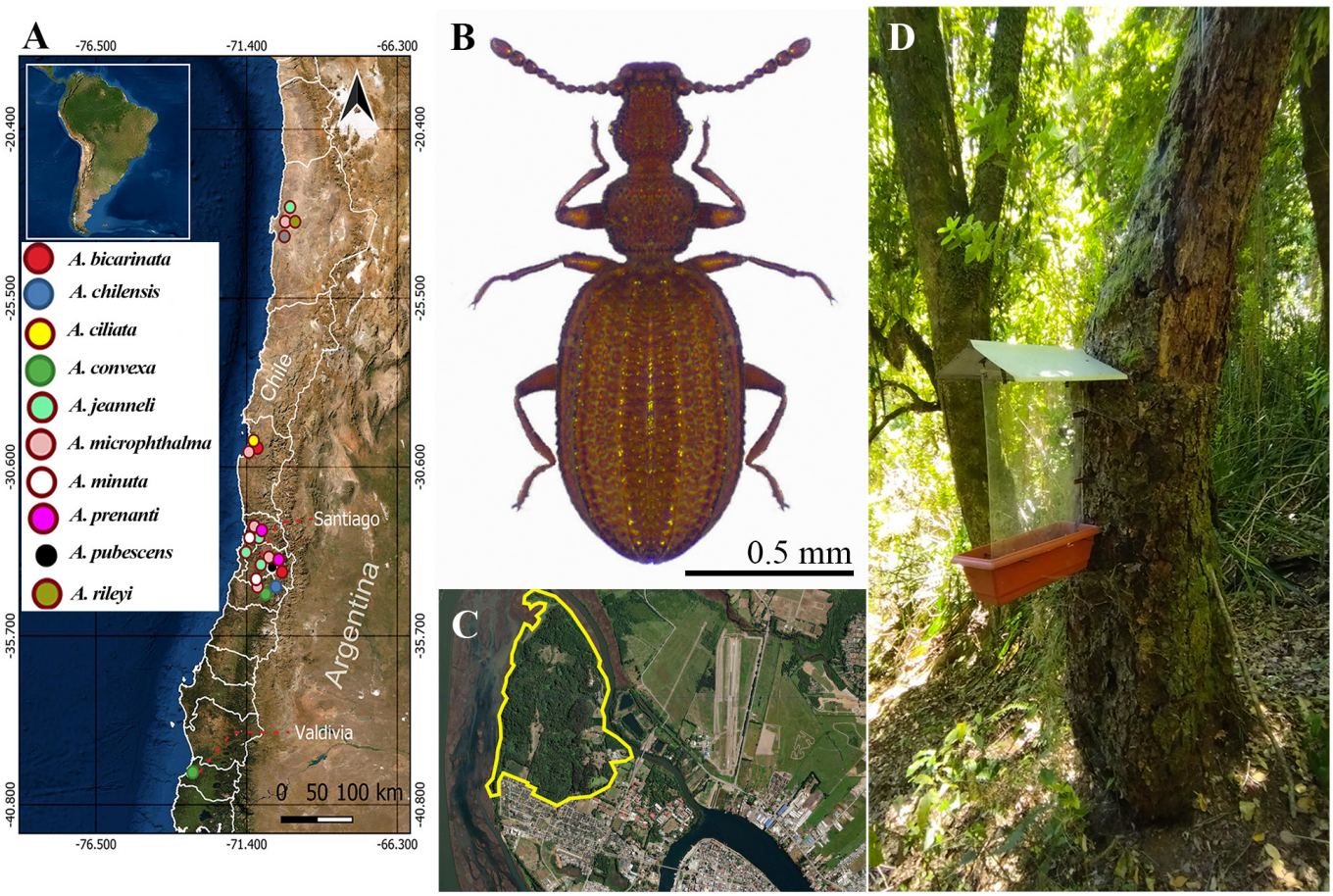

Figure 1. Habitat and dorsal habitus of *Adistemia convexa*. a) Map of species distribution of Chilean *Adistemia*. b) Habitus of *A. convexa*. c) Study area. d) Tree-trunk flight intercept trap. / Hábitat y habito dorsal de *Adistemia convexa*. a) Mapa de distribución de las especies del género *Adistemia* presentes en Chile. b) Habito dorsal de *A. convexa*. c) Área de estudio. d) Trampa de intercepción de vuelo anclada a un árbol muerto.

Between March 2019 and March 2022, we sampled saproxylic beetles in the urban forest *Arboretum* of the Universidad Austral de Chile, Valdivia, Chile. For this purpose, we used tree-trunk flight intercept traps (Fig. 1d), with a solution of salt and water at 10 % with a few drops of glycerin as preservation liquid. This forest is considered an urban ecosystem which is placed in the Isla Teja sector, less than 3 km from the center of the Valdivia city (Fig. 1c). This forest covers an area of 62 ha and is dominated by vegetation typical of Valdivian evergreen and *Nothofagus* forests. Evergreen tree forests are composed of *Eucryphia cordifolia*, *Aetoxicom punctatum*, *Laureliopsis philippiana*, *Drymis winteri*, *Luma apiculata*, *Weinmannia trichosperma*; as deciduous species, the *Nothofagus dombeyi* and, *N. obliqua* were the most representatives (Hechenleitner & Zamorano 2005; Penneckamp & LeQuesne 2021). For taxonomic delimitation we followed the original description of Dajoz (1974), and the genus was determined following the works of Andrews (2002) and López (2014). The specimen was mounted on an entomological card and stored in the Ernesto Krahmer Entomological Collection of the Laboratorio de Salud de Bosques, Facultad de Ciencias Forestales y Recursos Naturales, Universidad Austral de Chile (Curator: C. Montalva).

The data of the examined material are: *Adistemia convexa* (Dajoz, 1974), male; CHILE – Valdivia, Reg. Los Ríos, Arboretum; 39°48'11" S, 39°48'11" W; date 14-III-2020; C. Tello & F. Tello collectors. The specimen here reported (Fig. 1b) was collected on a dead tree of *A. puctatum*, with 95 cm diameter at breast height, at 1.5 m height. In addition, the dead tree had a solid consistency with partial loss of bark. The presence of saproxylophagous fungi, such as *Mycena cyanocephala* was observed at the base of the trunk.

The northern species of genus *Adistemia* are associated with Sclerophyll shrub/forest in Andes hills and sub-Andean areas. Here we added a new forests association with evengreen mixed forest with deciduous species such as *N. dombeyi* and, *N. obliqua* (Hechenleitner & Zamorano 2005; Penneckamp & LeQuesne 2021). Before this report, the genus *Adistemia* was recorded from localities in both semi-arid and Mediterranean environments of the northern and central-northern regions. The specimen reported here comes from an area under the dominance of a temperate rain climate, with mean annual temperatures of ~12°C and average annual precipitation of ~2,500 mm^3 (Penneckmap & LeQuesne 2021). Therefore, in this note we extend the distributional range of *Adistemia* at 900 km from its last known locality, and add a new biogeographic region to the distribution of this species. Moreover, the microhabitat conditions where the specimen was found i.e., dead tree with abundant saproxylophagous fungi, suggest that this species may be associated with environments with a high degree of decomposition of dead wood. Finally, our sampling effort totaled 3 years of continuous monitoring, including several replications. Despite, we only captured one specimen, which suggests these beetles could be less abundant compared between the northern and central areas of the country.

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