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Primer registro de la mosca Belcebú depredadora de abejas
Mallophora leschenaulti (Diptera: Asilidae) en Chile

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Abstract: In this note we report the presence of Beelzebub bee-eater fly *Mallophora leschenaulti* Macquart, 1938 (Diptera: Asilidae) from northern Chile. A female was collected from highland scrublands in Chapiquiña town, Arica y Parinacota region. In addition, two females are reported from Lluta valley near Peru border. This is the second *Mallophora* species registered in Chile, distributed in scrubland and cropland ecosystems. We discuss some native carpenter bees and bumblebees as potential preys.

Keywords: Altiplanic scrublands, Arica y Parinacota, Chapiquiña, Highland ecosystem, Lluta valley.

Resumen: En esta nota reportamos la presencia de la mosca Belcebú depredadora de abejas *Mallophora leschenaulti* Macquart, 1938 (Diptera: Asilidae) en el norte de Chile. Una hembra fue colectada desde los matorrales de altura en el pueblo de Chapiquiña, región de Arica y Parinacota. Además, dos hembras adicionales se reportan del valle de Lluta cerca de la frontera con Perú. Esta es la segunda especie de *Mallophora* reportada en Chile, las cuales se distribuyen en ecosistemas de matorrales nativos y cultivos. Discutimos sobre abejas carpinteras y abejorros nativos como presas potenciales.

Palabras clave: Arica y Parinacota, Chapiquiña, Ecosistemas de altura, Matorral altiplánico, Valle de Lluta.

Mallophora Macquart, 1838 is a genus of bumblebee-mimic robber flies (Diptera) of large size, predators mainly of Hymenoptera, represented by 59 species, widely distributed through Neotropical countries (Geller-Grimm, 2013; Lavigne, 2016). Early, this genus was excluded from Chile, but Artigas (1970) reported from Azapa valley (Arica) the only species recorded in Chile: *Mallophora atra* Macquart, 1834. This species is morphologically characterized based on its abundant black pilosity on the thorax, including scutellum, the presence of white hairs patches under ventral margin of the eyes and yellowish pilosity in the occiput (Artigas, 1970; Artigas & Angulo, 1980). Another Neotropical species, *Mallophora leschenaulti* Macquart, 1834 (Fig. 1), is similar to *M. atra* excepting for the presence of whitish pilosity in the anterior part of scutum and scutellum. The fly is widely distributed from USA to

Argentina living in different ecosystems, mainly scrublands (Artigas & Angulo, 1980; Papavero, 2013; Vieira et al., 2019). However, other data about its biology, ecology and behavior are absent. Herein, we provide the first records of *M. leschenaulti* from the Chilean highlands in Arica y Parinacota region, and a map of the currently known geographical distribution of *Mallophora* species in the country.

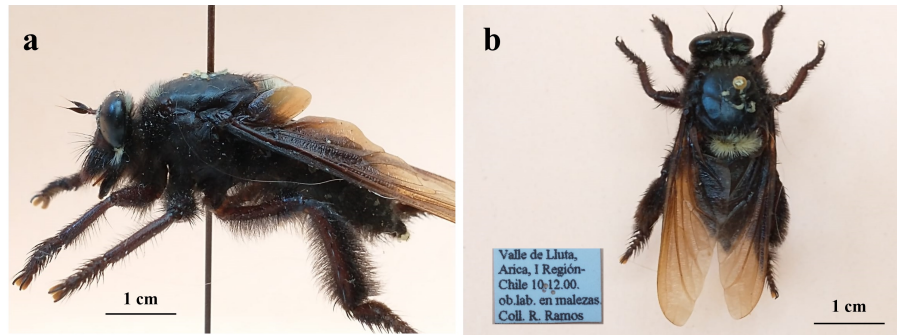


Fig. 1. *Mallophora leschenaulti* Macquart, 1938, female. A. lateral view. B. dorsal view with collecting label.

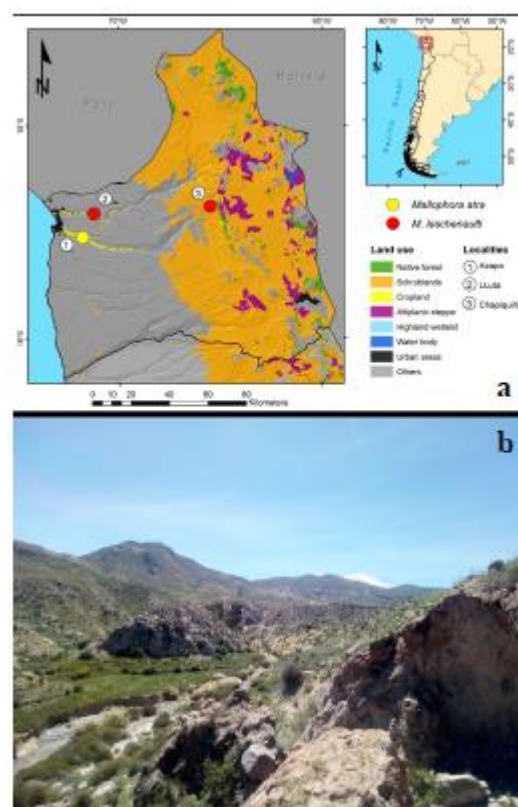


Fig. 2. A. Distributional map of *Mallophora* species present in Arica y Parinacota region, Chile. B. Highlands scrubland ecosystem where *M. leschenaulti* was found.

Highlands in Chile represent a high desert with heavy rainfalls only in summer and tropical influence with low tropical Andean scrubland type dominating the landscape (Di Castri & Hajek, 1976). In March 2018, during fieldworks in Chilean highlands from Arica y Parinacota region ($18^{\circ} 28' 30''$ S, $70^{\circ} 18' 52''$ W; Fig. 2A), we collected a single female of *M. leschenaulti* in scrublands near the Chapiquiña town, placed

at 2,800 m.a.s.l. The female was captured by hand with an entomological net and housed on personal collection of first author. The identification was based on Artigas (1970) and Artigas & Angulo (1980). In addition, other two females caught in from shrublands in Lluta valley, both with the same labels, were recorded from Universidad de Tarapacá collection and we assign a new code and housed in the same institution (Fig. 1B). The distribution map of *Mallophora* species was built with land use types obtained from national cadaster of native forest (CONAF BIRF, 2013).

New records: CHILE: Arica y Parinacota, one adult, female, Chapiquiña, 18°23'45"S, 69°32'12"W, 3458 m, 28 March 2018, R. Barahona-Segovia, voucher 33ASI/CPRBS; two adults, both females, Lluta valley, 10 December 2000, R. Ramos, vouchers 01ASI/UTA and 02ASI/UTA.

In Chile both biology and ecology of Asilidae have been poorly studied. The greatest contributions have come from taxonomic and systematic papers done by Artigas (1970), Artigas & Angulo (1980), Artigas et al. (2005) and Artigas & Parra (2006), with few new additions in the last decade to the Chilean fauna. The area where the female of *M. leschenaulti* was reported, is characterized by having dense scrubland with little intervention (Fig. 2B), with an abundance of seasonal flowers as a result of the altiplanic rains and with available preys such as the carpenter bee *Xylocopa viridigastra* Lepeletier and *Bombus funebris* Smith. Both bee species are black with abundant hair and silver patches on the thorax, then *M. leschenaulti* is a possible mimic species of these native bees. Recently, Montalva et al. (2017) reported the presence of the exotic bumblebee *Bombus terrestris* L. in Chilean valleys, and highlands from Arica y Parinacota region. This invasive bumblebee could be a potential prey for *M. leschenaulti* as suggest Barahona-Segovia & Pañinao-Monsálvez (2020) for other Chilean giant robber flies. *Mallophora leschenaulti* has been recorded from similar scrubland biomes as Brazilian Cerrado or temperate scrublands (Kohler et al., 2013; Cezar, 2017) suggesting that this robber fly species could have permanent populations in scrubland from highlands in northern Chile. Unfortunately, many aspects of its ecology in Chile or the Neotropical region, still remain unknown. This new record helps to fill the distributional gaps of the Diptera in the studied region of Chile.

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