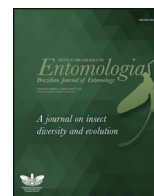




SOCIEDADE BRASILEIRA  
DE ENTOMOLOGIA  
FUNDADA EM 1937

REVISTA BRASILEIRA DE  
*Entomologia*  
A Journal on Insect Diversity and Evolution



## Hemerobiidae from Deceit Island: the Southernmost Neuroptera in the Americas

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### ARTICLE INFO

#### Article history:

Received 31 July 2022

Accepted 21 September 2022

Available online 31 October 2022

Associate Editor: Renato Jose Machado

#### Keywords:

Brown lacewings

Faunistics

Cape Horn

### ABSTRACT

The Neuropteran fauna on the most meridional part of South America is relatively scarce. Two families, Hemerobiidae and Coniopterygidae, have been recorded so far. Accordingly, only a few species have reached the south of Tierra del Fuego. Currently, the southernmost records of these species, *Hemerobius chilensis* Nakahara, 1965 and *Megalomus flinti* (Nakahara, 1965), are from Puerto Williams, Navarino Island (54°56'S 67°37'W), which makes them the southernmost distributed neuropterans in the continent. Here we provide the first records for two Neuroptera species, *Hemerobius nekoï* Monserrat, 1996 and *Megalomus flinti*; from Deceit Island, a remote subantarctic island within the Cape Horn archipelago (55°51'41"S 67°08'31"W). The records provided makes these species the southernmost recorded lacewings in the continent; extending the known distribution of neuropterans in South America nearly 110km towards the south.

Hemerobiidae is a family of small neuropterans commonly known as brown lacewings. With nearly five hundred species, hemerobiids are distributed worldwide, except in Antarctica (Oswald, 1993, 2022). Additionally, as many species prey on pests, they have been used as biological control agents, making them economically important (Monserrat, 1996, 1997).

The knowledge of Neuroptera in Southern South America is scarce and relatively recent compared to other areas of the continent. Only two families, Hemerobiidae and Coniopterygidae have been recorded so far (Monserrat, 2003, 2005). Furthermore, few works have been published regarding and/or including information about the Southern South American fauna (Nakahara, 1965; González Olazo, 1981, 1992a, 1992b; New, 1990; Monserrat, 1996, 1997, 2003, 2005; Faúndez, 2005). The current southernmost records of these families found in literature belong to only two species; *Hemerobius chilensis* Nakahara, 1965 and *Megalomus flinti* (Nakahara, 1965), both reach Puerto Williams in the Navarino Island (54°56'S 67°37'W) (Monserrat, 1996, 1997).

The objective of this work is to provide the first records for *Hemerobius nekoï* Monserrat, 1996 (Fig. 2) and *Megalomus flinti* (Fig. 1) from Deceit Island, in the remote subantarctic Cape Horn archipelago:

Material examined: CHILE, Magallanes Region, Cape Horn Archipelago, Deceit Island 55°51'41"S 67°08'31"W, 27-IX/28-XII-1982, in forest, leg. D. Lanfranco, *Megalomus flinti* 6♀♀, *Hemerobius nekoï* 2♀♀1♂ (Deposited in the arthropod collection of Instituto de la Patagonia, Punta Arenas, Chile IPUM, E. Faúndez curator).

For identification and terminology we follow Monserrat (1996, 1997). Photos were taken with a digital camera adapted to a stereoscopic microscope and the map in figure 3 was developed with Zeemaps®.

Even though female terminalia (Fig. 1D), was consistent among studied material, the specimens of *Megalomus flinti* present a high variability in wing coloration (Fig. 1A-C). This has been previously mentioned by González Olazo (1981, 1992b), and Monserrat (1997). In the case of *Hemerobius nekoï*, the specimen matches Monserrat's (1996) description, especially for the granulate aspect of the membranous area in the base of both female and male ectoproct (Fig. 2B-C), making them distinctive among other Patagonian *Hemerobius* Linnaeus, 1758.

Deceit Island is part of the southernmost group of islands in the American continent, the Cape Horn Archipelago. This area is characterized by Magellanic Tundra. The samples here examined were collected in forests. These forests in Deceit Island are composed mostly of *Nothofagus betuloides* (Mirb.) (Nothofagaceae) and *Drimys winteri* (Forst. & Forst.) (Winteraceae); and are located in wind-protected areas (Lanfranco, 1983). Both hemerobiids here recorded are strongly associated with *Nothofagus* forests (González Olazo,

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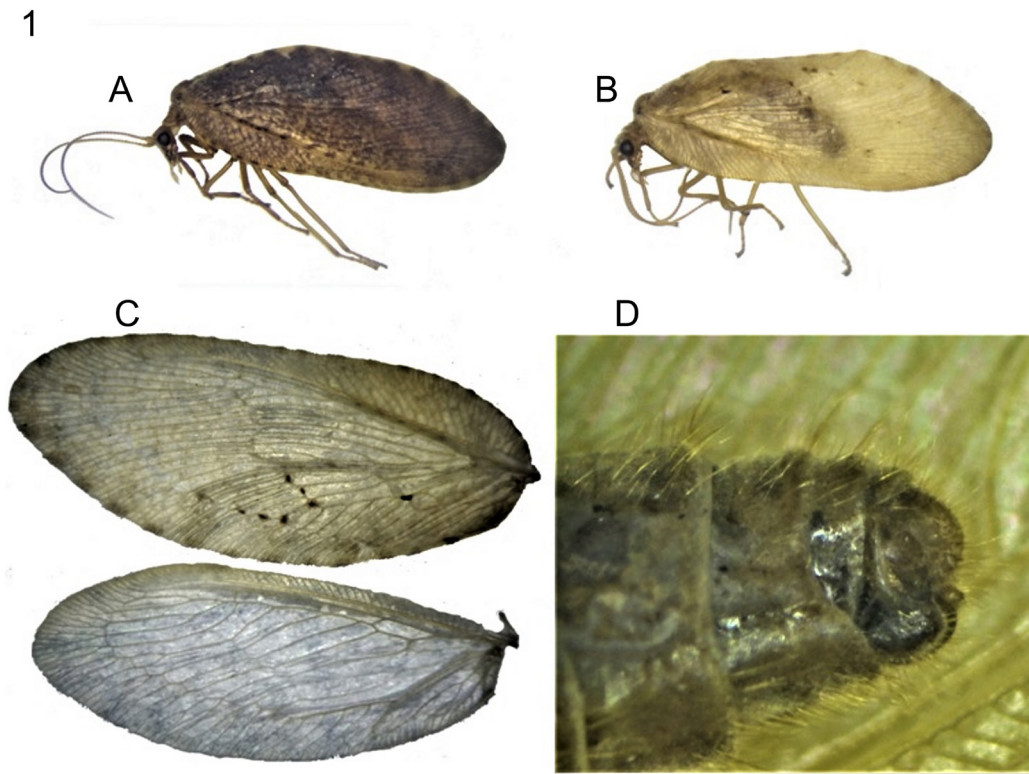


Figure 1. *Megalomus flinti*. A-B., habitus, lateral view, C., wings, D., female terminalia, lateral view.

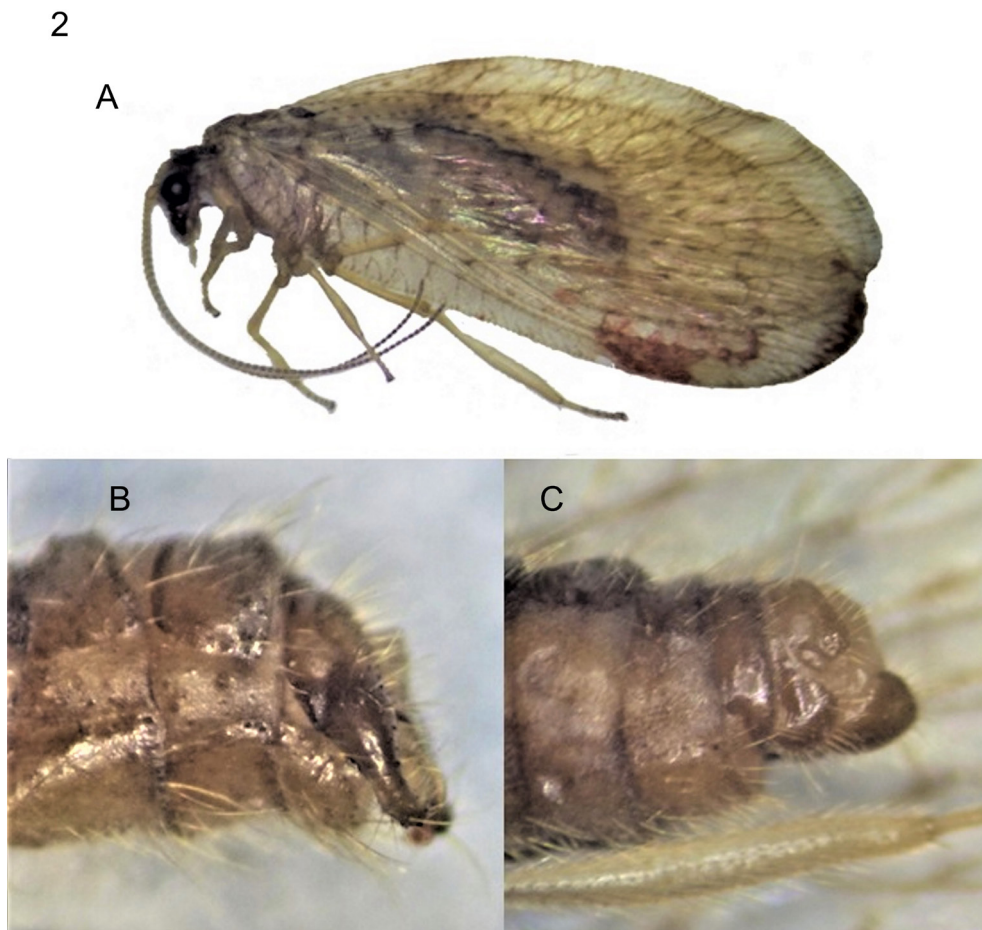


Figure 2. *Hemerobius nekoi*. A., habitus, lateral view; B., male terminalia, B., female terminalia.



Figure 3. Study area, red mark, Puerto Williams, violet mark, Deceit Island.

1992b; Monserrat, 1996, 1997). Therefore, the presence of these trees in addition to them being located in wind protected areas may be of aid for these small neuropterans to reach that far south with extreme climate conditions. In the only previous work on insects of the Deceit Island (Lanfranco, 1983), the order Neuroptera was not mentioned. Thus the present becomes the southernmost record in the continent for lacewings and extending the known distribution nearly 110km towards the south (Fig. 3).

#### Acknowledgments

We thank anonymous reviewers for their helpful comments on this manuscript.

#### Funding

This work was funded by the project ANID, SIA, SA77210055, CHILE.

#### Conflicts of interest

The authors declare no conflicts of interest.

#### Author contribution statement

EIF Conceptualization-Lead, Data Curation-Lead, Formal Analysis-Lead, Funding Acquisition-Lead, Investigation-Lead, Writing – original draft-Lead, Writing – review and editing-Supporting. MAC Data Curation-Equal, Formal Analysis-Equal, Methodology-Supporting,

Visualization-Supporting, Writing – original draft-Supporting, Writing – review and editing-Supporting.

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