

Journal of Melittology

Bee Biology, Ecology, Evolution, & Systematics

The latest buzz in bee biology

No. 91, pp. 1–4

18 October 2019

BRIEF COMMUNICATION

First record of *Hylaeus (Gnathoprosopis) euxanthus* (Hymenoptera: Colletidae) in Chile

José Montalva¹, Leah S. Dudley², & Terry F. Houston³

Abstract. A 2009 field survey at Cerro San Cristobal, Santiago, Chile, revealed the presence of *Hylaeus (Gnathoprosopis) euxanthus* (Cockerell, 1910). Since then, numerous individuals have been observed visiting several plant species around Santiago and Valparaíso. This is the first record of this Australian-native bee in South America.

INTRODUCTION

Hylaeus Fabricius is a species-rich genus with 767 species in 55 subgenera with a global distribution (Michener, 2007; Ascher & Pickering, 2018). Superficially resembling small black apoid wasps such as some Pemphredoninae, they are typically small bees with black, shiny integument with indistinct pubescence. The head, pronotum, tegulae, and legs usually have yellow markings, which are more extensive in males. Scopae are absent because the females carry pollen internally (Michener, 2007). Many species of *Hylaeus* nest in hollow dead stems, others use pre-existing cavities (in wood, ground, etc.), which makes them readily transportable by human means (Michener, 2007; Ascher, 2001; Ascher *et al.*, 2006; Gibbs & Dathe, 2017; Martins *et al.*, 2017).

Here, we provide the first record of the Australian bee species *Hylaeus euxanthus* (Cockerell) in Chile (Fig. 1). This is the second species of *Hylaeus* introduced to the country; the first one was *H. punctatus* (Brullé, 1832) in 1986 (Toro *et al.*, 1989). The native distribution of *H. euxanthus* includes most of mainland Australia in areas of both

¹ 146 Physical and Environmental Sciences Building, Department of Biology, East Central University, Ada, Oklahoma 74820, USA (montalva,jose@yahoo.es).

² 168 Physical and Environmental Sciences Building, Department of Biology, East Central University, Ada, Oklahoma 74820, USA (ldudley@ecok.edu).

³ Western Australian Museum, Locked Bag 49, Welshpool D.C., WA 6986, Australia. (terry.houston@museum.wa.gov.au).

doi: <http://dx.doi.org/10.17161/jom.v0i91.7559>

low and high rainfall (Houston, 1981). The first record in Chile was found during a survey of urban native bees (2009) at the Jardín Botánico Chagual, which is part of the Cerro San Cristobal, Santiago (Montalva *et al.*, 2010). Since then, it has been found in various localities in Santiago and in Valparaíso. This species has been observed visiting *Oenothera rosea* L'Hér. ex Aiton (Onagraceae), *Gnaphalium philippi* Gand (Asteraceae), *Schinus polygamous* (Cav.) Cabrera (Anacardiaceae), *Baccharis linearis* (Ruiz & Pav.) Pers., *Baccharis* sp. (Asteraceae), *Papaver somniferum* L. (Papaveraceae), *Quillaja saponaria* Molina (Quillajaceae), and *Crataegus monogyna* Jacq.

SYSTEMATICS

Hylaeus (Gnathoprosopis) euxanthus (Cockerell, 1910)

(Fig. 1)

IDENTIFYING FEATURES: ♂: mostly black, nonmetallic body; pronotum yellow, propodeal enclosure bordered laterally by distinct carinae and very coarsely areolate, contrasting with more finely sculptured areas to either side; paraocular area, clypeus, labrum, malar area, and mandibles yellow; vertex, frontal ocellus area, and frons black; scape yellow; flagellum usually completely yellow-brown. Legs yellow. A pair of relatively large spines on 3rd sternum in larger males.

♀: mostly black, nonmetallic body; pronotum yellow, propodeal enclosure bordered laterally by distinct carinae and very coarsely areolate, contrasting with more finely sculptured areas to either side; paraocular area, malar area yellow and, unlike male, clypeus, labrum, malar area, and mandibles black; vertex and frons black; antennae usually completely yellow-brown. Legs black except hind femora and tibiae usually yellow over at least 1/4 of their length.

NEW RECORDS: Chile: 2♀♀, 4♂♂, (Metropolitan region), Providencia, Santiago Jardín Botánico Chagual (-33.4074365,-70.605679), 10 Oct 2009, J. Montalva; 3♀♀, 6♂♂, (Metropolitan region), Providencia, Santiago Jardín Botánico Chagual (-33.4074365,-70.605679), 17 Oct 2009, J. Montalva; 4♂♂, Nuñoa, Campus Juan Gomes Millas, Universidad de Chile (-33.4660436,-70.5979008), 24 Oct 2009, J. Montalva; 1♂, (Valparaíso), Viña del Mar, Jardín Botánico Nacional -33.04807,-71.5022451), 25 Nov 2014, J. Diego Reyes Arellano. Specimens are deposited in the following institutions in Chile: Museo Nacional de Historia Natural, Instituto de Entomología Universidad Metropolitana de Ciencias de la Educación, Jardín Botánico Chagual and Pontificia Universidad Católica de Valparaíso. Photographic records of the species also exist, showing expansion throughout the Metropolitan region.

REMARKS: The mechanisms promoting the arrival of this species to central Chile are unknown, but we believe nests could have been carried in commercial wooden pallets, as has occurred with other recently introduced bees in Chile (Montalva *et al.*, 2015). *Hylaeus euxanthus* was recently reported from New Zealand (Ministry for Primary Industries, 2015), a country directly in the path of commercial traffic between Australia and Chile. The various collection dates, localities, and frequency of encounters suggest that *H. euxanthus* is naturalized in central Chile.

Key to Species of *Hylaeus* of Chile

- | | | |
|----|--------------|---|
| 1. | Male | 2 |
| —. | Female | 3 |



Figure 1. Male of *Hylaeus (Gnathoprosopis) euxanthus* (Cockerell) at the Chilean Botanical Garden.

- 2. Mandibles, scape yellow; 3rd metasomal sternum bearing pair of spines, at least in larger specimens *H. euxanthus* (Cockerell)
- Mandibles, scape black; 3rd metasomal sternum lacking spines
..... *H. punctatus* (Brullé)
- 3. Propodeal enclosure bordered laterally by distinct carinae
..... *H. euxanthus* (Cockerell)
- Propodeal enclosure not bordered laterally by distinct carinae
..... *H. punctatus* (Brullé)

ACKNOWLEDGEMENTS

We sincerely thank Laurence Packer for helping us with the first identification of the bees and his comments on an earlier version of the manuscript. We also thank the two reviewers and Victor Hugo Gonzalez who contributed to the improved text. Thanks to Diego Reyes Arellano for picture contributions of *H. euxanthus*. Additional thanks to John Ascher, Pablo Vial, Asiel Olivares, and Pedro Vargas.

REFERENCES

- Ascher, J.S. 2001. *Hylaeus hyalinatus* Smith, a European bee new to North America, with notes on other adventive bees (Hymenoptera: Apoidea). *Proceedings of the Entomological Society of Washington* 103(1): 184–190.
- Ascher, J.S., & J. Pickering. 2018. Discover Life bee species guide and world checklist (Hymenoptera: Apoidea: Anthophila. [<http://www.discoverlife.org/mp/20q?search=Apoidea#References>]; last accessed 16 October 2019].
- Ascher, J.S., P. Gambino, & S. Droege. 2006. Adventive *Hylaeus* (*Spatulariella* Popov) in the New World (Hymenoptera: Apoidea: Colletidae). *Proceedings of the Entomological Society of Washington* 108(1): 237–239.
- Brullé, A. 1832. Expédition Scientifique de Morée. Section des sciences physiques. Tome III. Partie 1. Zoologie: 64–400. Paris; Strasbourg; Levrault; iii+400 pp.
- Cockerell, T.D.A. 1910. Descriptions and records of bees—XXX. *Annals and Magazine of Natural History, Series 8* 6(31): 17–31.
- Gibbs, J., & H.H. Dathe. 2017. First records of *Hylaeus* (*Paraprosopis*) *pictipes* Nylander, 1852 (Hymenoptera: Colletidae) in North America. *Check List* 13(3): 1–6.
- Houston, T.F. 1981. A revision of the Australian hylaeine bees (Hymenoptera: Colletidae). II. *Australian Journal of Zoology Supplementary Series* 80: 1–128.
- Martins, K.T., É. Normandin, & J.S. Ascher. 2017. *Hylaeus communis* (Hymenoptera: Colletidae), a new exotic bee for North America with generalist foraging and habitat preferences. *Canadian Entomologist* 149(3): 377–390.
- Michener, C.D. 2007. *The Bees of the World* [2nd Edition]. Johns Hopkins University Press; Baltimore, MD; xvi+[i]+953 pp., +20 pls.
- Ministry for Primary Industries. 2015. Pest Watch: 5 November 2014 – 3 June 2015. *Surveillance* 42(2): 34. [<http://www.sciquest.org.nz/node/108834>; last accessed 16 October 2019].
- Montalva, J., B. Castro, & J.L. Allendes. 2010. Las Abejas del Jardín Botánico Chagual, estudio de caso de abejas nativas en zonas urbanas, Santiago Chile. *Revista del Jardín Botánico Chagual* 8: 13–23.
- Montalva, J., M. Rios, & F. Vivallo. 2015. First record of the invasive bee *Anthidium manicatum* (Hymenoptera: Megachilidae) in Chile. *Journal of Melittology* 56: 1–5.
- Toro, H., Y. Frederick, & A. Henry. 1989. Hylaeinae (Hymenoptera: Colletidae), a new sub-family of bees for the Chilean fauna. *Acta Entomológica Chilena* 15: 201–204.



Journal of Melittology

A Journal of Bee Biology, Ecology, Evolution, & Systematics

The *Journal of Melittology* is an international, open access journal that seeks to rapidly disseminate the results of research conducted on bees (Apoidea: Anthophila) in their broadest sense. Our mission is to promote the understanding and conservation of wild and managed bees and to facilitate communication and collaboration among researchers and the public worldwide. The *Journal* covers all aspects of bee research including but not limited to: anatomy, behavioral ecology, biodiversity, biogeography, chemical ecology, comparative morphology, conservation, cultural aspects, cytogenetics, ecology, ethnobiology, history, identification (keys), invasion ecology, management, melittopalynology, molecular ecology, neurobiology, occurrence data, paleontology, parasitism, phenology, phylogeny, physiology, pollination biology, sociobiology, systematics, and taxonomy.

The *Journal of Melittology* was established at the University of Kansas through the efforts of Michael S. Engel, Victor H. Gonzalez, Ismael A. Hinojosa-Díaz, and Charles D. Michener in 2013 and each article is published as its own number, with issues appearing online as soon as they are ready. Papers are composed using Microsoft Word® and Adobe InDesign® in Lawrence, Kansas, USA.

Interim Editor

Victor H. Gonzalez
University of Kansas

Assistant Editors

Victor H. Gonzalez
University of Kansas

Claus Rasmussen
Aarhus University

Cory S. Sheffield
Royal Saskatchewan Museum

Founding Editor & Editor Emeritus

Michael S. Engel
University of Kansas

Journal of Melittology is registered in ZooBank (www.zoobank.org), and archived at the University of Kansas and in Portico (www.portico.org).

<http://journals.ku.edu/melittology>
ISSN 2325-4467