



First records of *Pseudoanthidium nanum* (Mocsáry, 1880) (Hymenoptera: Megachilidae) in Canada


Étienne NORMANDIN  Department of Biological Sciences, IRBV, University of Montreal, Canada; etienne.normandin-leclerc@umontreal.ca

Anthony AYERS Department of Biology, York University, Toronto, Canada; beeb0i@yorku.ca

Briann DORIN  Faculty of Environmental and Urban Change, York University, Toronto, Canada; briann.dorin@gmail.com

Trevor SLESS  Department of Biology, York University, Toronto, Canada; trevorsless@gmail.com

Ludovic LECLERC  Laval University, Quebec City, Canada; ludovic.leclerc.1@ulaval.ca

Sheila COLLA  Faculty of Environmental and Urban Change, York University, Toronto, Canada; srcolla@yorku.ca

Sandra REHAN  Department of Biology, York University, Toronto, Canada; sanrehan@yorku.ca

Introduction

The population of non-indigenous bees in North America is on a steady rise, driven by globalization, possibly by the ability of some to nest in cavities and take advantage of the urban habitat (Fitch et al, 2019). This trend underscores the dynamic nature of bee communities in eastern North America. In 2019, Portman et al. documented the initial appearances of the adventive *Pseudoanthidium nanum* (Mocsáry 1880) in Illinois and Minnesota. Here we report evidence of *P. nanum* occurring in Canada, becoming the fourth adventive anthidiine in the country after *Anthidium manicatum* (L.), *A. oblongatum* (Illiger) and *A. florentinum* (F.) (Smith, 1991; Romankova, 2003; Normandin et al., 2017). As with many other exotic bee species, *P. nanum*'s presence in America seems to be associated with disturbed areas such as urban and industrial zones (Droege & Shapiro, 2011).

Results and Discussion

A total of 45 individuals, comprising both cocoons and imagos (Figs 1 and 2), were collected during unrelated surveying projects in Ontario and Quebec from 2021-2023 indicating a likely recent arrival of this species into both provinces. The earliest recorded specimens are two adult females collected, via hand net, in the Niagara and Peel regions in June 2021. The first female was collected along a timed transect walk in an organic vineyard (Niagara-on-the-Lake, ON), while the second was collected a few weeks later during a site survey in Claireville Conservation Area (Brampton, ON) off of burdock

(*Arctium* sp.). In winter of 2022, 39 specimens emerged in the laboratory from a trap nest initially installed at the base of an advertisement board as part of a project on cavity-nesting urban insects. Three final adults were collected in July 2023 from the York University campus (Toronto, ON). Two specimens, a male and female, were hand-netted from *Arctium* sp. while another female was unintentional bycatch found within a raspberry stem (*Rubus* sp.) collected for an unrelated project. There have also been two unrelated observations of this species in southern Ontario made on the community-science platform iNaturalist, but these specimens were not collected (GBIF.org, 2023). Another specimen was captured in a Quebec City park, the first for the province of Quebec.

Pseudoanthidium nanum can be distinguished from all other Canadian Anthidiini by a few specific characters (Fig. 1) which have been detailed in previous work (Gonzalez & Griswold, 2013; Litman et al, 2022; Portman et al., 2019).

Material

https://data.canadensys.net/micropublications/resource?r=specimen_34

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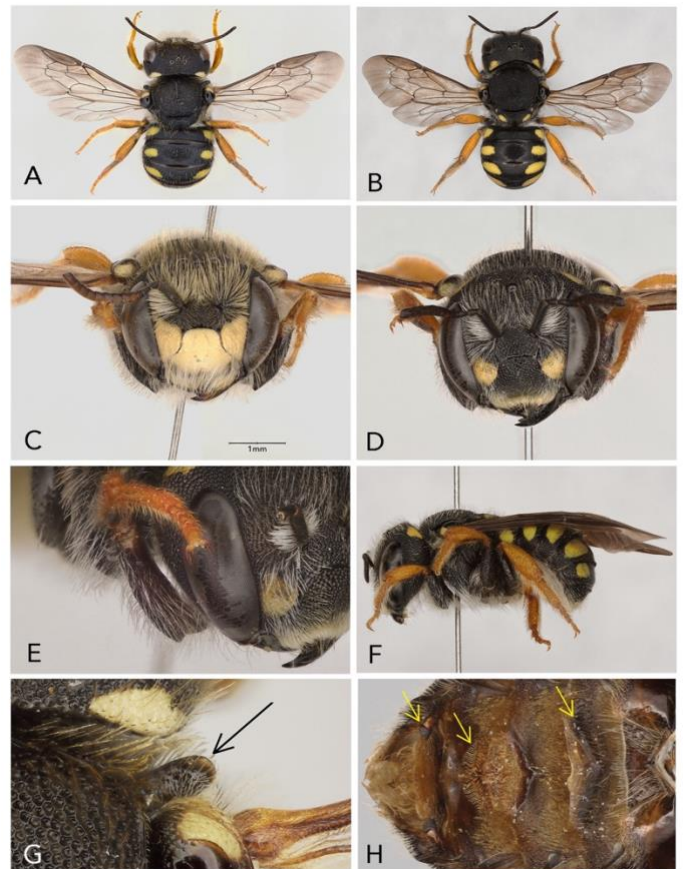


Fig. 1. *Pseudoanthidium nanum*. A) male dorsal habitus [QMOR84448]; B) female dorsal habitus [QMOR84440]; C) male face [QMOR84448]; D) female face [QMOR84440]; E) female fore-femur with a conical base and absence of arolia [QMOR84438]; F) Female lateral habitus [QMOR84438]; G) male lamellate ridge on the pronotal lobe [QMOR84448]; H) male metasomal sterna, from left to right: lateral combs on S5, an apico-medial brush of wavy and hooked hairs on S3 and a chevron-shaped raised region on S2 [QMOR84441].



Fig. 2. *Pseudoanthidium nanum* [QMOR84441]. A) larva; B) cocoon.