


## First records of *Dielis plumipes* (Drury, 1770) (Hymenoptera: Scoliidae) from the Canadian province of Quebec

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### Introduction

The family Scoliidae, also known as the mammoth wasps, is composed of large-bodied hymenopterans, mostly parasitoids of scarab beetles (Coleoptera: Scarabaeoidea) (Khouri et al. 2022). Almost 600 known species are known worldwide. Although essentially tropical, the group is represented by over 20 species in North America (Osten et al. 2005). Due to their ecology and potential in controlling populations of scarab beetles, many of which are considered pests, several species have been subjected to biological control trials (e.g., Krombein 1948; Abbate et al. 2018).

The members of this family can be identified by their large size (usually over 20 mm) and vibrant coloration (Borror and White 1970), especially in tropical or southern regions. They typically differ from the other families of the former superfamily Vespoidea (now placed within their own superfamily, the Scolioidea (Branstetter et al. 2017)) by the following combination of characters: metacoxae largely separated by the metasternum, which is flat and in the same plane as the mesosternum; propodeum divided by 2 longitudinal grooves; apically wrinkled wings (Borror and White 1970; Brothers and Finnamore 1993). Within its family, the genus *Dielis*, formerly treated as a subgenus of genus *Campsomeris* and since elevated to full generic status by Argaman (1996), can be recognized in North America by the combination of two submarginal cells and two recurrent veins in the front wings and white body pubescence (MacKay 1987; Grissel 2021) (Fig. 1). *Dielis plumipes*, described originally under the name *Sphex plumipes* by Drury (1770), can be readily identified in Canada, being the sole species occurring in the eastern provinces (Bradley 1928; 1957). The only other species of the genus occurring in Canada is *Dielis pilipes* (Saussure, 1858), which is only found in the west (Bradley 1928; Nelson and Moffat 2021). *D. plumipes* is commonly found in sandy and arid environments with sparse vegetation and trees (Fig. 2).

### Results and Discussion

Observations of *D. plumipes* have been recorded from Ontario for more than a hundred years (Bradley 1928), but none were ever documented

in the province of Quebec (Andrew Bennett, pers. comm.). This new occurrence was initially discovered by the first author who captured two specimens in flight among many others in a sandpit in southern Quebec. The specimens, subsequently determined as males, exhibited the same flight behavior reported by Grissel (2021), hovering in figure-8 patterns very close to the ground. The two specimens were sent and deposited at the Canadian National Collection of Insects, Arachnids and Nematodes, where Dr. Andrew Bennett confirmed their identity and the status of a new provincial record. Examination of other private collections from this area revealed more specimens from this general location, captured between 2008 and 2022 by the second author, and a single specimen caught north of the Montreal area by Jean-Benoit Duval. An observation on the website iNaturalist revealed another sighting in southwestern Quebec by André-Philippe Drapeau Picard. Collections data are provided in the attached material, and internet data are provided below.

**Internet data:** CANADA: Québec - MRC de Pontiac, L'Isle-aux-Allumettes (45.9074, -77.0469), A.-P. Drapeau-Picard, 20.VI.2019, recorded through [iNaturalist](#).

The common occurrences of this species in Ontario for more than a century and the discovery of several Quebec localities over the last 16 years suggest a well-established population of *D. plumipes* in southern Quebec. The fact that such a large insect remained undetected in the province for so long underscores the need for further research and field inventories of wasp populations.

### Acknowledgements

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## Material

[https://data.canadensys.net/micropublications/resource?r=specimen\\_28](https://data.canadensys.net/micropublications/resource?r=specimen_28)



Fig. 1. Habitus of a female *Dielis plumipes* (JBDCDIPL1). Photo by J.-B. Duval.



Fig. 2. Habitat in the Province of Quebec where one specimen (JBDCDIPL1) of *Dielis plumipes* was captured. Photo by J.-B. Duval.