

## First records of *Isthmocoris piceus* (Say, 1831) (Hemiptera: Geocoridae) in the Province of Quebec

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### Introduction

As part of an entomological inventory during the 2023 summer season, an alvar was visited several times in the municipality of St-Bernard-de-Lacolle (MRC des Jardins de Napierville), a site known as the "alvar de Roxham" (Fig. 1). During active hunting sessions in the low plants of the site, a dark bug with a broad head typical of Geocoridae was quickly noticed, and differed from the usual *Geocoris* spp. encountered at this site. Being outside the groups of interest of the current project, only one specimen was captured and preserved. Microscopic examination confirmed that it was a different species from those previously known in Quebec.

After investigation, this specimen was found to belong to the species *Isthmocoris piceus* (Say, 1831), an identity that was quickly confirmed by Jean-François Roch (Quebec Hemiptera specialist), as was its status as a new provincial record. The specimen was deposited in the author's personal collection (NBC) in Quebec City. A second specimen was subsequently captured by Ludovic Leclerc in a nearby locality, while sweeping various plants at the edge of forest environments. This second locality strongly suggests the established presence of this species in the south of the province. This specimen is in Ludovic Leclerc's personal collection in Quebec City (LLC).

### Results and Discussion

The Geocoridae are easily distinguished from other hemipteran families by their very typical head shape. Some members of other families (e.g. *Phlegyas* spp.: Pachygronthidae) have a similar head shape, but only Geocoridae have large, reniform eyes reaching the lateral borders of the pronotum (Kóbor, 2020). Within this family, the genus *Isthmocoris* can be separated from the sole other North American genus, *Geocoris*, by the relative size of the rostrum segments. In the genus *Geocoris*, the second rostrum article is shorter than the third, whereas in *Isthmocoris*, its the opposite (Henry et al., 2015; Kóbor, 2020). *Isthmocoris piceus* (Fig. 2) is easily identified by the very characteristic shape of the head (strongly transverse), by the position of the ocelli (halfway between the middle of the vertex and the margin of the eyes), as well as the uniformly black coloration except for the vertex and the

front of the head, which are bright red (Readio & Sweet, 1982; Scudder, 1985) (Fig. 3). It cannot be confused with other species in Quebec.

The Geocoridae family (previously included in the Lygaeidae) is small, with around 30 species in 2 genera in North America (Delapé and Henry 2024). In Quebec, only 4 species were known, all belonging to the genus *Geocoris* (Roch, 2020). The discovery of *I. piceus* increases the number of species in Quebec to 5, in 2 genera (*Geocoris* and *Isthmocoris*). *Isthmocoris piceus* is a widespread species in northeastern North America. It has been known from Ontario since 1985, following examination of a specimen captured in 1958 (Scudder, 1985), and from New York, Vermont, New Hampshire and Maine (Roch, 2020), as well as Massachusetts, Pennsylvania, Delaware, Illinois, Iowa, Kentucky, Wisconsin (BugGuide, 2024), Michigan and Indiana (INaturalist 2024). Its discovery in Quebec therefore comes as no great surprise, as its presence was already known in most of the neighboring territories. A specimen on the INaturalist site was also observed in the City of Ottawa, not far from the Ontario-Quebec border, indicating the species is potentially present in this area too.

Geocoridae are primarily predators of other arthropods, and are frequently studied for their impacts on various insect pests (e.g. Davis, 1981; Asa and Watson, 1982; Hutchison and Pitre, 1983; Eubanks and Denno, 1999; Olson et al., 2018). However, it is common to observe individuals feeding on plants, mainly for hydration purposes (Naranjo and Stimac, 1985).

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## Material

[https://data.canadensys.net/micropublications/resource?r=specimen\\_23](https://data.canadensys.net/micropublications/resource?r=specimen_23)

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Fig. 1. Photograph of the capture habitat of the *Isthmocoris piceus* (Say, 1832) specimen in the Roxham alvar. An alvar is a natural limestone outcrop, and is a type of environment known to harbor exceptional diversity (Conservation Nature Canada, 2023).



Fig. 2. Habitus of a specimen of *Isthmocoris piceus* (Say, 1832) (NBCCH230829).



Fig. 3. Comparison of the head shape of the *Isthmocoris* genus (left) and the *Geocoris* genus (right).