

The Great Lakes Entomologist

Volume 46
Numbers 3 & 4 - Fall/Winter 2013 *Numbers 3 &
4 - Fall/Winter 2013*

Article 9

October 2013

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Recommended Citation

Swanson, Daniel R.; Keller, Oliver; and Rowley, Jessica D. 2013. "First Record of the Palearctic Predatory Stink Bug, *Picromerus Bidens* (Heteroptera: Pentatomidae: Asopinae), in Michigan," *The Great Lakes Entomologist*, vol 46 (2)

Available at: <https://scholar.valpo.edu/tgle/vol46/iss2/9>

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**First Record of the Palearctic Predatory Stink Bug,
Picromerus bidens (Heteroptera: Pentatomidae: Asopinae),
in Michigan**

Daniel R. Swanson¹, Oliver Keller², and Jessica D. Rowley³

Abstract

The Palearctic stink bug, *Picromerus bidens* (Linnaeus, 1758), is reported from Michigan for the first time, with a summary of the knowledge of this species in the United States and an emendation to the most recent Michigan pentatomid key.

The Pentatomidae of Michigan have received much attention in comparison with other heteropteran families, and the group is well surveyed in the state. Stoner (1922) studied some of the pentatomoids in the region surrounding Douglas Lake (Cheboygan County). McPherson (1970, 1979) greatly expanded the knowledge of the group and augmented the known biodiversity of the state, and his landmark treatment of the northeastern taxa (McPherson 1982) also remains relevant to the Michigan fauna. Recently, Swanson (2012) presented an updated synopsis for Michigan in which 49 species in 29 genera of Pentatomidae were included. Despite the relative conspicuousness in size and habits and the resulting attention, new faunal elements are still being found within our borders. The invasive brown marmorated stink bug (BMSB), *Halyomorpha halys* (Stål, 1855), was reported recently from the state (MDARD 2011), and Swanson (2012) included one previously unreported species, *Banasa sordida* (Uhler, 1871), in his updated synopsis. A single specimen collected by two of the authors (OK and JDR) raises the total number of species found in Michigan to 50.

Picromerus bidens (Linnaeus, 1758), a predatory stink bug widespread in the Old World from Ireland to North Africa east to Siberia and China (Larivière and Larochelle 1989), was first reported from North America by Cooper (1967). Javahery (1986) subsequently reported the earliest specimen-records from Maine in 1932 and suggested the species had been introduced accidentally among nursery stock or other horticultural plants. At the time of the latest catalog of taxa found north of Mexico (Froeschner 1988), this species was known from Maine, Massachusetts, New Hampshire, New York, Quebec, and Vermont. Larivière and Larochelle (1989) added New Brunswick, Nova Scotia, Ontario, Prince Edward Island, and Rhode Island. Wheeler (1999) extended the range south to Pennsylvania. Larivière and Larochelle (1989) also provided extensive bionomic information and literature records for this species in North America. De Clercq (2000) reported on the economic influence of *P. bidens* as a predator of pestiferous species, and several subsequent studies (Mahdian et al. 2005, 2006a, 2006b, 2007a, 2007b, 2008) have continued to investigate the potential role of this species in biological control.

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In August of 2011, a specimen of *P. bidens* was collected in the Thumb⁴ of Michigan. Initially posted on BugGuide.net, the specimen, a single female, has been deposited in the University of Michigan Museum of Zoology Insect Collection, Ann Arbor, Michigan (UMMZ). The specimen (Fig. 1) bears the following label data: MICHIGAN: Huron Co., Sherman Twp., [7 mi. S. Harbor Beach], on *Solidago* sp., 43° 45' 50.66" N 82° 37' 14.84" W, 21 August 2011, [elevation 600 ft.], coll. O. Keller, det. O. Keller 2012. The specimen was captured with a sweep net in a plot also containing fern, milkweed (*Asclepias* sp.), wild raspberries (*Rubus* sp.), and various grasses, with an ambient temperature of approximately 21° Celsius.

In Michigan, this asopine is easily distinguished from all other predatory stink bugs by the strong ventral tooth on the apical half of each profemur (Fig. 1c); this character is shared with two species of *Perillus* Stål, 1862, but these species differ in possessing a contrasting black and pale color pattern and an enlarged "tongue" of the scutellum. The strongly acute humeral spines, orb-like abdomen, and "bark" brown color also are distinctive visual features (Thomas 1992). The medial projection of the second abdominal sternite is merely tuberculate and does not extend between the metacoxae (Thomas 1992), separating it from species of *Podisus* Herrich-Schaeffer, 1851; in Swanson's (2012) synopsis, it will key to that genus in couplet 11. However, the following modification to the key will allow for earlier separation of *P. bidens*:

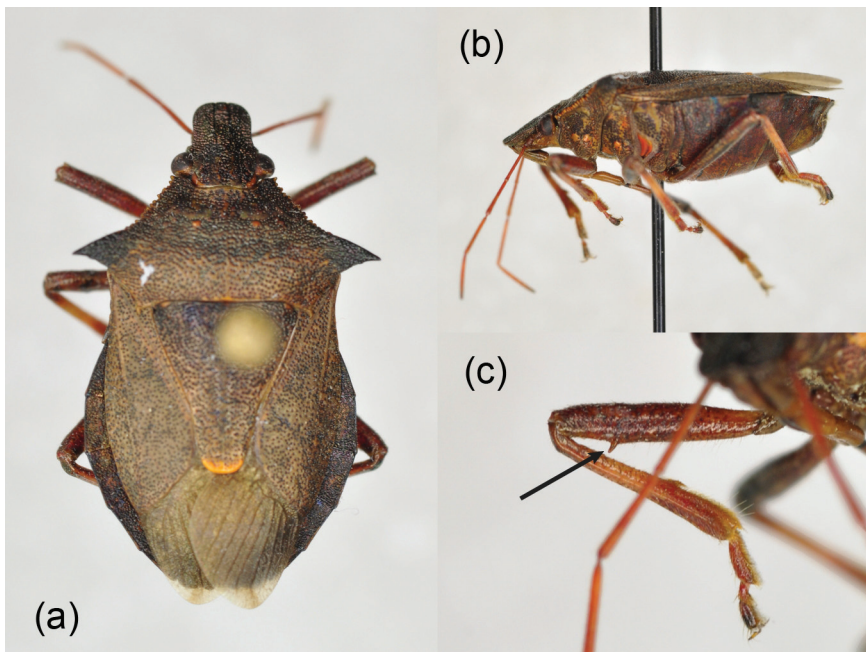


Figure 1. *Picromerus bidens*, adult female: (a) dorsal habitus; (b) lateral habitus; and (c) profemur, frontal view, arrow indicating ventral subdistal spine.

⁴The Thumb is a peninsular region in eastern Michigan which extends into Lake Huron and delimits the eastern margin of Saginaw Bay. The name of this region, which includes Huron, Tuscola, and Sanilac counties in its most modest definition, arises because the Lower Peninsula is shaped like a mitten.

- 8 (3') Second abdominal sternite unarmed; ostiole of scent gland without elevated ruga, evaporatorium reduced; dorsal color metallic blue; size small, length usually less than 8 mm..... *Zicrona caerulea*
- 8' Second abdominal sternite produced cephalad as spine or tubercle; ostiole of scent gland attended by elevated ruga and surrounded by distinct evaporatorium; dorsal color brown, reddish, or grey, not metallic blue; size larger, length greater than 8 mm8a
- 8a (8') Profemur with ventral subdistal spine..... *Picromerus bidens*
- 8a' Profemur unarmed 9

Given the spread of the species in the last century, it seems likely that future collections will reveal a wider distribution of *P. bidens* in Michigan. However, it remains to be seen if the Thumb constitutes the sole point of entry for this pentatomid, and additional collections in counties adjacent to the terrestrial international border (i.e., Chippewa, Saint Clair) as well as along the shores of Lake Huron and Lake Superior may contribute to our knowledge of the North American distribution of this Palearctic native. It also should be noted that pentatomids are commonly present in beach drift (Needham 1917, Hussey 1922), being of a larger and more robust form than other heteropterans, and observations of this phenomenon also may yield additional specimens.

Acknowledgments

We thank Dr. Stephen W. Taber, Saginaw Valley State University, Saginaw, Michigan, for his support and guidance. We also owe thanks to two anonymous reviewers for comments on the initial draft of the manuscript.

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