Ohio Biological Survey Notes 2: 39-42, 1999.

Hesperocorixa semilucida (Hemiptera: Corixidae) New to Ohio, with Notes on Distribution, Habitat, and Color Dimorphism

Stephen W. Chordas III

Ohio Biological Survey, 1315 Kinnear Road, Columbus, Oh 43212

Introduction

Overall, the aquatic Hemiptera fauna of Ohio is generally poorly known. For instance water boatmen (Corixidae) are the most specious group of aquatic Hemiptera in North America, yet only about 25 species representing six genera are recorded from Ohio. By comparison, 49 species representing nine genera are reported from Wisconsin (Hilsenhoff, 1984). In Ohio, the genus *Hesperocorixa* Kirkaldy, 1908 contains about half the species reported for the state.

The genus *Hesperocorixa* is Holarctic in distribution and encompasses 34 species, 19 of which occur in the United States and Canada (Dunn, 1979; Polhemus *et al.,* 1988). Of these, eight have previously been reported from Ohio; Polhemus *et al.* (1988) listed seven *Hesperocorixa* species, and while Williams *et al.* (1996) unknowingly reported an additional state record. This paper reports the occurrence and distribution of an additional *Hesperocorixa* species from Ohio together with notes on habitat, biology, and color dimorphism.

Materials and Methods

All specimens were collected in dip-net samples and preserved in 70% ethanol. Specimens were identified using the key to North American *Hesperocorixa* by Hungerford (1948). Taxonomic verification was done by William L. Hilsenhoff (University of Wisconsin-Madison). Voucher specimens have been deposited into the University of Wisconsin-Madison collection and the John T. Polhemus collection at the University of Colorado Museum. Remaining specimens have been retained by the author and deposited into his personal collection (SWAC collection).

New Records and Distribution of *Hesperocorixa semilucida*

Hesperocorixa semilucida (Walley, 1930) is a rare to uncommon species known only from the Midwestern and eastern United States and southeastern Canada (see Hungerford, 1948; Polhemus *et al.,*1988). Even though Ohio lies within this range, this species was absent from Ohio museum collections and not reported for the state in the scientific literature. It has heretofore been reported from only one state (Michigan) bordering Ohio (Polhemus *et al.,* 1988). It was recently collected from seven localities in five adjoining counties (Geauga, Lake, Portage, Summit, and Trumbull) in the northeastern corner of the state (Figure 1). It was captured in single sites in Geauga, Lake and Summit counties and from two sites in Portage and Trumbull counties.

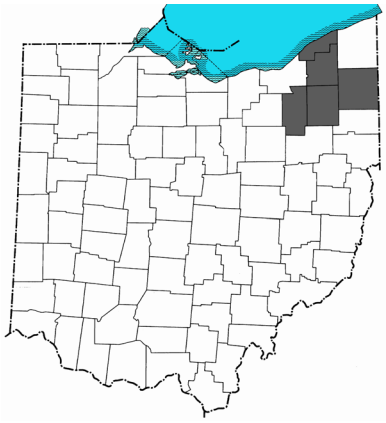

Figure 1. Distribution of *Hesperocorixa semilucida* in Ohio.

Figure 2. Distribution of *Hesperocorixa semilucida* in the United States and Canada.

Hesperocorixa semilucida has now been reported from the following 12 states: Delaware, Florida, Illinois, Louisiana, Massachusetts, Michigan, New Jersey, New York, North Carolina, Ohio, Tennessee, and Wisconsin. Outside of the United States it is known from only one province, Ontario, in Canada (Figure 2). Bobb (1974), Froeschner (1962), and Wilson (1958) listed this species, based on its distribution, as probable for Virginia, Missouri, and Mississippi, respectively, but none had specimens from their state. Additional surveys within its range should add records.

Habitats and biology of *Hesperocorixa semilucida*

There is little information available concerning the habitat ecology, and life cycle of *H. semilucida*. In the original description Walley (1930) stated only that the type series was "dredged from among *Typha* debris in a large marsh bordered pond." The best account of ecological information to date is that of Hilsenhoff (1984) for Wisconsin specimens who found it from ponds in spring, and from pool areas of large rivers in late fall. He recorded no collections from the summer and suspected that it overwinters in the river sites. The overwintering habits of this species in Ohio is unknown. Thus far *H. semilucida* has been taken only during the spring and late fall from lentic habitats in Ohio. The complete life cycle is unknown.

In Ohio this species has been found in bogs and fishless marshy habitats. The bogs are classified as kettle-hole bogs, which are rare undisturbed aquatic habitats in Ohio (Andreas and Bryan, 1990). *H. semilucida* was typically found at the bog margin in shallow water (40 cm deep) among sprouting or standing vegetation with a firm substrate and absent from the unconsolidated bottoms of the bogs open water areas. In all bogs *H. kennicotti* was found concomitantly with *H. semilucida*. In most marsh habitats *H. semilucida* was found sparsely throughout the sites and was typically the only *Hesperocorixa* species encountered. However, a small marsh in Trumbull County contained a very large population along with five other *Hesperocorixa* species. The marsh habitats were nearly replete with vegetation, both submersed aquatic and flooded riparian, and had scant stands of *Typha*. One of the marshes was most likely an ephemeral habitat as it contained *Eubranchipus* sp. (Anostraca: Chirocephalidae) individuals. Thus, in Ohio, *H. semilucida* prefers shallow vegetated kettle-hole bogs as well as shallow, vegetated, fishless marsh habitats containing submerged aquatic vegetation (all marshes contained water milfoil, *Myriophyllum* sp.) and containing at least some *Typha*.

Color dimorphism notes for Ohio *Hesperocorixa semilucida* specimens

H. semilucida individuals apparently go through distinctive color changes throughout their lifetime. Color characteristics of individuals seem to be linked to the season of collection. All specimens taken during the spring possessed a striking bright red background color, whereas all specimens taken during the late fall lacked red color and instead had a smokey to golden-brown background color. Antti Jansson (University of Helsinki, Finland) noted this same pattern for this species (personal communication). Two yellowish, apparently teneral individuals, were collected in late June. Because the life history and overwintering habits of this species in Ohio are currently unknown, it is not possible to infer a connection between specific color characteristics and factors which may determine them (*e.g.* age, environmental conditions, *etc.*). Further, the limited number of specimens known from the state and the current lack of intergrades does not allow a surmisable chromatic progression to be put forth at this time. All specimens obtained in Ohio thus far definitively possess one of these color characteristics.

Discussion

With the addition of *H. semilucida*, there are now nine *Hesperocorixa* species reported from Ohio (Table 1) which seems to be a nearly comprehensive representation of this genus for the state. There are four species, *H. harrisii* (Uhler, 1878), *H. lobata* (Hungerford, 1925), *H. michiganensis* (Hungerford, 1926), and *H. scabricula* (Walley, 1936), that are known from states bordering Ohio and there is a possibility that any of these extralimital species may be discovered in Ohio. Except for these four, based on distributions by Hungerford (1948) and Polhemus *et al.* (1988), it seems unlikely that additional *Hesperocorixa* species will occur in Ohio.

Table 1. List of the *Hesperocorixa* species reported from Ohio.

H. atopodonta (Hungerford, 1927)	*H. interrupta* (Say, 1825)
H. kennicotti (Uhler, 1897)	*H. laevigata* (Uhler, 1893)
H. lucida (Abbott, 1916)	*H. nitida* (Fieber, 1851)
H. obliqua (Hungerford, 1925)	*H. semilucida* (Walley, 1930) = New state record.
H. vulgaris (Hungerford, 1925)	

Hungerford (1948) tabulated individuals he examined and recorded no more than 20 individuals from any state; most collections contained less than five specimens. Although he made no statement about its scarceness, these records suggest, along with the opinion of Hilsenhoff (1984) for Wisconsin and this author for Ohio, that this species is uncommon or rare. Based on specimens at hand, published records, and museum holdings, it appears that this species is currently known from about only 200 individuals. With this relatively small number of specimens, it is clear why little information is available about the ecology and biology of this species. Additionally, this relatively small number supports the contention this species is uncommon to rare throughout its range.

Acknowledgments

Special thanks to William L. Hilsenhoff (University of Wisconsin-Madison) for the time and effort spent on taxonomic verification, and for providing additional information about *H. semilucida*. Thanks must also be extended to Eric G. Chapman (Kent State University; Kent, Ohio) for his exemplary collection efforts which greatly contributed to this paper. I would also like thank Alan D. Christian (Miami University; Oxford, Ohio) and Eric G. Chapman (Kent State University; Kent, Ohio) for kindly offering to review early drafts of this manuscript.

Literature Cited

Andreas, Barbara K. and Gary R. Bryan. 1990. The vegetation of three *Sphagnum*-dominated basin-type bogs in northeastern Ohio. The Ohio Journal of Science 90(3): 54-66.

Bobb, Marvin L. 1974. The aquatic and semi-aquatic Hemiptera of Virginia. The Insects of Virginia Number 7. Research Division Bulletin Number 87. Virginia Polytechnic Institute and State University. Blacksburg, Virginia. 195 p.

Dunn, Curtis E. 1979. A revision and phylogenetic study of the genus *Hesperocorixa* Kirkaldy (Hemiptera: Corixidae). Proceedings of the Academy of Natural Science of Philadelphia 131: 158-190.

Froeschner, Richard C. 1962. Contributions to a synopsis of the Hemiptera of Missouri, Part V. American Midland Naturalist 67(1): 208-240.

Hilsenhoff, William L. 1984. Aquatic Hemiptera of Wisconsin. Great Lakes Entomologist 17(1): 29-50.

Hungerford, Herbert B. 1948. The Corixidae of the Western Hemisphere (Hemiptera). University of Kansas Science Bulletin 32: 1-827.

Polhemus, John T., Richard C. Froeschner, and Dan A. Polhemus. 1988. Family Corixidae Leach, 1815, the water boatman. Pages 93-118 *in* Thomas J. Henry and Richard C. Froeschner, editors. Catalog of the Heteroptera, or true bugs, of Canada and the continental United States. E.J. Brill. New York. 958 p.

Walley, G. Stuart. 1930. Notes and descriptions of species of *Arctocorixa* from Ontario and Quebec (Hemipt., Corixidae). Canadian Entomologist LXII(12): 280-286.

Williams, Roger N., Sean Ellis, and Dan S. Fickle. 1996. Insects in the Killbuck Marsh Wildlife Area, Ohio: 1994 survey. The Ohio Journal of Science 96(3): 34-40.

Wilson, Clifton A. 1958. Aquatic and semiaquatic Hemiptera of Mississippi. Tulane Studies in Zoology 6(3): 116-170.