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ARHYSSUS HIRTUS (HEMIPTERA: HETEROPTERA: RHOPALIDAE)  
IN MINNESOTA: THE INLAND OCCURRENCE OF AN  
EAST COAST SPECIES

John D. Lattin<sup>1</sup> and John Haarstad<sup>2</sup>

ABSTRACT

*Arhyssus hirtus* (Hemiptera: Heteroptera: Rhopalidae), is reported from the Cedar Creek Natural History Area, a Long-Term Ecological Research site, outside of Minneapolis, Minnesota where over 4000 species of arthropods have been collected. This species has previously been known only from a narrow zone along the sandy edges of the Atlantic Ocean (Maryland, Massachusetts, New Jersey and New York). The species is known on *Hudsonia tomentosa* at these ocean sites, but other hosts may be involved at Cedar Creek. This small species of *Arhyssus* occurs in both micropterous and macropterous forms, unusual for this genus. Thus far, only micropterous forms have been collected at the Minnesota site.

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*Corizus hirtus* (Hemiptera: Heteroptera: Rhopalidae) was described by Torre-Bueno (1912) from Yaphank, Long Island, New York, based upon long- and short-winged adults. The specimens were taken at a sandy, grassy site in pine woods in 1911. Wheeler and Henry (1984) reported it from habitats from Massachusetts, Maryland, New Jersey, and New York (as *Arhyssus hirtus*). Henry (1988) summarized the taxonomic history of the species in North America.

Both sexes of this small species (ca 4.5 mm) occur in macropterous and micropterous form (Torre-Bueno 1912). Chopra (1968) revised the genus *Arhyssus*. Later, Wheeler and Henry (1984) added information on the New Jersey specimens that had been collected "under *Hudsonia*" by H. G. Barber and "in and under *Hudsonia*" on Long Island by Nathan Banks. These specimens are in the U. S. National Museum in Washington, D. C. Wheeler and Henry also reported on the collection nymphs and adults of *A. hirtus* in and under the mats of *Hudsonia tomentosa* Nutt.

The specimens reported here are from the Cedar Creek Natural History Area, Long-Term Ecological Research (LTER) site, near Minneapolis, Minnesota, as part of a 25-year study of insects and other arthropods on this 2200 ha site. Over 4000 species of arthropods have been collected, chiefly by J. Haarstad, with additional species added annually. The Cedar Creek site has become one of a handful of well-known sites in North America that include the H.J. Andrews Experimental Forest, in western Oregon (about 3700 species known) and Central Plains Experimental Range, in Colorado (1649 species known), both LTER sites as well (Parsons et al. 1991, Kumar et al.

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1976). Some very interesting species, including *Arhyssus hirtus*, have been collected at this Minnesota site. This bug was known formerly from a narrow range along the mid-Atlantic coast (Wheeler and Henry 1984).

#### COLLECTION RECORDS

NEW YORK: Yaphank, Long Island (type material) (Torre-Bueno 1912); Nassau Co., Bayville, Suffolk Co., Riverhead; Smith's Point, Fire Island (Wheeler and Henry 1984). MARYLAND: Worcester Co., Assateague Island National Seashore (Wheeler and Henry 1984). MASSACHUSETTS: Essex Co. (Wheeler and Henry 1984). All Minnesota specimens deposited in the collections of the Long-Term Ecological Research Site at the Cedar Creek Natural History Area. MINNESOTA: Anoka Co., Cedar Creek Natural History Area, near East Bethel (this paper). NEW JERSEY: Ocean Co., Lakehurst (Wheeler and Henry 1984).

#### RESULTS

All eight specimens of *A. hirtus* from the Minnesota site were micropterous with collection dates ranging from 24 June to 24 September, 1985–1991. These specimens were swept from four different grassland sites, all of which contained *Lechea stricta*, and most contained *Helianthemum bicknellii*. Although *Hudsonia tomentosa* occurs at the Minnesota location, it was not found at the specific sites where the bugs were taken. It is of interest that the xeric sandy old fields at Cedar Creek contained several other plants showing disjunct distributions including *Aristida tuberculosa* and *Polygonella articulata*. Other disjunction of insects may occur as well.

#### DISCUSSION

Voss (1985) discussed the distribution of *Hudsonia tomentosa* Nutt. in Michigan (family Cistaceae) and included a map (No. 824) of its distribution. The plant, known as beach-heather or false-heather, is found on sand dune ridges in open forests of pine, oak or other trees along the coast of much of Michigan. Ownbey and Morley (1991) listed *H. tomentosa* from Minnesota and included a map of its distribution. At least five other species of Cistaceae occur in Minnesota, two in the genus *Helianthemum* and three in *Lechea*, with species of both genera found at Cedar Creek and some found associated with the bug. Further study is needed to clarify the exact hosts at the Minnesota site. Skog and Nickerson (1973) provided additional information on *Hudsonia* in their study of this genus. Grigal (1985) and Woucha et al. (1995) provided detailed discussions of the unusual St. Croix River Valley and the Anoka Sand Plain in Minnesota—a landscape sure to surprise us again. Specimens of the Rhopalidae species, *Arhyssus hirtus* (Torre-Bueno), were found at the Cedar Creek Natural Area near East Bethel, Minnesota (a Long-Term Ecological Research site). All specimens were micropterous, although long-winged adults are known from sites from Maryland, Massachusetts, New Jersey, and New York, along the Atlantic coast. The host plant of this bug along the Atlantic coast is *Hudsonia tomentosa* and although this plant is found at Cedar Creek, the bug has not yet been found on it. There,

collection sites of the bug contained *Leachea stricta* and/or *Heliantherum bicknellii*.

One of us (JDL) has seen what appears to be suitable habitats for the bug in the vicinity of Pentwater, Michigan where *Hudsonia tomentosa* is said to occur. See Voss (1985) for the distribution of this plant in Michigan. While the presence of *A. hirtus* in Minnesota appears to be a major disjunction, careful field work throughout the Great Lakes region may disclose its occurrence at other localities.

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