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NORTHERN DISTRIBUTION OF *AMBRYsus MORMON*
MONTANDON (HETEROPTERA: NAUCORIDAE)

Aaron Clark¹

ABSTRACT.—The northern portion of the range of *Ambrysus mormon* is redescribed based on collection records from national and state biomonitoring databases and other sources. The northern range limit of this species includes the Klamath River drainage along the California–Oregon border; the Middle Snake River drainage in eastern Oregon; southern and central Idaho; all of Montana except the northwest corner; North Dakota and South Dakota, west of the Missouri River; and Nebraska, north of the Platte River and west to the Missouri River.

RESUMEN.—El rango norte de *Ambrysus mormon* es re-descrito con base a records de colecta de bases de datos de biomonitoreo nacionales y estatales, y de otras fuentes. El límite norte de esta especie incluye la frontera norte entre California y Oregon en el drenaje del río Klamath; el drenaje del Río Snake en el Este de Oregon; todo el sur y centro del estado de Idaho; todo el estado de Montana excluyendo el noroeste; Los estados de North y South Dakota al oeste del río Missouri; el estado de Nebraska al norte del río Platte y al oeste del río Missouri.

Naucorid or creeping water bugs are distributed worldwide, with the richest diversity in tropical regions (Schuh and Slater 1995). The genus *Ambrysus* Stål is restricted to the Western Hemisphere from Argentina to the northern Rocky Mountains of North America. In North America, species diversity is highest in Mexico and from Texas to California in the southwestern United States (Polhemus and Polhemus 1988). *Ambrysus mormon* (Montandon 1909) is the most widespread member of the genus and the only species known to occur in the western United States north of latitude 40° N. Three subspecies are recognized: the widespread nominate form and 2 additional taxa from thermally heated waters in Idaho (*A. m. minor* La Rivers 1963) and Yellowstone National Park, Wyoming (*A. m. heidemanni* Montandon 1910). Sites and Willig (2000) indicated close morphometric proximity of *A. m. minor* and *A. m. heidemanni* with *A. m. mormon* and questioned subspecific recognition.

In much of the literature, either southern Montana or northern Wyoming is considered the northern limit of the species' range. Usinger (1941) noted that *A. mormon* is widely distributed in the western United States as far north as northern California and Wyoming. La Rivers (1951) mapped the northern limit

across southern Montana between Yellowstone National Park in northwestern Wyoming and the Black Hills of southwestern South Dakota (Fig. 1) and suggested that the species' northern extent may be temperature limited. Records north of La River's line were compiled by Roemhild (1978), who believed the species occurred across Montana (Roemhild 1986), but Polhemus and Polhemus (1988) did not include Montana among recorded states. Sites and Willig (2000) incorporated all of southern Idaho and most of Oregon in their range map, but they excluded all of Montana and north central and northeastern Wyoming. Sites and Willig (2000) were the first to map a narrow eastern extension of the range extending from eastern Wyoming through northern Nebraska (Fig. 1). First records of *A. mormon* from southwestern North Dakota were published by Tinerella and DeLorme (2005); these records were northeast of all previous records for the species.

Since the 1990s, Clean Water Act Section 106 funding has been used by state governments and other jurisdictions to conduct macroinvertebrate monitoring to describe the status of the nation's waterways and identify widespread concerns. In western states, *Ambrysus* presence has been recorded from sampling sites in all states that encompass the

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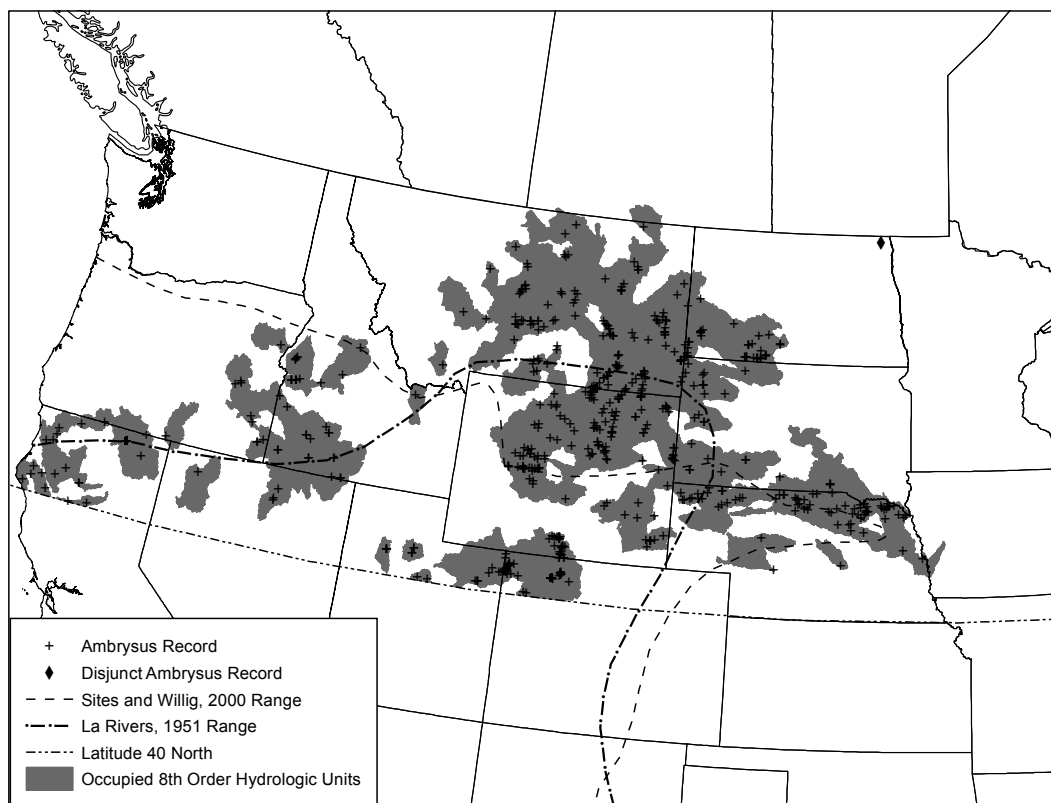


Fig. 1. Hydrologic units (8th order) occupied by *Ambrysus mormon* north of latitude 40° N.

northern portion of the range of *A. mormon*. Macroinvertebrate databases across the northern range of *A. mormon* (California, Oregon, Nevada, Idaho, Colorado, Wyoming, Montana, North Dakota, South Dakota, and Nebraska) contain over 800 records of occurrence for either *A. mormon* or the genus *Ambrysus*. These records, combined with records from the literature, were utilized to redescribe the northern extent of the range for *A. mormon* and extend the known range of the species into states not recorded in the Catalog of North American Heteroptera (Henry and Froeschner 1988). The records are given so that they will be available before the next revision of that work.

Records of occurrence were queried from databases maintained by the U.S. Environmental Protection Agency STORET (http://ofmpub.epa.gov/storpubl/dw_pages.query.criteria); U.S. Geological Survey BioData Retrieval System (<https://aquatic.biodata.usgs.gov>); the joint Western Center for Monitoring

and Assessment of Freshwater Ecosystems and National Aquatic Monitoring Center database maintained by Utah State University (<http://www.usu.edu/buglab/>); and the Global Biodiversity Information Facility (<http://www.gbif.org/>). The Nevada Division of Environmental Protection, Oregon Department of Environmental Quality, Idaho Department of Environmental Quality, Wyoming Department of Environmental Quality, Montana Natural Heritage Program, North Dakota Department of Health, Nebraska Department of Environmental Quality, and Colorado Water Quality Control Commission queried their databases and provided records of occurrence. South Dakota records were retrieved from STORET.

All observations of the genus *Ambrysus* or the identified species *A. mormon* were included in the analysis. Across the northern portion of the range (north of 40° N), specimens identified only to genus in the databases refer to *A. mormon*, which is the only species

of *Ambrysus* known to occur in this region (La Rivers 1951, Polhemus and Polhemus 1988). Figure 1 shows the location of records of *A. mormon* contained in the databases north of latitude 40° N. Eighth-order hydrologic units (determined from the USGS Watershed Boundary Dataset) within the range are shown as occupied.

The species' range extends significantly north and east of the few range descriptions found in the literature. *Ambrysus mormon* is the only naucorid found in northern California (Polhemus 1979), and records exist for many of the state's northern hydrologic units (HUs). In Oregon, *A. mormon* appears restricted to areas along the California–Nevada border and the Columbia Plateau. *Ambrysus mormon* is currently unknown from the Coast Range of Oregon but is present along the coast in California (Polhemus 1979). The range of *Ambrysus mormon* includes the southern and central portion of Idaho in the Salmon and the Upper and Middle Snake HUs and all of Wyoming, although no records currently exist for southeastern Idaho or western Wyoming (see Fig. 1).

Roemhild's (1986) suggestion that *A. mormon* occurred throughout Montana is largely confirmed by records provided by the Montana Natural Heritage Program. Only HUs in northwestern Montana (i.e., Marias, Pend Oreille, and Kootenai) lack recent records for *A. mormon*. Several Montana records from the Milk and Missouri–Poplar HUs are in close proximity (<20 km) to the Canadian border, suggesting that the species may range into southern Alberta and Saskatchewan, where it has not been reported (Maw et al. 2000).

For the most part, the species' range in North Dakota, South Dakota, and Nebraska is west of the Missouri River and north of the Platte River. Along the South Dakota–Nebraska border, records extend east throughout the Niobrara and Elkhorn HUs to the Iowa border. One Nebraska record (Long Creek) is located only 5 km west of the Missouri River. Further collecting may indicate the presence of *A. mormon* in southwestern Iowa.

A disjunct record for *Ambrysus* occurs in STORET—a record from the Tongue River in northeastern North Dakota, which is over 350 km northeast of collections made elsewhere in the state by the North Dakota Department of

Health and by Tinerella and DeLorme (2005). The STORET record indicates that the source of the record is the EPA's National Aquatic Resource Survey. Attempts to locate a voucher from this location were unsuccessful. It is unlikely that this record is correct, and it has been removed from the data used to describe the northern range of *A. mormon*.

The distributions of most species of aquatic and semiaquatic Heteroptera are poorly known. Use of “nontraditional” data sources, such as those reported here, may prove valuable in future updates of the Catalog of Heteroptera and other biogeographical descriptions.

Assistance was provided by myriad state regulatory agency personnel who kindly queried their databases (sometimes several times) for records. Dr. Robert Sites (University of Missouri) provided information regarding how the species' range was mapped in his paper with Dr. Michael Willig (Sites and Willig 2000). Dr. Andre DeLorme (Valley City State University) confirmed the North Dakota records, and Dr. Richard Zack (Washington State University) provided information on specimens in the WSU collection. Dr. Carlos Martínez del Río, Director of the Wyoming Biodiversity Institute, kindly prepared the Spanish abstract.

LITERATURE CITED

- HENRY, T.J., AND R.C. FROESCHNER, EDITORS. 1988. Catalog of the Heteroptera, or true bugs, of Canada and the continental United States. E.J. Brill, Leiden, Netherlands. 958 pp.
- LA RIVERS, I. 1951. A revision of the genus *Ambrysus* in the United States (Hemiptera: Naucoridae). University of California Publications in Entomology 8: 277–338.
- MAW, H.E.L., R.G. FOOTITT, K.G.A. HAMILTON, AND G.G.E. SCUDDER. 2000. Checklist of the Hemiptera of Canada and Alaska. NRC Research Press, Ottawa, Ontario, Canada.
- POLHEMUS, J.T. 1979. Family Naucoridae: creeping water bugs, saucer bugs. Pages 131–138 in A.S. Menke, editor, The semiaquatic and aquatic Hemiptera of California (Heteroptera: Hemiptera). Bulletin of the California Insect Survey 21.
- POLHEMUS, J.T., AND D.A. POLHEMUS. 1988. Family Naucoridae Leach, 1815, the creeping water bugs. Pages 521–527 in J.T. Henry and R.C. Froeschner, editors, Catalog of the Heteroptera, or true bugs, of Canada and the continental United States. E.J. Brill, Leiden, Netherlands. 958 pp.
- ROEMHILD, G. 1978. The aquatic Heteroptera (true bugs) of Montana. Research Report 102, Montana Agricultural Experiment Station, Montana State University, Bozeman, MT.

- _____. 1986. Aquatic insects of Montana. Privately published, Bozeman, MT.
- SCHUH, R.T., AND J.A. SLATER. 1995. True bugs of the world (Hemiptera: Heteroptera): classification and natural history. Cornell University Press, Ithaca, NY. 338 pp.
- SITES, R.W. AND M.R. WILLIG. 2000. Morphometric variation among populations of *Ambrysus mormon* Montandon (Heteroptera: Naucoridae). Proceedings of the Entomological Society of Washington 102: 533-541.
- TINERELLA, P.P., AND A.W. DELORME. 2005. First records of the creeping water bug, *Ambrysus mormon* Montandon (Heteroptera: Naucoridae) from North Dakota. Journal of the Kansas Entomological Society 78:176-178.
- USINGER, R.L. 1941. Key to the subfamilies of Naucoridae with a generic synopsis of the new subfamily Ambryinae (Hemiptera). Annals of the Entomological Society of America 34:5-16.

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