

October 1999

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### Recommended Citation

Steffens, Wayne P. and Smith, William A. 1999. "New Distribution Records for Minnesota Odonata," *The Great Lakes Entomologist*, vol 32 (2)

Available at: <https://scholar.valpo.edu/tgle/vol32/iss2/12>

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## NEW DISTRIBUTION RECORDS FOR MINNESOTA ODONATA

Wayne P. Steffens<sup>1</sup> and William A. Smith<sup>2</sup>

## ABSTRACT

Several Minnesota state record Odonata, *Aeshna subarctica*, *Ophiogomphus anomalus*, *Stylogomphus albistylus*, *Stylurus scudderi*, and *Coenagrion interrogatum* are reported, along with notes on the distribution and habitat of *Aeshna sitchensis*. New county records for Minnesota Odonata are also reported.

Recent literature on Minnesota Odonata is limited. Hamrun et al. (1971) reported on the county distribution of the seventy Anisopteran species known at that time. Other publications have since become available, but these are not widely known. Carrol and Gunderson (1995) mapped the county distribution for 86 Anisopteran species reported from earlier literature as well as museum specimens, but overlooked the *Aeshna sitchensis* Hagen reported by Walker (1912). We have used their booklet as a guide in determining the new Anisopteran county and state records. Westfall and May (1996) list 30 damselfly species for the state but do not provide any county level information. The most recent published account of the county distribution of Minnesota Zygopterans is Whedon (1914), dealing only with the southern part of the state. All damselflies collected during our surveys were considered county records due to a lack of published data indicating otherwise.

## MATERIALS AND METHODS

We collected over 7700 exuviae, larvae, and adults at 85 sites at eastern, central and northern Minnesota rivers and peatlands in 1998 and 1999. An additional 1509 odonate specimens collected between 1991–1998 by other workers were also identified. Voucher specimens of state records will be deposited at the University of Minnesota Insect Collection in St. Paul.

## RESULTS AND DISCUSSION

## AESHNIDAE

***Aeshna subarctica* Walker.** We collected *A. subarctica* in three counties in August 1998. We collected specimens at Pine Creek Scientific Natural

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Area (SNA) in Roseau County, Red Lake SNA in Beltrami County, and Mulligan Lake SNA in Lake of the Woods County. *A. subarctica* has been reported to inhabit spruce-tamarack bogs (Walker 1958), and that is largely true for these new locations. Most of our specimens were collected in or adjacent to forested black spruce (*Picea mariana*) and tamarack (*Larix laricina*) bogs, the former tree being dominant. The groundcover consisted of typical Minnesota bog-forest vegetation including *Ledum groenlandicum*, *Chaemadaphne* spp. and other ericaceous shrubs, sedges, and *Sphagnum* spp. The Pine Creek SNA specimen, an adult male, was collected near the edge of a spring fen and the adjacent bog forest, and one exuvia was collected in a spring fen channel just inside the Manitoba border. A single male and female were collected at Red Lake SNA at the edge of a forested bog and the adjacent fen. At both sites the specimens were collected as they foraged the sparse, stunted conifers of the forested bog edges. The two adult males collected at Mulligan Lake SNA were taken as they foraged along a trail through a spruce and tamarack bog. STATE RECORD.

***Aeshna sitchensis* Hagen.** Though *A. sitchensis* was reported for Duluth (St. Louis County) by Walker (1912) it had not been confirmed in the state since then. Boole et al. (1974) reported possible larvae of *A. sitchensis* (and *A. septentrionalis*), but do not provide a location and place doubt on their own determinations of larval *Aeshna*. We collected adults in Koochiching, Roseau, and Lake of the Woods counties in August 1998. At the Pine Creek SNA, *A. sitchensis* were seen numerous times in open areas of fen, and a female was collected in a narrow spring fen clearing. They were also collected in a spring fen in the Sprague Creek SNA several miles to the east. Two males were collected and a female was observed ovipositing in moist peat at the edge of a spring fen channel. The spring channels are choked with bladderwort (*Utricularia* spp.) and Buckbean (*Menyanthes trifoliata*), and the pH of surface water was 7.1, as measured with an Oakton® pHTestr 2. Several *A. sitchensis* larvae were also collected here. The Koochiching County site, Lost River SNA, was a similar spring fen habitat. Three adult males and one larva were collected at Lost River. The Lake of the Woods County adult male was collected at the Winter Lake Road SNA, a large fen/water track dominated by sedges and shrubs. *A. sitchensis* may be more common in northwest Minnesota than our surveys and past literature indicate, as only a small percentage of these habitat types were surveyed. STATE RECORD.

***Aeshna umbrosa* Walker.** Lake of the Woods County. COUNTY RECORD.

***Aeshna verticalis* (Hagen).** Roseau County. COUNTY RECORD.

***Basiaeschna janata* Say.** Carlton, Crow Wing, Morrison counties. COUNTY RECORDS.

## GOMPHIDAE

***Ophiogomphus anomalus* Harvey.** Gary Montz of the Minnesota Dept. of Natural Resources reported recent collections of *Ophiogomphus anomalus* Harvey from Minnesota to the authors. We inspected two mid-late instar *O. anomalus* larvae collected by Montz from two different sampling stations from the Pigeon River in Cook County, MN, plus five mid-late instar larvae from four different stations in adjacent Ontario, Canada in 1992 and 1993. These sites are distributed over some 15 river miles. The Pigeon River was characterized as a high gradient stream with very good to excellent water quality. Most study sites contained similar substrate to other streams

in northeastern Minnesota—i.e. boulder/cobble mixture over a sand or sand/gravel bottom. Unlike most streams in northeast Minnesota that are cold water trout streams, the Pigeon River is a cool to warm water stream. We also collected a dozen exuviae of *O. anomalus* on the upper St. Louis River in St. Louis County in June 1999. The nearest known stations for *O. anomalus* are two streams in the Thunder Bay District of Ontario (Don Sutherland pers. comm.) four streams in Iron and Gogebic counties in the western Upper Peninsula of Michigan, and the Saint Croix River in Burnett County, WI (unpublished data from W.A. Smith, 1998, and Michigan Natural Features Inventory, 1998). STATE RECORD.

***Stylogomphus albistylus* (Hagen).** We observed emergence of *S. albistylus* on the St. Louis River in St. Louis County in June 1999. This is the same site where *O. anomalus* exuviae were collected. We collected several *S. albistylus* exuviae at this location, and several more at another site several miles upstream. STATE RECORD.

***Stylurus scudderi* (Selys).** Ten *S. scudderi* exuviae were found at one location on the Sturgeon River in Koochiching County in late August 1998. The Sturgeon River is about 18 m wide, with a substrate of sand, rubble, and boulders, and moderate current. This is the only known site for *S. scudderi* in Minnesota, the nearest station being the Brule River in Bayfield County, WI. *S. scudderi* is also found in the Kenora and Thunder Bay Districts of Ontario (Don Sutherland, pers. comm.). The Sturgeon River site is the westernmost location of the species in the U.S. STATE RECORD.

***Dromogomphus spinosus* Selys.** Itasca County. COUNTY RECORD.

***Gomphurus fraternus* (Say).** Aitken, Carlton, Crow Wing, Itasca, Lake of the Woods, Morrison counties. COUNTY RECORDS.

***Gomphurus vastus* Walsh.** Aitken, Carlton, Cass, Crow Wing, Itasca, Lake of the Woods, Morrison, Stearns counties. COUNTY RECORDS.

***Gomphurus ventricosus* Walsh.** Carlton, Koochiching, Lake of the Woods, St. Louis, Washington counties. COUNTY RECORDS.

***Gomphus viridifrons* Hine.** Carlton, Itasca, Koochiching, St. Louis counties. COUNTY RECORDS.

***Gomphus exilis* Selys.** Pine County. COUNTY RECORD.

***Gomphus graslinellus* Walsh.** Kanabec County. COUNTY RECORD.

***Gomphus lividus* Selys.** Carlton, Itasca counties. COUNTY RECORDS.

***Ophiogomphus colubrinus* Selys.** Koochiching, Lake of the Woods, Morrison counties. COUNTY RECORDS.

***Ophiogomphus rupinsulensis* (Walsh).** Koochiching, Washington counties. COUNTY RECORDS.

***Stylurus amnicola* (Walsh).** Koochiching, St. Louis counties. COUNTY RECORDS.

***Stylurus notatus* (Rambur).** Koochiching, Lake of the Woods, St. Louis counties. COUNTY RECORDS.

***Stylurus spiniceps* (Walsh).** Koochiching, Pine, St. Louis counties. COUNTY RECORDS.

#### COENAGRIONIDAE

***Coenagrion interrogatum* (Hagen).** An adult male and female were collected in the Sand Lake SNA in Lake County. This species has not been reported in the literature on Minnesota zygopterans (Wilson 1909, Whedon 1914, Westfall and May 1996). STATE RECORD.

***Enallagma cyathigerum* (Charpentier).** St. Louis County. COUNTY RECORD.

***Enallagma ebrium* (Hagen).** Lake County. COUNTY RECORD.

***Nehellennia irene* (Hagen).** Lake, Koochiching counties. COUNTY RECORDS.

#### LESTIDAE

***Lestes forcipatus* Rambur.** Although *L. forcipatus* was listed as questionable for Minnesota by Westfall and May (1996), it was reported for Blue Earth County by Whedon (1914), and we collected a single female in Roseau County. COUNTY RECORD.

***Lestes congener* Hagen.** Lake of the Woods, Roseau counties. COUNTY RECORDS.

***Lestes disjunctus* Selys.** Koochiching County. COUNTY RECORD.

***Lestes unguiculatus* Hagen.** Koochiching, Roseau counties. COUNTY RECORDS.

#### MACROMIIDAE

***Didymops transversa* (Say).** Chisago, Washington counties. COUNTY RECORDS.

***Macomia illinoensis* Walsh.** Carlton, Koochiching counties. COUNTY RECORDS.

#### CORDULIIDAE

***Epitheca canis* McLachlan.** Roseau County. COUNTY RECORD.

***Epitheca spinigera* Selys.** Morrison County. COUNTY RECORD.

***Dorocordulia libera* (Selys).** Koochiching County. COUNTY RECORD.

***Neurocordulia yamaskanensis* Provancher.** Koochiching, Pine, St. Louis counties. COUNTY RECORDS.

***Somatochlora forcipata* (Hagen).** Koochiching, St. Louis counties. COUNTY RECORD.

***Somatochlora franklini* (Selys).** Beltrami, Cook, Pine, St. Louis counties. COUNTY RECORDS.

***Somatochlora kennedyi* Walker.** Pine County. COUNTY RECORD.

***Somatochlora minor* Calvert.** Beltrami, Koochiching, Lake of the Woods counties. COUNTY RECORDS.

***Somatochlora walshii* (Scudder).** Koochiching, St. Louis counties. COUNTY RECORDS.

#### LIBELLULIDAE

***Leucorrhinia hudsonica* (Selys).** Koochiching, Pine, St. Louis counties. COUNTY RECORDS.

***Leucorrhinia intacta* (Hagen).** Roseau County. COUNTY RECORD.

***Libellula pulchella* Drury.** Koochiching County. COUNTY RECORD.

***Libellula quadrimaculata* Linnaeus.** Roseau County. COUNTY RECORD.

***Sympetrum costiferum* (Hagen).** Roseau County. COUNTY RECORD.

*Sympetrum danae* (Sulzer). Lake of the Woods, Roseau counties. COUNTY RECORDS.

*Sympetrum vicinum* (Hagen). Roseau County. COUNTY RECORD.

#### ACKNOWLEDGMENTS

We thank Gary Montz of the Minnesota Department of Natural Resources for allowing us to report his *O. anomalus* state record and several county records. We thank the Michigan Natural Features Inventory Program (a partnership between the Michigan Dept. of Natural Resources and The Nature Conservancy) for sharing results from recent odonate surveys in Michigan. We thank Dr. James Duncan (Manitoba Natural Resources) for assisting with surveys, Don Sutherland (Ontario Ministry of Natural Resources) for providing Ontario records, David and Gary Leonhardt of Waskish Minnesota for local habitat advice and the loan of an ATV, and Polaris Industries of Roseau Minnesota for providing vehicles and guides to help reach remote sites. Support for this project was received from the Minnesota Nongame Wildlife Tax Checkoff and the Minnesota Chapter of the Nature Conservancy through the Minnesota Department of Natural Resources, Division of Fish and Wildlife, Natural Heritage and Nongame Research Program.

#### LITERATURE CITED

- Boole, M. S., C. L. Hamrun and M. A. Anderson. 1974. The Minnesota species of *Aeshna*, with notes on their habits and distribution. (Odonata: Aeshnidae). Great Lakes Entomol. 7: 19-22.
- Carroll, M. and R. Gunderson. 1995. Distribution of Minnesota Dragonflies (Odonata: Anisoptera). Occ. Pap. Aquat. Biol. St. Cloud State Univ. 2: 1-32.
- Hamrun, C. L., Anderson, M. A. and M. Boole. 1971. Distribution and habitat preference of Minnesota dragonfly species (Odonata: Anisoptera) II. Minn. Acad. Sci. Jour. 37: 93-96.
- Walker, E. M. 1912. The North American dragonflies of the genus *Aeshna*. Univ. Toronto Studies, Biol. Series No. 11. 212 pp.
- Walker E. M. 1958. The Odonata of Canada and Alaska, Vol. II. Part III: The Anisoptera-four families. Univ. of Toronto Press. 318 pp.
- Westfall, M. J. and M. L. May. 1996. Damselflies of North America. Scientific Publishers. 649 pp.
- Whedon, A. D. 1914. Preliminary notes on the Odonata of Southern Minnesota. Rep. Minn. State. Entomol., pp 77-103.
- Wilson, C. B. 1909. Dragon-flies of the Mississippi Valley collected during the pearl mussel investigations on the Mississippi River, July and August, 1907. Proc. U. S. National Mus., 1909.