

The Biodiversity of Mayflies (Insecta: Ephemeroptera) in Minnesota

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ABSTRACT

The last comprehensive study of the species of mayflies (Insecta: Ephemeroptera) in Minnesota occurred in the 1940s, and there were about 60 species known from the state at that time. We have compiled a new list of 91 species. The vast majority of these species are shared with eastern Canada. The number of species is comparable to adjoining states, but further sampling is needed. The upper Mississippi River, in particular, is worthy of attention to determine if some of the seldomly reported species remain.

BACKGROUND

R.H. Daggy completed the last comprehensive study of Minnesota's mayflies in the 1940s. At that time, about 60 species were reported (USGS, 2014). This figure compares with much more recently reported figures of 81 species in Nebraska, 106 in Iowa, 85 in North Dakota, 77 in South Dakota, and 117 in Wisconsin (Randolph & McCafferty 1998; McCafferty et al. 2001, 2003; Guenther & McCafferty 2005, 2008). An abundance of lakes and aquatic habitats, including the headwaters of the mighty Mississippi River; a collage of three faunal "regions" (prairie, deciduous and coniferous forests); an intersection point (midway) for many species East/ West range limits, as well as many species demonstrating a North/ South range limit in the state (Daggy, 1945; Lager et al. 1982) make Minnesota a potentially rich garden for a multitude of species. Our newly compiled list contains 91 species based on a survey of academic literature. This list will help us to recognize under-sampled regions and habitats so that we can increase our chances of adding further species to the list after fieldwork this summer.

FIELDWORK PLANNED FOR 2014

Recent re-evaluation of material studied by R.H. Daggy revealed a new species from Coon Rapids, MN. We will attempt to find this species again. Another proposed site for fieldwork is nearby Fridley, MN, where additional material of interest was collected. The upper Mississippi River could be home to a number of new species and undescribed metamorphic stages. The collections at the University of Minnesota will also be checked in order to expand the currently list of species.

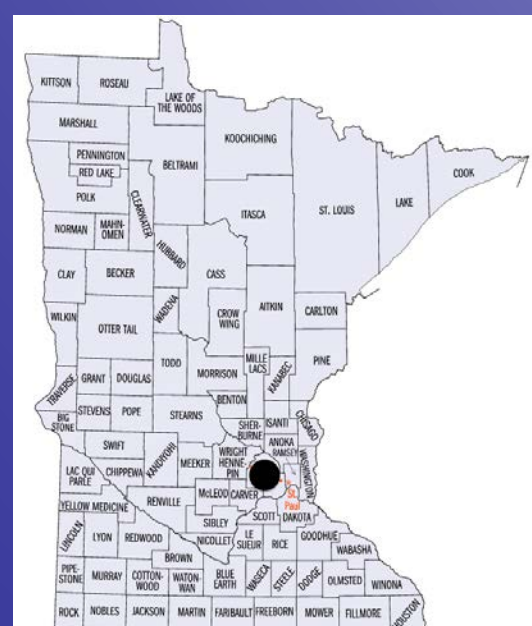


Fig. 1. Sites of planned 2014 field studies.

Checklist of Families & Genera (# of Species)

Ameletidae

Arthropleidae (1)

Baetidae

Acentrella (2)

Acerpenna (1)

Baetis (6)

Callibaetis (4)

Heterocloeon (1)

Iswaeon (1)

Labiobaetis (1)

Paracloeodes (1)

Plauditus (4)

Procloeon (2)

Baetiscidae

Baetisca (3)

Behningiidae

Dolania (1)

Caenidae

Caenis (5)

Sparbarus (1)

Ephemerellidae

Attenella (2)

Dannella (1)

Ephemerella (5)

Eurylophella (4)

Serratella (1)

Teloganopsis (1)

Ephemeridae

Ephemera (2)

Hexagenia (2)

Litobrantha (1)

Heptageniidae

Epeorus (1)

Heptagenia (2)

Leucrocuta (3)

Maccaffertium (7)

Raptoheptagenia (1)

Rhithrogena (1)

Stenacron (3)

Stenonema (1)

Isonychiidae

Isonychia (3)

Leptohyphidae

Tricorythodes (3)

Leptophlebiidae

Choroterpes (1)

Leptophlebia (2)

Paraleptophlebia (4)

Metretopodidae

Siphloplecton (1)

Palingeniidae

Petagenia (1)

Polymitarcyidae

Ephoron (1)

Potamanthidae

Anthopotamus (2)

Siphonuridae

Siphonurus (1)



Fig. 3. A mayfly subadult, *Callibaetis* sp.

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Fig. 2. A mayfly larva, *Maccaffertium* sp.