Collections of Non-biting Midges (Diptera: Chironomidae) from Center Lake, Osceola County, Michigan, Including New State Records

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There have been few recent collections of chironomids, or non-biting midges, from Michigan inland lakes that have appeared in print, with the number of researchers actively collecting and identifying this group becoming ever smaller. This is unfortunate, given the wealth of different, interesting lake types to be found in the state.

The period during the 2010 annual meeting of the Michigan Entomological Society, which was held at the Kettunen Center located next to Center Lake in Osceola County, provided an opportunity to quickly sample midges from this beautiful lake. Center Lake (44.1075°N 85.3864°W) is a medium-sized mesotrophic body of approximately 16 hectares in size, located in an area of glacial-outwash topology surrounded by predominately northern hardwoods forest. Information from the Michigan DNR (Mark Tonello, pers. comm. 2011) describes Center Lake as "two-story," with shallower waters supporting warmwater fish such as bass and bluegill, and deeper, colder and well-oxygenated waters capable of supporting trout. Waters tend to be slightly acidic (pH 6.0-7.3), low alkalinity (10-23 ppm $CaCO_3$), with secchi disk transparencies ranging from 2.5-5.2 meters. Lake substrates are a combination of sand and pulpy peat, with the littoral surrounded by grasses, rushes and some floating aquatic vegetation. Adult chironomids were collected by sweeping foliage with a 12-inch diameter collapsible pocket net during the evening on June 25 and 26, 2010. The original coarse aerial netting attached to the spring steel net ring was replaced with a very fine gauge soft nylon curtain material. During the ca. 20 minute collecting period the contents of the net was aspirated into 70% ethyl alcohol every few minutes. A total of approximately 150-200 adult midges of both sexes were collected. In the lab, specimens were visually examined under a dissecting microscope for females, which were not identified. Of the remaining adults, obvious – often larger - species (e.g., *Einfeldia pagana* (Meigen), *Dicrotendipes fumidus* (Johannsen), *Dicrotendipes modestus* (Say) were selected out and 2 or 5 representative individuals mounted for verification. These, together with the remaining individuals were slide-mounted for identification, with a total of 75 individuals selected for identification. The process of slide mounting consisted of clearing the specimen with 10% NaOH overnight at room temperature, then rinsing (10 min.) with glacial acetic acid, dehydrating with 70% (10 min.) and 95% (10 min.) ethyl alcohol, and finally slide-mounting adults in Euparol. (Wings and a single foreleg and antenna were removed prior to clearing and were dehydrated as indicated above and directly mounted in Euparol). Prepared specimens (Figure 1) were then identified to the lowest practical level, with an emphasis often placed on detailed examination of imago genitalia for species-level identification (Figure 2).

A total of 75 individuals were slide-mounted and examined, from which 36 species from 23 genera and 3 subfamilies were identified (Table 1). The following taxa appear to be the first collection records from Michigan:

- *Cladotanytarsus elaensis* Bilyj, 1989; Species with previous regional records from Ontario
- *Chironomus* (*Lobochironomus*) *dorsalis* Meigen, 1818; Nearctic distribution [note: some publications erroneously place this species in *Einfeldia*; see Martin 2010 for a discussion of this problem]
- *Corynoneura oxfordana* Boesel and Winner, 1980; Nearctic species that was described by Boesel and Winner (1980) from specimens collected in Ohio.
- *Lauterborniella agrayloides* (Kieffer, 1911); Widespread species with a Holarctic distribution
- *Micropsectra xantha* (Roback, 1955); Widespread species with a Holarctic distribution
- *Nilothauma mirabile* (Townes, 1945); Nearctic distribution, previous regional records from Ohio and Ontario
- *Paramerina fragilis* (Walley, 1926); Species with a distribution in the northern Nearctic
- *Polypedilum angustum* Townes, 1945; Nearctic distribution, previous regional records from Minnesota, Ohio and Ontario
- *Polypedilum tritum* (Walker, 1856); Widespread Holarctic distribution, previous regional records from Ohio
- *Stenochironomus* (*Petalopholeus*) *cinctus* Townes, 1945; Species principally from the eastern Nearctic, this collection locality represents a westward extension from previous records in eastern Ontario. There are also specimens of this species collected in 2007 by the senior author from Hemlock Lake (42.0637 °N 85.8061°W), Cass County, in southwestern Michigan
- *Stenochironomus* (*Stenochironomus*) *macateei* (Malloch, 1915); Widespread eastern Nearctic, with records from Manitoba south to Texas, eastward Quebec and Florida
- *Tanytarsus brundini* Lindeberg, 1963; Holarctic distribution, previous record from New York
- *Tanytarsus buckleyi* Sublette, 1964; Nearctic distribution, regional records from Illinois and Ohio
- *Tanytarsus inaequalis* Goetghebuer, 1921; Nearctic distribution

The above species are generally widespread in occurrence, and their collection in Michigan was expected. Currently, there are now 252 species of Chironomidae with records from Michigan, with at least another 277 existing species (not including undescribed forms) also likely to be found in the state (EB, unpublished information).

All specimens have been deposited in the care of the senior author at the US Geological Survey, Great Lakes Science Center, Ann Arbor, Michigan.

Acknowledgments

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References

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Note: Except where noted, the collection and identification information for all specimens should read as:

USA: Michigan, Osceola Co.
Center Lake, along east shore
44.1075°N 85.3864°W
26-June-2010
leg. Patrick Hudson
det. Patrick Hudson and Ethan Bright 2011

Tanypodinae

Ablabesmyia mallochi (Walley 1925)
Ablabesmyia monilis (Linnaeus, 1758)
Labrundinia pilosella (Loew, 1886)
Larsia decolorata (Malloch, 1915)
Paramerina fragilis (Walley, 1926) - NEW STATE RECORD
Tanypus punctipennis Meigen, 1818

Orthocladiinae

Corynoneura oxfordana Boesel and Winner, 1980 - NEW STATE RECORD
Limnophyes minimus (Meigen, 1818)

Chironominae

Cladopelma viridulum (Linnaeus, 1767)
Cladotanytarsus elaensis Bilyj, 1989 - NEW STATE RECORD
Chironomus (*Lobochironomus*) *dorsalis* Meigen, 1818 - NEW STATE RECORD
Dicrotendipes fumidus (Johannsen, 1905)
Dicrotendipes modestus (Say, 1823)
Einfeldia pagana (Meigen, 1838)
Endochironomus nigricans (Johannsen, 1905)
Lauterborniella agrayloides (Kieffer, 1911) - NEW STATE RECORD
Micropsectra xantha (Roback, 1955) - NEW STATE RECORD
Nilothauma mirabile (Townes, 1945) - NEW STATE RECORD
Parachironomus sp. [note: the two specimens in our sample have several characters appearing intermediate to *P. hazelriggi* Spies and *P. gillespieae* Spies, and probably represent a newspecies (Martin Spies, pers. comm.). Fig. 2]
Paratanytarsus nr. *recens* (Sublette & Sublette, 1964)
Paratendipes albimanus (Meigen, 1818)
Polypedilum (Tripodura) scalaenum (Schrank, 1803)
Polypedilum (Tripodura) simulans Townes, 1945
Polypedilum (Pentapedilum) tritum (Walker, 1856) - NEW STATE RECORD
Polypedilum (Polypedilum) angustum Townes, 1945 - NEW STATE RECORD
Polypedilum (*Polypedilum*) *braseniae* (Leathers, 1922)
Polypedilum (Polypedilum) nebeculosum (Meigen, 1804)
Polypedilum (*Polypedilum*) *trigonus* Townes, 1945
Stempellinella fimbriata Ekrem, 2007
Stenochironomus (*Stenochironomus*) *macateei* (Malloch, 1915) - NEW STATE RECORD
Stenochironomus (*Petalopholeus*) *cinctus* Townes, 1945 - NEW STATE RECORD
Tanytarsus brundini Lindeberg, 1963 - NEW STATE RECORD [note: *T. brundini* may represent a species complex requiring further revision (Torbjørn Ekrem, pers. comm. 2011)]
Tanytarsus buckleyi Sublette, 1964 - NEW STATE RECORD
Tanytarsus inaequalis Goetghebuer, 1921 - NEW STATE RECORD
Tanytarsus neoflavellus Malloch, 1915
Tanytarsus nr. *palettaris* Verneaux, 1969 [note: this specimen closely resembles *palettaris*, a species in the *T. chinyensis*-group as defined in Reiss and Fittkau (1971). However, the shape and size of hypopygial structures do not match and probably represents a new species (Torbjørn Ekrem, pers. comm. 2011)]

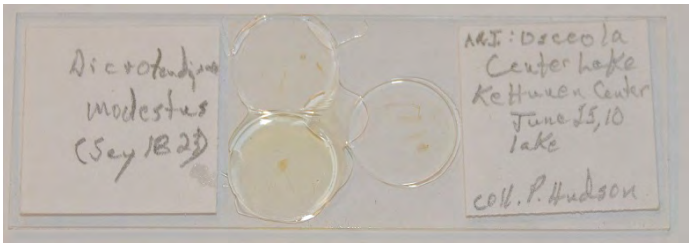

Figure 1. Example of a prepared slide mount.

Figure 2. Genitalia of a male *Parachironomus* (? n. sp., see above), showing magnification at approximately 40x.