

**Ohio EPA Supplemental Keys to the
Larval Chironomidae (Diptera) of Ohio
and Ohio Chironomidae Checklist**

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Introduction

The following keys were developed to supplement existing keys as an aid in the identification of Chironomidae larvae collected in Ohio. They were designed to incorporate most of the taxa known from the temperate eastern North America. The bulk of the characters used in these keys were taken from existing keys. There is, however, many gaps in our understanding of the chironomid fauna. For that reason every attempt was made to positively identify larvae by associating them with their pupal and adult male stages. Therefore, some of the information presented in this guide is not available in other keys.

These keys should be used in conjunction with existing keys. The standard generic level key that everyone identifying chironomid larvae should have is “Chironomidae of the Holarctic Region. Keys and Diagnoses. Part 1 - Larvae” edited by Wiederholm (1983). In addition to keys, this work contains extremely useful diagnoses and illustrations for every genus known from the covered area at the time. Another essential publication is “Identification Manual for the Larval Chironomidae (Diptera) of North and South Carolina” by Epler (2001). This very useful manual identifies larvae to species when possible and is extensively illustrated. However, it was designed to cover the Southeastern United States. At least two genera (*Doncricotopus* and *Synendotendipes*) found in Ohio were not included. Great care should be taken when attempting to apply the species keys to the Ohio fauna. The keys in this Ohio EPA guide should always take precedence when identifying chironomids from Ohio. Oliver, Dillon, and Cranston’s (1990) “A Catalog of Nearctic Chironomidae” is a useful listing of the named species in the Nearctic region and their known distribution as of 1989. A checklist of Ohio chironomids known from Ohio by the author or reported in published revisionary works is included at the end of this guide.

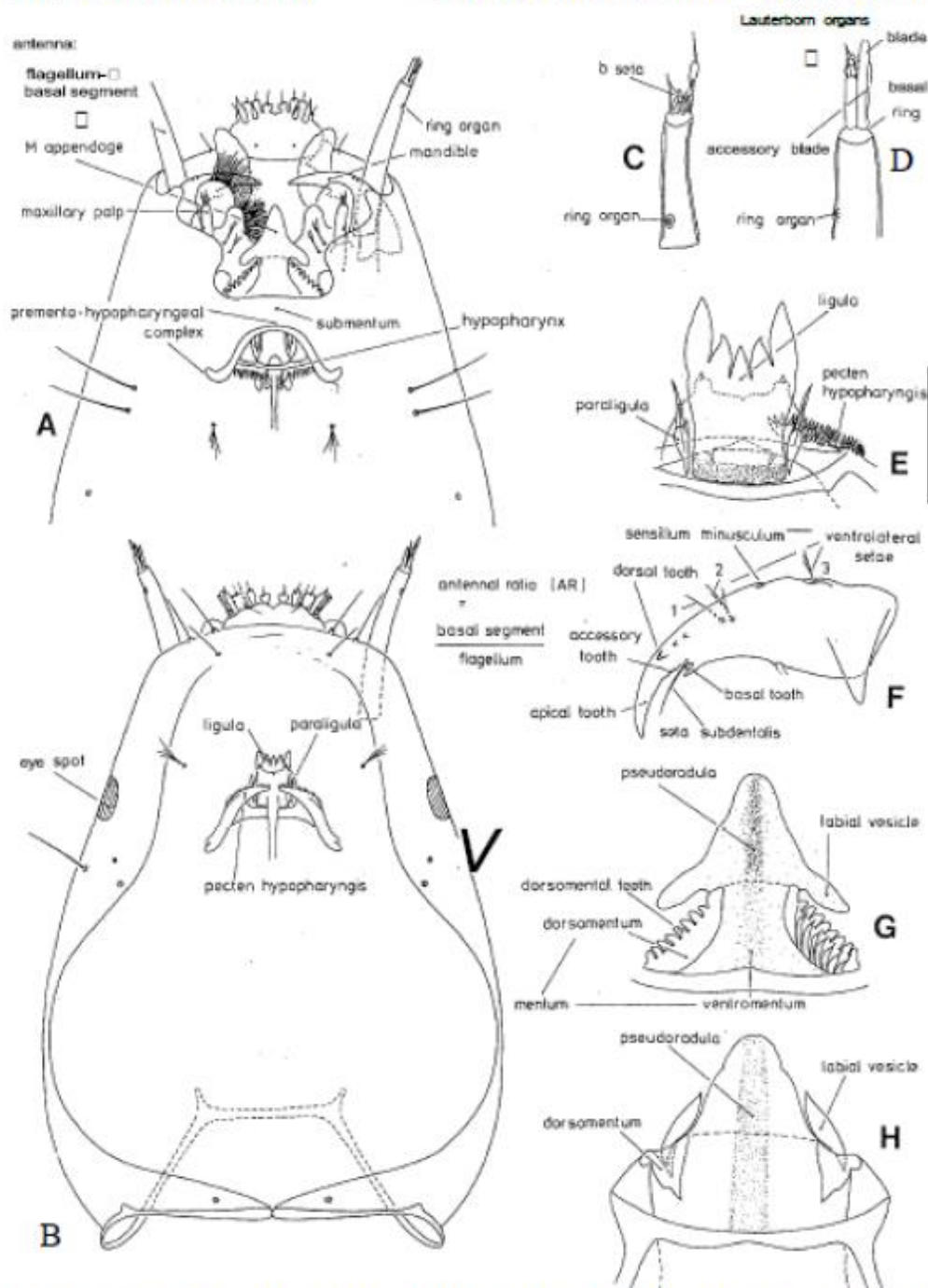


Fig. 2.1. Tanypodinae. -A. Larval head, ventral view. - B. Larval head, dorsal view. -C. Maxillary palp. - D. Antenna. -E. Premento-hypopharyngeal complex except appendage. - F. Mandible. -G. Mentum and M appendage of premento-hypopharyngeal complex (Macropelopiini). - H. Mentum and M appendage of premento-hypopharyngeal complex (Pentaneurini).

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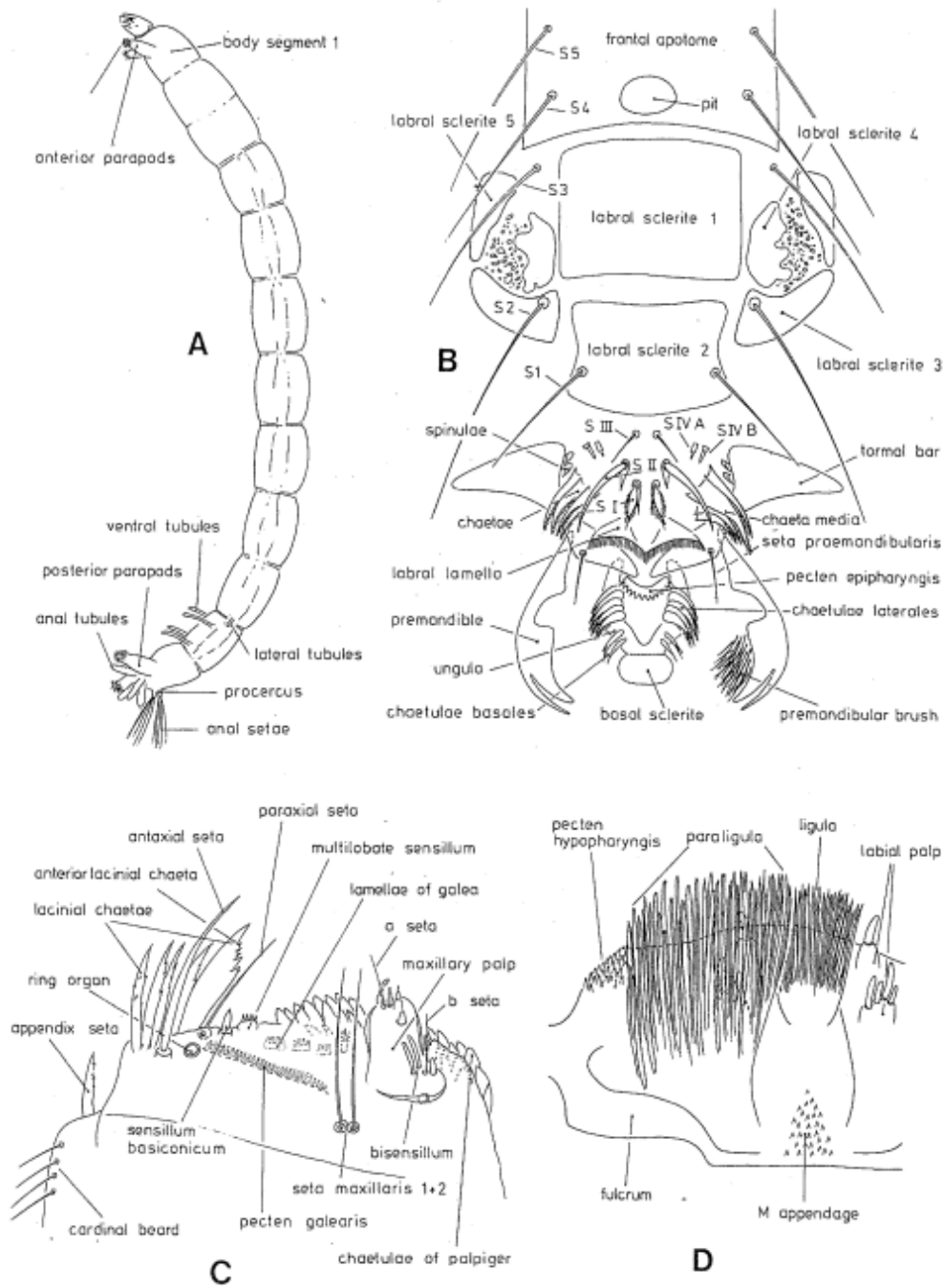


Fig. 2.2. Chironominae, Orthoclaadiinae, Diamesinae. — A. Larva, lateral view (Chironomini). — B. Labro-epipharyngeal region (Chironomini). — C. Maxilla ventral view (Orthoclaadiinae). — D. Premento-hypopharyngeal complex, ventral view (Diamesini).

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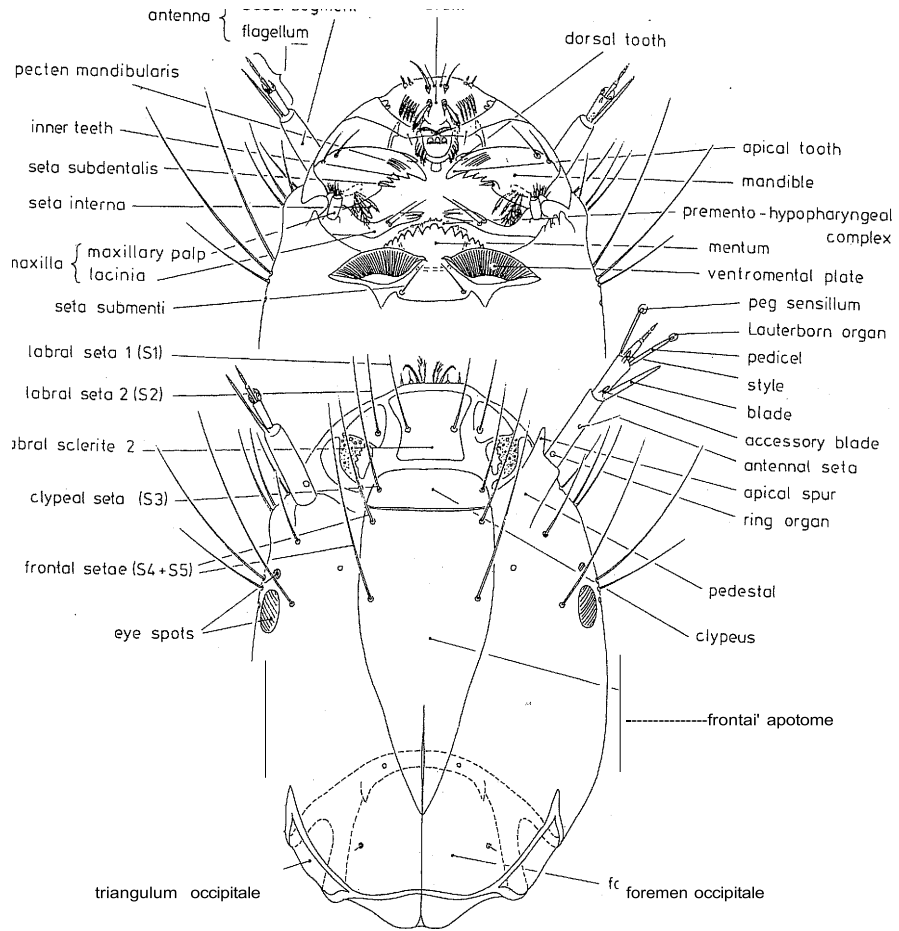


Fig. 2.3. Larval head, ventral and dorsal view (Chironominae).

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KEY TO SUBFAMILIES OF CHIRONOMIDAE

1. Antennae retractile into head capsule; head capsule with ligula bearing 4-8 teeth; the mentum usually poorly developed, at least partially membranous..... **Tanypodinae**
- 1'. Antennae not retractile; head capsule without ligula; mentum usually well developed and sclerotized.**2**
- 2 (1'). Premandibles absent; procercus long, more than 5 times as long as wide; antennal segment 3 annulate. **Podonominae**
- 2'. Premandibles present; procercus short, less than 4 times as long as wide; antennal segment 3 may or may not be annulate.**3**
- 3 (2'). Antennal segment 3 usually annulate, or, if not annulate, antenna 4 segmented and mandible with 5-6 inner teeth and mentum as in *Protanypus* **Diamesinae**
- 3'. Antennal segment 3 not annulate; antenna and mandible variable.....**4**
- 4(3'). Ventromental plates usually well developed and striate (plates reduced and not distinctly striated in *Stenochironomus* and *Xestochironomus*), never with beard beneath.
..... **Chironominae**
- 4'. Ventromental plates may be indistinct or well developed, never striate, may have beard beneath.....**5**
- 5(4'). Antenna 4 segmented, ventromental plates well developed and with beard beneath.
..... **Prodiamesinae**
- 5'. Antenna not 4 segmented, or if 4 segmented then ventromental plates not well developed or beard absent.....**6**
- 6(5'). Prementum with dense, well developed median brush; antenna short and 4 segmented; premandible short and broad with strong inner brush; labrum with simple S setae; procercus absent; marine habitat; not known from Ohio..... **Telmatogetoninae**
- 6'. Prementum without median brush; other characters variable but not in above combination; wide variety of habitats..... **Orthocladiinae**

Telmatogetoninae

- 1 Premandible simple. ***Thalassomya***
(*T. bureni* Wirth is the only described Nearctic species; coastal from N.C. to Miss.; the larvae inhabit the marine intertidal zone, especially waters of reduced salinity around harbors and river mouths)
- 1' Premandible with 3 blunt apical teeth. ***Telmatogeton***
(5 Nearctic species with only *T. japonicus* Tokunaga recorded from eastern Nearctic; coastal from N.Y. to Miss.; the larvae inhabit the marine intertidal zone)

PODONOMINAE

- 1 Procercus uniformly colored; not known from Ohio.....***Parachlus***
 (*Parachlus kiefferi* (Garrett) is the only described Nearctic species; in the East, reported as far south as Minn., Ont., N.Y., and Mass.; larvae inhabit springs and small cool maintain streams)
- 1' Procercus hyaline anteriorly, blackish posteriorly from base to apex.**2**
- 2(1') Mentum with about 13-15 pairs of lateral teeth; procercus with 11-15 anal setae; not known from Ohio.....***Lasiodiamesa***
 (5 Nearctic species; adult key in Wirth & Sublette (1970), larvae of *L. arietina* (Coquillet) and *L. brusti* Sæther described in Sæther (1969); in the East, genus reported as far south as Wis., Ont., N.Y., and N.H.; larvae inhabit *Sphagnum* bogs)
- 2' Mentum with 7 or 8 pairs of lateral teeth; procercus with 5-8 anal setae.....**3**
- 3(2') Long, dark supraanal setae present; procercus with 8 anal setae; within Ohio, known from a small spring fed stream that has interstitial flow in summer. ***Paraboreochlus***
 (*Paraboreochlus stahli* Coffman is the only described Nearctic species; all life stages described in Coffman et al. (1988); the species has been reported from small cool streams in Kans., Pa., and N.C.)
- 3' Supraanal setae absent; procercus with 5-6 anal setae; adults collected in Ohio adjacent to spring habitats.....***Boreochlus***
 (3 Nearctic species with only *B. persimilis* (Johannsen) reported from eastern Nearctic; adult key in Wirth & Sublette (1970); larvae inhabit moss and leaf packs in springs and mountain streams)

Nearctic genera not keyed:

Trichotanypus: recorded from northern Nearctic and the mountains of Wyoming.

TANYPODINAE

- 1 Dorsomenta teeth present in well developed transverse plates or in longitudinal rows; body segments with well developed lateral fringe of setae.**2**
- 1' Dorsomenta teeth apparently absent or with 3 or less conspicuous teeth; body segments without lateral fringe of setae or with a weak fringe of 4 setae on body segments 4-10. **15**
- 2(1) Ligula with 6-7 (rarely 5) pale teeth; dorsomenta teeth present in longitudinal rows, but not located on distinct plates.....**3**
- 2' Ligula with 4 or 5 teeth, pale or dark; dorsomenta teeth either absent or present on plates.....**4**
- 3(2) Ligula with 5-7 (usually 6) teeth, inner tooth only slightly bent towards outer tooth; mandible strongly hooked, with large, pointed basal tooth; antennal ratio greater than 10; lentic and depositional areas of lotic habitats. *Clinotanypus*
- 3' Ligula usually with 7 teeth, first inner tooth strongly bent towards outer tooth; mandible not as strongly hooked, without large pointed basal tooth; antennal ratio less than 8; lentic and depositional areas of lotic habitats. *Coelotanypus*
- 4(2') Ligula with 5 pale teeth and convex or about straight across; mandible with enlarged base and short apical tooth; lentic and depositional areas of lotic habitats. *Tanypus*
- 4' Ligula usually concave, or if about straight across, only 4 pale teeth present; mandible with base not enlarged, apical tooth longer.**5**
- 5(4') Ligula with 4 or 5 black teeth.....**6**
- 5' Ligula with 4 or 5 pale teeth.....**7**
- 6(5) Antennal blade more than twice as long as flagellum; ligula with 4 or 5 teeth; lentic and depositional areas of small, slightly acidic lotic habitats; not known from Ohio.
..... *Djalmabatista*
- 6' Antennal blade about as long as flagellum; ligula with 5 teeth; lentic and depositional areas of lotic habitats. *Procladius*

- 7(5') Ligula about straight across with 4 pale teeth; mandible with 4 or more inner teeth. **8**
- 7' Ligula concave with 5 pale teeth; mandible with less than 4 inner teeth.**9**
- 8(7) Dorsomenta plates strongly concave; mandible with teeth on dorsal surface; inhabits small, cold lentic and lotic habitats in the western mountains and the northern Nearctic as far south as southern Manitoba..... ***Derotanypus***
- 8' Dorsomenta plates not strongly concave; mandible without teeth on dorsal surface; lentic and depositional areas of lotic habitats. ***Psectrotanypus***
- 9(8') Dorsomenta plates strongly concave; mandible with teeth on dorsal and ventral surfaces; ligula with inner tooth incurved; posterior parapod with 3 small pectinate claws; known from lentic and depositional areas of lotic habitats; not known from Ohio, primarily a southeastern taxa, collected as far north as Oklahoma and NC. ***Fittkauimyia***
- 9' Dorsomenta plates not strongly concave; mandible without teeth on dorsal and ventral surfaces; ligula with inner tooth not incurved; posterior parapod without pectinate claws.**10**
- 10(9') Dorsomenta plates each with 4-6 teeth; antennal segment 2 short, 2-3 times as long as wide.**11**
- 10' Dorsomenta plates each with 6-9 teeth; antennal segment 2 long, 3.5 - 4.5 times as long as wide.**13**
- 11(10) Dorsomenta plates with basal lobe shelf-like with indentations and with a pointed mesal projection (mesal projection may not be visible using some mounting methods); known in Ohio from one adult collected adjacent to a small cool stream in Summit Co.
..... ***Brundiniella***
- 11' Dorsomenta plates not as above.**12**
- 12(11') Dorsomenta plate with 4 large teeth and 1 small tooth; ligula deeply concave, inner tooth strongly outcurved; spring habitat. ***Apsectrotanypus***
- 12' Dorsomenta plate with 5 large teeth; ligula weakly concave, inner tooth nearly straight (these characters only apply to the eastern Nearctic species); spring habitat.....

-*Radotanypus*
- 13(10') Maxillary palp ring organ in middle 1/3; ventrolateral mandibular seta all simple; depositional areas of lotic habitats.....*Alotanypus*
- 13' Maxillary palp ring organ in basal 1/3; ventrolateral mandibular setae 2 and 3 not simple.....14
- 14(13') Dorsomenta plate with 5 large teeth and 1 small tooth, blunt mesal projection present; spring habitat.*Bethbilbeckia*
- 14' Dorsomenta plates with 6 large teeth and 1 small tooth, blunt mesal projection absent; spring habitat.*Macropelopia*
- 15(1') Ligula with middle tooth distinctly longer than inner tooth; head capsule about 1.5 times as long as wide.....16
- 15' Ligula with middle tooth shorter than or equal to inner tooth; head capsule usually not so slender, less than 1.5 times as long as wide.....17
- 16(15) Posterior parapod with 1 bifid claw, seta of posterior parapod toothed near base; head capsule may be entirely pustulate, have dark markings, or small groups of short blunt spines; lentic and lotic habitats.*Labrundinia*
- 16' Posterior parapod with 1 pectinate claw or only serrated claws; seta of posterior parapod not toothed near base; head capsule never with pustules, dark markings, or small groups of spines; lotic habitat.....*Nilotanypus*
- 17(15') Antenna short, less than 0.4 times as long as head capsule, AR less than 3.5; mandible with large, blunt, basal tooth; abdominal segments with lateral, longitudinal row of 4 setae; lentic and depositional areas of lotic habitats. *Natarsia*
- 17' Antenna longer, more than 0.4 times as long as head capsule, AR variable; mandible with or without basal tooth; abdominal segments may have scattered setae but never in a longitudinal row.....18
- 18(17') Maxillary palp with 2 or more segments, ring organ located between segments.19

- 18' Maxillary palp with only 1 segment, ring organ located on the segment.20
- 19(18) Maxillary palp with 2 segments, apical segment greater than 3 times length of basal segment; lentic and lotic habitats.*Paramerina*
- 19' Maxillary palp either with more than 2 segments or if 2 segments then the apical segment is # 3 times length of basal segment; lentic and lotic habitats. *Ablabesmyia*
- 20(18') Head capsule granulate; posterior parapod usually with 3 dark claws and 3 pectinate claws, rarely with no dark or pectinate claws; lentic habitat. *Guttipelopia*
- 20' Head capsule not granulate; posterior parapods variable.21
- 21(20') Posterior parapod with pectinate claws.22
- 21' Posterior parapod without pectinate claws although 1 or 2 small claws may have a large point on inner margin.23
- 22(21) Posterior parapod with one darker claw that has 1-4 inner teeth, 1-4 smaller pale claws have 3-8 inner teeth, other claws may have strong serrations; basal tooth of mandible well developed; second antenna segment usually darker than first; bog habitat.
.....*Monopelopia*
- 22' Posterior parapod with 3 small pale claws with 4-8 inner teeth, other claws usually serrated; basal tooth of mandible not well developed; second antenna segment not darker than first; bog habitat.*Cantopelopia*
- 23(21') Supra anal seta dark and enlarged; procercus about 6 times as long as wide; lotic habitat.
..... *Pentaneura*
- 23' Supra anal seta not dark or enlarged; procercus usually less than 6 times as long as wide.
.....24
- 24(23') One (rarely none) claw of posterior parapod with a large point on inner margin; ligula weakly concave to about straight across; mandible with well developed basal tooth; antenna ratio usually less than 3.5; inhabits springs and small cool streams. *Zavrelimyia*
- 24' All claws of posterior parapod simple; ligula variable; basal tooth of mandible variable; antenna ratio usually greater than 3.5, if less than 3.5 then ligula moderately to strongly

- concave or basal tooth of mandible not well developed.....**25**
- 25(24') Mandible with well developed basal tooth.....**26**
- 25' Mandible with moderately developed to no basal tooth.....**28**
- 26(25) Antenna ratio usually less than 3.5, lauterborn organs large, about as long as antennal segment 3, strongly chitinized and fused with apical end of segment 2 so as to give a tuning fork-like appearance; spring habitat. ***Krenopelopia***
- 26' Antenna ratio usually greater than 3.5, lauterborn organs small, at most 1/2 as long as antennal segment 3, weakly chitinized and not fused with outer margin of segment 2. **27**
- 27(26') Procercus usually 4-6 times as long as wide; primarily lentic habitat.....***Larsia***
- 27' Procercus about 3 times as long as wide; lotic habitat. ***Telopelopia***
- 28(25') Maxillary palp with ring organ in middle third of basal segment; mandible with weakly to moderately developed basal tooth.**29**
- 28' Maxillary palp with ring organ in distal third of basal segment; mandible with no basal tooth..... ***Thienemannimyia* group (in part) 30**
(genera in this group may be difficult to separate but can be verified with pupal characters)
- 29(28) Maxillary palp with basal segment about 6 times as long as wide; antennal segment 1 greater than 400F long; mandible with moderately developed basal tooth; spring habitat. ***Trissopelopia***
- 29' Maxillary palp with basal segment about 4.5 - 5.1 times as long as wide; antennal segment 1 less than 300F long; mandible with weakly developed basal tooth; inhabits hygropetric areas of springs; not known from Ohio..... ***Hudsonimyia***
- 30(28') Maxillary palp with apical appendage b (visible only under 400x) 2 segmented.**31**
- 30' Maxillary palp with apical appendage b 3 segmented.....**34**
- 31(30) Accessory tooth of mandible minute (1-2F) and indented (usually visible only under 1000X); ligula weakly concave to straight across; gular margin of head capsule usually

- light brown; posterior parapod with 5 smaller claws thickened and darker; lotic habitat.
*Rheopelopia* (part)
 (*R. paramaculipennis* Roback is the only known species that keys here)
- 31' Accessory tooth of mandible very small (2.5-5F) and usually projects past margin of mandible (usually visible under 100 or 400X); ligula weakly to distinctly concave; gular margin of head capsule dark brown or pale; posterior parapod claws variable.....**32**
- 32(31') Gular margin of head capsule pale; posterior parapods with smaller claws usually not thickened and darker; lotic habitat.....*Meropelopia*
- 32' Gular margin of head capsule dark brown; posterior parapod with 5 smaller claws thickened and darker; lotic habitat.*Hayesomyia, Thienemannimyia* **33**
 (these two genera can not be separated as larvae but can be separated by pupal characters)
- 33(32') Pupal thoracic horn with a corona; abdomen with filamentous L-setae on segments VII-VIII only.*Hayesomyia*
- 33' Pupal thoracic horn without a corona; abdomen with filamentous L-setae on segments I-VIII.*Thienemannimyia*
- 34(30') Accessory tooth of mandible minute (1-2F) and indented (usually visible only under 1000X); subbasal seta of posterior parapod unequally forked; lotic habitat.
*Rheopelopia* (part)
 (the 3 species in the *R. acra* group key here)
- 34' Accessory tooth of mandible very small (2.5-5F) and usually projects past margin of mandible (usually visible under 100 or 400X); subbasal seta of posterior parapod simple.
35
- 35(34') Antennal segment 1 length usually greater than 320F; pseudoradula relatively narrow and compact; lotic habitat.....*Helopelopia*
- 35' Antennal segment 1 length usually less than 320F; pseudoradula relatively broad and spread out (except *C. alata* which has a narrow pseudoradula); lentic and lotic habitats.
*Conchapelopia*

Nearctic genera not keyed:

Arctopelopia: reported from northern Nearctic.

Denopelopia: only reported from Florida.

Reomyia: larvae similar to *Zavreliomyia* according to Epler (2001), reported from Alaska, Oregon, and North Carolina.

Xenopelopia: reported from western Nearctic.

Ablabesmyia

For additional keys and descriptions see Roback (1971), Roback (1985), and Caldwell (1993).

- | | | |
|-------|--|---|
| 1 | Maxillary palp with 2 segments, the apical segment 0.9-3.0 times the length of the basal segment..... | 2 |
| 1' | Maxillary palp with 3-6 segments, the apical segment greater than 3 times the length of the basal most segment. | 6 |
| 2(1) | Ligula nearly straight across, middle and inner teeth truncate with apices paler; posterior parapod elongate with extensive lateral hooklets, no dark claws; lentic and lotic habitats. | <i>Ablabesmyia (Asayia) annulata (Say)</i> |
| 2' | Ligula usually concave, teeth not truncate; posterior parapod shorter and lacking extensive lateral hooklets, 0-3 dark claws. | 3 |
| 3(2') | Ligula with inner tooth relatively straight; posterior parapod with 2 medium to dark brown claws; primarily lentic habitat. | <i>Ablabesmyia (Karelia) peleensis (Walley)</i> |
| 3' | Ligula with inner tooth distinctly outcurved; posterior parapod with 0-3 dark claws..... | 4 |
| 4(3') | Posterior parapod with all claws pale; apical segment of maxillary palp 1.7-3.0X length of basal segment. not known from Ohio. | <i>Ablabesmyia (Karelia) philosphagnos Beck & Beck</i> |
| 4' | Posterior parapod with 1-3 claws darker than the others; apical segment of maxillary | |

- palp 0.9-1.7X length of basal segment.5
- 5(4') Posterior parapod with 3 darker claws; not known from Ohio.
 *Ablabesmyia (Karelia) cinctipes* (Johannsen)
- 5' Posterior parapod with 1-2 darker claws.
 *Ablabesmyia (Karelia) spp.* see Roback (1985)
 (*A. ideii* (Walley), *A. illinoensis* (Malloch), and *A. pulchripennis* (Lundbeck) will key out here but are
 difficult to separate)
- 6(1') Maxillary palp with 3 segments, basal segment short, apical two segments long and
 about equal in length.7
- 6' Maxillary palp with 5 or 6 segments, the basal 4 or 5 segments short and the apical
 segment long.10
- 7(6) Ligula nearly straight across, middle and inner teeth semi-truncate; posterior parapod
 with 2 dark claws, hooked claw present; lotic habitat.
 *Ablabesmyia (s.s.) janta* (Roback)
 (there's a variety of *A. janta* that is a symbiont of freshwater mussels which has 0-2 slightly darker claws
 on the posterior parapod and no hooked claw).
- 7' Ligula usually concave, teeth not semi-truncate; posterior parapod with 0-2 dark claws,
 hooked claw present or absent.8
- 8(7') Head capsule with mesal-ventral dark spot; posterior parapod with 0-1 dark claw,
 hooked claw absent; lotic habitat. *Ablabesmyia (s.s.) simpsoni* Roback
- 8' Head capsule with at most a faint mesal-ventral spot; posterior parapod with 2 dark
 claws, hooked claw present.9
- 9(8') Ligula length greater than 80F (measured from tip of outer tooth to basal most
 chitenized part of ligula); lentic habitat. *Ablabesmyia (s.s.) monilis* (Linnaeus)
- 9' Ligula length less than 80F; lentic and lotic habitats.
 *Ablabesmyia (s.s.) rhamphe* group
- 10(6') Maxillary palp with 5 segments; posterior parapod with 2-3 dark claws, hooked claw

- absent; lentic and lotic habitats.....*Ablabesmyia (s.s.) mallochi* (Walley)
- 10' Maxillary palp usually with 6 segments (the basal two segments may be incompletely separated); posterior parapod with 2 dark claws, hooked claw present or absent.11
- 11(10') Posterior parapod without hooked claw; not known from Ohio.
.....*Ablabesmyia (s.s.) hauberi* Beck & Beck
- 11' Posterior parapod with hooked claw; lentic habitat.
.....*Ablabesmyia (s.s.) aspera* (Roback)

Guttipelopia

For additional keys and descriptions see Bilyj (1988).

- 1 Posterior parapod with 3 dark claws and 3 small pectinate claws; antenna ratio 6.0 - 7.3; lentic habitat. *Guttipelopia guttipennis* (van der Wulp)
- 1' Posterior parapod without dark or pectinate claws; antenna ratio 4.3 - 5.1; not known from Ohio. *Guttipelopia rosenbergi* Bilyj

Labrundinia

For additional keys and descriptions see Roback (1987).

- 1 Head capsule completely pustulate (pustules may be weak and difficult to see).....2
- 1' Head capsule not pustulate.4
- 2(1) Head capsule with mesal-ventral dark area, latero-ventral and caudo-ventral groups of short, blunt spines present; not known from Ohio..... *Labrundinia* sp. 6 (Roback 1987)
- 2' Head capsule without mesal-ventral dark area, small latero-ventral group of short, blunt spines may be present, caudo-ventral group of spines not present.....3
- 3(2') Head capsule with small latero-ventral group of short, blunt spines, head capsule without

- dark markings; subbasal seta of posterior parapod with flag-like group of spines near base; lotic habitat. ***Labrundinia maculata* Roback**
- 3' Head capsule without latero-ventral group of spines, posterior 1/4 of head capsule may be darkened; subbasal seta of posterior parapod without flag-like group of spines near base; lotic habitat. ***Labrundinia pilosella* (Loew)**
- 4(1') Subbasal seta of posterior parapod with flag-like group of spines near base; head capsule with latero-ventral group of short, blunt spines, caudo-ventral group of spines not present. **5**
- 4' Subbasal seta of posterior parapod without flag-like group of spines near base; head capsule with latero-ventral group of spines, caudo-ventral group of spines may be present. **6**
- 5(4) Head capsule with mesal, brown transverse band; lotic habitat.
 ***Labrundinia johannseni* Beck & Beck**
- 5' Head capsule without mesal transverse band; lentic habitat.
 ***Labrundinia neopilosella* Beck & Beck**
- 6(4') Head capsule with 1 large latero-ventral spine about 20F long, caudo-ventral group of short, blunt spines present; not known from Ohio. ***Labrundinia* sp. 4 (Roback 1987)**
- 6' Head capsule with latero-ventral group of 2-7 short, blunt spines, caudo-ventral spines not present. **7**
- 7(6') First antenna segment 160-190F long; lotic habitat. ***Labrundinia becki* Roback**
- 7' First antenna segment 250-310F long; not known from Ohio.
 ***Labrundinia virescens* Beck & Beck**

Natarsia

For additional keys and descriptions see Roback (1978).

- 1 Ligula about straight across, less than 88 μ long..... *Natarsia baltimoreus* (Walker)
- 1' Ligula usually strongly concave, greater than or equal to 88 μ long.
 *Natarsia species A* (Roback 1978)

Nilotanypus

For additional keys and descriptions see Roback (1986b).

- 1 Posterior parapod with 1 pectinate claw..... *Nilotanypus fimbriatus* (Walker)
- 1' Posterior parapod with only serrated claws.....see Roback (1986b)

Pentaneura

- 1 Ligula about straight across with inner tooth curved outward; mandible with basal tooth acute and directed apically; posterior parapod with 1 dark claw.
 *Pentaneura inconspicua* (Malloch)
- 1' Ligula about straight across with inner tooth nearly straight; mandible with basal tooth blunt and not directed apically; posterior parapod without any dark claws.
 *Pentaneura sp. 1*

Procladius

For additional keys and descriptions see Roback (1980) and Wrubleski and Roback (1987).

- 1 Smaller claws of posterior parapod elongate, never with inner teeth; mostly larger species, body length 7-11 mm; lentic and depositional areas of lotic habitats.
 *Procladius (Holotanypus)*
- 1' Smaller claws of posterior parapod short with an expanded base, 1 or 2 smaller claws may have strong points on inner side; mostly smaller species, body length 5-8 mm.
 *Procladius (Psilotanypus)* 2

- 2(1') Two of the smaller posterior parapod claws sharply hooked, no claws with strong points on inner side; known from lentic habitats in B.C., Alta., Sask., and Man.
*Procladius (Psilotanypus) nietus* Roback
- 2' The smaller posterior parapod claws not sharply hooked, 0, 1, or 2 claws with strong points on inner side; primarily lentic habitats.
*Procladius (Psilotanypus) bellus* (Loew)

Psectrotanypus

For additional keys and descriptions see Roback (1978).

- 1 Posterior parapod with 1 small claw with ovoid base; ligula length/mesal width 2.0-2.1; dorsomentum with 6-7 teeth each side; lentic and lotic habitats.....
*Psectrotanypus dyari* (Coquillett)
- 1' Posterior parapod with all claws simple and curved; ligula length/mesal width 2.6-3.7; dorsomentum with 5 teeth each side; depositional areas of lotic habitats; not known from Ohio.*Psectrotanypus discolor* (Coquillett)

Tanypus

For additional keys and descriptions see Roback (1977).

- 1 Ligula relatively pale and narrow; mentum pale; 2-3 smaller claws of posterior parapods pectinate.....**2**
- 1' Ligula and mentum darker and more robust; smaller claws of posterior parapods not pectinate.....**3**
- 2(1) Ligula very long and narrow, 5.1-5.4 times as long as mesal width; paraligula 8-10 branched; not known from Ohio.....*Tanypus* poss. *concausus* Roback
- 2' Ligula slightly shorter, 2.2-3.8 times as long as mesal width; paraligula 5-7 branched.....
*Tanypus stellatus* Coquillett

- 3(1') Smaller claws of posterior parapods simple.4
- 3' Smaller claws of posterior parapods with base expanded.5
- 4(3) Main fork of paraligula 0.60-0.78 from base (Fig. H); mesal tooth of mentum pale; head infuscated. *Tanypus carinatus* Sublette
- 4' Main fork of paraligula 0.45-0.53 from base; mesal tooth of mentum dark along margin; head pale. *Tanypus punctipennis* Meigen
- 5(3'). Smaller claws of posterior prolegs with inner edge serrate; not known from Ohio.....
..... *Tanypus clavatus* Beck
- 5'. Smaller claws of posterior prolegs with inner edge smooth.6
- 6(5'). Dorsomental plate with 5-6 darker lateral teeth; smaller expanded claws of posterior prolegs 62-70F long. *Tanypus neopunctipennis* Sublette
- 6'. Dorsomental plate with 6-8 paler teeth; smaller expanded claws of posterior prolegs about 90F long; not known from Ohio. *Tanypus nubifer* Coquillett

Diagnosis: *Tanypus* larvae can be separated from other genera with well developed dorsomental plates and an abdominal fringe of setae by the shape of the ligula and the expanded base of the mandible.

Taxonomic Literature: Oliver et al. (1990) listed 12 Nearctic species of which 8 have been recorded in the area of coverage. Roback (1977) reviewed the immature stages of the known eastern species.

Ecology and Distribution: The larvae inhabit soft sediments in lakes and depositional areas of streams and rivers. *T. clavatus* inhabits brackish water in the southeast. *T. nubifer* is primarily a western species reaching its eastern limit in Nebraska and Kansas. Other species are more generally distributed in the east.

PRODIAMESINAE

- 1 Median mental tooth pale, broad, and convex; mandible expanded basally.....
 ***Odontomesa***
- 1' Mentum with either one broad concave or 2 small dark median teeth; mandible not so
 expanded basally.....**2**
- 2(1') Ventomental plate narrow, beard weak; median mental tooth broad and concave.
 ***Monodiamesa***
- 2' Ventomental plate broad, beard strong; mentum with paired median teeth deeply
 recessed between 1st lateral teeth. ***Prodiamesa***

Nearctic genera not keyed:

Compteromesa: larvae are unknown for the only known Nearctic species, *C. oconeensis* Sæther, reported from S.C. Epler (2001) included the larva of *C. haradensis* Niitsuma & Makarchenko from Japan in his key.

DIAMESINAE

- 1 Head capsule with numerous closely spaced setae; antenna 4 segmented, segment 3 not annulate; mentum lacking distinct teeth on central 2/3, with only 2 pairs of lateral teeth; mandible with 5-6 inner teeth; not known from Ohio.***Protanypus***
(5 Nearctic species; in the East, the genus has been reported as far south as Lake Michigan and Maine; the larvae inhabit oligotrophic lakes)
- 1' Head capsule with few setae; antenna 5 segmented, segment 3 annulate; mentum with teeth on middle 2/3 or entirely toothless.....**2**
- 2(1') Dorsal surface of head capsule with 4-5 tubercles; not known from Ohio.
.....***Boreoheptagyia***
(*B. lurida* (Garrett) is the only described Nearctic species; in the East, reported as far south as N.Y.; larvae inhabit cool mountain streams on rocks at the splash line.)
- 2' Dorsal surface of head capsule without tubercles.....**3**
- 3(2') Mentum without teeth; premandible with about 15 small, pointed teeth; mandible without seta interna; known from Ohio in Lake Erie off of Ashtabula County.
.....***Potthastia longimana* Kieffer**
- 3' Mentum with teeth; premandible with less than 13 broad teeth; mandible with seta interna.**4**
- 4(3') Pecten epipharyngis consisting of a row of 5 or more elongate, blunt scales.**5**
- 4' Pecten epipharyngis consisting of 3 pointed scales.**6**
- 5(4) Pecten epipharyngis with 5 scales; premandible with about 7 teeth; procercus shorter than wide with 4 anal setae; cool lotic habitat.***Diamesa***
- 5' Pecten epipharyngis with 7-9 scales; premandible with a simple apical tooth and 3-4 smaller inner teeth; procercus longer than wide with 8-9 anal setae. ***Lappodiamesa***
(*L. boltoni* Sæther & Willassen is the only described Nearctic species; all life stages were described by Sæther & Willassen (1988); reported only from Ohio where it inhabits shallow, vernal woodland runs and pools; I have also examined a specimen from Maine collected by Mike and Rhonda Mendel)
- 6(4') Premandible with 5-6 teeth; mentum with flat median area that has several small

- projections and 5-8 lateral teeth; inhabits small streams. ***Pagastia***
- 6' Premandible either simple or with a large apical tooth and 1-3 smaller inner teeth; mentum not as above.7
- 7(6') Mentum with either a broad, dome-shaped median tooth with the median and first lateral teeth pale and 7-8 dark lateral teeth or the median tooth a broad, flat toothless area with 9 lateral teeth; premandible simple; within Ohio, known only from Yellow Creek in SE Ohio.***Potthastia gaedii* group**
- 7' Mentum with median tooth similar to lateral teeth, 8-10 pairs of lateral teeth; premandible with a large apical tooth and 1-3 small, appressed inner teeth; inhabits small spring fed streams during winter and spring months.***Sympotthastia***

Nearctic genera not keyed:

Arctodiamesa: reported from Alaska.

Pseudodiamesa: reported from western and northern Nearctic.

Pseudokiefferiella: reported from northern Nearctic and in western mountains.

Syndiamesa: reported from northern Nearctic.

Genus P (Doughman 1985): reported from extreme SE U.S.

ORTHOCLADIINAE

- 1 Anal end without procercus, or, when present, without distinct anal setae and posterior parapods; anterior parapods often partially fused.....**2**
- 1' Procercus present, but may be reduced with at least 1 distinct anal setae; anterior parapods usually fully separated.....**12**
- 2(1) Preanal and anal segments and posterior parapods bent at right angle to axis of rest of body, posterior parapods at most weakly divided, claws present.....**3**
- 2' Preanal and anal segments in same axis as rest of body, posterior parapods variable.**4**
- 3(2) Posterior parapods with claws on anterior part, posterior part bare; single, short anal seta present..... ***Gymnometriocnemus***
(G. (s.s.) subnudus (Edwards) and *G. (Raphidocladius) brumalis* (Edwards) are the only Nearctic species; *G. (s.s.) subnudus* appears to be restricted to terrestrial habitats while *G. (R.) brumalis* has been collected from the margins of springs and small streams and in *Sphagnum* bogs)
- 3' Posterior parapods with claws on posterior part; anal setae usually absent.....
..... ***Bryophaenocladus***
(11 species are recorded from the Nearctic; larvae are primarily terrestrial)
- 4(2') Mentum with toothless median area and 4-5 small spinelike lateral teeth; mandible with 4 spinelike inner teeth; ectoparasitic on mayflies; not known from Ohio.....
..... ***Symbiocladus***
(E. equitans (Claassen) and *E. chattahoocheensis* Caldwell are the only Nearctic species; larvae were described by Claassen (1922) and Caldwell (1984), respectively; larvae are ectoparasitic on mayflies of the genus *Rhithrogena* in the West and *Epeorus* in the East; this genus has only been collected from cool mountain streams)
- 4' Mentum fully toothed; mandibular teeth not spinelike; not ectoparasitic on mayflies. 5
- 5(4') Each scale of pecten epipharyngis divided into 2-3 teeth, forming a continuous row of about 8 teeth; SI approximately palmate; larvae are rarely collected but appear to be associated with the margin of springs and small streams; within Ohio, collected only as adults..... ***Antillocladius***

- 5' Pecten epipharyngis consisting of three, usually simple scales that may be partially fused; SI palmate only in *Parasmittia* and *Smittia*.....6
- 6(5') Antenna very short, less than 1/2 length of mandible, 3-4 segments, blade distinctly longer than apical antenna segments.7
- 6' Antenna not as short, about 1/2 length of mandible or longer, 4-5 segments, blade variable.9
- 7(6) Posterior prolegs, anal claws, and anal setae absent.....*Camptocladius*
(*C. stercorarius* (De Geer) is the only Nearctic species; the larvae are terrestrial inhabiting cow dung and possibly other decomposing organic matter; within Ohio known only as adults)
- 7' Posterior prolegs weakly divided or absent; anal claws present; single, short anal setae present.....8
- 8(7') Labral SI palmate; posterior prolegs absent, horseshoe shaped band of anal claws present; terrestrial habitat; not known from Ohio. *Parasmittia*
- 8' Labral SI bifid; posterior prolegs present or absent, anal claws present on posterior part. .
..... *Pseudosmittia*
(5 described Nearctic species; larval habitat ranges from terrestrial to aquatic, inhabiting sphagnum bogs and the margins of lakes and streams)
- 9(6') Antennal segment 2 shorter than segment 1; anal tubules well developed; posterior peripods either slender and digitiform with claws or absent. *Geothocladius*
(5 described Nearctic species; the larvae of some species described by Sæther & Sublette (1983); larvae inhabit small cool streams or moist soil adjacent to springs, small cool streams, or *Sphagnum* bogs)
- 9' Antennal segment 2 as long or longer than segment 1; anal tubules short and stubby or absent; posterior peripods distinct with claws.10
- 10(9') Antenna 4 segmented; labral SI palmate; premandible bifid.....*Smittia*
(15 described Nearctic species; larvae are primarily terrestrial)
- 10' Antenna 5 segmented; labral SI plumose and premandible with single broad apical tooth or SI simple and premandible bifid.11

- 11(10') Labral SI plumose; plumose labral lamellea present; premandible with a broad apical tooth and a short broad inner tooth; marine habitat; not known from Ohio. **Clunio**
(*C. marshalli* Stone & Wirth is the only eastern Nearctic species)
- 11' Labral SI simple; labral lamellae absent; premandible bifid with two short, broad inner teeth. **Mesosmittia**
(6 described Nearctic species; adults were revised by Sæther (1985); larvae are primarily terrestrial)
- 12(1') Antenna at least 1/2 length of head capsule..... **13**
- 12' Antenna less than 1/2 length of head capsule. **20**
- 13(12) Mentum with wide, dome-like median tooth, first lateral tooth lower than median tooth and second lateral tooth; apical tooth of mandible long, rounded and slightly expanded; known from Coastal Plain streams in FL and NC.....
..... **Heterotrissocladius species C (sensu Sæther, 1975)**
- 13' Mentum with bifid or trifid median tooth, or if single, not dome-like and first lateral tooth subequal to median and second lateral teeth; apical tooth of mandible not long, rounded, and slightly expanded. **14**
- 14(13') Ventromental plates well developed..... **15**
- 14' Ventromental plates weak or indistinct..... **17**
- 15(14) Antenna with 3 distinct segments; mentum with only a few rudimentary teeth; known from Coastal Plain and Piedmont streams in FL and GA.
..... **Orthocladiinae genus D (sensu Epler, 1995)**
(This species probably belongs in the genus *Nanocladius* (Epler, 1995 and Caldwell et al. 1997).)
- 15' Antenna with 4 segments; mentum fully toothed. **16**
- 16(15') Mentum with the 2 median and first lateral teeth shorter than second lateral teeth; larvae construct a transportable, cylindrical tube; inhabits small oligotrophic lakes in British Columbia and Ontario..... **Heterotanytarsus**
- 16' Mentum with numerous fine anterior teeth that are at the same level; larvae do not construct a transportable tube; within Ohio, known from a single specimen from a small

- stream in Vinton Co.....**Orthocladiinae species C (sensu Sæther, 1982)**
 (Elsewhere, reported from Coastal Plain lentic and lotic habitates in NC, SC, GA, and FL.)
- 17(14') Antenna 4 segmented, longer than head capsule, 2nd segment longer than 1st with a weakly sclerotized area that gives segment the appearance of being 2 segments, terminal segment long and whiplike; procercus with 1 long anal seta; lotic habitat.
**Lopescladius**
- 17' Terminal antenna segment not long and whiplike; procercus with 4 or more normal length anal setae; other characters variable.**18**
- 18(17') Antenna segment 2 unevenly sclerotized, with alternate Lauterborn organs; posterior parapods without subbasal spine; inhabits small sandy streams.**Rheosmittia**
- 18' Antenna segment 2 evenly sclerotized, Lauterborn organs weak or absent; posterior parapod with subbasal spine.**19**
- 19(18') Antenna 4 segmented, 4/5 length of head capsule or longer; subbasal spine of posterior parapod with variously developed lateral projections; lentic or lotic habitats.
**Corynoneura**
- 19' Antenna 5 segmented, about 1/2 length of head capsule; subbasal spine of posterior parapod simple; primarily lotic habitats. **Thienemanniella**

Corynoneura

Measurements and ratios used in this key:

Head capsule length = measurement from base of premandibles to posterior most part of head capsule.

AL/HL = antenna length/head capsule length.

A₁L/HL = 1st antenna segment length/head capsule length.

- 1 Head capsule integument sculptured with fine ridges that are usually in a reticulate pattern (sculpturing usually strongest dorsally, but may be faint and difficult to see).**2**
- 1' Head capsule integument smooth, unsculptured.....**6**
- 2(1) Mentum with 2 median teeth; antenna slightly shorter than head capsule length (AL/HL = 0.8-0.9); known from one small acid mine drainage impacted stream in SE Ohio
.....*Corynoneura* n. sp. **9**

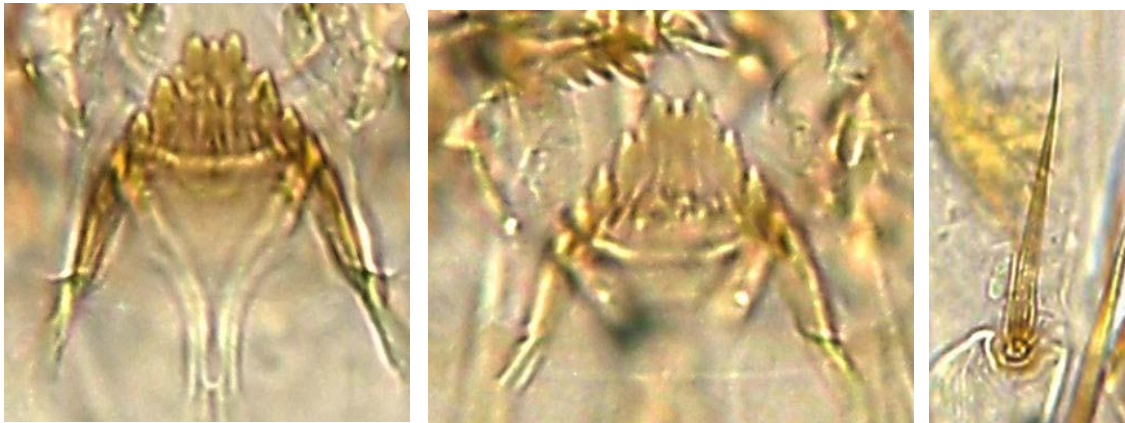


- 2' Mentum with 3 median teeth; antenna longer than head capsule.....**3**
- 3(2') Antenna about twice as long as head capsule (AL/HL = 1.8-2.2); head capsule weakly sculptured; mentum with 5 lateral teeth; premandible not noticeably toothed at 400X; posterior parapod subbasal seta with a star shaped sclerotized ring around the attachment area; lotic and lentic habitats.*Corynoneura* n. sp. **8**



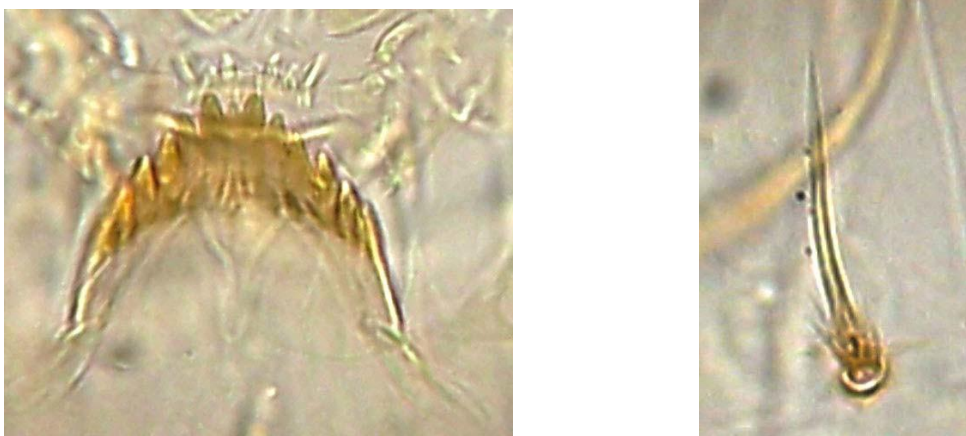
3' Antenna shorter ($AL/HL = 1.1-1.7$); other characters variable.4

4(3') Mentum with first lateral tooth reduced and partially fused with median teeth or absent, in which case there are only 4 lateral teeth; premandible not noticeably toothed at 400X (fine teeth visible at 1000X); this is the most commonly collected species in lotic habitats, in size from rheocrenes to large rivers. *Corynoneura lobata* Edwards



4' Mentum with first lateral tooth not reduced or partially fused, 5 lateral teeth; premandible noticeably toothed at 400X; lentic habitats.5

5(4') Head capsule weakly sculptured; antenna only slightly longer than head capsule ($AL/HL = 1.1-1.2$); posterior parapod subbasal seta with only short lateral spinules arising near base. *Corynoneura edwardsi* Brundin



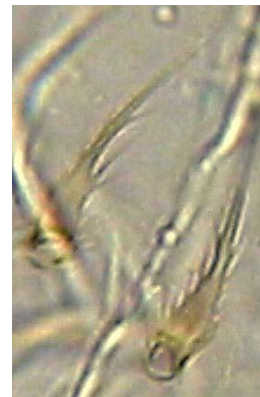
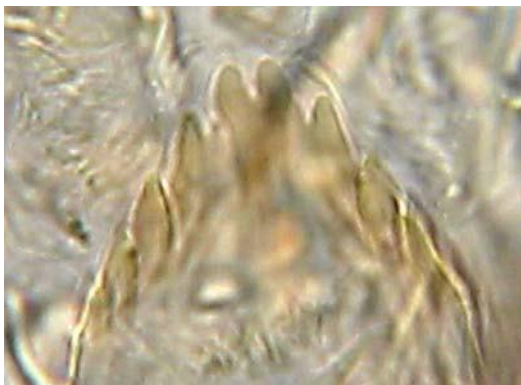
- 5' Head capsule strongly sculptured; antenna at least 1.5 times as long as head capsule (AL/HL = 1.5-1.8); posterior parapod subbasal seta often with one or two spinules arising from one side near the base.*Corynoneura scutellata* Winnertz



- 6(1') Mentum with 2 median teeth.7

- 6' Mentum with 3 median teeth.8

- 7(6) Antenna with segment 3 dark; posterior parapod subbasal seta with lateral spinules originating from about half or more of the length of main shaft; inhabits small streams to large rivers. *Corynoneura "celeripes"* (sensu Simpson & Bode, 1980)



- 7' Antenna with segment 2 and 3 dark; posterior parapod subbasal seta with lateral spinules originating from about a third the length of the main shaft.....*Corynoneura sp. 12*

- 8(6') Antenna very long ($AL/HL = 2.2-2.5$, $A_1L/HL = 1.1-1.3$); premandible noticeably toothed at 400X; mentum with a small 6th lateral tooth; lentic habitats.....
***Corynoneura n. sp. 4***



- 8' Antenna not unusually long ($AL/HL = 0.8-1.8$); premandible not noticeably toothed at 400X (fine teeth may be visible at 1000X); mentum with only 5 lateral teeth.....**9**
- 9(8') Mentum with 1st lateral tooth reduced, not as wide as 2nd lateral tooth.....**10**
- 9' Mentum with 1st lateral tooth not reduced.**13**

- 10(9) Antenna slightly shorter than length of head capsule ($AL/HL = 0.8-0.9$); posterior parapod subbasal seta with long lateral spinules that primarily arise from one side; inhabits small to medium sized streams.***Corynoneura n. sp. 1***



- 10' Antenna longer than head capsule ($AL/HL = 1.1-1.8$).**11**

11(10') Antenna AL/HL = 1.1-1.5; posterior parapod subbasal seta with lateral spinules usually arising primarily on one side, inhabits rheocrenes.*Corynoneura n. sp. 5*



11' Antenna AL/HL = 1.3-1.8; posterior parapod subbasal seta with lateral spinules usually arising more equally on both sides; inhabits larger streams or lentic habitats.....**12**

12(11') Antenna AL/HL = 1.3; lentic habitats.*Corynoneura sp. 6*



12' Antenna AL/HL = 1.6=1.8; inhabits small to medium sized streams.

.....*Corynoneura sp. 11*



13(9') Antenna AL/HL = 1.1; inhabits shallow vernal woodland pools.***Corynoneura n. sp. 2***



13' Antenna AL/HL = 1.6; inhabits rheocrenes.***Corynoneura sp. 10***



- 5(4) Antenna 4 segmented; inhabits ponds and lakes; not known from Ohio.
 *Orthocladius (Pogonocladius)*
- 5' Antenna 5 segmented.....6
- 6(5') Mandible with 1 or 2 dorsal teeth; head capsule dark; mentum strongly triangular, with 5
 or 6 lateral teeth, median tooth wider than first three lateral teeth combined; inhabits
 colonies of the cyanobacterium *Nostoc* *Cricotopus (Nostococladius)*
- 6' Mandible without dorsal teeth; head capsule color variable; mentum more gently arched,
 with 6 lateral teeth, median tooth not as wide as first three lateral teeth combined; not
 associated with *Nostoc*.....7
- 7(6') Labrum with variously developed pectinate labral lamellae; head capsule dark; the three
 PE scales distinctly separate; premandible bifid; Lauterborn organs not unusually robust;
 inhabits rheocrenes to medium sized streams during the winter and spring.
 *Orthocladius (Mesorthocladius) lamellatus Sæther*
- 7' Labrum without labral lamellae; head capsule color variable; the three PE scales
 partially fused giving the appearance of a single triangular scale; premandible variable;
 Lauterborn organs may be unusually robust and usually reach to the base of A₄..... 8
- 8(7') Lauterborn organs unusually robust and usually reach to the base of A₄; mentum with
 second lateral tooth not partially fused; head capsule pale to dark; inhabits small to
 medium streams during the winter and spring. *Orthocladius (Euorthocladius)*
- 8' Lauterborn organs not unusually robust; mentum may have second lateral tooth partially
 fused; head capsule dark; in Ohio has been collected from cool hydropetric habitats.....
 *Orthocladius (Eudactylocladius)*
- 9(4') The posterolateral abdominal setae (L₄) on segments 1-7 composed of setal tufts.10
Note: the setal tufts may be small and difficult to see. They are usually less well developed on
 abdominal segments 1 and 7 and in some taxa are absent on 7.
- 9' Setae simple, although they may be forked.22
Note: It is important to make sure you are seeing the L₄ setae and not one of the other
 abdominal setae. If the L₄ setae are not present, in some cases, you may not be able to identify

your specimen to genus, in which case it can be labeled as “*Cricotopus* or *Orthocladius*” or “*Cricotopus* or *Paratrichocladius*”. Of course, if your specimen appears to be the same as other specimens in the sample that do have the L₄ present, then it should be considered to be that taxa.

- 10(9) Pecten epipharyngis with three simple scales.....11
- 10' Pecten epipharyngis fused into a single scale that is either triangular or elongate with rounded projections in the middle and at both ends.16
- 11(10) Mandible with molar area produced into a flat pointed shelf, inner margin with serrations; setal tufts short and difficult to see.*Cricotopus (C.) bicinctus* Maegen
- 11' Mandible without pointed molar area or serrated inner margin.12
- 12(11') Mentum with 1st and 2nd lateral teeth reduced and partially fused with the wide median tooth giving them a domed shape, the 6th lateral tooth reduced and may be absent in later instars; setal tufts short and difficult to see. *Cricotopus (C.) trifascia* Edwards
- 12' Mentum not as above, 6th lateral tooth well developed.13
- 13(12') Mentum triangular in outline, median tooth projecting forward, 1st lateral tooth partially fused to median tooth; not known from Ohio.
.....*Orthocladius (Symposiocladius) annectens* Sæther
- 13' Mentum with median tooth not projecting forward and 1st lateral tooth not partially fused.....14
- 14(13') Mentum with median tooth about 4 times as wide as 1st lateral teeth; mandible with apical tooth longer than length of inner teeth together; setal tufts usually as long as half the length of the segment or longer; lentic habitats.....
.....*Orthocladius (Symposiocladius) n. sp. 2*
- 14' Mentum with median tooth not as wide and mandible with the apical tooth not as long.15
- 15(14') Mentum with median tooth less than 2 times as wide as 1st lateral tooth.
..... *Cricotopus (C.) tremulus* group

- *Cricotopus (Isocladius) intersectus* group
- 22(9') Mentum more convex in outline, usually only lightly to moderately colored.....**23**
- 22' Mentum more triangular in outline, moderately to darkly colored.....**24**
- 23(22) Premandible apically bifid..... *Orthocladius (Orthocladius) oliveri* Sopenis
- 23' Premandible simple. *Orthocladius (Orthocladius) sp.*
- 24(22') Abdominal L₄ unusually long, about ½ as long as segment, may be apically forked; lotic habitat. *Cricotopus (Cricotopus) luciae* LeSage & Harrison
- 24' Abdominal L₄ normal length, less than 1/4 the segment length, not forked.....**25**
- 25(24') Mentum strongly triangular in outline, very darkly colored, 2nd lateral tooth partially fused to 1st or absent; lotic habitat. *Paratrichocladius*
- 25' Mentum not as strongly triangular, not as darkly colored.**26**
- 26(25') Mentum with the 2nd lateral tooth lower, not in line with 3rd lateral, giving the appearance of a domed grouping of the median tooth and the first two lateral teeth; lotic habitat. *Orthocladius (Orthocladius) carlatus* (Roback)
- 26' Mentum with 2nd lateral tooth in line with 3rd lateral; lentic and lotic habitats.....
..... *Cricotopus (Cricotopus) politus* (Coquillett)

Nanocladius

For additional keys and descriptions see Sæther (1977), Simpson & Bode (1980), and Epler (2001).

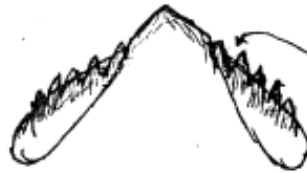
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|-------|---|---|
| 1 | Ventromental plates distinct but not elongate, extending to about the base of the mentum | 2 |
| 1' | Ventromental plates elongate, extending distinctly beyond the base of the mentum..... | 4 |
| 2(1) | Anterior proleg claws weakly to moderately pectinate; antenna ratio usually greater than 1.5; on aquatic macrophytes in lentic habitats.
..... <i>Nanocladius (s.s.) alternantherae</i> Dendy & Sublette | |
| 2' | Anterior proleg claws strongly pectinate; antenna ratio usually less than 1.5; phoretic on immature Perlidae (Plecoptera), <i>Corydalis</i> and <i>Nigronia</i> (Megaloptera), and <i>Argia</i> (Odonata). | 3 |
| 3(2') | Antenna ratio about 1.0; first antenna segment 30-40 F long; parasitic on immature Perlidae (Plecoptera); not known from Ohio.
..... <i>Nanocladius (Plecopteracoluthus) branchicolus</i> Sæther | |
| 3' | Antenna ratio 1.3-1.7; first antenna segment 50-60 F long; phoretic on Perlidae (Plecoptera), <i>Corydalis</i> or <i>Nigronia</i> (Megaloptera), or <i>Argia</i> (Odonata).
..... <i>Nanocladius (Plecopteracoluthus) downesi</i> (Steffan) | |
| 4(1') | Mentum with lateral teeth indistinct; ventromental plates extremely elongate; premandible with 3-5 apical teeth. | 5 |
| 4' | Mentum with lateral teeth distinct; ventromental plates less elongate; premandible simple or weakly bifid..... | 6 |
| 5(4) | Head capsule with postmental length greater than 130 F; ventromental plate with longitudinal ridges near proximal end; not known from Ohio.....
..... <i>Nanocladius (s.s.) poss. balticus</i> (Palmen) | |
| 5' | Head capsule with postmental length less than 120 F; ventromental plates apparently smooth; within Ohio, known from a single pupa collected from a bog in Geauga Co.
..... <i>Nanocladius (s.s.) incomptus</i> Sæther | |

- 6(4') Ventromental plates oblong, lateral margins roughly parallel; anterior proleg claws either very weakly or strongly pectinate.....7
- 6' Ventromental plates tear drop shaped; anterior proleg claws weakly to moderately pectinate.....*N. (s.s.) crassicornus*, *N. (s.s.) "rectinervis"* 9
(*N. crassicornus* and *N. "rectinervis"* can not be separated as larvae but can be separated by pupal characters.)
- 7(6) Anterior proleg claws strongly pectinate; antenna ratio 1.2-1.5; first antenna segment 34-43 F long; lotic habitat.....*Nanocladius (s.s.) spiniplenus* Sæther
- 7' Anterior proleg claws very weakly pectinate; antenna ratio \leq 1.5; first antenna segment \leq 40 F long.8
- 8(7') Ventromental plates narrow and heavily wrinkled; antenna ratio 1.7-2.0; first antenna segment 53-60 F long. *Nanocladius (s.s.) distinctus* (Malloch)
- 8' Ventromental plates not as narrow or heavily wrinkled; antenna ratio 1.5-1.8; first antenna segment 40-53 F long..... *Nanocladius (s.s.) minimus* Sæther
- 9(6') Pupal thoracic horn broad, oval shaped, length/width 2.0-2.2; lotic habitat.
.....*Nanocladius (s.s.) crassicornus* Sæther
- 9' Pupal thoracic horn elongate, digitiform, length/width 5.7-9.2; lotic habitat.
.....*Nanocladius (s.s.) "rectinervis (Kieffer)" (sensu Simpson & Bode 1980)*
(This species has been identified as *N. rectinervis* due to its similarity to the larva identified as *N. rectinervis* in Simpson & Bode (1980) and its similarity to the pupa of *N. rectinervis* in Sæther (1977). However, the larvae are different from those of *N. rectinervis* illustrated in Sæther (1977), Cranston (1982), and Wiederholm (1983).)

Type 1 n.sp. 1



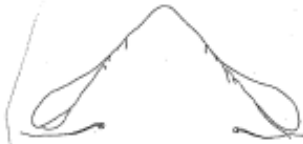
Type 2 n.sp. 2



- Wide, dome shaped medium tooth.
- gap between 1st and 2nd lateral teeth

P. nisp. 5

- no gap between 1st and 2nd lateral teeth



P. coronata

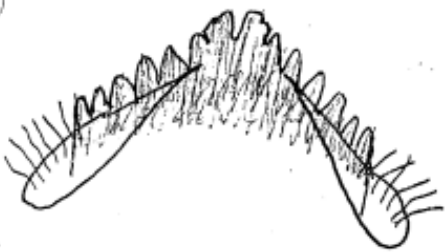
1st + 2nd lateral teeth



- antenna with short 3rd and long 4th segment.
- mostly lentic

Rheocricotopus

Type 1 robacki



Type 2 effusoides

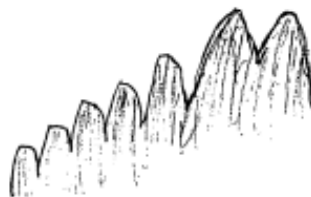


R. unidentata



- single median tooth
- spring time emergence
- small streams and springs

R. glabricolis



- SI bifid with serrated ends
- all other species have simple

Thienemanniella

For additional keys and descriptions see Hestenes & Sæther (2000).

- 1 Mentum with 2 large median teeth, may have a minute central tooth.....**2**
- 1' Mentum with 3 large median teeth.**3**
- 2(1) Mentum with a minute central tooth which is usually worn down, first lateral teeth partially fused to median teeth; antenna segment 3 about 0.5-0.7 as long as segment 2, segment 2 pale.***Thienemanniella lobapodema* Hestenes & Sæther**
(this species was keyed and illustrated as *T. nr. fusca* (Kieffer) in Simpson and Bode, 1980)
- 2' Mentum without minute central tooth, first lateral teeth not partially fused to median teeth; antenna segment 2 and 3 about equal length, segment 2 brown.
.....***Thienemanniella boltoni* Hestenes & Sæther**
- 3(1') Antenna segment 3 about 0.5-0.7 as long as segment 2, segment 2 usually pale; mentum with central tooth only slightly shorter than lateral median teeth, first lateral teeth partially fused to median teeth.....***Thienemanniella similis* (Malloch)**
- 3' Antenna segment 2 and 3 about equal length, segment two light to dark brown; mentum variable.**4**
- 4(3') Mentum with central tooth only slightly shorter than lateral median teeth, first lateral teeth not partially fused with median teeth; antenna segment 2 dark brown.
.....***Thienemanniella xena* (Roback)**
- 4' Mentum with central tooth distinctly shorter than lateral median teeth, first lateral teeth partially fused with median teeth; antenna segment 2 usually light brown.
.....***Thienemanniella taurocapita* Hestenes & Sæther**

Diagnosis: *Thienemanniella* larvae are small, reaching a length of about 3mm. They can be separated from other orthocladines by their antenna having 5 evenly sclerotized segments and being 0.5 -0.7 times the length of the head capsule along with an unornamented subbasal spine on the posterior parapods.

Taxonomic Literature: Oliver et al. (1990) list *T. majuscula* (Edwards), *T. similis* (Malloch), and *T. xena* (Roback) as reported from the area of study. Hudson et al. (1990) add to the list *T. obscura* Brundin and *T. partita* Schlee. The immatures of *T. xena* were described by Roback (1957).

Ecology and Distribution: *Thienemanniella* have been collected from primarily lotic habitats. *T. boltoni* is restricted to springs and small spring fed streams. *T. taurocapita* has been collected from headwater streams to medium sized streams of about 550 sq. mi. drainage area. *T. xena* and *T. lobapodema* have been collected from headwater streams to rivers of drainage area of about 4000 and 6000 sq. mi. respectively. *T. similis* prefers larger streams with drainage areas greater than about 400 sq. mi. *Thienemanniella* are commonly collected from high quality streams. *T. xena* and *T. lobapodema* have the greatest ecological tolerance. *T. lobapodema* is tolerant of slow current and lake effect. *T. xena* is the most commonly collected species in Ohio and has been collected from streams impacted by municipal and industrial dischargers.

From: Oliver, D.K. and M.E. Kousseil, 1952. The genera of midges of Canada (Diptera: Chironomidae), Part II, Biosys. Res. Inst., Ottawa. 263 pp.

treated as genera, e.g., *Dicrotendipes*, *Cryptochironomus*, *Jeldia*, *Kiefferulus*, *Endochironomus*, *Nilodorum*, and *Xenochironomus* (see Sublette and Sublette 1965).

European taxonomists have divided the genus into a number of species groups that have not been used much in North America. Lenz (1954-62) gives a description of the groups and a larval key. The groups are primarily defined upon the presence or absence and the relative length of the ventral tubules. Although the length of the tubules may vary according to the physiological state of the larvae or with environmental conditions, the species groups are useful for rough sorting larvae of *Chironomus*. A key to subgenera and species groups, adapted from Lenz (1954-62), is given below.

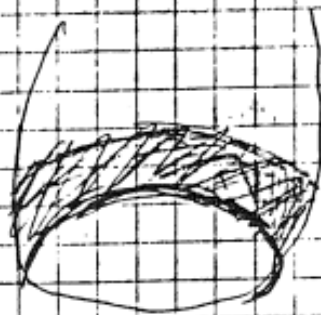
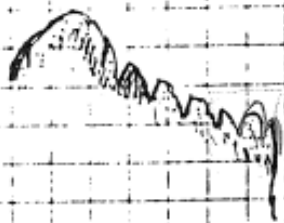
Larvae are described by Johannsen (1937b), Roback (1957), Curry (1961), Sublette and Sublette (1974a, 1974b), and Wulker et al. (1971).

Key to the subgenera and species groups of *Chironomus*

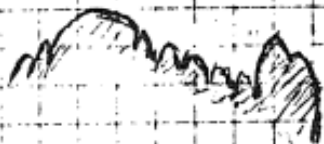
1. Eighth abdominal segment with two pairs of ventral tubules (Fig. 2) ... 2
Eighth abdominal segment without ventral tubules 9
..... *Chironomus (Chironomus)* (in part) 9
2. Ventral tubules as long as or longer than length of eighth abdominal segment 3
Ventral tubules shorter than width of eighth abdominal segment 8
..... *Chironomus (Chironomus)* (in part) 8
3. Seventh abdominal segment with posterolateral projection 4
..... *Chironomus (Chironomus)* (in part) 4
Seventh abdominal segment without posterolateral projection 6
4. Anterior margin of paralaial plate crenulate *staegeri* group
Anterior margin of paralaial plate smooth (Fig. 89) 5
5. Larva more than 20 mm long *plumosus* group
Larva less than 18 mm long ~~*decorus* group~~ *annularius* group = *d*
6. Pecten epipharyngis with 18 or more teeth; teeth varying irregularly in length and width (Fig. 92) *Chironomus (Chaetolabis)*
Pecten epipharyngis with less than 18 teeth; teeth equal in size or becoming progressively smaller laterally (Fig. 91) 7
..... *Chironomus (Chironomus)* (in part) 7
7. Ring organ of basal half, usually basal third, of first antennal segment. Larva about 12 mm long ~~*xiparicus* group~~ *thummi* group = *r*
Ring organ on about middle of first antennal segment. Larva longer than 15 mm *anthracinus* group
8. Seventh abdominal segment with posterolateral projection
..... *semireductus* group
Seventh abdominal segment without posterolateral projection
..... *halophilus* group
9. Seventh abdominal segment with posterolateral projection
..... *reductus* group
Seventh abdominal segment without posterolateral projection
..... *salinarius* group

- 5' PE with unequal sized teeth - - - *C. (Lobochironomus) sp.*
5" Mandible with 2 dark and 1 light inner teeth - *C. (C.) decorus* group
- Mandible with 3 dark inner teeth - - - *C. (C.) sp.*

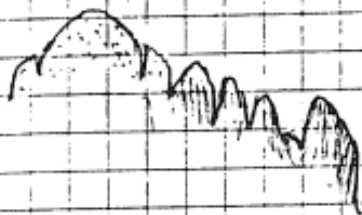
Cryptotendipes pseudotener



Cryptotendipes sp. 1



Cryptotendipes sp. 2



Parachironomus

- 1 Labral SI with lateral projections; median tooth of mentum bifid (simple in early instars); premandible with 3 or 4 large teeth; within Ohio, usually found in association with colonies of the bryozoan *Plumatella*. *Parachironomus frequens* group **2**
- 1' Labral SI simple; other characters variable, but not in above combination. **3**
- 2(1) Premandible with 4 large teeth; mentum with 1st lateral tooth extending as far forward or a little beyond the 2nd lateral. ***Parachironomus frequens* (Johannsen)**
- 2' Premandible with 3 large teeth; mentum with 1st lateral tooth not extending as far forward as the 2nd lateral. ***Parachironomus pectinatellae* (Dendy & Sublette)**
- 3(1') Mentum with median tooth weakly notched medially, 1st lateral tooth lower than 2nd lateral; head capsule entirely pale, with no parts darkened; ventromental plate with strong recurved striae posterolaterally; premandible with only a subapical notch; lentic habitat, associated with curly leaf pondweed (*Potamogeton crispus*).
..... ***Parachironomus* poss. *vitosus* Goetghebuer**
- 3' Mentum with median tooth simple, 1st lateral tooth at same level or higher than 2nd lateral; other characters variable. **4**
- 4(3') Mentum with median tooth dome shaped and along with 1st and 2nd laterals projecting above the other teeth; head capsule entirely pale, with no parts darkened; premandible with three large apical teeth (may be only weakly divided); collected from an impounded portion of a small stream ***Parachironomus* sp. B (sensu Sæther 1977)**
- 4' Mentum with the median tooth apically peaked or pointed; head capsule with at least portions of the mentum and mandible darkened; premandible apically bifid. **5**
- 5(4') Pecten epipharyngis with 3 points. **6**
- 5' Pecten epipharyngis with 5-11 points. **8**
- 6(5) Lateral margin of mentum smooth; ventromental plate with recurved posterolateral striae well developed. ***Parachironomus "abortivus"* (sensu Simpson & Bode 1980)**

- 6' Lateral margin of mentum with fine serrations (may be weak or difficult to see in some specimens); ventomental plate with recurved posterolateral striae weakly developed or absent.....7
- 7(6') Second antennal segment 3/4 to slightly shorter than antennal segments 3 through 5, 3rd antennal segment shorter than 4th; ventomental plate with anterior crenulations pointed.
..... ***Parachironomus carinatus* (Townes)**
- 7' Second antennal segment about 1/2 length of antennal segments 3 through 5, 3rd and 4th segments about equal length; ventomental plate with anterior crenulations rounded.....
.....***Parachironomus directus* (Dendy & Sublette)**
- 8(5') Mentum with median 3 teeth about the same width and height and project above the other lateral teeth, the lateral most tooth usually with anterior serrations; ventomental plate with unusually well developed recurved posterolateral striae that extend under most of the width of the structure; premandible with only weakly developed bifurcation..
.....***Parachironomus potamogeti* (Townes)**
- 8' Mentum with median tooth wider than 1st lateral and not forming a group that projects above other laterals, the lateral most tooth without anterior serrations; ventomental plate with more typically developed recurved posterolateral striae that extend a shorter distance under the structure; premandible with well developed bifurcation.....
.....other ***Parachironomus***
(Species that key here are all very similar looking and probably can not be separated with certainty. Several species (*P. hirtalatus* (Beck & Beck) and *P. tenuicaudatus* (Malloch)) have the penultimate tooth of the mentum higher than the adjacent teeth and would key to *P. hirtalatus* (Beck & Beck) in Simpson and Bode (1980). Other species that key here but don't necessarily have the penultimate tooth higher than the adjacent teeth are *P. hazilriggi* Spies and *P. "Bolton"* (sensu Spies 2000)).

Parachironomus species known to occur in Ohio but have not been positively associated with larvae:

Parachironomus abortivus (Malloch)

Parachironomus chaetoalus (Sublette)

Parachironomus parilis (Walker)

Endochironomus, Phaenopsectra, Sergentia, Synendotendipes, and Tribelos

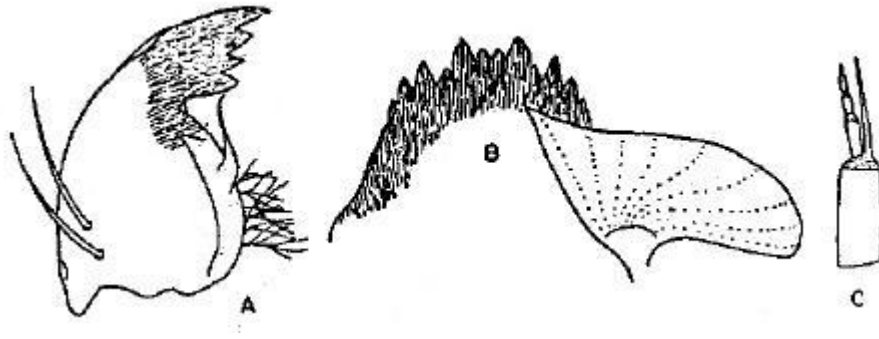
This key includes the Chironomini with: plumose labral S I, five segmented antenna, mentum with even number of teeth in the characteristic pattern of the median four teeth extending beyond the laterals and the median two usually lower than the first laterals, and the ventromental plates with the median ends produced anteriorly and intersecting the mentum between the first and second lateral teeth. For additional keys and descriptions see: Grodhaus (1987a, 1987b).

- 1 Labral S I triangular and plumose only on inner side.....2
- 1' Labral S I plumose on both sides4
- 2(1) Lauterborn organs unusually large and often extends the entire length of A₃; anterior margin of the cardo (area of head capsule integument adjacent to the maxilla) not tuberculate; median teeth of mentum not partially fused; ventromental plates not as elongate; inhabits forested depressional wetlands in Ohio..... ***Synendotendipes* sp. 1**
(The larva of this taxon is similar to *S. luski* Grodhaus except the mandible has only 3 inner teeth instead of 4 and the Lauterborn organs are unusually large.)
- 2' Lauterborn organs not unusually large and extend at most to half the length of A₃; anterior margin of the cardo tuberculate, median teeth of mentum partially fused; ventromental plates unusually elongate.....3
- 3 (2') Mentum with darkened area extending posterior of the base of teeth, 2nd lateral tooth usually distinctly shorter than 3rd; primarily lentic habitats.
..... ***Endochironomus nigricans* (Johannsen)**
- 3' Mentum with the darkened area not extending much past the base of the teeth, 2nd lateral tooth about as long as 3rd; primarily lentic habitats, known from only adults in Ohio.
..... ***Endochironomus subtendens* (Townes)**
- 4(1') Mandible with large notch at base of inner teeth; mentum with lateral two teeth absent and that portion slumping away.....5
- 4' Mandible without notch; mentum with the usual 16 teeth.....6
- 5(4) Mandible with a moderately deep notch; mentum with the lateral area moderately

slumping away; depositional areas of lotic habitats. ***Phaenopsectra flavipes* (Meigen)**

- 5' Mandible with an extremely deep notch; mentum with lateral area extremely slumping away; lentic and depositional areas of lotic habitats.

..... ***Phaenopsectra punctipes* (Wiedemann)**



- 6(4') Mandible with four inner teeth; mature larvae at least 12 mm long; inhabits the sublittoral and profundal of oligotrophic to mesotrophic lakes; not known from Ohio.....

..... ***Sergentia***

- 6' Mandible with three inner teeth; mature larvae usually less than 13 mm long.7

- 7(6') Distance from basal notch of inner mandibular teeth to insertion of seta subdentalis at least $\frac{3}{4}$ distance from basal notch to apical notch of inner teeth; mentum with median teeth the same height or only slightly shorter than 1st laterals.8

(*Tribelos* has traditionally been separated from *Phaenopsectra* by the presence of two medial labral sclerites. However, *T. fuscicorne* and *T. jucundum* are the only Nearctic species with a well developed second labral sclerite. The other species have various gradations of a second labral sclerite and a clypeal suture that are similar to the condition in some *Phaenopsectra*.)

- 7' Distance from basal notch of inner mandibular teeth to insertion of seta subdentalis less than $\frac{3}{4}$ distance from basal notch to apical notch of inner teeth; mentum with median teeth usually distinctly shorter than 1st laterals.9

- 8(7) Premandible with 3 teeth, two large apicals and one small lateral; mentum with 2nd lateral tooth distinctly shorter than 3rd; depositional areas of lotic habitats.

..... ***Phaenopsectra obediens* (Johannsen)**

- 8' Premandible with 4 teeth; mentum with 2nd lateral tooth only slightly shorter than 3rd; known from a single larva from a small stream in SE Ohio. ***Phaenopsectra* sp. 1**

- 9(7') Third antennal segment only as long as wide and completely surrounded by Lauterborn organ; mature larvae with the antennal blade much longer than flagellum; lentic and depositional areas of lotic habitats..... *Tribelos jucundum* (Walker)
- 9' Third antennal segment distinctly longer than wide; antennal blade not distinctly longer than flagellum. **10**
- 10(9') The 2nd lateral tooth distinctly shorter than the 3rd; ventromental plate with distinct striae across face of plate; depositional areas of lotic habitats. *Tribelos fuscicorne* (Malloch)
- 10' The 2nd lateral tooth as long or longer than 3rd; ventromental plate with striae indistinct in middle of plate; inhabits vernal pools..... *Tribelos atrum* (Townes)

Polypedilum

For additional keys and descriptions see Bjørlo et al. (2000), Maschwitz & Cook (2000), Oyewo & Sæther (1998), Rossaro (1985), and Sæther & Sundal (1999).

- 1 Mentum with median teeth lower than first lateral teeth (may be worn flat or into a U shaped depression) or mentum with median teeth the same height as first lateral teeth. ...**2**
- 1' Mentum with first lateral teeth slightly to distinctly lower than the median and second lateral teeth.**7**
- 2(1) The pecten epipharyngis with 3 simple plates; mentum with median teeth lower than first lateral teeth (in later instars the central part of the mentum is usually worn flat or into a U shaped depression); lentic habitat; mining on the top surface of the floating leaves of *Brasenia* (water shield) or *Nymphaea* (water lily).....
..... ***Polypedilum* (s.s.) *braseniae* (Leathers)**
- 2' The pecten epipharyngis with 3 pectinate plates; mentum with median teeth lower than or same height as first lateral teeth; not restricted to *Brasenia* or *Nymphaea***3**
- 3(2') Head triangular shaped, mouth parts unusually small; ventromental plates tear drop shaped, with lateral margin rounded; lotic habitat; associated with hydropsychid caddisfly retreats..... ***Polypedilum* (s.s.) *ontario* (Walley)**
- 3' Head and mouth parts of normal shape and size; ventromental plates semi-circular, lateral margins pointed.**4**
- 4(3') Antennal segment 2 about as long as segments 3, 4, and 5 together.**5**
- 4' Antennal segment 2 considerably shorter than segments 3, 4, and 5 together.**6**
- 5(4) Mentum with teeth about equal height, gradually decreasing laterally, mentum linear shaped; lotic habitat. ***Polypedilum* (s.s.) *fallax* group**
- 5' Mentum with first lateral teeth higher than median and second lateral teeth, mentum arch shaped; lotic habitat; associated with hydropsychid caddisfly pupal retreats.
..... ***Polypedilum* (s.s.) sp. 1**

- 6(4') Mentum with central 6 teeth higher than lateral teeth; lotic habitat.....
***Polypedilum (s.s.) laetum* group**
- 6' Mentum with teeth about equal height except second lateral teeth are slightly higher than adjacent teeth; lentic habitat. ***Polypedilum (Pentapedilum) epleri*** Oyewa and Jacobsen
- 7(1') Ventromental plate with well developed posterolateral lobe.**8**
- 7' Ventromental plate without well developed posterolateral lobe.**9**
- 8(7) Mentum with first lateral teeth only slightly lower than second lateral tooth; antennal segment 2 about twice as long as segments 3, 4, and 5 together; small, cool lotic habitat.
***Polypedilum (Uresipedilum) aviceps* Townes**
- 8' Mentum with first lateral teeth distinctly lower than median and second lateral teeth; antennal segment 2 about as long as segments 3, 4, and 5 together; lotic habitat.....
 ***Polypedilum (Uresipedilum) flavum (Johannsen)***
 (This species until recently was referred to as the Palearctic species *P. convictum* (Walker). I agree with Boesel (1985) that *P. flavum* (as *P. convictum*) and *P. obtusum* Townes should be synonymized due to the similarity of their immature stages and that there is a continuum in the width of the anal point.)
- 9(7') Mentum with 1st lateral tooth only slightly lower than median and 2nd lateral teeth.**10**
- 9' Mentum with 1st lateral tooth distinctly lower than median and 2nd lateral teeth.....**11**
- 10(9) Ventromental plates very broad, width greater than 4 times the distance between the plates, striations not distinct, well developed on in medial part; lentic habitat.....
 ***Polypedilum (Pentapedilum) sordens (van der Wulp)***
- 10' Ventromental plates not as broad, width less than 4 times distance between the plates, striations uniformly distinct; spring stream habitat.
 ***Polypedilum (s.s.) pedatum* Townes**
- 11(9') Antennal segment 3 very short, not as long as wide, antennal segment 5 weakly developed and may be indistinct; ventromental plates wide, width greater than 4 times the distance between the plates.**12**

- 11' Antennal segment 3 longer than wide, antenna always with 5 distinct segments; ventromental plates variable.**13**
- 12(11) Antennal segment 3, 4, and 5 very short, segment 4 about 2 times as long as segment 3; lentic and lotic habitats. *Polypedilum (Tripodura) scalaenum* group
- 12' Antennal segment 4 about 4-5 times longer than segment 3; lentic and lotic habitats.
..... *Polypedilum (Tripodura) halterale* group
- 13(11') Width of ventromental plates # 2 times the distance between the plates.....
.....*Polypedilum (s.s.) illinoense* group **14**
(some members of the *P (s.s.) illinoense* group are difficult to separate and should be verified with reared pupal and adult specimens)
- 13' Width of ventromental plates greater than 2 times the distance between the plates.**18**
- 14(13) Mentum with median teeth distinctly lower than second lateral teeth; associated with the floating leaves of pondweed (*Potamogeton*) in primarily lentic habitats.
..... *Polypedilum (s.s.) bergi* Maschwitz
- 14' Mentum with median teeth about the same height as second lateral teeth; various habitats.....**15**
- 15(14') Mentum with median teeth slightly lower than second lateral teeth; primarily lentic habitats.....
..... *Polypedilum (s.s.) falciforme* Maschwitz and *P. (s.s.) nymphaeorum* Maschwitz
- 15' Mentum with median teeth slightly higher than second lateral teeth; lentic or lotic habitats.....**16**
- 16(15') Lauterborne organs reaching to the apex of antennal segment 3; lotic habitat.
..... *Polypedilum (s.s.) ophioides* Townes
- 16' Lauterborne organs reaching to about mid part of antennal segment 3.....**17**
- 17(16') Antennal segment 3 and 4 about equal in length; lentic and lotic habitats.
..... *Polypedilum (s.s.) illinoense* (Malloch)

- 17' Antennal segments 3 usually distinctly shorter than segment 4; not known from Ohio.....
*Polypedilum (s.s.) angulum* Maschwitz
- 18(13') Mentum with 4th lateral tooth lower than 3rd and 5th; Lauterborn organs large and distinct; lentic habitat..... *Polypedilum (s.s.) trigonus* Townes
- 18' Mentum with lateral teeth gradually decreasing in size; Lauterborn organs variable.19
- 19(18') Labral SI broad apically, with apical border of fine, short filaments; antennal Lauterborn organs indistinct; lentic habitat; not known from Ohio.....
 *Polypedilum (s.s.) nubeculosum* (Meigen)
- 19' Labral SI lanceolate with lateral fringe of long, fine filaments; antennal Lauterborn organs variable.....20
- 20(19') Ventromental plates broad, width \geq 3.9 times the distance between the plates.21
- 20' Ventromental plates not as broad, width \neq 3 times the distance between the plates.22
- 21(20) Antennal Lauterborne organs distinct; ventromental plate width 3.9-4.3 times the distance between the plates; known from a few small acidic streams in SE Ohio.....
 *Polypedilum* sp. 2
- 21' Antennal Lauterborne organs indistinct; ventromental plate width 4.1-4.8 times the distance between the plates; lentic habitats.....
 *Polypedilum (Pentapedilum) tritum* (Walker) variety II
- 22(20') Antennal segments 2, 3, and 4 about equal length or segment 4 slightly shorter than segments 2 and 3, Lauterborne organs indistinct; lentic and small, acidic lotic habitats.....
 *Polypedilum (Pentapedilum) tritum* (Walker) variety I
- 22' Antennal segment 3 distinctly shorter than segments 2 and 4, Lauterborn organs variable; cool lotic habitats..... *Polypedilum (s.s.) albicorne* (Meigen)

TANYTARSINI

- 1 Ventromental plates nearly touching medially, separated by less than the width of the median tooth of the mentum2
- 1' Ventromental plates widely separated, separated by greater than the width of the median three teeth of the mentum; larvae construct transportable tubes of sand or silt.....9
- 2(1) Premandible bifid.3
- 2' Premandible with more than 2 teeth.8
- 3(2) Predicel of Lauterborn organ does not reach past the apical end of antenna segment 4. ...4
- 3' Predicel of Lauterborn organ reaches past the apical end of antenna segment 4.....5
- 4(3) Pedicel of Lauterborn organ shorter than antennal segment 3; pecten epipharyngis with 3-6 simple elongate plates which are joined at their bases; lentic and lotic habitats.
..... *Paratanytarsus* (Part)
- 4' Pedicel of Lauterborn organ as long as antennal segment 3 but do not reach past the apical end of segment 4; pecten epipharyngis a single serrated plate that may have a couple deep incisions.*Rheotanytarsus*
- 5(3') Pedicel of Lauterborn organ 0.9-1.3 times as long as antennal segments 3-5 combined; mentum with the median and 1st lateral teeth about equal width and all reaching about the same level forward; mandible with a pronounced hump on outer margin about 1/3 from base; pecten epipharyngis variable.6
- 5' Pedicel of Lauterborn organ \geq 1.3 times as long as antennal segments 3-5 combined; mentum with the apices of the lateral teeth generally sloping away posteriorly from the median tooth; mandible without a pronounced hump on outer margin; pecten epipharyngis with 3 apically serrated plates.....7
- 6(5) Pecten epipharyngis with 3 simple elongate plates; mentum with 11 teeth; lotic habitat....
..... *Sublettea*
(*Sublettea coffmani* (Roback) is the only known Nearctic species)

- 6' Pecten epipharyngis with 3 apically serrated plates; the mentum with 9 or 11 teeth; known in Ohio from a few small high quality streams.....***Neozavrelia***
- 7(5') Pedestal of antenna with an apical spur; pedicel of Lauterborn organ longer than 2 times as long as antennal segments 3-5 combined.***Micropsectra***
- 7' Pedestal of antenna without apical spur; pedicel of Lauterborn organ 1.3-1.7 times as long as antennal segments 3-5 combined. ***Paratanytarsus*** (Part)
(The only species that keys here, *Paratanytarsus longistilus* Bolton et al. (In Press), inhabits cool streams; Epler, 2001 keyed this species as *Micropsectra* sp. D.)
- 8(2') Lauterborn organs large, situated on pedicels which are shorter than antennal segments 3-5 combined; lentic and lotic habitats.***Cladotanytarsus***
- 8' Lauterborn organs small, situated on pedicels which are usually as long or longer than antennal segments 3-5 combined; lentic and lotic habitats..... ***Tanytarsus***
- 9(1') Lauterborn organs originating at different heights on antennal segment 2, one proximally and one distally; transportable tube straight sided and only slightly tapered; lentic and lotic habitats.***Stempellinella, Zavrelia***
(The characters used to separate the immature stages of these two genera do not hold up for the Nearctic species. These genera probably should be recombined under the name *Zavrelia*)
- 9' Lauterborn organs both originating from distal end of antennal segment 2; transportable tube curved and tapered.**10**
- 10(9') Antennal pedestal with conspicuous palmate process.**11**
- 10' Antennal pedestal with simple apical spur only.**12**
- 11(10) Antennal pedestal with a blade like process in addition to the palmate process; procercus highly developed into strongly sclerotized, apically palmate structure; spring habitat.
.....***Neostempellina reissi* Caldwell**
(These larvae have historically been placed in *Stempellina*; Caldwell (2000) described *N. reissi* based on adult specimens; Caldwell & Bode (In Press) will document the association of the immature stages with *N. reissi* and describe them. Epler (2001) keyed this species as

Stempellina sp. C.)

- 11' Antennal pedestal with only the palmate process; procercus at most only weakly developed into an apically palmate structure; lentic and lotic habitats.***Stempellina***
- 12(10') Head capsule with the anterior frontoclypeal apotome setae (S3) unusually large and highly branched or flattened with serrations along the edges; spring habitat.
**"*Constempellina*" sp. 1**
 (These larvae have historically been placed in *Constempellina*, but the pupae more closely resemble *Neostempellina*. Epler (2001) keyed this taxa as *Constempellina* sp. A and B.)
- 12' Head capsule with the anterior frontoclypeal apotome setae (S3) of usual size and not highly branched; inhabits small mountain streams; not known from Ohio.
***Constempellina***

Nearctic genera not keyed:

Corynocera: reported from northern Nearctic.

Krenopsectra: associated larvae are not known for specimens reported from W. Canada

Parasectra: associated larvae are not known for adult specimens collected from a mountain area in NC.

Pontomyia: a marine taxa only reported from Florida.

Skutzia: associated larvae are not known for adult specimens collected from a mountain seep in NC.

Cladotanytarsus

- 1 Mentum with first pair of lateral teeth very small and close to median tooth, thus mentum appears to consist of a compound median tooth and 4 pairs of separate lateral teeth. ***Cladotanytarsus* species group A (Pinder & Reiss 1983)**
- 1' Mentum not as above.....**2**
- 2(1') Mentum with teeth progressively diminishing in size laterally.

- *Cladotanytarsus vanderwulpi* group
- 2' Mentum with second pair of lateral teeth much smaller than adjacent teeth.
- *Cladotanytarsus mancus* group

Neozavrelia

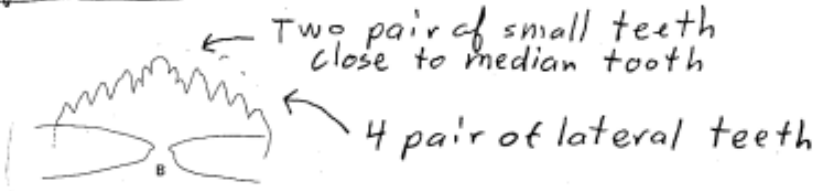
- 1 Mentum with 9 teeth (a minute 5th pair is sometimes evident), 2nd lateral tooth projecting about as far forward as the median three teeth; antenna with pedicel of Lauterborn organ about 1.1 times the length of antenna segments 3-5 combined.
- *Neozavrelia* sp. 1
(I've seen specimens from a few small high quality streams in Ohio and from Maryland and N.C.)
- 1' Mentum with 11 teeth, 2nd lateral tooth not projecting as far forward as median three teeth; antenna with pedicel of Lauterborn organ about 1.3 times the length of antenna segments 3-5 combined. *Neozavrelia* sp. 2
(I've seen a specimen from Arkansas and this may be the same as *Tanytarsus* sp. 3 in Oliver et al. (1978) from N.W.T. or Y.T.)

Rheotanytarsus

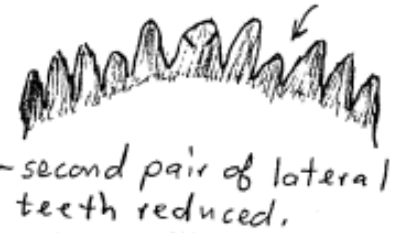
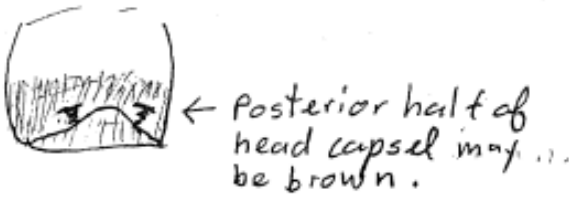
- 1 The pigmentation of the gular margin rounded, following the outline of the head capsule margin; the ventromental plates look thicker; the median tooth of the mentum is broader; the head capsule is more round; antennal ratio usually less than 2.0; larval tube attached at end of a petiole..... *Rheotanytarsus pellucidus* (Walker)
[This species has historically been referred to as *R. distinctissimus* (brundin)]
- 1' The pigmentation of the gular margin triangular, not following the outline of the head capsule; the ventromental plates are less thick looking; the median tooth of the mentum is not as broad; the head capsule is more elongate; antennal ratio 2.0 or greater; larval tube attached along one side. *Rheotanytarsus* sp.

Cladotanytarsus

species group A

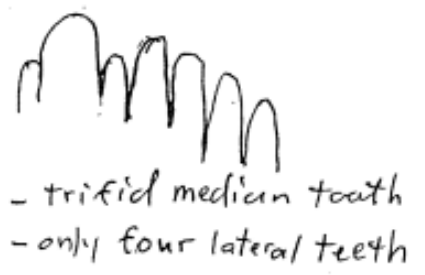


manicus group



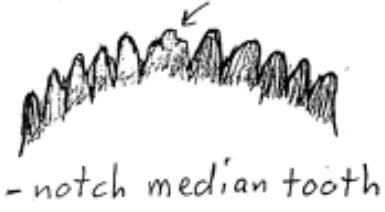
species group B

- Colneaut Cr.
- Grand R.

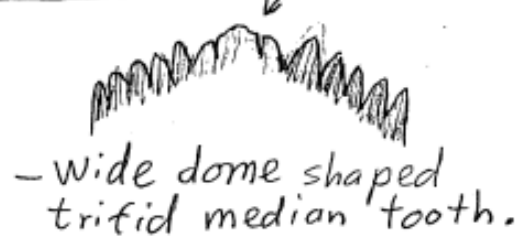


Vanderwulpi group

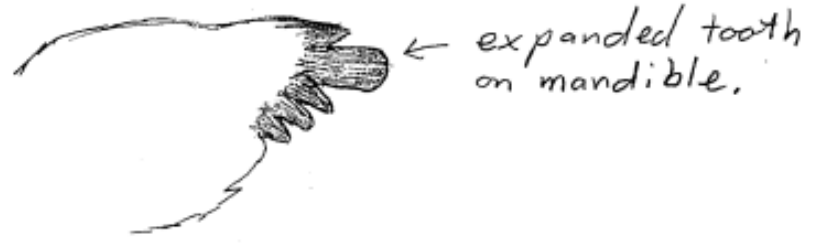
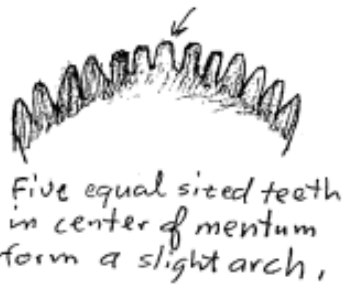
Type 1



Type 2



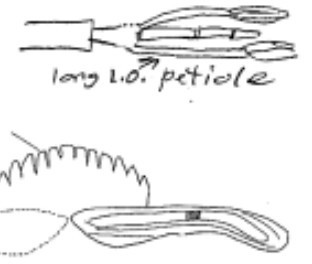
Type 3



Type 4



Type 5



Stempellinella and *Zavrelia*

- 1 Spur of antenna pedestal 55-63_F long, curved, and attached subapically; anterior frontoclypeal apotome setae (S3) forked; lotic habitat.
*Stempellinella fimbriata* Ekrem
- 1' Spur of antenna pedestal # 30_F long, curved or straight, and attached apically; anterior frontoclypeal apotome setae (S3) simple or forked.**2**
- 2(1') Anterior frontoclypeal apotome setae (S3) forked; spur of antenna pedestal 30-37_F long and gently curved; known from mountain streams in PA and NC and small spring fed streams in Ohio.*Stempellinella boltoni* Ekrem
- 2' Anterior frontoclypeal apotome setae (S3) simple; spur of antenna pedestal usually less than 30_F long and either gently curved or straight.**3**
- 3(2') Spur of antenna pedestal 15-18_F long and gently curved; transportable tube constructed of silt sized particles; inhabits small streams.
*Stempellinella leptocelloides* (Webb)
- 3' Spur of antenna pedestal 23-28_F long and straight; transportable tube constructed of sand sized particles; inhabits springs.*Zavrelia* n. sp. **1**

Tanytarsus

- 1 Pedestal of antenna with long (about 25-30_F long) tapered apical spur (may be difficult to see when viewed through rest of head capsule); median tooth of mentum pale and only weakly notched.*Tanytarsus curticornis* Kieffer
- 1' Pedestal of antenna with at most a short, blunt apical spur.**2**
- 2(1') Mandible with 2 dorsal teeth and 2 additional teeth on inner surface.

-***Tanytarsus glabrescens* group** [sensu Simpson & Bode (1980)]
- 2' Mandible with only 1 dorsal tooth and no additional teeth on inner surface.....**3**
- 3(2') Clypeal setae (S3) plumose (very bushy looking with many fine dissections, also usually weakly bifid); median tooth of mentum with pale center; pedicel of Lauterborn organ about 3.5-4 times as long as antennal segments 3-5; antennal segment 2 with basal 1/2 usually more distinctly sclerotized than distal 1/2.....***Tanytarsus sepp* Ekrem *et al.***
(This species was until recently referred to as *T guerlus* group; Epler (2001) keyed it as *T. sp. A*)
- 3' Larva with other combination of characters; clypeal setae (S3) may be branched or plumose but never as thickly dissected.....**4**
- 4(3') Antennal segment 2 with a narrow ring near its base separated from the remainder of the segment buy a narrow unsclerotized area; median tooth of mentum pale and divided into 3 equal lobes; clypeal setae (S3) thick and usually forked or serrate.....***Tanytarsus sp. 1***
(Keyed by Epler (2001) as *T. sp. O*)
- 4' Larva with other combination of characters.other ***Tanytarsus***

***Tanytarsus glabrescens* group**

(=*T. recurvatus* group of Reiss & Fittkau, 1971)

- 1 Median 3 teeth of mentum grouped together and more or less project above other teeth. **2**
- 1' Median 3 teeth of mentum not grouped together, lateral teeth gradually decreasing evenly.**5**
- 2(1) Clypeal setae (S3) equally forked with a few lateral serrations; second antenna segment usually as long or longer than 1/2 the length of the first antenna segment; lotic habitat.
.....***Tanytarsus glabrescens* group species 4**
- 2' Clypeal setae (S3) not forked but may have a few lateral serrations; second antenna segment usually as long as or shorter than 1/2 the length of the first antenna segment.**3**
- 3(2') Group of three median teeth of mentum strongly separated from lateral teeth; lentic habitat.***Tanytarsus glabrescens* group species 6**

- 3' Group of three median teeth of mentum weakly to moderately separated from lateral teeth; lotic habitat.4
- 4(3') First antenna segment about 50 F long; this taxa has rarely been identified from streams in NE and SE Ohio; **Remember** that measurements are only valid for fourth instar larvae. *Tanytarsus glabrescens* group species 5
- 4' First antenna segment 75-125 F long; this is the most common species of this group in Ohio's lotic habitats. *Tanytarsus glabrescens* group species 7
- 5(1') The posterior 1/3 of head capsule dark brown; antenna segment 2 greater than 1/2 length of first antenna segment; lotic habitat..... *Tanytarsus glabrescens* group species 1
- 5' The head capsule unpigmented; antenna segment lengths variable; lentic habitat.....6
- 6(5') Second antenna segment greater than 1/2 length of first antenna segment.....
..... *Tanytarsus glabrescens* group species 2
- 6' Second antenna segment equal to or shorter than 1/2 length of first antenna segment.....
..... *Tanytarsus glabrescens* group species 3

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Checklist of Ohio Chironomidae (Diptera)

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The family Chironomidae (commonly known as midges) is a diverse and abundant group of flies (Diptera). This is a list of all the taxa known from Ohio that have personally been examined by the author or are listed in revisionary publications. Taxa are listed alphabetically within subfamily and in the case of the Chironominae also grouped by tribe. Each taxa is listed (if known) with the genus name, species name, species author, life history stages examined by the author from Ohio, and any published revisionary references, other than those based at least in part on my specimens. Taxa I have not personally examined from Ohio are indented. The life history stage abbreviations are: L = larva, P = pupa, M = adult male, and F = adult female. Stages that are not separated by a coma are directly associated with each other. Life history stages that are bases on specimens that are only visible inside the preceding stage (pharate) are placed in parentheses. The life history stages are listed because it is important to know what stage or stages the species identification is based on. Some taxa are best separated from similar taxa by only one or two stages.

Podonominae (2)

Boreochlus persimilis (Johannsen); L,M
Paraboreochlus stahli Coffman; P,M

Tanypodinae (69)

Ablabesmyia (s.s.) aspera (Roback); LPM
Ablabesmyia (s.s.) janta Roback var. II [sensu Roback (1985)]; LPF
Ablabesmyia (s.s.) mallochi (Walley); LPMF
Ablabesmyia (s.s.) monilis (Linnaeus); LPM
Ablabesmyia (s.s.) rhamphe Sublette; LPM
Ablabesmyia (s.s.) simpsoni Roback; L(P)
Ablabesmyia (Asayia) annulata (Say); LP; Boesel (1972)
Ablabesmyia (Karelia) ideii (Walley); LPM
Ablabesmyia (Karelia) peleensis (Walley); LPMF
Alotanypus venustus (Coquillett); LPM
Apsectrotanypus johnsoni (Coquillett); LPF
Bethbilbeckia floridensis Fittkau & Murray; LPF

Brundiniella eumorpha (Sublette); L,M
Cantopelopia gesta Roback; LPMF
Clinotanypus pinguis (Loew); LPMF; Boesel (1974)
Coelotanypus concinnus (Coquillett); L(P); Roback (1971), Boesel (1974)
 Coelotanypus scapularis (Loew); Roback (1971), Boesel (1974)
Conchapelopia aleta Roback; LPM
Conchapelopia fasciata Beck & Beck; LPM
Conchapelopia pallens (Coquillett); LPM
Conchapelopia rurika (Roback); LPMF
Conchapelopia telema Roback; LPM
Guttipelopia guttipennis (van der Wulp); LPF
Hayesomyia senata (Walley); LPMF
Helopelopia cornuticaudata (Walley); LPMF
Helopelopia n. sp. 1; LPMF
Helopelopia n. sp. 2; M
Krenopelopia hudsoni Roback; LPF
Labrundinia becki Roback; L(P)
Labrundinia johannseni Beck & Beck; L(P)
Labrundinia maculata Roback; L(P)
Labrundinia neopilosella Beck & Beck; LPMF
Labrundinia pilosella (Loew); LPMF
Larsia bernerii Beck & Beck; LPF
Larsia canadensis Bilyj; LPM
Larsia decolorata (Malloch); LPMF
Larsia indistincta Beck & Beck; LPMF; not a syn. of *L. decolorata* (B. Bilyj, pers. comm.)
Larsia n. sp. 1 (B. Bilyj, pers. comm.); LPF,M
Larsia n. sp. 2 (B. Bilyj, pers. comm.); LP
Larsia n. sp. 3 (B. Bilyj, pers. comm.); P
Macropelopia decedens (Walker); LPF
Meropelopia americana (Fittkau); LPMF
Meropelopia flavifrons (Johannsen); LPMF
Monopelopia tenuicalcar (Kieffer); LPMF
Natarsia baltimorea (Macquart); LPF,M
Natarsia species A (Roback 1978); LP; Roback (1978)
Nilotanypus fimbriatus (Walker); LPM
Paramerina fragilis (Walley); LPMF
Paramerina smithae (Sublette); LPF
Paramerina sp. 1; L(P)
Pentaneura inconspicua (Malloch); LPM
Pentaneura sp. 1; LPF
Procladius (Holotanypus) freemani Sublette; LPM; Roback (1971)
Procladius (Holotanypus) sublettei Roback; LPM
Procladius (Psilotanypus) bellus (Loew); LPM; Roback (1971)
Psectrontanypus dyari (Coquillett); LPMF
Radotanypus florens (Johannsen); LPMF
Rheopelopia acra (Roback); LP

Rheopelopia paramaculipennis Roback; LPMF
Tanypus (Apelopia) neopunctipennis Sublette; LPM
Tanypus (s.s.) carinatus Sublette; LP
 “*Tanypus (s.s.) punctipennis* Meigen” [sensu Roback (1977)]; LPM
Tanypus (s.s.) stellatus Coquillett; L(P); Roback (1971, 1977)
Telopelopia okoboji (Walley); LP
Thienemannimyia norena (Roback); LP,M
Trissopelopia ogemawi Roback; LPF,M
Zavrelimyia bifasciata (Coquillett); LPMF
Zavrelimyia sinuosa (Coquillett); LPMF
Zavrelimyia thryptica (Sublette); LPM

Diamesinae (6)

Diamesa nivoriunda (Fitch); LPMF
Lappodiamesa boltoni Sæther & Willassen; LPMF
Pagastia orthogonia Oliver; L
Pothastia gaedii group; L
Pothastia longimana Kieffer; L(P)
Sympothastia n. sp. 1; LPMF

Prodiamesinae (4)

Monodiamesa depectinata Sæther; LPF
Monodiamesa tuberculata Sæther; LP
Odontomesa ferringtoni Sæther; LPMF
Prodiamesa olivacea (Meigen); LPM

Orthoclaadiinae (183)

Acricotopus nitidellus (Malloch); LPM
Antillocladius pluspilalus Sæther; M
Brillia flavifrons (Johannsen); LPMF
Brillia parva Johannsen; LPMF
Bryophenocladus near *fumosinus* (Curran) or *vernalis* (Goetghebuer) sp. 1; M
Bryophenocladus near *fumosinus* (Curran) or *vernalis* (Goetghebuer) sp. 2; M
Bryophenocladus nitidicollis (Goetghebuer); M
Bryophenocladus near *psilacrus* Sæther or *subvernalis* (Edwards); M
Bryophenocladus sp. 1; M
Camptocladus stercorarius van der Wulp; M
Cardiocladus albiplumus Sæther; L(P)
Cardiocladus obscurus (Johannsen); LPMF
Chaetocladus piger (Goetghebuer); LPMF
Chaetocladus vitellinus group; L
Chaetocladus sp. 1; L,P,M
Chasmatonotus atripes Rempel; Arntfield (1977)

Chasmatonotus unimaculatus Loew; LPM,F
Comptosmittia nerius (Curran); M
Corynoneura edwardsi Brundin; LPMF
Corynoneura lobata Edwards; LPMF
Corynoneura scutellata Winnertz; L
Corynoneura prob. n. sp. [same as “*C. celeripes* Winnertz” in Simpson and Bode (1980)]; LPMF
Corynoneura prob. n. sp. 1; LPMF
Corynoneura prob. n. sp. 2; LPM
Corynoneura prob. n. sp. 4; LPMF
Corynoneura prob. n. sp. 5; LPMF
Corynoneura sp. 6; LPM
Corynoneura prob. n. sp. 8; LPMF
Corynoneura prob. n. sp. 9; LPMF
Corynoneura sp. 10; L,P
Corynoneura sp. 11; LP(M)
Corynoneura sp. 12; L(P)
Cricotopus (*s.s.*) *annulator* Goetghebuer; PM
Cricotopus (*s.s.*) *bicinctus* (Meigen); LPM; Boesel (1983)
Cricotopus (*s.s.*) *cylindraceus* group; LP
 Cricotopus (*s.s.*) *elegans* Johannsen; Boesel (1983)
Cricotopus (*s.s.*) *festivellus* (Kieffer); M
Cricotopus (*s.s.*) *infuscatus* (Malloch); LPM; Boesel (1983)
Cricotopus (*s.s.*) *luciae* LeSage & Harrison; LPM(F)
Cricotopus (*s.s.*) *politus* (Coquillett); LPM; Boesel (1983)
Cricotopus (*s.s.*) *slossonae* Malloch; LPM; Boesel (1983) (as *C. varipes*)
Cricotopus (*s.s.*) *triannulatus* (Macquart); LPMF; Boesel (1983)
Cricotopus (*s.s.*) *trifascia* Edwards; LP,M; Boesel (1983)
Cricotopus (*s.s.*) *varipes* Coquillett; PM; Boesel (1983)
Cricotopus (*s.s.*) *vierrienses* Goetghebuer; LPM; Boesel (1983)
Cricotopus (*s.s.*) sp. 4; P; [= *C. (s.s.)* NA12 in Langton & Coffman (in prep.)]
Cricotopus (*Isocladius*) *absurdus* (Johannsen); LP(MF); Boesel (1983)
Cricotopus (*Isocladius*) sp. near *absurdus* (Johannsen); L
Cricotopus (*Isocladius*) *flavipes* Johannsen; L; Boesel (1983)
Cricotopus (*Isocladius*) *intersectus* group; L
Cricotopus (*Isocladius*) *reversus* group; L
Cricotopus (*Isocladius*) *sylvestris* (Fabricius); LPM; Boesel (1983)
Cricotopus (*Isocladius*) *tricinctus* (Meigen); LPM; Boesel (1983)
 Cricotopus (*Isocladius*) *trifasciatus* (Meigen); Boesel (1983)
 Cricotopus (*Nostococladius*) *nostocicola* Wirth; Boesel (1983)
 Cricotopus *diversus* Boesel; Boesel (1983)
Diplocladius cultriger Kieffer; LPMF
Doithrix villosa Sæther & Sublette; M
Doncricotopus bicaudatus Sæther; LP
Epoicocladius flavens (Malloch); L
Epoicocladius species 3 [sensu Jacobsen (1992)]; L
Eukiefferiella brehmi group sp. 1; L

Eukiefferiella brevicealcar group sp. 1; LPMF; [= E. NA9 in Langton & Coffman (in prep.)]
Eukiefferiella claripennis (Lundbeck); LPMF
Eukiefferiella gracei group sp. 1; LPMF; [= E. NA5 in Langton & Coffman (in prep.)]
Eukiefferiella ilkleyensis (Edwards); LPMF
Eukiefferiella tirolensis Goetghebuer; LPMF
Eukiefferiella unknown group sp. 1; LPM; [= E. NA1 in Langton & Coffman (in prep.)]
Georthocladius (Atelopodella) sp.; L
Georthocladius (s.s.) near *luteicornis* (Goetghebuer); LPF
Gymnometiognemus (s.s.) subnudus (Edwards); M
Gymnometiognemus (Raphidocladius) brumalis (Edwards); P,M
Heleniella hirta Sæther; LPM
Heterotrissocladius boltoni Sæther; LPMF
Heterotrissocladius marcidus (Walker); LPMF
Hydrobaenus spp. (6); LPMF
Krenosmittia sp. 1; L,P,M
Krenosmittia poss. n. sp.; M
Limnophyes asquamatus Andersen; LPF
Limnophyes bracytomus (Kieffer); M
Limnophyes carolinensis Sæther; M,F
Limnophyes fumosus (Johannsen); LPMF
Limnophyes hastulatus Sæther; M
Limnophyes minimus (Meigen); LPMF
Limnophyes natalensis (Kieffer); M
Lipurometriognemus vixlobatus Sæther, M
Lopescladius sp.; L
Mesocricotopus loticus Caldwell; LPMF
Mesosmittia prolixa Sæther; M
Metriognemus eurynotus (Holmgren); LPMF
Metriognemus knabi Coquillett; LPM
Metriognemus sp. 1; P(F)
Nanocladius (s.s.) alternantherae Dendy & Sublette; LPMF
Nanocladius (s.s.) crassicornus Sæther; LPM
Nanocladius (s.s.) distinctus (Malloch); LPM
Nanocladius (s.s.) incomptus Sæther; P
Nanocladius (s.s.) minimus Sæther; LPM
“*Nanocladius (s.s.) rectinervis* (Kieffer)” [sensu Simpson & Bode (1980)]; LPM
Nanocladius (s.s.) spiniplenus Sæther; LP
Nanocladius (Plecopteracoluthus) downesi (Steffan); LPMF
Orthocladius (Eudactylocladius) dubitatus Johannsen; LPMF
Orthocladius (Euorthocladius) luteipes Goetghebuer; P
Orthocladius (Euorthocladius) rivicola Kieffer; LPM
Orthocladius (Euorthocladius) rivulorum Kieffer; LPM
Orthocladius (Euorthocladius) thienemanni Kieffer; LPM
Orthocladius (Mesorthocladius) lamellatus Sæther; LPMF
Orthocladius (Mesorthocladius) nimidens Sæther; LPMF
Orthocladius (s.s.) carlatus (Roback); LPM

Orthocladius (s.s.) dorenius (Roback); LP,M
Orthocladius (s.s.) ferringtoni Soponis; LPM
Orthocladius (s.s.) mallochi Kieffer; LPM
Orthocladius (s.s.) oliveri Soponis; LPMF
Orthocladius (s.s.) robacki Soponis; LPM
Orthocladius (s.s.) rubicundus (Meigen); P
Orthocladius (s.s.) tryoni Soponis; M
Orthocladius (Symposiocladius) lignicola Kieffer; LPM
Orthocladius (Symposiocladius) n. sp. 1; LPM
Parachaetocladius abnobaesus (Wülker); LP(F),M
Paracricotopus millrockensis Caldwell; LPMF
Parakiefferiella prob. coronata (Edwards); LPF
Parakiefferiella n. sp. 1; LPM
Parakiefferiella n. sp. 2; LPM
Parakiefferiella n. sp. 5; LPMF
Parametriocnemus hamatus (Johannsen); LPMF
Parametriocnemus lundbeckii (Johannsen); LPMF
Parametriocnemus species A [sensu Sæther (1969)]; L
Parametriocnemus sp. 2; L,M
Paraphaenocladius exagitans (Johannsen); LPM
Paraphaenocladius pseudirritus Strenzke; LPM
Paraphaenocladius sp. 1; M
Paratrichocladius rufiventris (Meigen); LPM
Platysmittia fimbriata Sæther; P
Psectocladius (Allopsectrocladius) sp. 1; P,M
Psectocladius (Allopsectrocladius) sp. 2; LP(M)
Psectrocladius (s.s.) semicirculatus Sæther; LPM
Psectrocladius (s.s.) simulans (Johannsen); LPMF
Psectrocladius (s.s.) sordidellus group; L
Psectrocladius (s.s.) vernalis (Malloch); LPMF
Psectrocladius (s.s.) NA 2 [sensu Langton & Coffman (in prep.)]; LPM
Pseudorthocladius (Lordella) wingoi Sæther & Sublette; M
Pseudorthocladius (s.s.) poss. curtistylus Goetghebuer; M
Pseudorthocladius (s.s.) destitutus Sæther & Sublette; M
Pseudorthocladius (s.s.) morsei Sæther & Sublette; M
Pseudorthocladius (s.s.) nr. pilosipennis Brundin; M,F
Pseudorthocladius (s.s.) rectangilobus Caspers & Siebert; M
Pseudorthocladius (s.s.) uniserratus Sæther & Sublette; M
Pseudosmittia n. sp. near forcipata (Goetghebuer); M
Pseudosmittia nansenii (Kieffer); M
Psilometriocnemus triannulatus Sæther & Schnell; LPMF
Rheocricotopus (Psilocricotopus) glabricollis (Meigen); LPMF
Rheocricotopus (Psilocricotopus) robacki (Beck & Beck); LP(M)
Rheocricotopus (s.s.) effusoides Sæther; LPF
Rheocricotopus (s.s.) eminellobus Sæther; LPM
Rheocricotopus (s.s.) unidentatus Sæther & Schnell; LPMF

Rheocricotopus (s.s.) n. sp. 1; LPM(F)
Rheocricotopus (s.s.) n. sp. 2; L
Rheosmittia spinicornis (Brundin); L,P
Smittia poss. *aterrima* (Meigen) or *lasiops* (Malloch); M
Smittia poss. *edwardsi* Goetghebuer; M
Smittia poss. *nudipennis* (Goetghebuer); M
Smittia sp. 2; M
Smittia sp. 6; M
Stilocladius clinopecten Sæther; L,P,M
Stilocladius n. sp. 1; LPF,M
Synorthocladius semivirens (Kieffer); LP(M)
Tavastia cristacauda Sæther; M
Thienemanniella boltoni Hestenes & Sæther; LPMF
Thienemanniella lobapodema Hestenes & Sæther; LPMF
Thienemanniella similis (Malloch); LPF(M)
Thienemanniella taurocapita Hestenes & Sæther; LPMF
Thienemanniella xena (Roback); LPMF
Tokunagaia n. sp. near *scutellata* (Brundin); LPM
Tvetenia bavarica group sp. 1; LP; [= *T. calvescens* (Edwards) in Langton & Coffman (in prep.)]
Tvetenia paucunca (Sæther); LPMF
Tvetenia discoloripes group sp. 1; LP; [= *T. NA2* in Langton & Coffman (in prep.)]
Xylotopus par (Coquillett); L,M
Orthocladiinae species C [sensu Sæther (1982)]; L
Unknown genus near *Rheosmittia*; P; [= Orthocladiinae unk. gn. unk. sp. NA4 in Langton & Coffman (in prep.)]

Chironominae (233)

Chironomini

Apedilum sp.; LP
Axarus sp.; L,P
Chironomus (Camptochironomus) tentans Fabricius; M
Chironomus (Chaetolabis) atroviridis (Townes); M; Townes (1945)
Chironomus (Chaetolabis) ochreatus (Townes); M
Chironomus (s.s.) anthracinus group; L
Chironomus (s.s.) crassicaudatus Malloch; L
Chironomus (s.s.) decorus Johannsen; LPM; Townes (1945)
Chironomus (s.s.) halophilus group; L
Chironomus (s.s.) maturus Johannsen; M
Chironomus (s.s.) plumosus (Linnaeus); Townes (1945)
Chironomus (s.s.) plumosus group; L
Chironomus (s.s.) riparius Meigen; LPM; Townes (1945)
Chironomus (s.s.) staegeri Lundbeck; L
Chironomus (s.s.) stigmaterus Say; LP(M); Townes (1945)
Chironomus (s.s.) sp. 1; LP
Chironomus (s.s.) sp. "Florida" [sensu Epler (2001)]; L
Chironomus (Lobochironomus) longipes Staeger; LPMF; Townes (1945) (as *Einfeldia dorsalis*)

Cladopelma collator (Townes); LPM; Townes (1945)
Cladopelma galeator (Townes); LPM
Cladopelma viridula (Linnaeus); Townes (1945)
Cryptochironomus conus Mason; LPM
Cryptochironomus curryi Mason; LPM
Cryptochironomus digitatus (Malloch); Townes (1945)
Cryptochironomus eminentia Mason; LP(M)
Cryptochironomus fulvus (Johannsen); LP
Cryptochironomus ponderosus (Sublette); LPM
Cryptochironomus psittacinus (Meigen); LP
Cryptochironomus NA2 [sensu Langton & Coffman (in prep.)]; P
Cryptochironomus NA 6 [sensu Langton & Coffman (in prep.)]; P
Cryptochironomus poss. NA 8 [sensu Langton & Coffman (in prep.)]; P
Cryptotendipes emorsus (Townes); M; Townes (1945)
Cryptotendipes pseudotener (Goetghebuer); LPMF
Cryptotendipes sp. 1; L(P)
Demeijerea brachialis (Coquillett); LPMF
Demicryptochironomus fastigatus (Townes); L,M
Demicryptochironomus poss. sp. A [sensu Epler (2001)]; L
Demicryptochironomus sp. C [sensu Epler (2001)]; L
Dicrotendipes fumidus (Johannsen); LPM
Dicrotendipes lucifer (Johannsen); LPM
Dicrotendipes modestus (Say); LPM; Townes (1945), Epler (1987)
Dicrotendipes neomodestus (Malloch); LP(M); Epler (1987)
Dicrotendipes nervosus (Staeger); M
Dicrotendipes simpsoni Epler; LP
Dicrotendipes tritomus (Kieffer); LPM
Einfeldia natchitochaeae (Sublette); LP
Einfeldia paganus (Meigen); M
Einfeldia sp. 1; L
Endochironomus nigricans (Johannsen); LPM
Endochironomus subtendens (Townes); M
Endotribelos hesperium (Sublette); L(P)
Gillotia prob. *alboviridis* (Malloch); L
Glyptotendipes (Caulochironomus) dreisbachi Townes; LPF
Glyptotendipes (Caulochironomus) senilis (Johannsen); LPM
Glyptotendipes (Caulochironomus) sp. 1; LP
Glyptotendipes (s.s.) barbipes (Staeger); LP(M)
Glyptotendipes (s.s.) lobiferus (Say); LPM; Townes (1945)
Glyptotendipes (s.s.) meridionalis Dendy & Sublette; LPM
Glyptotendipes (s.s.) testaceus townes; LPMF
Glyptotendipes (s.s.) n. sp. 1 (M. Heyn, pers. comm.); LP
Glyptotendipes (Trichotendipes) amplus Townes; LPMF
Goeldichironomus holoprasinus (Goeldi); LPF
Harnischia curtilamellata (Malloch); L,M
Harnischia sp. 1; L

Hyporhygma quadripunctatum (Malloch); LP(M)
Kiefferulus (s.s.) dux (Johannsen); LPMF; Townes (1945)
Kiefferulus (Wirthiella) pungens (Townes); LPMF
Kloosia sp.; L
Lauterborniella agrayloides (Kieffer); L,P,M
Lipiniella sp.; L,P
Microchironomus sp.; L
Microtendipes caducus Townes; LPM
Microtendipes pedellus (De Geer); LPMF; Townes (1945)
Microtendipes rydalensis (Edwards); LP(M)
Microtendipes sp. 1; LPM
Nilothauma babyi (Rempel); LP(M)
Nilothauma poss. n. sp. nr. *babyi* (Rempel); M
Nilothauma mirabile (Townes); M
Omisus pica Townes; L,M
Pagastiella sp.; L
Parachironomus abortivus (Malloch); M
Parachironomus "abortivus (Malloch)" [sensu Simpson & Bode (1980)]; LP(M)
Parachironomus carinatus (Townes); LPM
Parachironomus chaetoalus (Sublette); M
Parachironomus directus (Dendy & Sublette); LPM
Parachironomus frequens (Johannsen); LPM
Parachironomus hazelriggi Spies; LPM
Parachironomus hirtalatus (Beck & Beck); LPM
Parachironomus parilis (Walker); M
Parachironomus pectinatellae (Dendy & Sublette); LPMF
Parachironomus potamogeti (Townes); LPM
Parachironomus tenuicaudatus (Malloch); LPM; Townes (1945)
Parachironomus poss. *vitiosus* Goetghebuer; L
Parachironomus n. sp. 2 ["*P. sp. B*" sensu Sæther (1977)]; LP(MF)
Parachironomus n. sp. 3 ["*P.sp. Bolton*" sensu Spies (2000)]; LPMF
Parachironomus sp. 4 ["*P. unresolved*" sensu Spies (2000)]; LPM
Paracladopelma nais (Townes); LPMF
Paracladopelma nereis (Townes); L
Paracladopelma undine (Townes); LPF,M
Paralauterborniella nigrohalteralis (Malloch); LPMF
Paratendipes albimanus (Meigen); LPMF
Paratendipes basidens Townes; L
Paratendipes duplicatus (Johannsen); LPM
Paratendipes subaequalis (Malloch); LPM
Paratendipes sp. 1; L
Phaenopsectra obediens (Johannsen); LPMF
Phaenopsectra flavipes (Meigen); LPM
Phaenopsectra punctipes (Wiedemann); LPM
Phaenopsectra sp. 1; L
Polypedilum (Cerobregma) ontario (Walley); LP(M); Boesel (1985)

Polypedilum (Pentapedilum) epleri Oyewo & Jacobsen; LPMF
Polypedilum (Pentapedilum) sordens (van der Wulp); LP; Boesel (1985)
Polypedilum (Pentapedilum) tritum (Walker); LPMF; Boesel (1985)
Polypedilum (s.s.) albicorne (Meigen); LPM; Boesel (1995)
Polypedilum (s.s.) bergi Maschwitz; LPM
Polypedilum (s.s.) braseniae (Leathers); LPMF
 Polypedilum (s.s.) calopterus (Mitchell); Boesel (1985)
Polypedilum (s.s.) falciforme Maschwitz; LPMF
Polypedilum (s.s.) fallax (Johannsen); LPM; Boesel (1985)
Polypedilum (s.s.) illinoense (Malloch); LPM; Boesel (1985)
Polypedilum (s.s.) nymphaeorum Maschwitz; LPM
Polypedilum (s.s.) ophioides Townes; LPM; Townes (1945)
Polypedilum (s.s.) pedatum Townes; M
Polypedilum (s.s.) trigonus Townes; LPMF; Boesel (1985)
Polypedilum (s.s.) tuberculum Maschwitz; LPM
Polypedilum (s.s.) n. sp. 1 (fallax group); LP(MF)
Polypedilum (s.s.) sp. 2; LP(MF)
 Polypedilum (Tripodura) acifer Townes; Boesel (1985)
Polypedilum (Tripodura) albinodus Townes; LPM; Boesel (1985)
 Polypedilum (Tripodura) digitifer Townes; Boesel (1985)
Polypedilum (Tripodura) griseopunctatus (Malloch); LP,M; Boesel (1985)
Polypedilum (Tripodura) halterale (Copulle); LPM; Boesel (1985)
Polypedilum (Tripodura) scalaenum (Schrank); LPM; Boesel (1985)
Polypedilum (Tripodura) simulans Townes; LPM; Townes (1945), Boesel (1985)
Polypedilum (Uresipedilum) aviceps Townes; LPM; Boesel (1985)
Polypedilum (Uresipedilum) flavum (Johannsen); LPM; Boesel (1985), Maschwitz & Cook (2000)
Robackia demeijerei (Kruseman); L,P
Saetheria tylus (Townes); LP,M
Saetheria species 1 [sensu Jackson (1977)]; L
Stelechomyia perpulchra (Mitchell); L
Stenochironomus (s.s.) hilaris (Walker); LP(F),M
Stenochironomus macateei (Malloch); P,M
Stictochironomus poss. *annulicrus* (Townes); L(P)
Stictochironomus devinctus (Say); LP,M
Stictochironomus virgatus (Townes); LPMF
Synendotendipes sp. 1; LPF
Tribelos atrum (Townes); LPMF
Tribelos fuscicorne (Malloch); LP(M)
Tribelos jucundum (Walker); LPM
Xenochironomus xenolabis (Kieffer); LP(M); Townes (1945)
Zavreliella marmorata (van der Wulp); LPM

Pseudochironomini

Pseudochironomus articaudus Sæther; P,M
Pseudochironomus fulviventris (Johannsen); P
Pseudochironomus julia (Curran); LPF

Pseudochironomus middlekauffi Townes; M
Pseudochironomus near *prasinatus* (Staeger); P
Pseudochironomus pseudoviridis (Malloch); LP
Pseudochironomus richardsoni Malloch; LPMF

Tanytarsini

Cladotanytarsus aeiparthenus Bilyj; LP(M)F
Cladotanytarsus vanderwulpi (Edwards); LPM
Cladotanytarsus species group A [sensu Pinder & Reiss (1983)] sp.; LP
Cladotanytarsus species group B sp.; L
Cladotanytarsus mancus group [sensu Pinder & Reiss (1983)] spp. (3); LP
Cladotanytarsus vanderwulpi group [sensu Pinder & Reiss (1983)] spp. (4); LP
Micropsectra geminata Oliver & Dillon; LPMF
Micropsectra nigripila (Johannsen); LPMF
Micropsectra polita (Malloch); LPM
Micropsectra sp. 1; LPMF
Micropsectra sp. 5; LPMF
Micropsectra sp. 6; LPM
Micropsectra sp. 7; LPMF
Micropsectra sp. 8; M
Micropsectra sp. 9; M
Micropsectra sp. 10; P,M
Neostempellina reissi Caldwell; LPF
Neozavrelia sp. 1; L,P
Paratanytarsus dissimilis (Johannsen); LPM
Paratanytarsus grimmii (Schneider); P
Paratanytarsus laccophilus (Edwards); LPMF
Paratanytarsus longistilus Bolton, Ekrem, Sublette, & Sublette (accepted); LPMF
Paratanytarsus varelus (Roback); LPMF
Paratanytarsus sp. 3; LP(M)
Paratanytarsus sp. 6; LPF
Paratanytarsus sp. 7; LP(F)
Paratanytarsus sp. 8; P,M
Rheotanytarsus pellucidus (Walker); LP(M)
Rheotanytarsus spp. (4); LP(M)
Stempellina poss. *subglabripennis* (Brundin); L
Stempellina sp. 2; LPF(M)
Stempellinella boltoni Ekrem; LP(M)
Stempellinella edwardsi Spies & Sæther; Ekrem (2007)
Stempellinella fimbriata Ekrem LPMF
Stempellinella leptocelloides (Webb); LP(M)
Sublettea coffmani (Roback); LP(M)
Tanytarsus acifer Ekrem, Sublette, & Sublette; LPM
Tanytarsus angulatus Kawai; LPM
Tanytarsus boltoni Ekrem, Sublette, & Sublette; LP(M)
Tanytarsus confusus Malloch; LPM

Tanytarsus near *curticornis* Kieffer; LPMF
Tanytarsus dendyi Sublette; Ekrem et al. (2003)
Tanytarsus epleri Ekrem, Sublette, & Sublette; PM
Tanytarsus guerlus (Roback); M; Ekrem et al. (2003)
Tanytarsus harperi Ekrem, Sublette, & Sublette; LPMF
Tanytarsus near *lactescens* Edwards sp. 1; LP(M)
Tanytarsus near *lactescens* Edwards sp. 2; LPM
Tanytarsus lestagei Goetghebuer; Ekrem et al. (2003)
Tanytarsus martini Ekrem, Sublette, & Sublette; LPM
Tanytarsus mendax Kieffer; LPM
Tanytarsus messersmithi Ekrem, Sublette, & Sublette; LPM
Tanytarsus near *nemorosus* Edwards; LPM
Tanytarsus neoflavellus Malloch; LPM
Tanytarsus glabrescens group sp. 1; LPM
Tanytarsus glabrescens group sp. 2; L
Tanytarsus glabrescens group sp. 3; LPM
Tanytarsus glabrescens group sp. 4; LP(M)
Tanytarsus glabrescens group sp. 5; LP(M)
Tanytarsus glabrescens group sp. 6; L
Tanytarsus glabrescens group sp. 7; LPM
Tanytarsus sepp Ekrem, Sublette, & Sublette; LPM
Tanytarsus near *signatus* van der Wulp; LP(M)
Tanytarsus wirthi Ekrem, Sublette, & Sublette; LPM
Tanytarsus sp. 7; LPM
Tanytarsus sp. 8; PM
Tanytarsus sp. 9; M
Zavrelia n. sp. 1; LPMF
 Unknown genus near *Neostempellina*; LPMF; (larvae resemble *Constempellina*)

Total taxa: 497

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