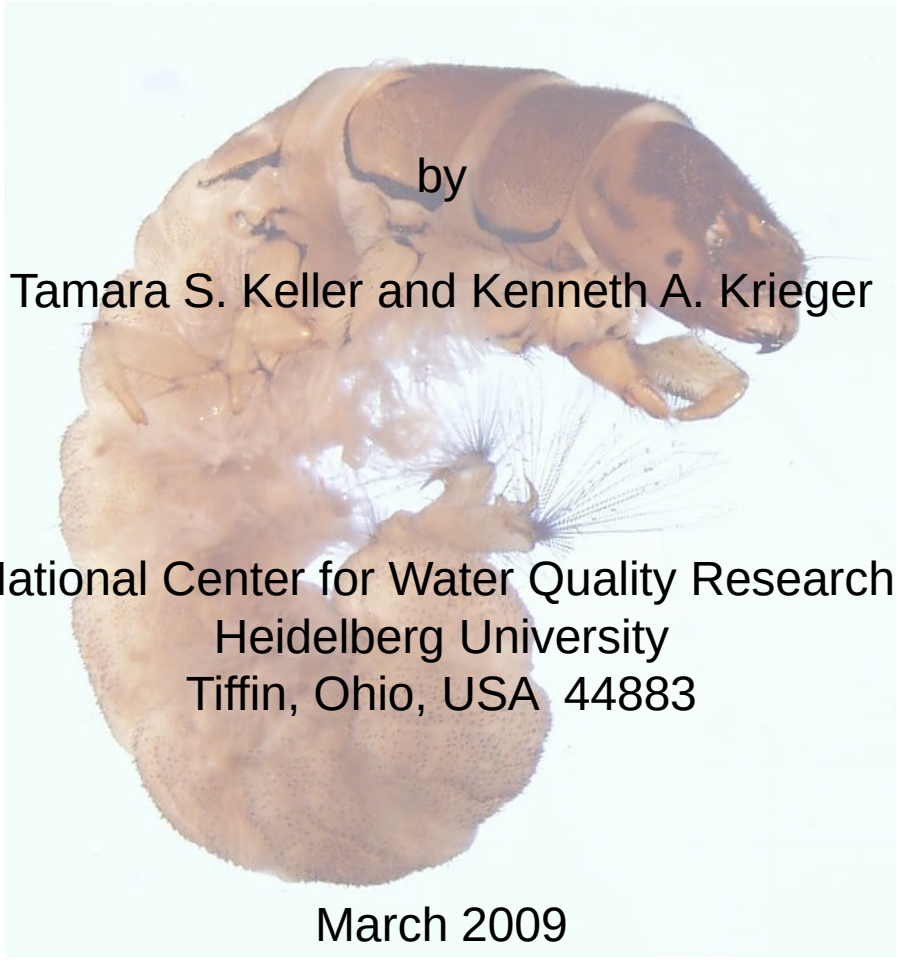
Taxonomic Atlas of the Caddisfly Larvae

(Class Insecta: Order Trichoptera) Recorded at the Old Woman Creek National Estuarine Research Reserve and State Nature Preserve, Ohio



by

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Acknowledgments

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Introduction

Both the formal biologist and the amateur naturalist often encounter lists of animals and plants when they read published scientific reports and visit nature centers. Rarely do they have ready access to photographs for each member of the list. This document constitutes one of several chapters of a comprehensive atlas of the biota of the Old Woman Creek coastal wetland system (OWC) along Lake Erie in Ohio. This chapter provides a detailed pictorial record of the aquatic larvae of a group of insects, the caddisflies (Order Trichoptera).

Invertebrates occur in great abundance in freshwater ecosystems, including Great Lakes wetlands such as the marshes and swamps that make up OWC. A few of those invertebrates, such as freshwater mussels, grass shrimps, and giant water bugs, are readily visible because of their large size. Many freshwater invertebrates, however, are so small that special attention must be given to collecting – and seeing – them. Thus, most groups of invertebrates go unnoticed by casual visitors to aquatic habitats. Larval caddisflies of the Order Trichoptera are no exception. Furthermore, once collected, the ability to distinguish one kind of caddisfly from another requires careful observation through a dissecting microscope.

This atlas presents detailed photographs of critical diagnostic features that permit the correct identification of most caddisfly larvae found to date at OWC to the taxonomic level of genus.

Caddisflies are found in a wide variety of freshwater habitats, especially creeks,

***Ceraclea* sp. larva in case**

rivers and wetlands. Foods of larval caddisflies vary from algae and coarse plant particles to other invertebrates. The larvae themselves serve as an important food source for a variety of fish.

Caddisfly larvae are well known for their construction of cases, nets and retreats. The design and composition of the cases and retreats is dependent on the ecological niche of each species. Trichoptera families are usually categorized according to which type of retreat they build. Cases and retreats are composed of silk which the larva emits from a specialized mouthpart (the labium) and often incorporate sand, vegetation, and rock fragments.

Characteristics of Larval Trichoptera

As members of the insect Order Trichoptera, caddisflies have four life stages: egg, larva, pupa, and adult. In most families, the female deposits eggs in or above water, and the eggs of Family Polycentropodidae can actually survive dry conditions. The larva of most caddisfly families undergoes five stages, or instars, before fastening its case to a solid substrate when entering the pupal stage. Generally, the pupa emerges as an adult after two or three weeks.

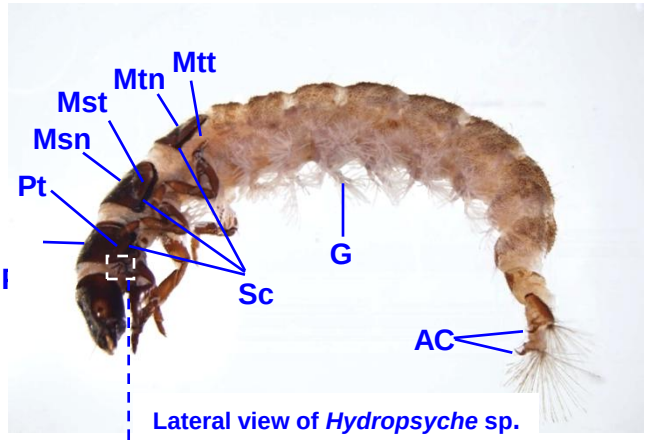
General features of a caddisfly larva are shown in the photographs on this page. The body is divided into three regions: **head** (H), **thorax** (T), and **abdomen** (A). Head structures include a **labrum** (L) and a **submentum** (S). Mouthparts used in identification are the **mandibles** (M) and the **maxillary palpi** (MP).

The three thoracic segments are the **prothorax** (Pt), **mesothorax** (Mst), and **metathorax** (Mtt). The dorsal surfaces of the thoracic segments are called the **pronotum** (Pn), **mesonotum** (Msn), and **metanotum** (Mtn) and often possess hardened plates known as **sclerites** (Sc). The ventral surfaces of the thorax are the **prosternum** (Ps), **mesosternum** (Mss), and **metasternum** (Mts). **Club hairs** (CH) and **scale hairs** (SH) are present on the thorax and abdomen of some genera.

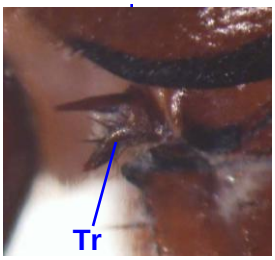
The **abdomen** usually features **gills** (G) and always terminates in two **prolegs** (P), each with an **anal claw** (AC). The legs consist of five parts: the **coxa** (C) and **trochanter** (Tr), closest to the body, and the **femur** (F), **tibia** (Ti), and **tarsus** (Ta). A **tarsal claw** (TC) is present at the end of each tarsus. A sclerotized appendage called a **trochantin** (Tr) is present at the base of the foreleg of some caddisflies.

Layout of this Atlas

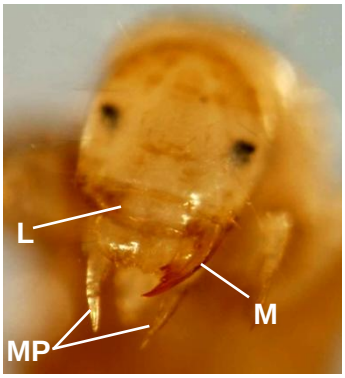
The following pages are organized alphabetically by family. Collectors have identified twenty-two genera of caddisflies in seven families (Hydropsychidae, Hydroptilidae, Leptoceridae, Limnephilidae, Philopotamidae, Phryganeidae, and Polycentropodidae) within the OWC wetland system, which excludes the



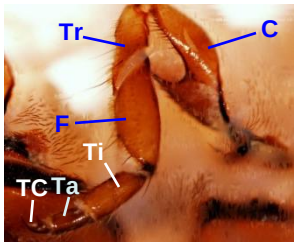
Lateral view of *Hydropsyche* sp.



Hydropsyche sp. trochantin

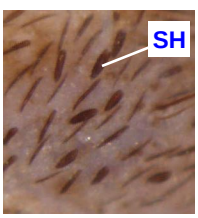


Oecetis sp. head

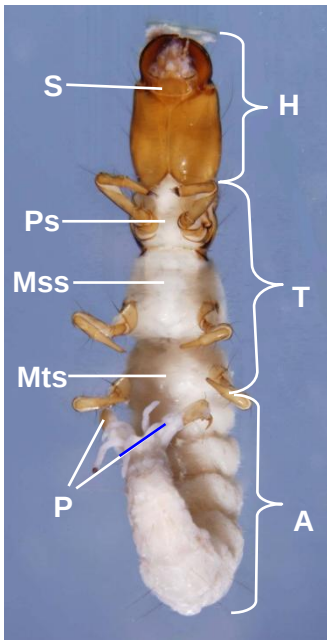


Hydropsyche sp. middle leg

Ceratopsyche sp. Lateral view



Hydropsyche sp. Lateral view



Chimarra sp. ventral view, showing recurved abdomen

free-flowing upland reaches of Old Woman Creek. Specimens in all seven families and fifteen genera were available for inclusion in this atlas.

This publication should not be used as the sole source to identify the genera of larval trichopterans of OWC because it is likely that additional families and genera will be found in new collections. The references cited on this page should be used to obtain definitive identifications. The species within each genus are not included here, and the species of some genera cannot be identified in the larval stages.

Each genus of caddisfly larva is illustrated and described on a single page of this atlas. Because the identifying features of the Order Trichoptera and the particular family are repeated on each page, the page for each genus can be used independently. Photographs are labeled with identifying letters and lines or brackets that indicate diagnostic structures. Some photographs show specimens collected within OWC; specimens from other ecosystems were used if they were of superior quality. The exact specimens photographed are recorded at the bottom of the page.

Beneath the descriptive features, each page lists where within OWC the genus has been found. That information was derived from reports compiled by Herdendorf *et al.* (2001)*. It is likely that future collections will reveal some of the genera in additional habitats. The general ecology of the genus is briefly summarized, including its **habit** (such as sprawler or climber) and its **functional feeding group** (such as predator), and for some genera, special notes about its habitat or water quality requirements.

All taxonomic information on each page was derived from three or more references, which are abbreviated as shown below followed by the page number(s):

H = Hilsenhoff, W.L. 1995. *Aquatic Insects of Wisconsin, keys to Wisconsin genera and notes on biology, habitat, distribution and species*. Publication No. 3 of the Natural History Museums Council, Univ. of Wisconsin-Madison. Cooperative Extension Publications, Madison, Wisconsin.

M&H = Morse, John C. and Ralph W. Holzenthal. 1996. Trichoptera Genera. *In* Merritt, R.W., and K.W. Cummins (Eds.). *An Introduction to the Aquatic Insects of North America*. 3rd Ed. Kendall/Hunt Publ. Co., Dubuque, Iowa.

V = Voshell, Jr., J. Reese. 2002. *A Guide to Common Freshwater Invertebrates of North* America. The McDonald and Woodward Publishing Co., Blacksburg, Virginia.

W = Wiggins, Glenn B. 1996. Trichoptera Families. *In* Merritt, R.W., and K.W. Cummins (Eds.). *An Introduction to the Aquatic Insects of North America*. 3rd Ed. Kendall/Hunt Publ. Co., Dubuque, Iowa.

* Herdendorf, C.E., R.C. Herdendorf, and D.M. Klarer. 2001. *Catalogue of the invertebrate fauna of Old Woman Creek estuary, watershed, and adjacent waters of Lake Erie.* Technical Report No. 12. Old Woman Creek National Estuarine Research Reserve & State Nature Preserve, Huron, Ohio.

Checklist of Genera of Caddisfly (Trichoptera) Larvae Reported in the OWC Wetland System

Specimens reported as collected at OWC but not identified in this atlas because of the absence of specimens are indicated with an asterisk (*). Several genera presently have only been reported from collections of adults, such as by light-trapping, and have not been found at OWC in the aquatic larval stage. These are noted below as “adults only”.

Family Hydropsychidae

Ceratopsyche
Cheumatopsyche
Hydropsyche

Family Hydroptilidae

Agraylea
Hydroptila
Ochrotrichia*
Orthotrichia* (adults only)
Oxeythira* (adults only?)

Family Leptoceridae

Ceraclea
Nectopsyche (adults only)
Oecetis
Triaenodes* (adults only)

Family Limnephilidae

Limnephilus

Family Philopotamidae

Chimarra

Family Phryganeidae

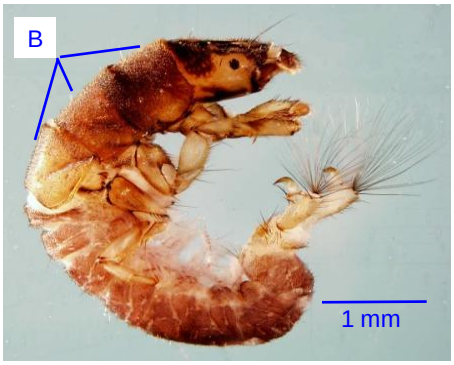
Agrypnia* (adults only)
Phryganea* (adults only)
Ptilostomis (adults only)

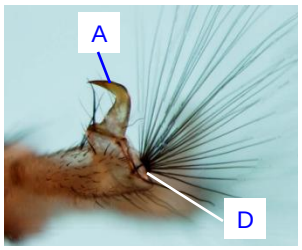
Family Polycentropodidae

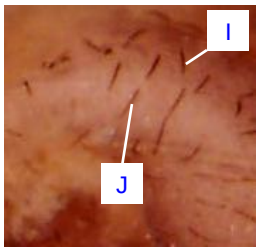
Cernotina (adults only)
Cyrnellus
Neureclipsis (adults only)
Nyctiophylax* (adults only)
Polycentropus (adults only)

Insecta: Trichoptera: Hydropsychidae: *Ceratopsyche* sp. Common Netspinner Caddisflies

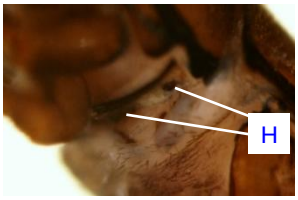
Lateral views of *Ceratopsyche*

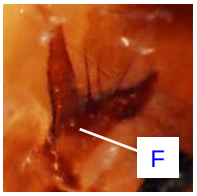






Oblique views of *Ceratopsyche*





Ventral view of head of *Ceratopsyche*

Features of Order Trichoptera

Three pairs of segmented legs on thorax
Never with wings or wing pads
Chewing mouth parts
Ventral prolegs on terminal abdominal segment
Antennae usually inconspicuous

Features of Family Hydropsychidae

Anal claws hook-shaped (A)
No portable case
Thoracic segments covered by sclerites (B)
Branched gills in rows on abdomen (C)
Anal claw with prominent brush of hairs at base (D)

Features of Genus *Ceratopsyche*

Tibia (E) and tarsus (E') of forelegs lacking dense brush of hair
Trochantin on foreleg forked or spur-shaped (F)
Submentum notched at apex (G)
Prosternum with pair of large sclerites posterior to prosternal plate (H)
Club hairs (I) and plain hairs (J) on dorsal surface of abdomen

Where Recorded at Old Woman Creek

Not specified

General Ecology

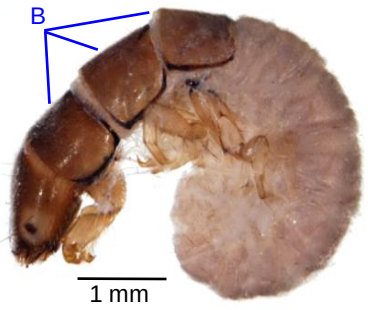
Habit: Clingers, net spinners
Functional feeding group: Collectors-filterers

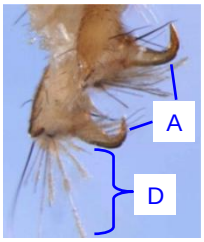
References: H 3, 25-27; W 315, 340; M&H 356; V 160-161

Photographs: REF 14 August 1, 2005 St. Johns Dam CH 16 #30; August 18, 2004 St. Johns Dam CR 90 Scott #30

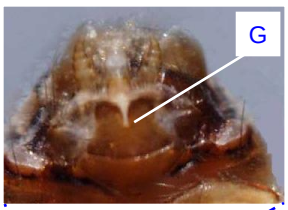
Insecta: Trichoptera: Hydropsychidae: *Cheumatopsyche* sp. Common Netspinner Caddisflies

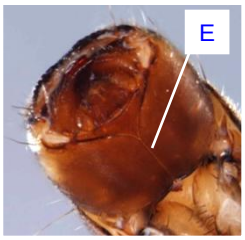
Lateral views of *Cheumatopsyche*

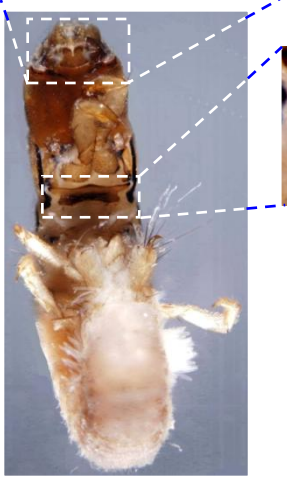


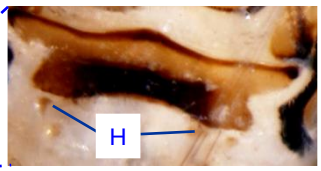


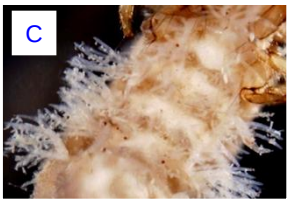
Ventral views of *Cheumatopsyche*

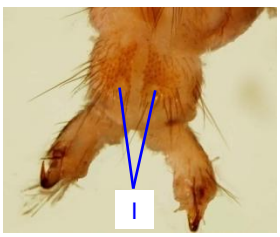












Features of Order Trichoptera

Three pairs of segmented legs on thorax
Never with wings or wing pads
Chewing mouth parts
Ventral prolegs on terminal abdominal segment
Antennae usually inconspicuous

Features of Family Hydropsychidae

Anal claws hook-shaped (A)
No portable case
Thoracic segments covered by sclerites (B)
Branched gills in rows on abdomen (C)
Anal claw with prominent brush of hairs at base (D)

Features of Genus *Cheumatopsyche*

Sides of head converge to form vertical line on ventral surface (E)
Trochantin on foreleg forked or spur-shaped (F)
Submentum notched at apex (G)
Prosternum with pair of small sclerites posterior to prosternal plate (H)
Both sclerites on abdominal segment nine notched at posterior margins (I)

Where Recorded at Old Woman Creek

Not specified

General Ecology

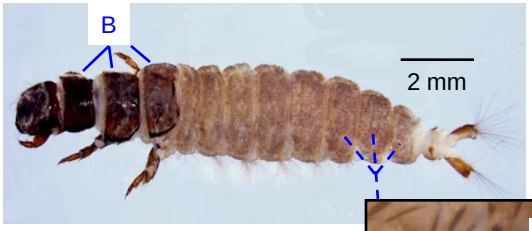
Habit: Clingers, net spinners
Functional feeding group: Collectors-filterers

References: H 3, 25-27; W 315, 340; M&H 110, 356; V 160-161

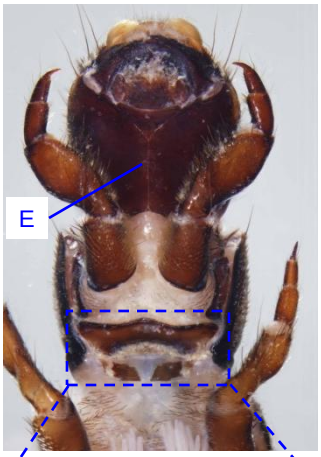
Photographs: REF 28 August 19, 2004 St. Johns Dam CH90

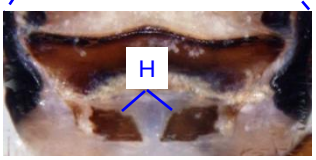
Insecta: Trichoptera: Hydropsychidae: *Hydropsyche* sp. Common Netspinner Caddisflies

Dorsal views of *Hydropsyche*

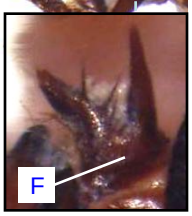


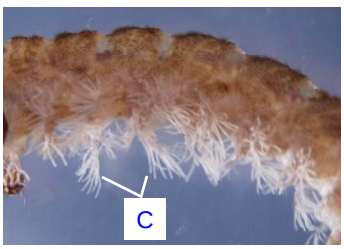
Ventral views of *Hydropsyche*

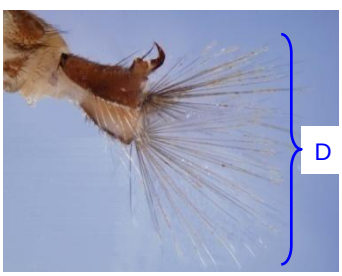




Lateral views of *Hydropsyche*







Features of Order Trichoptera

Three pairs of segmented legs on thorax
Never with wings or wing pads
Chewing mouth parts
Ventral prolegs on terminal abdominal segment
Antennae usually inconspicuous

Features of Family Hydropsychidae

Anal claws hook-shaped (A)
No portable case
Thoracic segments covered by sclerites (B)
Branched gills in rows on abdomen (C)
Anal claw with prominent brush of hairs at base (D)

Features of Genus *Hydropsyche*

Sides of head converge to form vertical line on ventral surface (E)
Trochantin on foreleg forked or spur-shaped (F)
Pair of sclerites present on abdominal segment eight (G)
Prosternum with pair of large sclerites posterior to prosternal plate (H)
Scale hairs present on at least last three abdominal segments (I)

Where Recorded at Old Woman Creek

Not specified

General Ecology

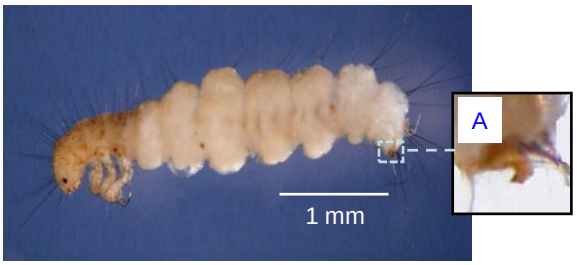
Habit: Clingers, net spinners
Functional feeding group: Collectors-filterers

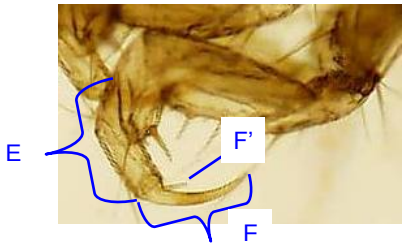
References: H 3, 25-27; W 315, 340; M&H 356; V 160-161

Photographs: KK REF GG2 October 25, 1997, CVWP PC1

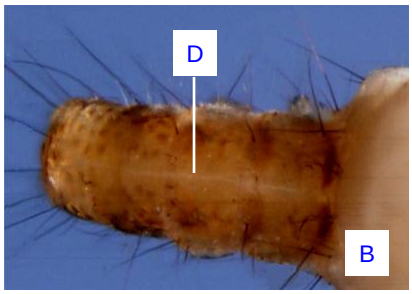
Insecta: Trichoptera: Hydroptilidae: *Agraylea* sp. Micro-Caddisflies*

Lateral views of *Agraylea*

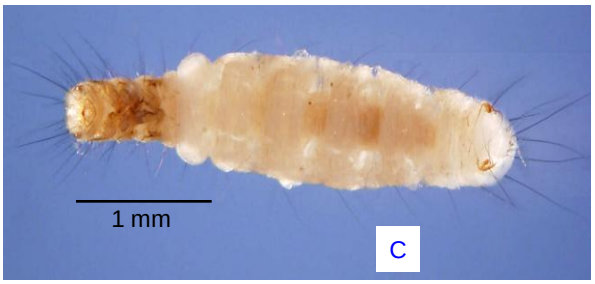




Dorsal view of *Agraylea*



Ventral views of *Agraylea*



Features of Order Trichoptera

Three pairs of segmented legs on thorax
Never with wings or wing pads
Chewing mouth parts
Ventral prolegs on terminal abdominal segment
Antennae usually inconspicuous

*Hydroptilidae are generally 5 mm or less in length when mature. Identification is practical only during the final instar, when the animal builds a case.

Features of Family Hydroptilidae

Anal claws hook-shaped (A)
All thoracic segments covered by sclerites (B)
Nearly straight larval case (G)
Abdominal gills absent (C)

Features of Genus *Agraylea*

Abdomen thicker than thorax (C)
Thoracic sclerites with middorsal fracture line (D)
Tarsi (E) and claws (F) of hind legs nearly equal in length
Tarsal claws slightly curved and slender (F) with a basal spur (F')
No small bumps on sides of abdomen (C)
Case incorporating concentric circles of filamentous algae (G)

Where Recorded at Old Woman Creek

Sediment in lotus bed

General Ecology

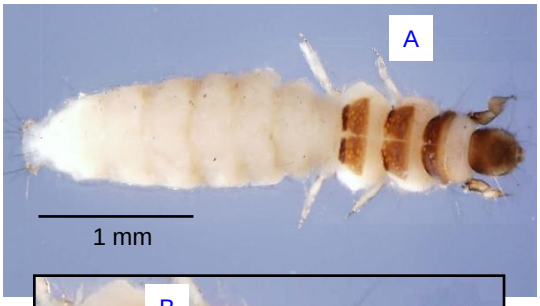
Habit: Climbers
Functional feeding groups: Collectors-gatherers, piercers-herbivores

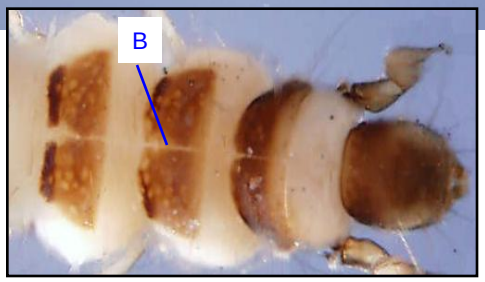
References: H 3, 25-27; W 315-319, 342; M&H 359; V 150

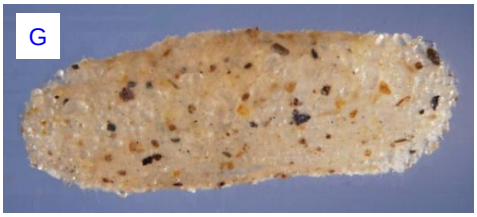
Photographs: ECCS4 015 BP2 #18 June 25, 2004 Lake Erie

Insecta: Trichoptera: Hydroptilidae: *Hydroptila* sp. Micro-Caddisflies*

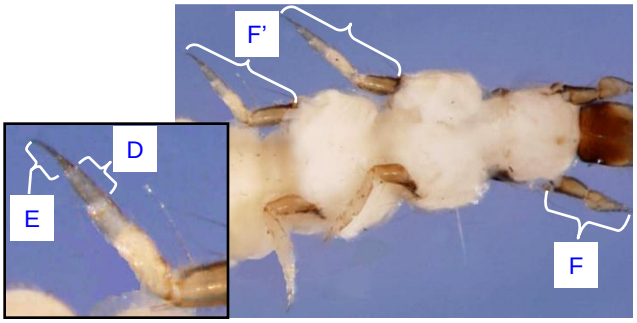
Dorsal views of *Hydroptila*



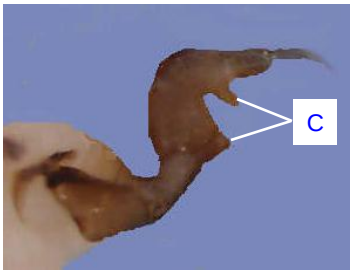




Ventral view of *Hydroptila*



Lateral view of *Hydroptila*



Features of Order Trichoptera

Three pairs of segmented legs on thorax
Never with wings or wing pads
Chewing mouth parts
Ventral prolegs on terminal abdominal segment
Antennae usually inconspicuous

*Hydroptilidae are generally 5 mm or less in length when mature. Identification is practical only during the final instar, when the animal builds a case.

Features of Family Hydroptilidae

Anal claws hook-shaped (not shown in photos; refer to *Agraylea sp.*)
All thoracic segments covered by sclerites (A)
Nearly straight larval case (G)
Abdominal gills absent (A)

Features of Genus *Hydroptila*

Thoracic sclerites with middorsal fracture line (B)
Tibiae of forelegs with prominent lobes (C)
Tarsi (D) and claws (E) of hind legs nearly equal in length
Tarsal claws slightly curved and slender (E)
Forelegs (F) at least 2/3 length of mid- and hind legs (F')
Case usually covered with sand (G) or sometimes with algae and diatoms

Where Recorded at Old Woman Creek

Not specified

General Ecology

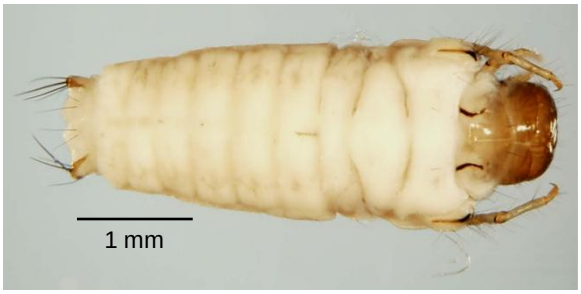
Habit: Clingers
Functional feeding groups: Scrapers, piercers-herbivores

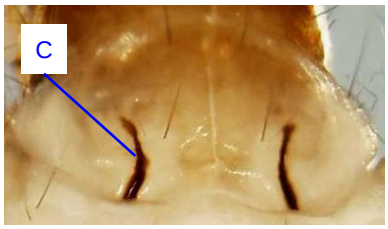
References: H 3, 25-27; W 315-319, 342; M&H 359; V 150

Photographs: KK REF GG20 May 25, 1981 Sugar Creek

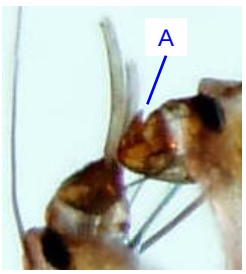
Insecta: Trichoptera: Leptoceridae: *Ceraclea* sp. Longhorned Case Maker Caddisflies

Dorsal views of *Ceraclea*





Ventral views of *Ceraclea*



Features of Order Trichoptera

Three pairs of segmented legs on thorax
Never with wings or wing pads
Chewing mouth parts
Ventral prolegs on terminal abdominal segment
Antennae usually inconspicuous

Features of Family Leptoceridae

Anal claws hook-shaped (A)
Portable case, if present, nearly straight (B)
Sclerites sometimes present on mostly membranous metanotum and mesonotum
Mesonotum sometimes with pair of curved dark lines on posterior half (C)

Features of Genus *Ceraclea*

Tarsal claws on forelegs (D) and middle legs (D') equal in length
Pair of angled or curved sclerotized lines on mesonotum (C)
Abdomen tapering posteriorly (E)

Where Recorded at Old Woman Creek

Not specified

General Ecology

Habit: Sprawlers, climbers
Functional feeding groups: Shredders-chewers, collectors-gatherers, sponge engulfers

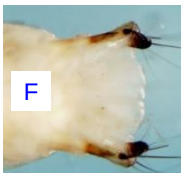
References: H 3, 29-31; W 315-319, 349; M&H 362; V 151

Photographs: REF 122 July 26, 2005 St. Johns Dam West; REF 42 July 26, 2005 St. Johns Dam West

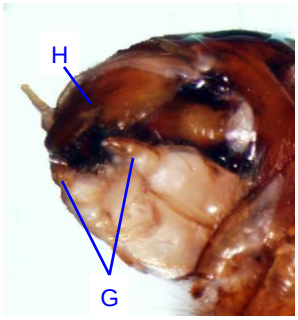
Insecta: Trichoptera: Leptoceridae: *Nectopsyche* sp. Longhorned Case Maker Caddisflies

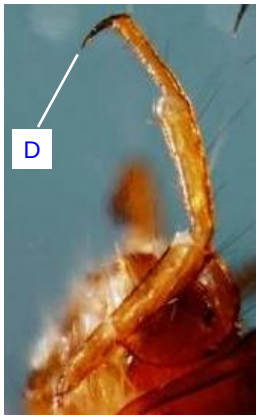
Dorsal view of *Nectopsyche*

Ventral views of *Nectopsyche*



Lateral views of *Nectopsyche*





Features of Order Trichoptera

Three pairs of segmented legs on thorax
Never with wings or wing pads
Chewing mouth parts
Ventral prolegs on terminal abdominal segment
Antennae usually inconspicuous

Features of Family Leptoceridae

Anal claws hook-shaped (A)
Portable case, if present, nearly straight (B)
Sclerites sometimes present on mostly membranous mesonotum (C) and metanotum
Mesonotum sometimes with pair of curved dark lines on posterior half

Features of Genus *Nectopsyche*

Middle legs with slender and slightly curved tarsal claws (D)
Hind legs lacking a fracture (E) near the middle of tibiae
Anal hooks without raised ridge between them (F)
Mesonotum lacking pair of curved dark lines (C)
Maxillary palps (G) usually not extending past labrum (H)
Case of fine sand or plant materials, with or without diatoms; usually attached to one twig or conifer needle (B)

Where Recorded at Old Woman Creek

Larvae not recorded

General Ecology

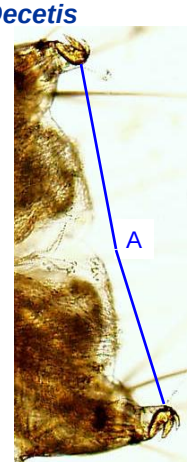
Habit: Sprawlers, climbers
Functional feeding groups: Shredders-chewers, collectors-gatherers, sponge engulfers

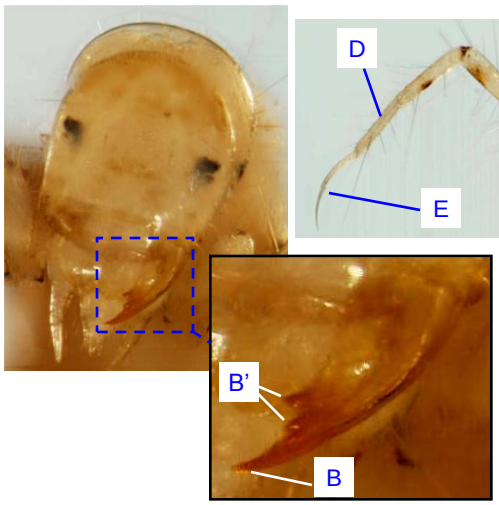
References: H 3, 25-31; W 315-319, 349; M&H 362; V 151

Photographs: REF 122 July 26, 2005 St. Johns Dam West; REF 42 July 26, 2005 St. Johns Dam West; REF 11 August 17, 2005 St. Johns Dam Mexico Bridge

Insecta: Trichoptera: Leptoceridae: *Oecetis sp.*
Longhorned Case Maker Caddisflies

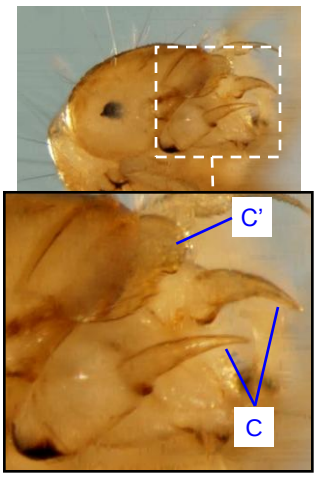
Dorsal views of *Oecetis*





Ventral view of *Oecetis*

Lateral view of *Oecetis*



Features of Order Trichoptera

Three pairs of segmented legs on thorax
Never with wings or wing pads
Chewing mouth parts
Ventral prolegs on terminal abdominal segment
Antennae usually inconspicuous

Features of Family Leptoceridae

Anal claws hook-shaped (A)
Portable case, if present, nearly straight
Sclerites sometimes present on mostly membranous metanotum and mesonotum
Mesonotum sometimes with pair of curved dark lines on posterior half

Features of Genus *Oecetis*

Sharp apical tooth (B) on mandibles separate from other teeth (B')
Maxillary palpi (C) extending much beyond labrum (C')
Tarsi of middle legs (D) straight with slender, curved claws (E)

Where Recorded at Old Woman Creek

Not specified, but found in soft sediments of Lake Erie and coastal wetlands near OWC

General Ecology

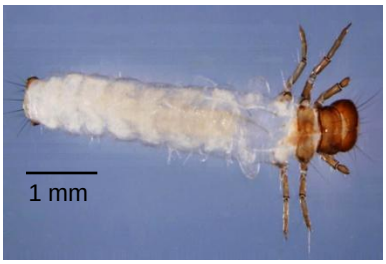
Habit: Climbers, clingers-sprawlers
Functional feeding groups: Shredders-herbivores, predators (engulfers)

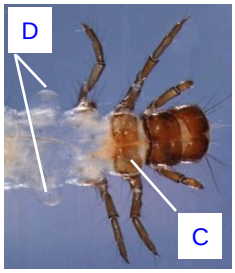
References: H 3, 25-29; W 315-319, 349; M&H 362; V 151

Photographs: KK REF M2 August 6, 2002 OWCI

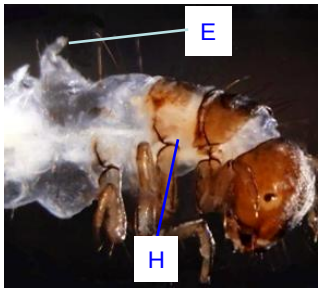
Insecta: Trichoptera: Limnephilidae: *Limnephilus sp.* Northern Case Maker Caddisflies

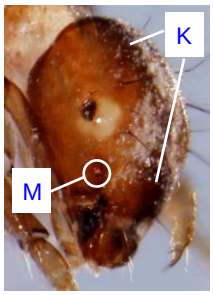
Dorsal views of *Limnephilus*

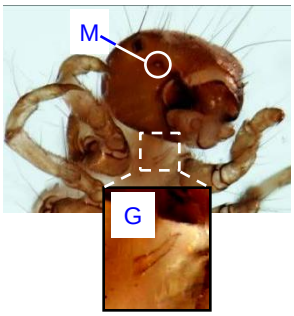


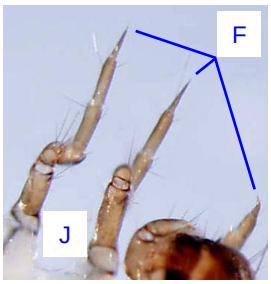


Lateral views of *Limnephilus*

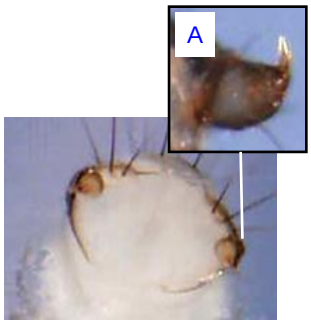


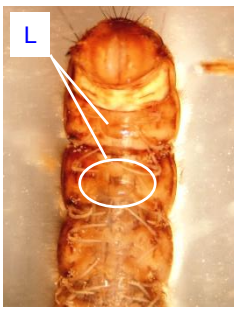






Ventral views of *Limnephilus*





Features of Order Trichoptera

Three pairs of segmented legs on thorax
Never with wings or wing pads
Chewing mouth parts
Ventral prolegs on terminal abdominal segment
Antennae usually inconspicuous

Features of Family Limnephilidae

Anal claws hook-shaped (A)
Portable case, if present, nearly straight (B)
Antennae (M) inconspicuous or not more than three times as long as wide; situated about half-way between anterior of head capsule and the eye
Mesonotum covered by sclerotized plates (C)
Lateral hump on each side of first abdominal segment (D)
First abdominal segment usually with dorsal hump (E)
Tarsal claws identical in structure on all legs (F)
Prosternum with horn (G)

Features of Genus *Limnephilus*

Pronotum with rounded anterolateral margins (H)
Gills usually in clusters of three or fewer (I)
Legs without black rings (J)
Dorsal surface of head with dark, large blotches (K)
Thin, shiny, oval membranes (chloride epithelia) with sclerotized borders present on ventral surfaces of abdomen (L), but absent dorsally

Where Recorded at Old Woman Creek

In sedge meadow

General Ecology

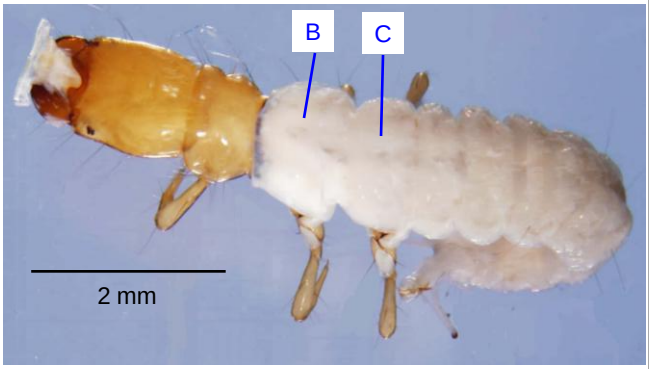
Habit: Sprawlers, climbers, clingers
Functional feeding groups: Shredders-chewers, collectors-gatherers

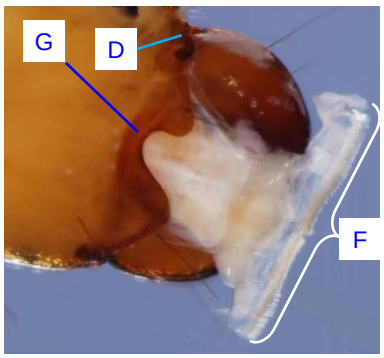
References: H 3, 25-33; W 315-319, 346; V 156-7

Photographs: KK REF GG3 March 9, 1992 OWC

Insecta: Trichoptera: Philopotamidae: *Chimarra sp.* Fingernet Caddisflies

Dorsal views of *Chimarra*





Ventral views of *Chimarra*

Features of Order Trichoptera

Three pairs of segmented legs on thorax
Never with wings or wing pads
Chewing mouth parts
Ventral prolegs on terminal abdominal segment
Antennae usually inconspicuous

Features of Family Philopotamidae

Anal claw hook-shaped (A)
No portable case
Mesonotum mostly or entirely membranous (B)
Metanotum entirely membranous (C)
Antennae inconspicuous or not more than three times as long as wide (D)
Dorsum of abdominal segment nine entirely membranous (E)
Labrum T-shaped and membranous (F)

Features of Genus *Chimarra*

Prominent asymmetrical notch on dorsal surface of head (G)

Where Recorded at Old Woman Creek

Not specified

General Ecology

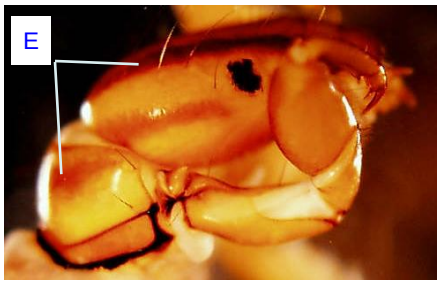
Habit: Clingers (silk nets)
Functional feeding group: Collectors-filterers

References: H 3, 25-27; W 315-319, 349; M&H 377; V 162

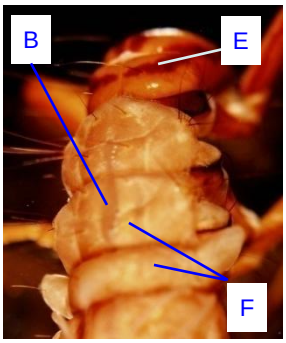
Photographs: PR REF GG23 November 30, 1993 Rock Creek

Insecta: Trichoptera: Phryganeidae: *Ptilostomis sp.* Giant Case Maker Caddisflies

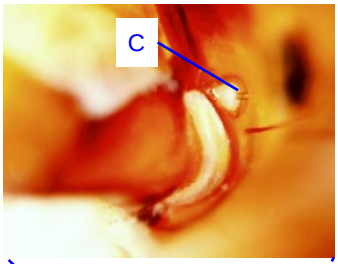
Lateral views of *Ptilostomis*

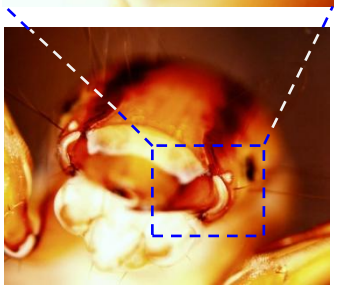


Dorsal view of *Ptilostomis*



Ventral views of *Ptilostomis*





Features of Order Trichoptera

Three pairs of segmented legs on thorax
Never with wings or wing pads
Chewing mouth parts
Ventral prolegs on terminal abdominal segment
Antennae usually inconspicuous

Features of Family Phryganeidae

Prosternal horn (A)
Plant material in tubular cases
Mesonotum mostly membranous (B)
Antennae not more than 3 times as long as wide (C)
Hook-shaped anal claws (D)

Features of Genus *Ptilostomis*

Head and pronotum with dark stripes (E)
Metanotum and mesonotum nearly same color (F)

Where Recorded at Old Woman Creek

Larvae not recorded

General Ecology

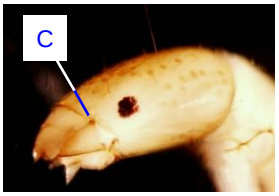
Habit: Climbers
Functional feeding groups: Shredders - herbivores and detritivores (chewers), predators (engulfers)

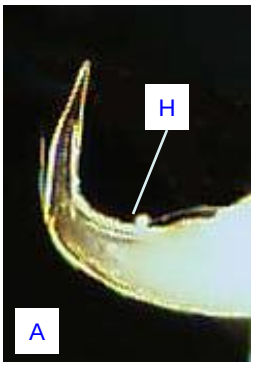
References: H 3, 29; W 315-319, 343; M&H 380; V 159

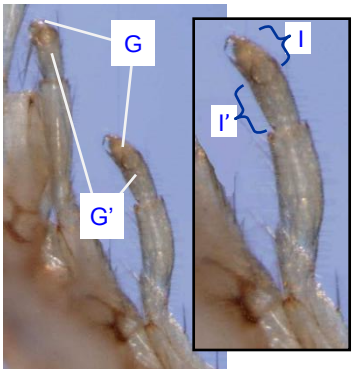
Photographs: RPR reference GG6; 6c.5 Qual. 11/7/79

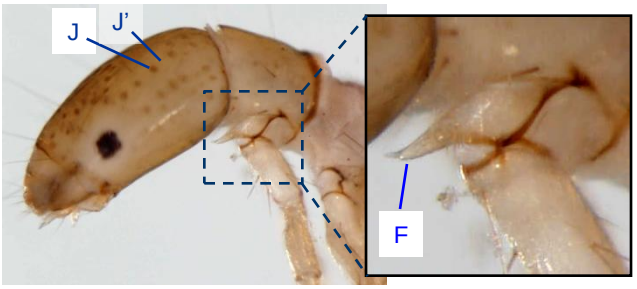
Insecta: Trichoptera: Polycentropodidae: *Cernotina sp.* Trumpetnet and Tubemaker Caddisflies

Lateral views of *Cernotina*

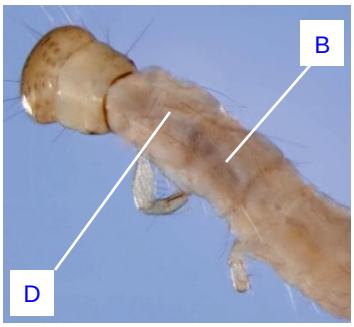


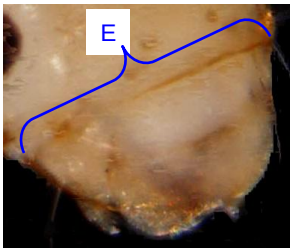






Dorsal views of *Cernotina*





Features of Order Trichoptera

Three pairs of segmented legs on thorax
Never with wings or wing pads
Chewing mouth parts
Ventral prolegs on terminal abdominal segment
Antennae usually inconspicuous

Features of Family Polycentropodidae

Anal claws hook-shaped (A)
Portable case, if present, nearly straight
Metanotum entirely membranous (B)
Sclerites sometimes present on mesonotum
Antennae inconspicuous or not more than three times as long as wide (C)
Mesonotum without pair of curved dark lines on posterior half (D)
Sclerotized labrum widest at base (E)
Trochantin at base of foreleg pointed (F)

Features of Genus *Cernotina*

Tarsi (G) nearly cylindrical and all narrower than corresponding tibiae (G') (fore and middle legs shown)
Anal claws without conspicuous ventral teeth (H)
Anal claws without tiny ventral spines along concave surface (H)
Anal claws at nearly a ninety degree angle (A)
Tarsi on forelegs (I) two-thirds length of tibiae (I')
Head muscle scars (J) darker than surrounding area (J')

Where Recorded at Old Woman Creek

Larvae not recorded

General Ecology

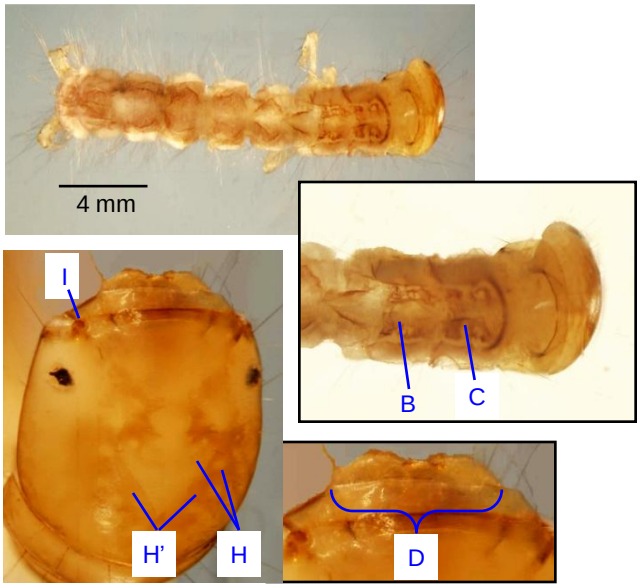
Habit: Clingers (silk tube retreats)
Functional feeding group: Predators (engulfers)

References: H 3, 25-29; W 315-319, 339; M&H 380; V 163

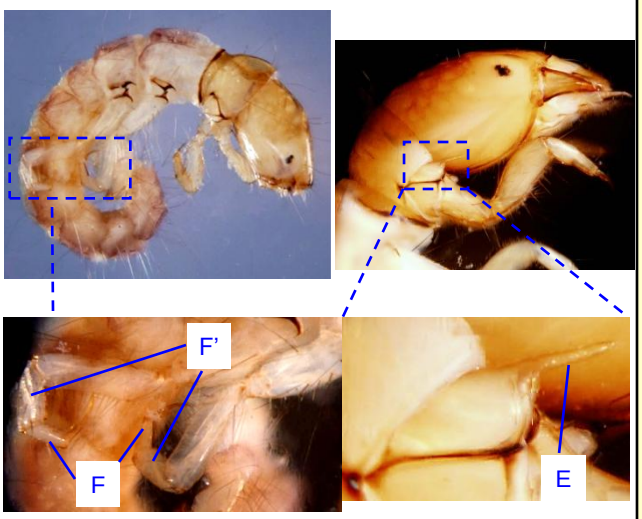
Photographs: REF 92 November 17, 2003 St. Johns Dam West

Insecta: Trichoptera: Polycentropodidae: *Cyrnellus sp.* Trumpetnet and Tubemaker Caddisflies

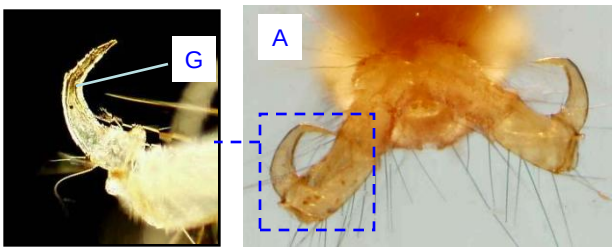
Dorsal views of *Cyrnellus*



Lateral views of *Cyrnellus*



Ventral views of *Cyrnellus*



Features of Order Trichoptera

Three pairs of segmented legs on thorax
Never with wings or wing pads
Chewing mouth parts
Ventral prolegs on terminal abdominal segment
Antennae usually inconspicuous

Features of Family Polycentropodidae

Anal claws hook-shaped (A)
Portable case, if present, nearly straight
Metanotum entirely membranous (B)
Sclerites sometimes present on mesonotum
Antennae inconspicuous or not more than three times as long as wide (I)
Mesonotum without pair of curved dark lines on posterior half (C)
Sclerotized labrum widest at base (D)
Trochantin at base of foreleg pointed (E)

Features of Genus *Cyrnellus*

Tarsi (F) nearly cylindrical and all narrower than corresponding tibiae (F') (fore and middle legs shown)
Anal claws without conspicuous ventral teeth (G)
Anal claws without tiny ventral spines along concave surface (G)
Head muscle scars (H) lighter than surrounding area (H')

Where Recorded at Old Woman Creek

Not specified

General Ecology

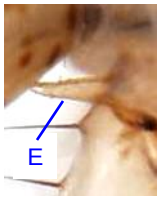
Habit: Clingers (silk tube retreats)
Functional feeding group: Predators (engulfers)

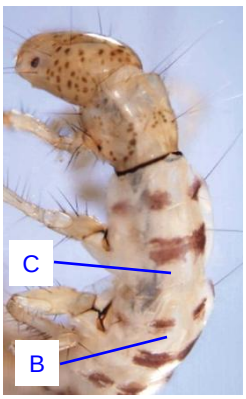
References: H 3, 25-29; W 315-319, 339; M&H 380; V 163

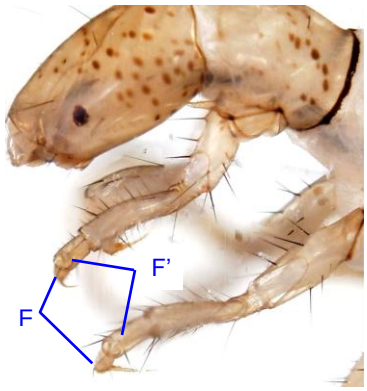
Photographs: November 17, 2003 St. Johns Dam Walnut Grove #30; REF 28 July 26, 2005 St. John's Dam West; REF 67 November 17,2003 St. John's Dam East #30

Insecta: Trichoptera: Polycentropodidae: *Neureclipsis sp.* Trumpetnet and Tubemaker Caddisflies

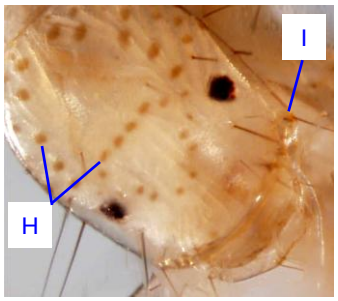
Lateral views of *Neureclipsis*

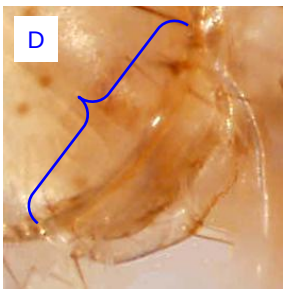


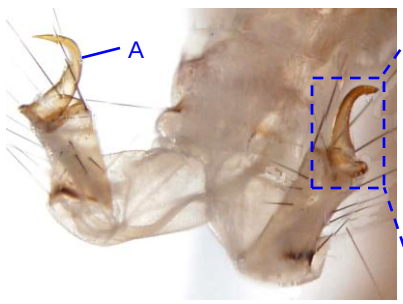


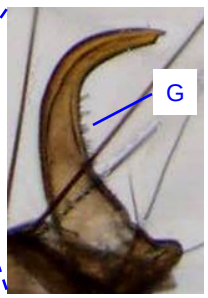


Dorsal views of *Neureclipsis*









Features of Order Trichoptera

Three pairs of segmented legs on thorax
Never with wings or wing pads
Chewing mouth parts
Ventral prolegs on terminal abdominal segment
Antennae usually inconspicuous

Features of Family Polycentropodidae

Anal claws hook-shaped (A)
Portable case, if present, nearly straight
Metanotum entirely membranous (B)
Sclerites sometimes present on mesonotum
Antennae inconspicuous or not more than three times as long as wide (I)
Mesonotum without pair of curved dark lines on posterior half (C)
Sclerotized labrum widest at base (D)
Trochantin at base of foreleg pointed (E)

Features of Genus *Neureclipsis*

Tarsi (F) nearly cylindrical and all narrower than corresponding tibiae (F') (fore and middle legs shown)
Anal claws without conspicuous ventral teeth (G)
Anal claws with tiny ventral spines along concave surface (G)
Head muscle scars (H) darker than background

Where Recorded at Old Woman Creek

Larvae not recorded

General Ecology

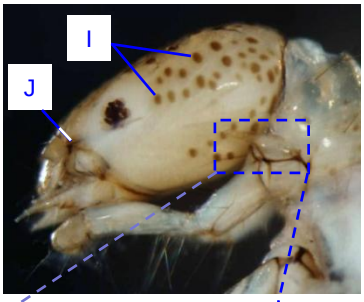
Habit: Clingers (silk nets)
Functional feeding group: Collectors-filterers

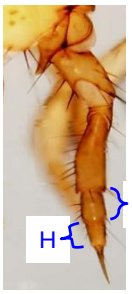
References: H 3, 25-29; W 315-319, 339; M&H 380; V 163

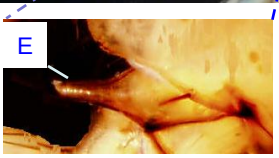
Photographs: REF 68 August 27, 2004 St. Johns Dam

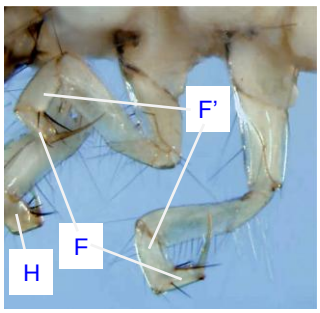
Insecta: Trichoptera: Polycentropodidae: *Polycentropus sp.* Trumpetnet and Tubemaker Caddisflies

Lateral views of *Polycentropus*

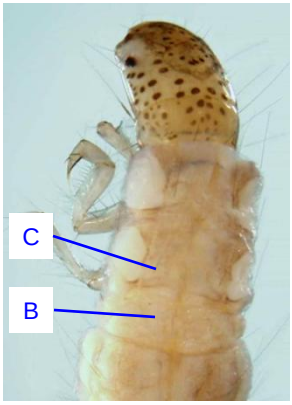


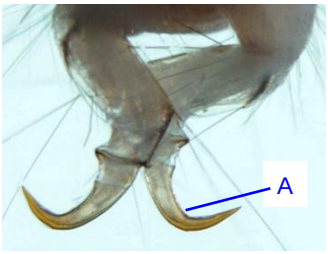


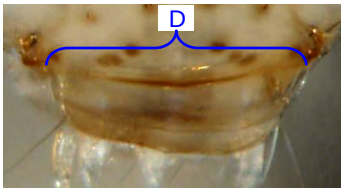


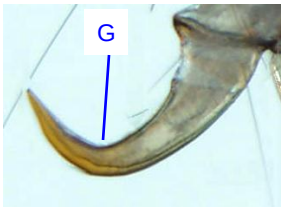


Dorsal views of *Polycentropus*









Features of Order Trichoptera

Three pairs of segmented legs on thorax
Never with wings or wing pads
Chewing mouth parts
Ventral prolegs on terminal abdominal segment
Antennae usually inconspicuous

Features of Family Polycentropodidae

Anal claws hook-shaped (A)
Portable case, if present, nearly straight
Metanotum entirely membranous (B)
Sclerites sometimes present on mesonotum
Antennae inconspicuous or not more than three times as long as wide (J)
Mesonotum without pair of curved dark lines on posterior half (C)
Sclerotized labrum widest at base (D)
Trochantin at base of foreleg pointed (E)

Features of Genus *Polycentropus*

Tarsi (F) nearly cylindrical and all narrower than corresponding tibiae (F')
Ventral teeth absent on anal claws (G)
Anal claws without tiny ventral spines along concave surface (G)
Anal claws (A) *may* be obtusely curved
Tarsi on forelegs (H) *may* be half length of tibiae (H')
Head muscle scars (I) darker than background

Where Recorded at Old Woman Creek

Larvae not recorded

General Ecology

Habit: Clingers (silk tube retreats)
Functional feeding groups: Predators (engulfers), shredders-herbivores, collectors-filterers

References: H 3, 25-29; W 315-319, 339; M&H 380; V 163

Photographs: St. Johns Dam East August 19, 2004; St. Johns Dam Walnut Grove November 17, 2003; KK REF GG17 October 25, 1997