

Invertebrate Identification Guide

**Florida International University
Aquatic Ecology Lab**

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Large Invertebrates

- Likely to be found in throw trap samples

SPONGES

PHYLUM: Porifera

SPECIES:

Spongilla lacustris

COMMON NAME: Sponge

CODE: SPOLAC

DESCRIPTION:

- Freshwater sponge
- White, green, or brownish with very small spicules



http://canadianbiodiversity.mcgill.ca/data/spp/photos/sponges/eph_mui.jpg



http://doris.ffessm.fr/gestionenligne/photos/spongilla_lacustris-2.jpg

WORMS

PHYLUM: Annelida

CLASS: Annelida

SUB-CLASS: Oligochaeta

COMMON NAME: Oligochaete

CODE: OLIGOC

DESCRIPTION:

- Bilaterally similar
- Segmented worms with four bundles of chaete on every segment except the first

SIMILAR ANIMALS:

Nematodes



<http://www.flickr.com/photos/nebarnix/874049745/lightbox/>



<http://www.pbase.com/spluk/image/136797308>



<http://www.calacademy.org/research/izg/SFBay2K/oligochaete%2063019.jpg>

LEECHES

PHYLUM: Annelida

CLASS: Annelida

SUB-CLASS: Hirudinea

SPECIES:

N/A

COMMON NAME: Leeches

CODE: HIRUDI

DESCRIPTION:

-Segmented with anterior and posterior suckers

SIMILAR ANIMALS:

Flatworms (not segmented, no suckers)



http://www.fishontario.com/fishing/walleye/article.jsp?content=20051205_093622_4152&page=1

SNAILS

PHYLUM: Mollusca

CLASS: Gastropoda

SUB-CLASS: Prosobrancha

FAMILY: Planorbidae

SPECIES:

Marisa cornuarietis

COMMON NAME: Giant Rams-horn

CODE: MARCOR

DESCRIPTION:

-Laterally compressed, spiral shape
-Bold longitudinal stripes
-Can grow fairly large

SIMILAR ANIMALS:

Other planorbid snails (all others are PLASPP)



<http://www.akvanistia.hu/CsigaFan/kep/23180>

SNAILS

PHYLUM: Mollusca

CLASS: Gastropoda

SUB-CLASS: Prosobrancha

FAMILY: Physidae

SPECIES:

(Haitia spp.)

COMMON NAME: Physid Snail

CODE: HAISPP

DESCRIPTION:

-Thin-shelled, large oval aperture

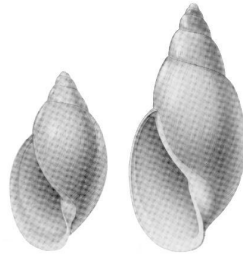
-Small spire; nearly transparent

-Left-handed opening

****Record ALL physid snails as HAISPP****

SIMILAR ANIMALS:

Mimic pond snail (aperture is *right-handed*)



<http://www.fimnh.uff.edu/malacology/ff-snail/images2/109.jpg>
<http://www.fimnh.uff.edu/malacology/ff-snail/images2/106.jpg>
<http://www.fimnh.uff.edu/malacology/ff-snail/images2/103.jpg>

SNAILS

PHYLUM: Mollusca

CLASS: Gastropoda

SUB-CLASS: Prosobrancha

FAMILY: Planorbidae

SPECIES:

(Planorbella spp.)

COMMON NAME: Planorbid Snail

CODE: PLASPP

DESCRIPTION:

-See photo

****Record ALL planorbid snails as PLASPP** (except Bugle Sprite and Giant Rams-horn)**

SIMILAR ANIMALS:

Bugle Sprite (pronounced ridge along spiral plane); Giant Rams-horn (prominent longitudinal stripes)



<http://www.fimnh.uff.edu/malacology/ff-snail/images2/124.jpg>
<http://www.fimnh.uff.edu/malacology/ff-snail/snails1.htm>
<http://www.fimnh.uff.edu/malacology/ff-snail/images2/121.jpg>

SNAILS

PHYLUM: Mollusca

CLASS: Gastropoda

SUB-CLASS: Prosobrancha

FAMILY: Hydrobiidae

SPECIES:

Littoridinops monoroensis

COMMON NAME: Cockscomb

Hydrobe

CODE: LITMON

DESCRIPTION:

- Small bodied(<7mm)
- Right-handed (dextral) opening
- Peristome (lip) incomplete around aperture
- Whorls flat sided (small shoulder)
- A few fine spiral striations

SIMILAR ANIMALS:

Dense hydrobe, Melania



<http://www.fimnh.uff.edu/malacology/ff-snail/images/2/55.jpg>

SNAILS

PHYLUM: Mollusca

CLASS: Gastropoda

SUB-CLASS: Prosobrancha

FAMILY: Hydrobiidae

SPECIES:

Aphaostracon pachynotus

COMMON NAME: Dense Hydrobe

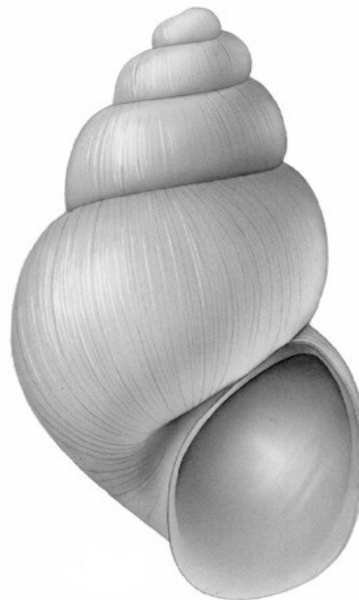
CODE: APHPAC

DESCRIPTION:

- Right-handed opening
- Complete peristome around aperture
- Whorls generally well-arched
- Strong shoulder
- Spiral sculpture absent
- 4-5 whorls

SIMILAR ANIMALS:

Cockscomb hydrobe, Melania



<http://www.fimnh.uff.edu/malacology/ff-snail/images/2/58.jpg>

SNAILS

PHYLUM: Mollusca

CLASS: Gastropoda

SUB-CLASS: Prosobrancha

FAMILY: Pilidae

SPECIES:

Pomacea paludosa

COMMON NAME: Apple Snail

CODE: POMPAL

DESCRIPTION:

- Large-bodied, striped shell
- Smallish spire
- Hard operculum



<http://www.flmnh.ufl.edu/malacology/fl-snail/images2/6.jpg>

SIMILAR ANIMALS:

Giant Rams-horn (laterally compressed, no spire, no operculum)

SNAILS

PHYLUM: Mollusca

CLASS: Gastropoda

SUB-CLASS: Prosobrancha

FAMILY: Thiariidae

SPECIES:

Melanoides tuberculata

COMMON NAME: Red-rimmed
Melania

CODE: MELTUB

DESCRIPTION:

- Non-native pointy snail
- Elongate shell
- Small aperture relative to shell length



<http://www.flmnh.ufl.edu/malacology/fl-snail/images2/25.jpg>

SIMILAR ANIMALS:

Hydrobes (Cockscomb, Dense)

LIMPETS

PHYLUM: Mollusca
CLASS: Gastropoda
SUB-CLASS: Pulmonata
FAMILY: Ancyliidae
SPECIES:

Laevepax pennisulae

COMMON NAME: Peninsula Ancylid
CODE: LAESPP

DESCRIPTION:

- Tiny limpets
- Delicate shells, sometimes transparent

SIMILAR ANIMALS:

Fingernail clams (have two shells)



http://animaldiversity.ummz.umich.edu/site/resources/jack_burch/067.rjb1.jpg/view.html



<http://www.flmnh.ufl.edu/malacology/fl-snail/images2/130.jpg>

SNAILS

PHYLUM: Mollusca
CLASS: Gastropoda
SUB-CLASS: Prosobranchia
FAMILY: Lymnaeidae
SPECIES:
Pseudosuccinae columella
COMMON NAME: Mimic Pond-snail
CODE: PSECOL

DESCRIPTION:

- Thin-shelled, with large oval aperture
- Small spire
- Nearly transparent
- Right-handed aperture

SIMILAR ANIMALS:

Physid snail (aperture is *left-handed*)



<http://www.flmnh.ufl.edu/malacology/fl-snail/images2/98.jpg>

SNAILS

PHYLUM: Mollusca

CLASS: Gastropoda

SUB-CLASS: Prosobranchia

FAMILY: Planorbidae

SPECIES:

Micromentus dilatatus avus

COMMON NAME: Bugle Sprite

CODE: MICDIL

DESCRIPTION:

-Laterally compressed, with ridge along spiral plane

-Thick-rimmed aperture

SIMILAR ANIMALS:

Other planorbids (no ridge along spiral plane)



<http://www.flinnh.uitl.edu/malacology/fl-snail/images/2/115.jpg>

BIVALVES

PHYLUM: Mollusca

CLASS: Bivalvia

SUB-CLASS: Lamellibrachia

FAMILY: Unionidae

SPECIES:

Villosa amygdala

COMMON NAME: Freshwater mussel

CODE: VILAMY

DESCRIPTION:

-Pronounced ridges with dark lines

SIMILAR ANIMALS:

Fingernail clam (rounder, smoother, transparent, lacks coloration)



<http://www.biosci.ohio-state.edu/~molluscs/gallery/images/1344.jpg>

FINGERNAIL CLAM

PHYLUM: Mollusca

CLASS: Bivalvia

SUB-CLASS: Lamellibrachia

FAMILY: Sphaeriidae

SPECIES:

N/A

COMMON NAME: Fingernail
Clam

CODE: SPHAER

DESCRIPTION:

-Very small clams; delicate shells,
often pale and translucent

SIMILAR ANIMALS:

Limpets (single shell)



http://www.inhs.uiuc.edu/cbd/museummanual/page172_3.html



<http://www.dlwc.nsw.gov.au/care/wetlands/facts/paa/invertebrates/molluscs.html>



<http://nas.er.usgs.gov/queries/factsheet.aspx?SpeciesID=2322>

CRAYFISH

PHYLUM: Arthropoda

CLASS: Crustacea

SUB-CLASS: Eucarida

FAMILY: Cambaridae

SPECIES:

Procambarus species

CODE: PROSPP, PROALL,
PROFAL

DESCRIPTION:

-Check genitalia (located ventrally)
to determine species and sex

-If under 10mm or cannot determine
species, use code **PROSPP**

-See NEXT PAGE for detailed de-
scription and photos



<http://www.geocities.jp/idenyusei/allen/ProcambarusAllen1.jpg>

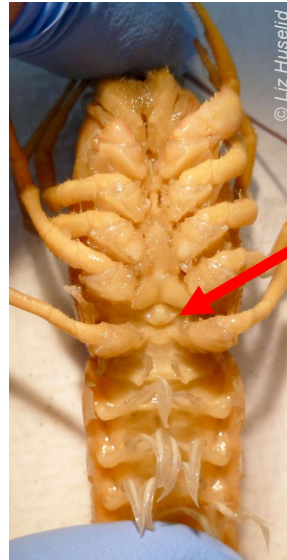
Right: Male
crayfish,
ventral view

Gonopods

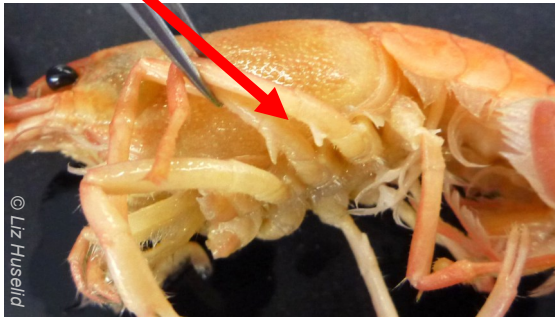


Left: Female crayfish,
ventral view

Annulus ventralis



Below: Mature
male with "spurs"
on walking legs



Below: Mature female
with eggs



CRAYFISH

PHYLUM: Arthropoda

CLASS: Crustacea

SUB-CLASS: Eucarida

FAMILY: Cambaridae

SPECIES:

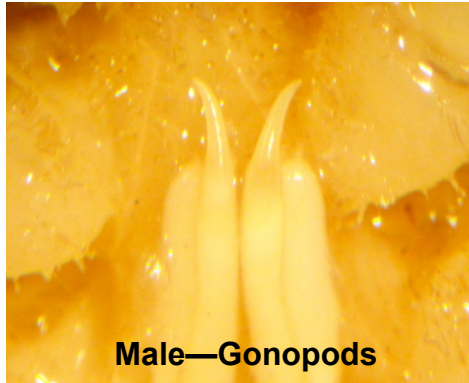
Procambarus alleni

CODE: PROALL

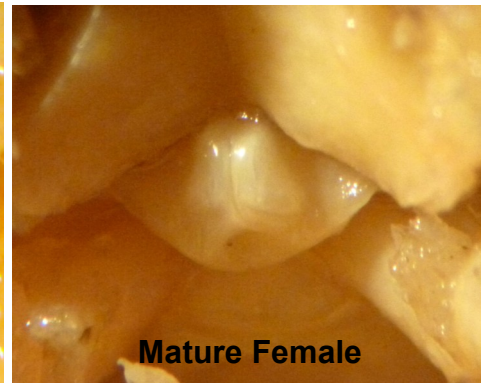
DESCRIPTION:

-Male: gonopod tips point anteriorly, nearly straight; mature males have spikes on 2nd and 3rd walking legs

-Female: annulus peaked along anterior edge; annulus looks “dented” in mature females



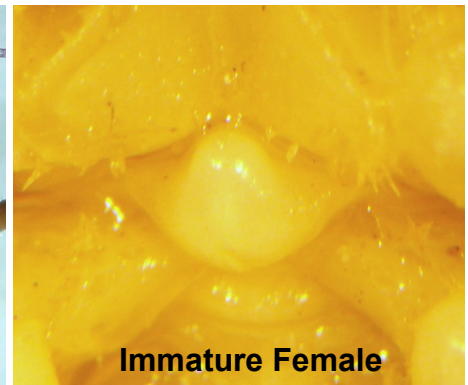
Male—Gonopods



Mature Female



Black/Red Headlights



Immature Female

CRAYFISH

PHYLUM: Arthropoda

CLASS: Crustacea

SUB-CLASS: Eucarida

FAMILY: Cambaridae

SPECIES:

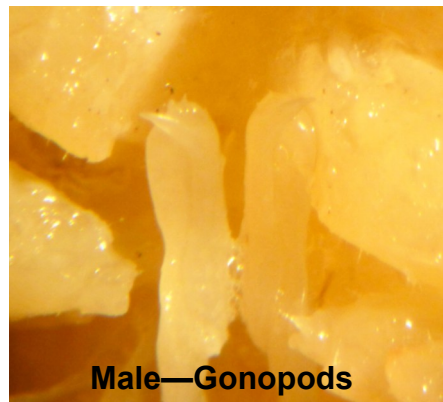
Procambarus fallax

CODE: PROFAL

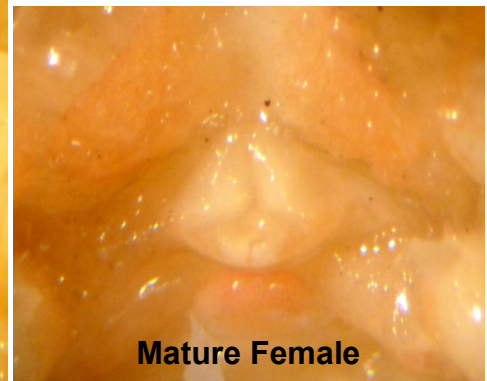
DESCRIPTION:

-Male: gonopod tips sharply angled (nearly 90 degrees), point laterally; mature males have spikes on 2nd and 3rd walking legs

-Female: annulus dome-like, diamond shaped; annulus looks “dented” in mature females



Male—Gonopods



Mature Female



NO Headlights



Immature Female

All photos on this page © Liz Huselid

TAPHROMYSID SHRIMP

PHYLUM: Arthropoda

CLASS: Crustacea

SUB-CLASS: Peracarida

FAMILY: Mysidae

SPECIES:

Taphromysis louisianae

COMMON NAME: Possum Shrimp

CODE: TAPLOU

DESCRIPTION:

- Small shrimp
- Prominent stalked eyes
- **no rostrum** (see photo)

SIMILAR ANIMALS:

Grass shrimp



© Liz Huselid



© Liz Huselid

SHRIMP

PHYLUM: Arthropoda

CLASS: Crustacea

SUB-CLASS: Eucarida

FAMILY: Palaemonidae

SPECIES:

Palaemonetes paludosus

COMMON NAME: Grass Shrimp

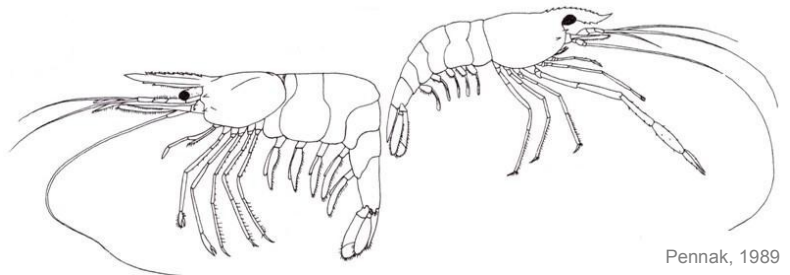
CODE: PALPAL

DESCRIPTION:

- Shrimp
- Long antennae
- Females may carry eggs

SIMILAR ANIMALS:

Possum shrimp, small crayfish



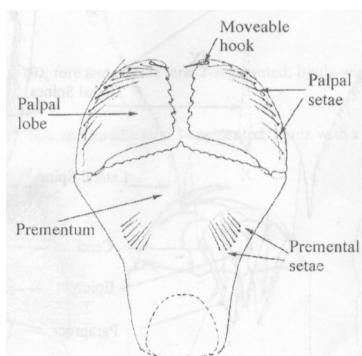
Pennak, 1989



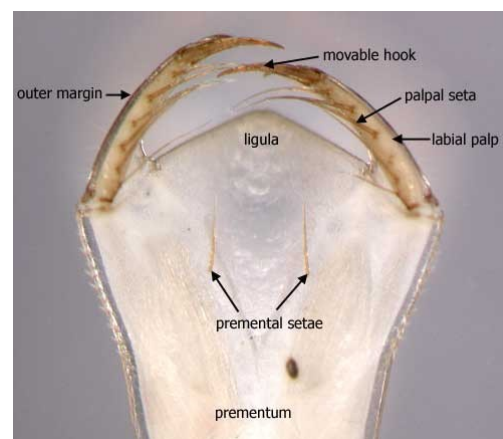
http://www.frdc.com.au/images/28711029_photo.jpg

Identification of Larval Dragonflies

Identifying dragonfly naiads down to species or even genus can be challenging. Luckily, in addition to overall appearance there are a number of anatomical features that can be very helpful. The most useful of these include:



Drawings from Richardson, 2003

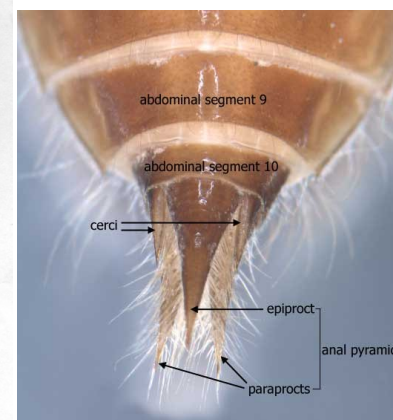
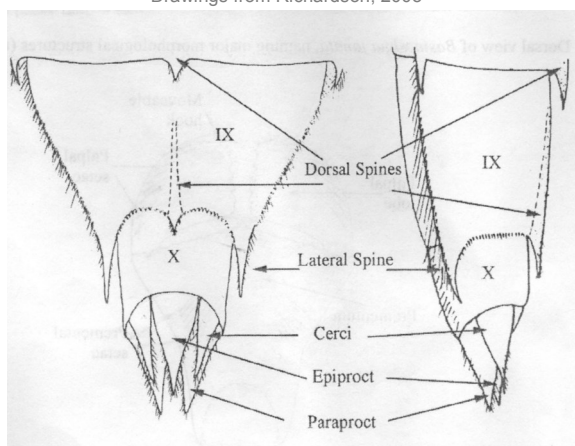


<http://www.mdfrc.org.au/bugguide/diagrams/OdonataLabiumInside.jpg>

- Premental and palpal setae counts

- Spines on abdominal segments 9 and 10

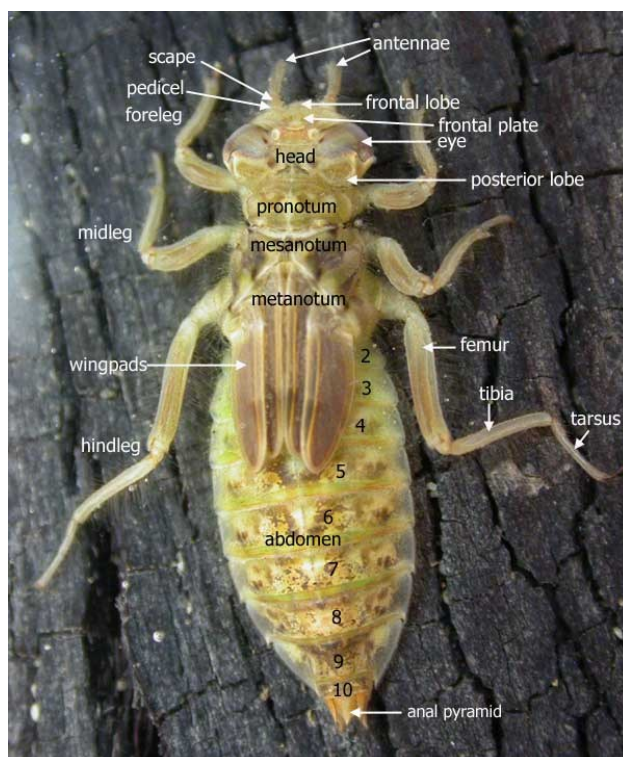
- Eye shape



<http://www.mdfrc.org.au/bugguide/diagrams/OdonataAnalpyramid.jpg>

Also, keep in mind that dragonfly larvae, as insects, go through a number of transformations on the way to becoming adults. These developmental stages, called "instars," often involve changes in appearance (such as change in overall size and wingpad growth)—so a younger instar of a species may look somewhat different from an older instar. However diagnostic characteristics, such as palpal setae counts, will remain the same across all instars.

If even after consulting voucher specimens and the lab's specialized dragonfly book a dragonfly cannot be conclusively identified, use the code **ANISOP**.



<http://www.mdfrc.org.au/bugguide/diagrams/odonataplDorsal.jpg>

DRAGONFLY NAIADS

PHYLUM: Arthropoda

CLASS: Insecta

FAMILY: Aeshnidae

SPECIES:

Anax junius

COMMON NAME: Common Green Darner

CODE: ANAJUN

DESCRIPTION:

- Can grow fairly large
- Elongate abdomen
- Large eyes, may cover most of head surface
- Posterior margin of head rounded

SIMILAR ANIMALS:

CORING



<http://nmh.isu.edu/digitalatlas/bio/insects/dnfly/aeshfam/anju/anjufr.htm>

DRAGONFLY NAIADS

PHYLUM: Arthropoda

CLASS: Insecta

FAMILY: Aeshnidae

SPECIES:

Coryphaeschna ingens

COMMON NAME: Regal Darner

CODE: CORING

DESCRIPTION:

- Can grow fairly large
- Elongate abdomen
- Thin eyes near sides of head
- Posterior margin of head concave

SIMILAR ANIMALS:

ANAJUN



© Liz Huselid

Genus *Libellula* (LIBSPP)

DRAGONFLY NAIADS

PHYLUM: Arthropoda

CLASS: Insecta

FAMILY: Libellulidae

SPECIES:

Libellula incesta — **LIBINC** (most common)

Libellula auripennis — **LIBAUR**

Libellula needhami — **LIBNEE**

Libellula spp. — **LIBSPP**

COMMON NAME: Skimmers

DESCRIPTION:

- Hairy
- Often black bar between eyes when viewed from above
- Lateral spines not prominent
- Abdomen tapered to epiproct
- Eyes confined to anterior portion of head



KEY TO SPECIES:

- 1) Palpal setae 5 or 6 ; premental setae 8 or 9; epiproct notably decurved to tip **LIBINC**
- 2) Palpal setae 10 or 11; epiproct nearly straight; epiproct long, 1.5 or more times width of base; reddish-brown body 3
- 3) Cerci half as long as paraprocts; NO dorsal hook on segment 3; coastal marshes, Everglades **LIBNEE**
- 3') Cerci less than half as long as paraprocts; small dorsal hook on segment 3; common statewide **LIBAUR**



DRAGONFLY NAIADS

PHYLUM: Arthropoda

CLASS: Insecta

FAMILY: Libellulidae

SPECIES:

Celithemis spp.

COMMON NAME: Pennants

CODE: CELSPP

DESCRIPTION:

- Eyes very pointy when viewed from above (catwoman eyes)
- Mid-dorsal hooks, spines, or knobs present on abdomen (but not on segments 8 or 9)
- Segment 9 lateral spines long and straight, extending to tips of the paraprocts
- Difficult to distinguish species, so generally identified only to genus

SIMILAR ANIMALS:

PACLON (eyes more rounded at tips, black bands on antennae)



© Angel Abreu and Raúl Urgellés

DRAGONFLY NAIADS

PHYLUM: Arthropoda

CLASS: Insecta

FAMILY: Libellulidae

SPECIES:

Pachydiplax longipennis

COMMON NAME: Blue Dasher

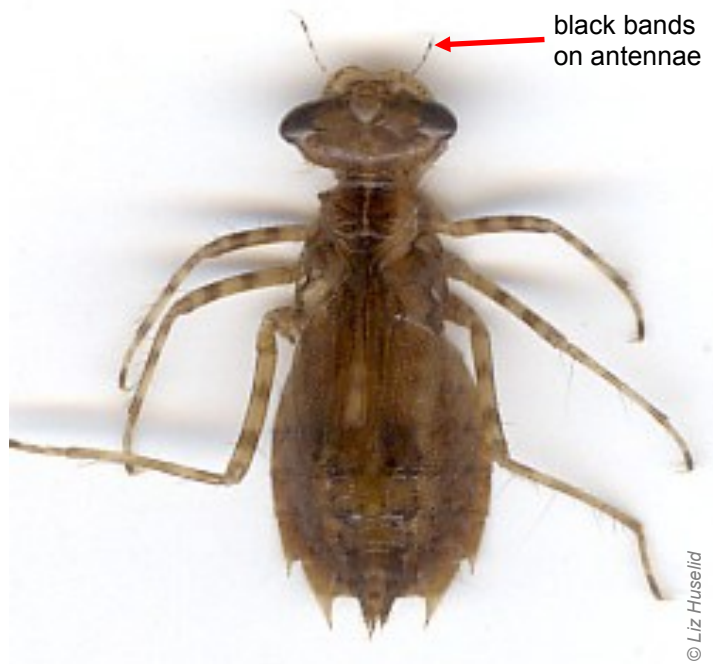
CODE: PACLON

DESCRIPTION:

- Eyes oval-shaped
- Antennae have prominent black bands near tips
- No mid-dorsal hooks, spines, or knobs on abdomen
- Lateral spine of 9 much longer than mid-dorsal

SIMILAR ANIMALS:

CELSPP (eyes very pointy)



© Liz Huselid

Genus Erythemis (ERYSPP)

DRAGONFLY NAIADS

PHYLUM: Arthropoda

CLASS: Insecta

FAMILY: Libellulidae

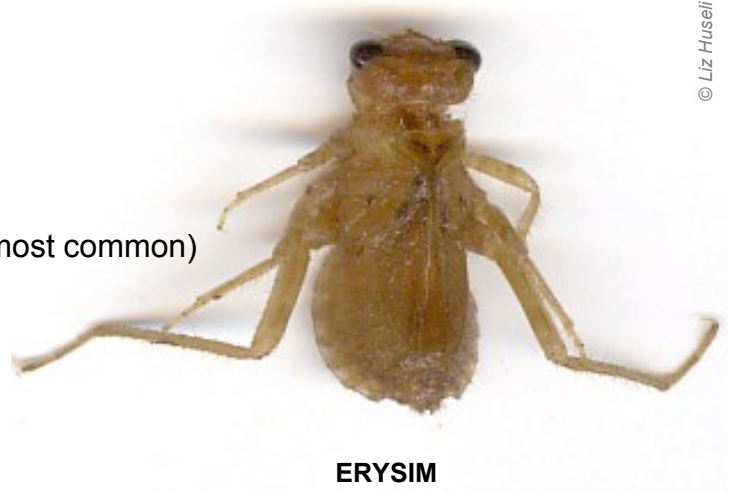
SPECIES:

Erythemis simplicicollis — **ERYSIM** (most common)

Erythemis vesiculosa — **ERYVES**

Erythemis plebeja — **ERYPLE**

Erythemis spp. — **ERYSPP**



ERYSIM

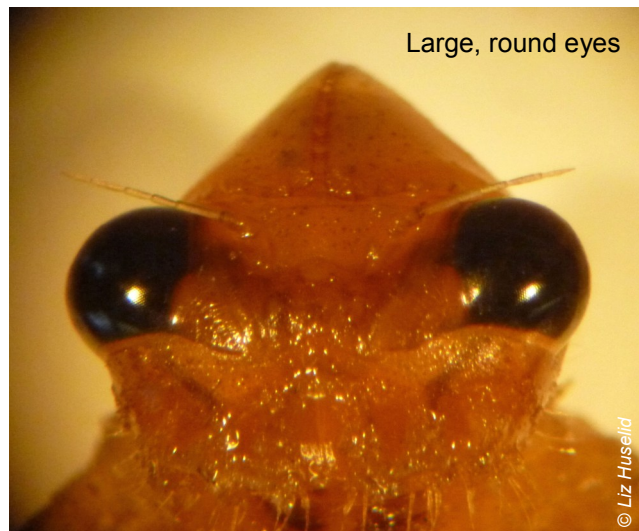
COMMON NAME: Pondhawks

DESCRIPTION:

- Large, very round eyes (puppy-dog eyes)
- Smallish in size; abdomen small and rounded
- Lateral spines absent or very small

KEY TO SPECIES:

- 1) Abdominal segment 9 lacking lateral spines, or with minute straight ones **ERYSIM**
- 1') Abdominal segment 9 with small but distinct, de-curved lateral spines 2
- 2) Palpal setae 11 or more, premental setae 15 or more **ERYVES**
- 2') Palpal setae 9 or fewer, premental setae 13 or fewer **ERYPLE**



Large, round eyes

Genus *Pantala* (PANSPP)

DRAGONFLY NAIADS

PHYLUM: Arthropoda

CLASS: Insecta

FAMILY: Libellulidae

SPECIES:

Pantala flavescens — PANFLA

Pantala hymenaea — PANHYM

Pantala spp. — PANSPP

COMMON NAME: Gliders, Skimmers

DESCRIPTION:

- Often mottled black and brown coloration
- Large, curved serrations on inner margins of palpal lobes
- Abdominal segments 8 and 9 have large, curved lateral spines

SIMILAR ANIMALS:

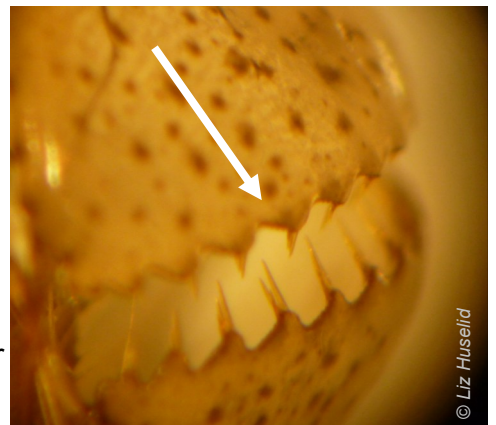
TRACAR (small, low serrations on inner margins of palpal lobes)

KEY TO SPECIES:

- 1) Palpal setae 14 or fewer; epiproct smooth, without hump; most have longer, more slender abdominal segments 8 and 9 **PANFLA**
- 1') Palpal setae 16 or more; dorsal surface of epiproct has hump when viewed from the side; shorter, stouter abdominal segments 8 and 9 **PANHYM**



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© Liz Huselid

Large serrations on inner margin of palpal lobes

Genus *Tamea* (TRASPP)

DRAGONFLY NAIADS

PHYLUM: Arthropoda

CLASS: Insecta

FAMILY: Libellulidae

SPECIES:

Tamea carolina — TRACAR (most common)

Tamea lacerata — TRALAC

Tamea spp. — TRASPP

COMMON NAME: Saddlebags

DESCRIPTION:

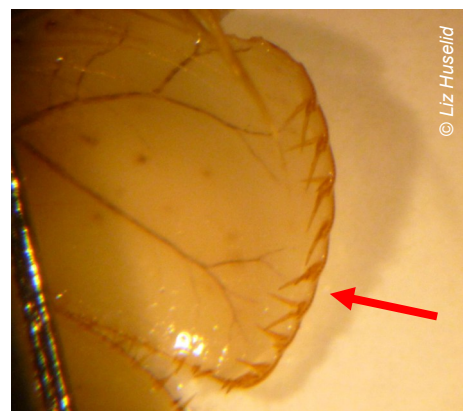
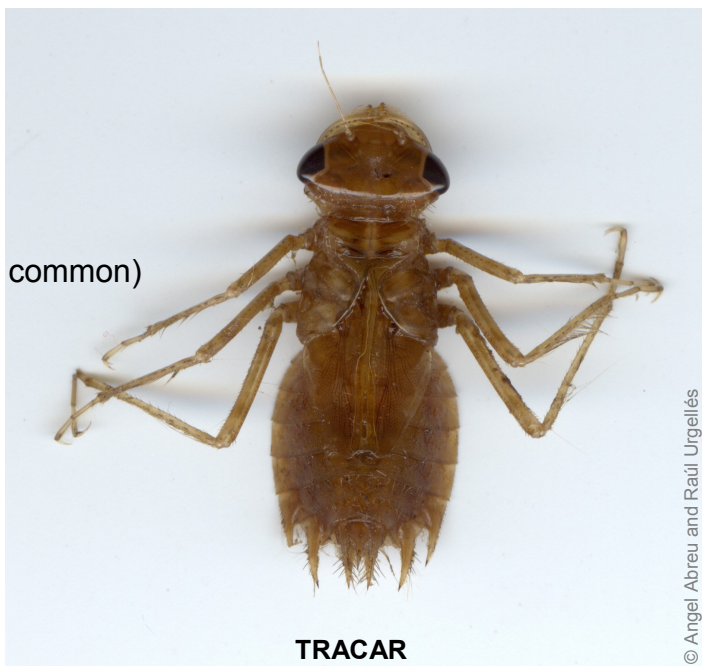
- Triangular inner margin of eye
- Eyes small relative to head size when viewed from above
- Small, low serrations on inner margin of palpal lobes

SIMILAR ANIMALS:

PANFLA, PANHYM (large serrations on inner margins of palpal lobes)

KEY TO SPECIES:

- 1) 9 Palpal setae, 13 premental setae; lateral spines of abdominal segment 8 nearly straight **TRACAR**
- 1') 11 palpal setae, 13 premental setae; lateral spines of abdominal segment 8 noticeably incurved **TRALAC**



Small, low serrations on inner margin of palpal lobes

DRAGONFLY NAIADS

PHYLUM: Arthropoda

CLASS: Insecta

FAMILY: Libellulidae

SPECIES:

Brachymesia gravida

COMMON NAME: Four-spotted Pennant

CODE: BRAGRA

DESCRIPTION:

- Eyes rounded, medium sized
- Median dorsal hooks on segments 6-9
- Abdomen tapered to epiproct
- Hind legs very long



DRAGONFLY NAIADS

PHYLUM: Arthropoda

CLASS: Insecta

FAMILY: Libellulidae

SPECIES:

Perithemis tenera seminole

COMMON NAME: Eastern Amber-wing

CODE: PERTEN

DESCRIPTION:

- Short lateral spines on seg. 8 and 9
- Eyes rounded, half length of head
- Dorsal hooks present on abdomen
- Palpal setae 5-6
- Premental setae 9-10



DRAGONFLY NAIADS

PHYLUM: Arthropoda

CLASS: Insecta

FAMILY: Corduliidae

SPECIES:

Epitheca stella/sepia

COMMON NAME: Florida Basket-tail

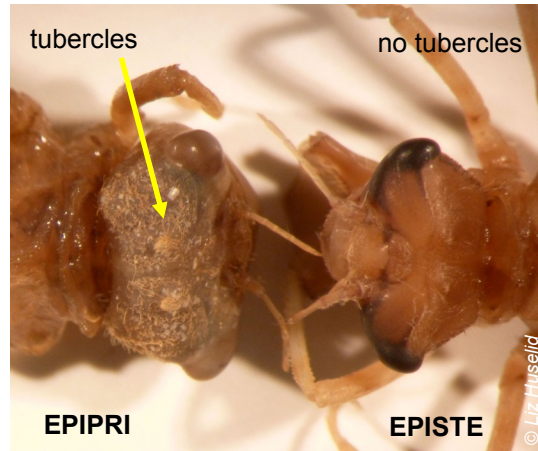
CODE: EPISTE

DESCRIPTION:

- Lateral abdominal spines very long, extending beyond end of paraprocts
- Abdominal segment 8 shorter than mid-dorsal length of 9
- Thin dark lines extend behind eyes
- Lacks tubercles on head

SIMILAR ANIMALS:

EPIPRI



DRAGONFLY NAIADS

PHYLUM: Arthropoda

CLASS: Insecta

FAMILY: Corduliidae

SPECIES:

Epitheca princeps regina

COMMON NAME: Prince Basket-tail

CODE: EPIPRI

DESCRIPTION:

- Lateral spines long, extending beyond paraprocts
- Prominent mid-dorsal hooks
- Two small tubercles on top of head

SIMILAR ANIMALS:

EPISTE



DRAGONFLY NAIADS

PHYLUM: Arthropoda

CLASS: Insecta

FAMILY: Gomphidae

SPECIES:

Aphylla williamsoni

COMMON NAME: Two-striped

Forceptail

CODE: APHWIL

DESCRIPTION:

- Last abdominal segment modified into a very long breathing tube—almost same length as rest of body
- Thick antennae that point forward
- Fore and middle legs shorter than hind legs
- Smallish eyes

SIMILAR ANIMALS:

ARIPAL



DRAGONFLY NAIADS

PHYLUM: Arthropoda

CLASS: Insecta

FAMILY: Gomphidae

SPECIES:

Arigomphus pallidus

COMMON NAME: Gray-green

Clubtail

CODE: ARIPAL

DESCRIPTION:

- Last abdominal segment modified into a short breathing tube
- Thick antennae that point forward
- Fore and middle legs shorter than hind legs
- Smallish eyes

SIMILAR ANIMALS:

APHWIL



DRAGONFLY NAIADS

PHYLUM: Arthropoda

CLASS: Insecta

ORDER: Odonata

FAMILY: Coenagrionidae

SPECIES:

N/A

COMMON NAME: Narrow-winged Damselflies

CODE: COENAG

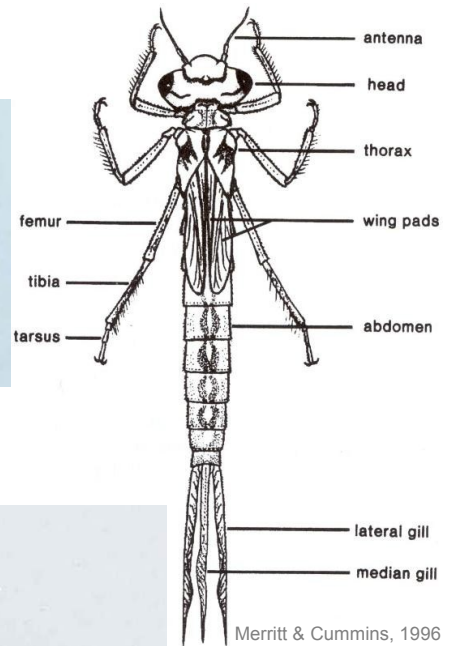
DESCRIPTION:

- Elongate, cylindrical abdomen
- 3 featherlike gills at end of abdomen

SIMILAR ANIMALS:

Ephemeroptera

http://www.entomology.umn.edu/midge/WebKey/Coenagrionidae_labium.jpg



<http://www.ru.ac.za/academic/departments/zooento/Martin/coenagrionidae.html>

MAYFLY NYMPHS

PHYLUM: Arthropoda

CLASS: Insecta

ORDER: Ephemeroptera

SPECIES:

N/A

COMMON NAME: Mayfly Nymph

CODE: EPHEME

DESCRIPTION:

- Enlarged gills on abdominal segment 2
- Operculate gills that are not fused mesally, but overlapping
- 3 long tail threads extend from tip of abdomen

SIMILAR ANIMALS:

Coenagrionidae



Genus Caenis

http://www.discoverlife.org/IML/DSC/0004/320/Caenis_anceps_larva1_DSC419.jpg



Genus Callibaetis

http://www.discoverlife.org/IML/DSC/0002/320/Callibaetis_ferrugineus_male_larva1_DSC217.jpg

AQUATIC BUGS

PHYLUM: Arthropoda

CLASS: Insecta

FAMILY: Belostomatidae

SPECIES:

Belostoma sp.

COMMON NAME: Toe Biter

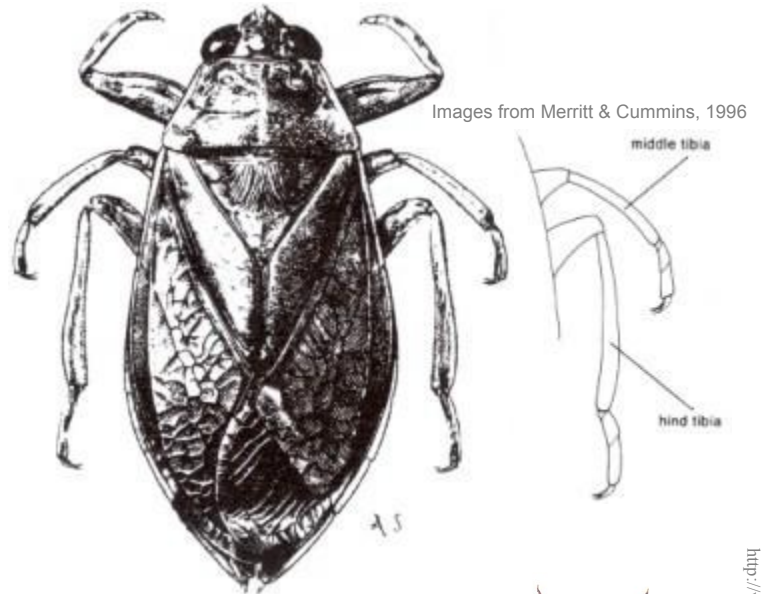
CODE: BELSPP

DESCRIPTION:

- Antennae shorter than head, inserted beneath eyes
- Beak cylindrical
- A pair of flat, retractile air straps
- Males carry eggs on their backs

SIMILAR ANIMALS:

Lethocerus



http://www.godo.insects.com/files/25127632/9412174_8.jpg

AQUATIC BUGS

PHYLUM: Arthropoda

CLASS: Insecta

FAMILY: Belostomatidae

SPECIES:

Lethocerus sp.

COMMON NAME: Giant Water Bug

CODE: LETSPP

DESCRIPTION:

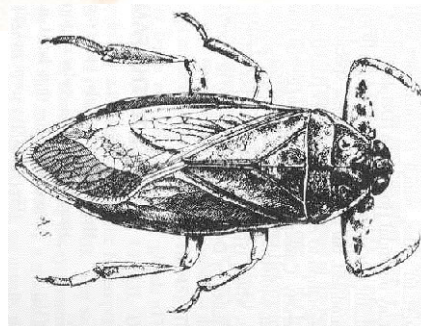
- May grow to large size
- Tibia and tarsus of hind leg wider and flatter than middle leg

SIMILAR ANIMALS:

Belostoma



Images from Merritt & Cummins, 1996



WATER BOATMEN

PHYLUM: Arthropoda

CLASS: Insecta

FAMILY: Corixidae

SPECIES:

N/A

COMMON NAME: Water Boatmen

CODE: CORIXI

DESCRIPTION:

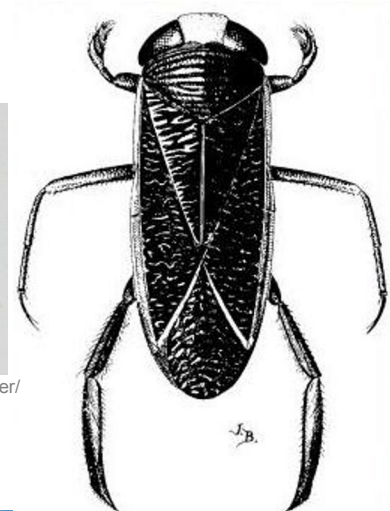
- Beak triangular and short
- Hind legs paddle-like, fringed with setae

SIMILAR ANIMALS:

Aquatic beetles



<http://www.cals.ncsu.edu/course/ent525/water/aquatic/images/09.jpg>



<http://treadwell.ifas.ufl.edu/insects/0604.JPG>



http://www.epa.gov/bioiweb1/images/invertebrates/bugs/corixidae_vernalpool007_web.jpg

ALLIGATOR FLEA

PHYLUM: Arthropoda

CLASS: Insecta

FAMILY: Naucoridae

SPECIES:

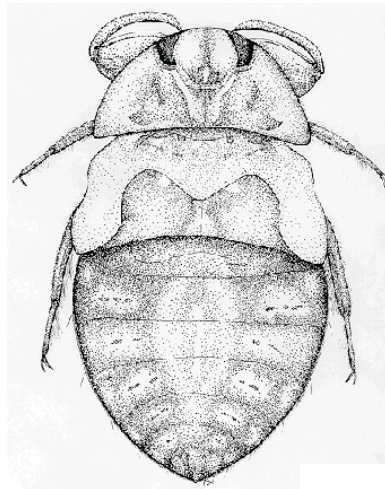
Pelocoris femoratus

COMMON NAME: Alligator Flea

CODE: PELFEM

DESCRIPTION:

- Length < 16mm
- Eyes do not protrude from margin of head
- First two arms are curved, needle-sharp pincers



<http://waterknowledge.colostate.edu/graphics/ambrysus.gif>



<http://www.cals.ncsu.edu/course/ent525/water/aquatic/images/10.jpg>



<http://bugguide.net/images/raw/FOAQYOVQHS9QY0XKT1K1QLS1QVK9Q1K4KUK6OB0ZKT0ZK2KPKA0LK002Q9KKV0RK EKHK10NQRSMKOK.jpg>

AQUATIC BUGS

PHYLUM: Arthropoda

CLASS: Insecta

FAMILY: Gerridae

SPECIES:

Gerris sp.

COMMON NAME: Water Strider

CODE: GERRID

DESCRIPTION:

-4 very long legs, 2 short ones

-May have white stripes along sides of body

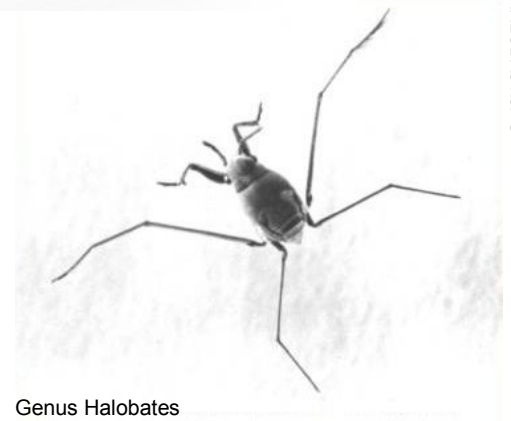
SIMILAR ANIMALS:

Spiders

Genus Gerris



http://i51.photobucket.com/albums/f396/fit_bike/Gerridae-WaterStrider5.jpg



Genus Halobates

http://i51.photobucket.com/albums/f396/fit_bike/Gerridae-WaterStrider4.jpg

<http://www.zmuc.dk/entoweb/halobates/images/HALOBA01.JPG>

AQUATIC BEETLE ADULT

PHYLUM: Arthropoda

CLASS: Insecta

SPECIES:

N/A

COMMON NAME: Adult Aquatic Beetle

CODE: COLEOA

DESCRIPTION:

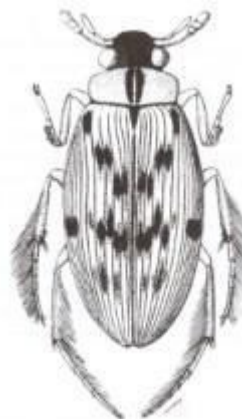
-Beetles

-2-3 segmented antenna

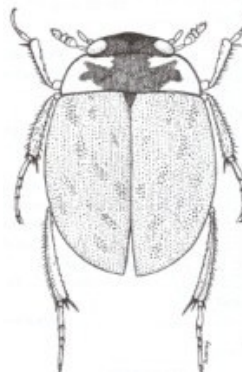
-3 pairs of legs with one or two claws

SIMILAR ANIMALS:

Alligator flea, water boatman, predaceous diving beetle (very large)



Merritt & Cummins, 1996



http://www.insects.org/entophiles/cole_014.html

ADULT AQUATIC BEETLE

PHYLUM: Arthropoda

CLASS: Insecta

SPECIES:

Cybister spp.

COMMON NAME: Predaceous
Diving Beetle

CODE: CYBFIM

DESCRIPTION:

- Large diving beetle
- Body very smooth, like single capsule; black with brownish detail
- Last pair of legs modified for swimming
- Release a terrible smell



http://www.ent.ohiou.edu/~jean/myweb/coleoptera_dytiscidaeadult1.jpg



Merritt & Cummins, 1996

SIMILAR ANIMALS:

Other aquatic beetles (usually much smaller)

AQUATIC BEETLE LARVAE

PHYLUM: Arthropoda

CLASS: Insecta

FAMILY: Dytiscidae

SPECIES:

Cybister spp.

COMMON NAME: "Water Tiger"
Predaceous Diving Beetle Larvae

CODE: CYBSPP

DESCRIPTION:

- Very large pincers; larvae grow to large size
- Cerci absent
- Ligula long

SIMILAR ANIMALS:

Other beetle larvae
(Usually much smaller)

<http://bugguide.net/>



http://www.flbenthos.org/media/images/product_detail/cybister_larva_l1line.jpg



Merritt & Cummins, 1996

AQUATIC BUGS

PHYLUM: Arthropoda

CLASS: Insecta

SPECIES:

Miscellaneous Aquatic

Bug

COMMON NAME: True Bugs

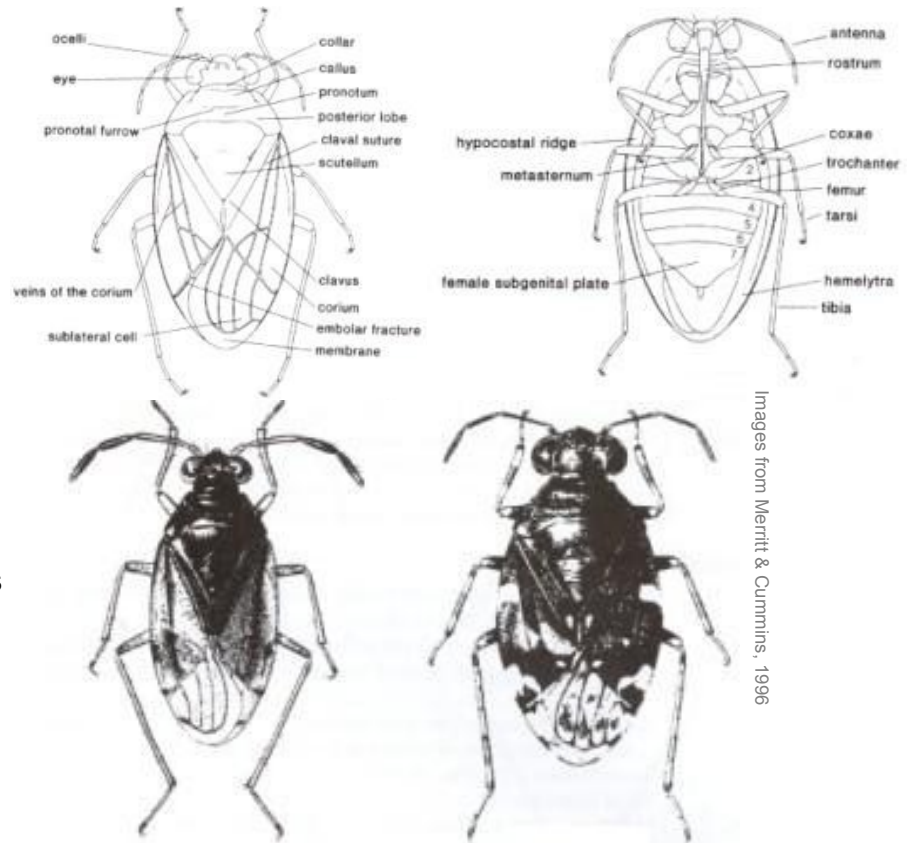
CODE: HETERO

DESCRIPTION:

- Wings hardened in basal half
- Piercing and sucking mouth parts formed into a broad or narrow tube
- Includes walking sticks, other bugs (besides beetles)

SIMILAR ANIMALS:

Aquatic beetles, toe biters



Small Invertebrates

- Likely to be found in core and sweep samples

SPRINGTAILS

PHYLUM: Arthropoda

CLASS: Entognatha

SUBCLASS: Collembola

SPECIES:

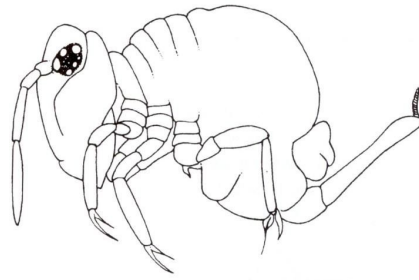
N/A

COMMON NAME: Springtail

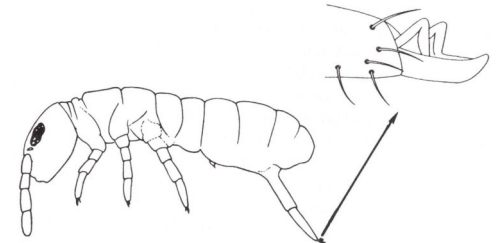
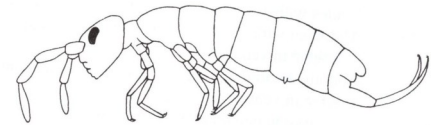
CODE: COLLEM

DESCRIPTION:

- Small, wingless arthropods
- Distinct head with segmented antenna
- Three-segmented thorax with three pairs of legs
- Segmented abdomen
- Distinguished by the furcula, a midventral appendage on the abdomen that consists of a basal piece with two arms



Images from Merritt & Cummins, 1996



<http://www.cals.ncsu.edu/course/en425/library/spotid/collembola/collemb001a.jpg>

AQUATIC BEETLE LARVAE

PHYLUM: Arthropoda

CLASS: Insecta

FAMILY: Dytiscidae

SPECIES:

Celina sp.

COMMON NAME: Aquatic Beetle Larvae

CODE: CELSPP

DESCRIPTION:

- Last abdominal segment with re-curved extension of lateral tracheal trunks reaching beyond apex of abdomen
- Maxillary palp with 4 segments

SIMILAR ANIMALS:

Other beetle larvae



http://www.florhenthos.org/media/images/product_category/celina_larva.JPG



http://www.florhenthos.org/media/images/product_category/celina_larva_2.JPG

AQUATIC BEETLE LARVAE

PHYLUM: Arthropoda

CLASS: Insecta

FAMILY: Gyrinidae

SPECIES:

Gyrinus sp.

COMMON NAME: Whirligig Beetle Larvae

CODE: GYRSPP

DESCRIPTION:

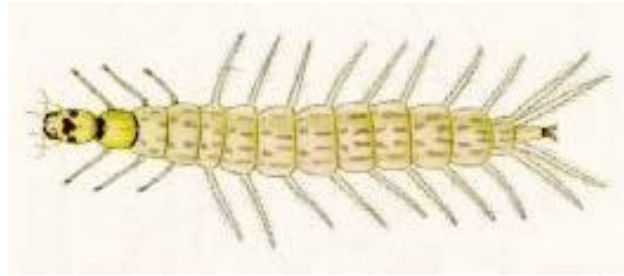
- Abdomen with two pairs of stout, terminal hooks on segment 10
- Abdominal segments 1-9 bearing lateral gills
- Upper eye set in from edge of head > 1/2 eye diameter
- Pronotum and elytron glabrous
- 4-7mm in length
- Elytron with 11 distinct striae

SIMILAR ANIMALS:

- Water scavenger beetle larvae



http://www.bugsurvey.nsw.gov.au/html/popups/images/ge_wh-be-la_col.jpg



<http://kywater.org/www/bugs/gyrinid.jpg>

WEEVIL LARVAE

PHYLUM: Arthropoda

CLASS: Insecta

FAMILY: Curculionidae

SPECIES:

N/A

COMMON NAME: Snout and Bark Beetle Larvae — Weevils

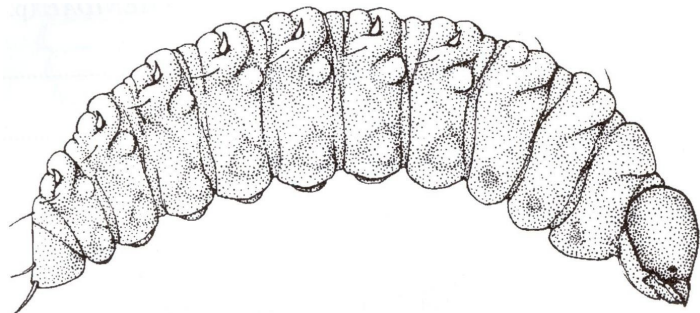
CODE: CURCUL

DESCRIPTION:

- Beetle-like larvae with no legs

SIMILAR ANIMALS:

- Caterpillars



Merritt & Cummins, 1996



<http://entomology.unl.edu/ornamentals/images/blackvinelarva.jpg>

http://www.ento.csiro.au/ecowatch/Primary/beetles/images/beetle_larvae.jpg

HYDROPHILID BEETLES

PHYLUM: Arthropoda

CLASS: Insecta

FAMILY: Hydrophilidae

SPECIES:

Berosus sp.

COMMON NAME: Water Scavenger Beetle Larvae

CODE: BERSPP

DESCRIPTION:

-Long, trailing lateral gills

SIMILAR ANIMALS:

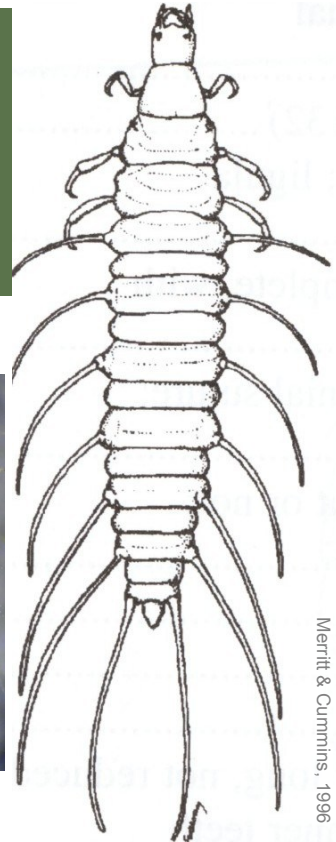
Other beetle larvae



<http://www.mdrc.org.au/bugguide/images/hydrophilidaeberosus.jpg>



http://www.dfg.ca.gov/abl/images2/berosus_larva_dorsal.png



Merritt & Cummins, 1996

HYDROPHILID BEETLES

PHYLUM: Arthropoda

CLASS: Insecta

FAMILY: Hydrophilidae

SPECIES:

Derallus sp.

COMMON NAME: Water Scavenger Beetle Larvae

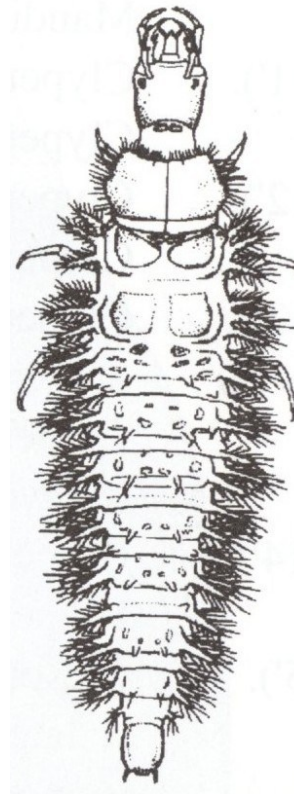
CODE: DERSPP

DESCRIPTION:

-Gills on each abdominal segment

SIMILAR ANIMALS:

Other beetle larvae



Merritt & Cummins, 1996

HYDROPHILID BEETLES

PHYLUM: Arthropoda

CLASS: Insecta

FAMILY: Hydrophilidae

SPECIES:

Enochrus sp.

COMMON NAME: Water

Scavenger Beetle Larvae

CODE: ENOSPP

DESCRIPTION:

- Longish antennae, legs fairly long
- Prolegs on segments 3-7
- Mandible teeth asymmetrical

SIMILAR ANIMALS:

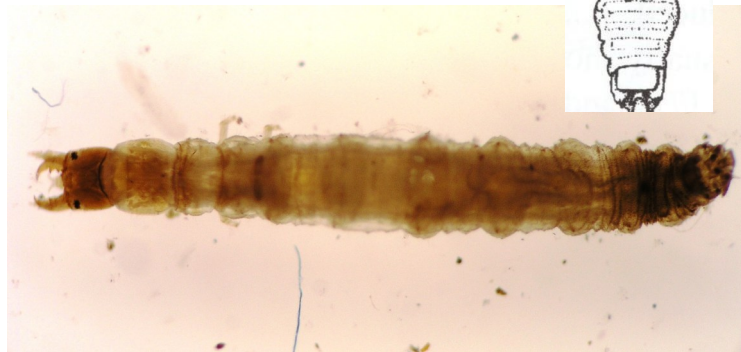
Other beetle larvae



http://www.flbenthos.org/media/images/product_category/enochrus_larva_lateral.jpg



Merritt & Cummins, 1996



http://www.flbenthos.org/media/images/product_category/enochrus_larva_dorsal.jpg

AQUATIC BEETLE LARVAE

PHYLUM: Arthropoda

CLASS: Insecta

FAMILY: Noteridae

SPECIES:

Unidentified noterid beetle larvae

COMMON NAME: Aquatic Beetle Larvae

CODE: NOTERL

DESCRIPTION:

- See photo

SIMILAR ANIMALS:

Other beetle larvae



1.0 mm

http://www.anbg.gov.au/cpbr/WfHC/Dytiscidae/images/Hypnhydrus%20sp_larvae-300.jpg



http://i.pbse.com/t1/94/339594/4/59403615.IMG_3227.jpg



2.5 mm

http://www.anbg.gov.au/cpbr/WfHC/Dytiscidae/images/Rhantus%20sp_larva-300.jpg



<http://www.dfg.ca.gov/abl/images2/lnotdor1.png>

AQUATIC BEETLE LARVAE

PHYLUM: Arthropoda

CLASS: Insecta

FAMILY: Noteridae

SPECIES:

Hydrocanthus sp.

COMMON NAME: Aquatic Beetle Larvae

CODE: HYDSPP

DESCRIPTION:

-See photo

SIMILAR ANIMALS:

Noterid beetle larvae



http://www.fibenthos.org/media/images/product_category/hydrocanthus_larva_lateral.JPG



http://www.fibenthos.org/media/images/product_category/hydrocanthus_larva_dorsal.JPG

CADDIS FLY

PHYLUM: Arthropoda

CLASS: Insecta

ORDER: Trichoptera

SPECIES:

N/A

COMMON NAME: Caddis Fly Larvae

CODE:

TRICHO

DESCRIPTION:

-May reside inside a protective tube made of plant matter

-Antennae extremely small, inconspicuous, one-segmented

SIMILAR ANIMALS:

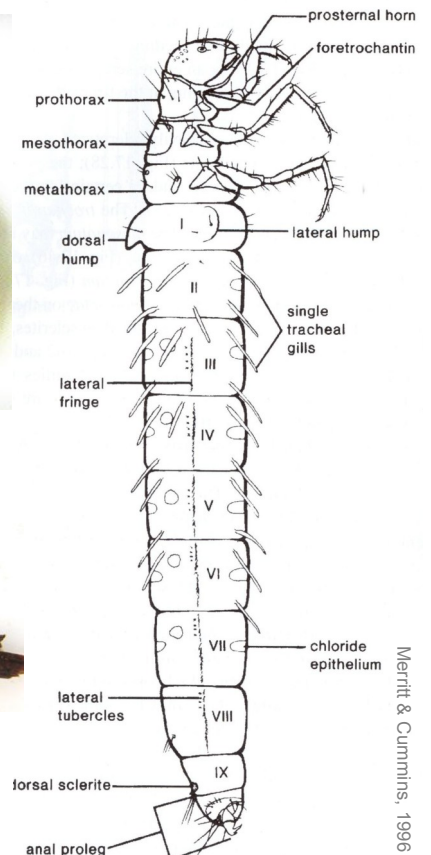
Beetle larvae



http://www.nwnature.net/macros/efl_fall05/images/efl_sep05_50_1.jpg



http://www.nwnature.net/macros/lena_jul06/images/IMG_0662.jpg



Merritt & Cummins, 1996

AQUATIC CATERPILLARS

PHYLUM: Arthropoda

CLASS: Insecta

ORDER: Lepidoptera

SPECIES:

N/A

COMMON NAME: Butterfly
and Moth Larvae

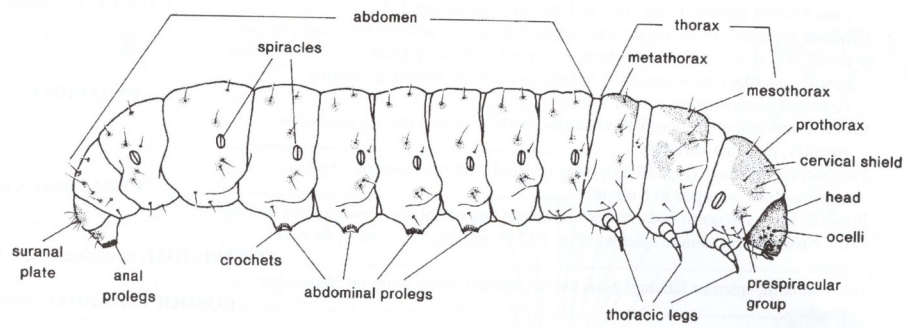
CODE: LEPIDO

DESCRIPTION:

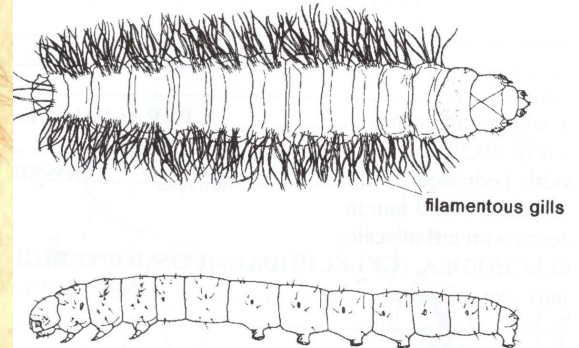
- Caterpillars
- Several sets of prolegs
- May have fur-like gills

SIMILAR ANIMALS:

Beetle and fly larvae



<http://www.aquatax.ca/images/MothLarva.jpg>



Merritt & Cummins, 1996

FLY AND MIDGE LARVAE

PHYLUM: Arthropoda

CLASS: Insecta

ORDER: Diptera

SPECIES:

Unspecified fly larvae

CODE: DIPTER

DESCRIPTION:

- Unspecified fly larvae

SIMILAR ANIMALS:

Other fly larvae

**Unknown
Fly Larva:**

DIPTER

PUPAE

PHYLUM: Arthropoda

CLASS: Insecta

ORDER: Diptera

SPECIES:

Unidentified dipteran pupae

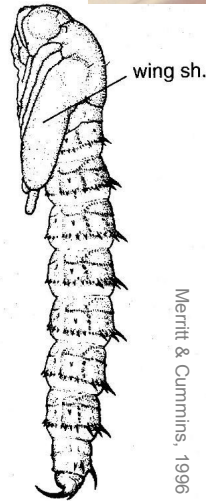
CODE: DIPPUP

DESCRIPTION:

-Pupal stages of any dipteran species fall in this category

SIMILAR ANIMALS:

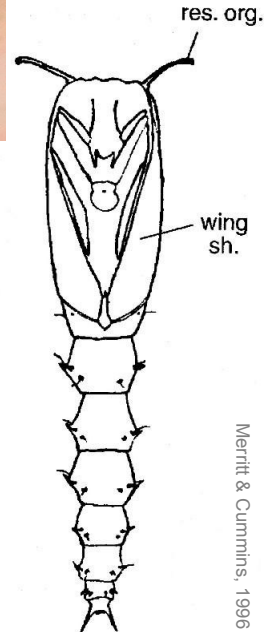
Mosquito larvae



Merritt & Cummins, 1996



http://www.csuchico.edu/~mmarchetti/FRL/images/Ceratopogonidae_pupa.jpg



Merritt & Cummins, 1996

MIDGE LARVAE

PHYLUM: Arthropoda

CLASS: Insecta

ORDER: Diptera

FAMILY: Ceratopogonidae

SPECIES:

Unidentified biting midge larvae

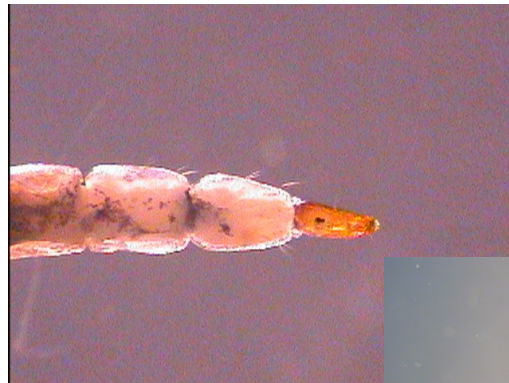
CODE: CERATO

DESCRIPTION:

-Body segments whitish
-Few external features

SIMILAR ANIMALS:

Chironomids, other
Ceratopogonidae



http://academics.smcvt.edu/Vermont_rivers/images/Organisms/Diptera/Ceratopogonidae%20-%20head.JPG



<http://www.shi.uiowa.edu/services/limnology/macrobenthos/Diptera/Ceratopogonidae/Mallochneleia16x12.jpg>



<http://upload.wikimedia.org/wikipedia/commons/8/82/Ceratopogonidae.jpg>

PHANTOM MIDGE LARVAE

PHYLUM: Arthropoda

CLASS: Insecta

ORDER: Diptera

FAMILY: Chaoboridae

SPECIES:

N/A

COMMON NAME: Phantom Midge Larvae

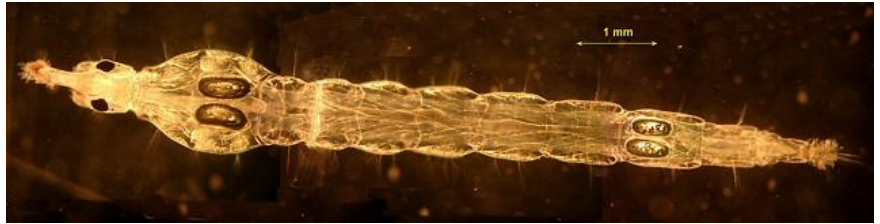
CODE: CHAOBO

DESCRIPTION:

- Antennae far apart
- Terminal segment has fanlike row of setae

SIMILAR ANIMALS:

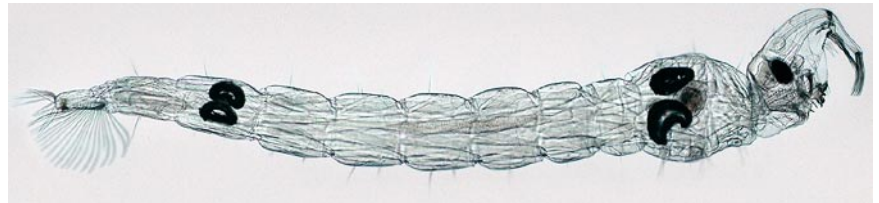
Mosquito larvae



http://www.gpmatthews.nildram.co.uk/microscopes/pondlife_insects.html



<http://www.kronbladet.no/bilete/sideshow/500/svevemygg41729.jpg>



<http://www.microscopy-uk.org.uk/mag/imagesmall/chaoborus2.jpg>

MIDGE LARVAE

PHYLUM: Arthropoda

CLASS: Insecta

ORDER: Diptera

FAMILY: Chironomidae

SPECIES:

Unidentified Midge Larvae

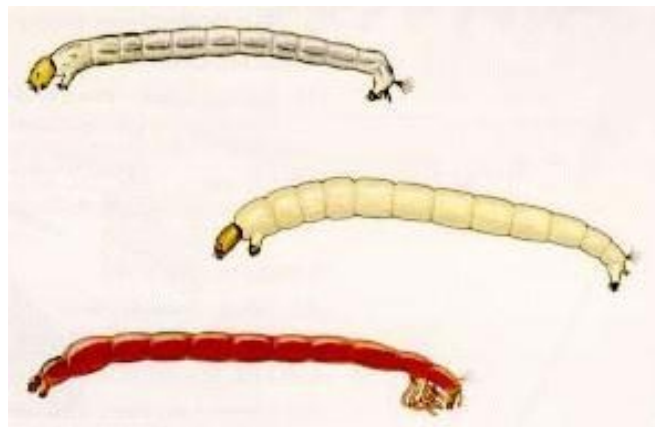
CODE: CHIRON

DESCRIPTION:

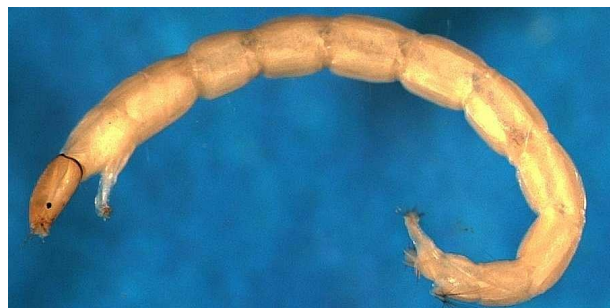
- Round head
- Short antennae

SIMILAR ANIMALS:

Other Chironomids



<http://kywater.org/www/bugs/midge.jpg>



http://portal.ncdenr.org/image/image_gallery?uuid=a0517440-6c3b-499f-80d1-187dc91f7260&groupid=38364&t=1318263957871

MIDGE LARVAE

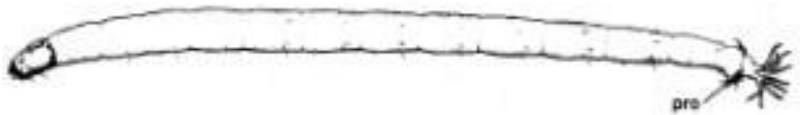
PHYLUM: Arthropoda
CLASS: Insecta
FAMILY: Ceratopogonidae
ORDER: Diptera
SPECIES:
Dasyhelea sp.
CODE: DASSPP



Merritt & Cummins, 1996

DESCRIPTION:

-Last abdominal segment with proleg; may be withdrawn and visible only as terminal hooks on segment



SIMILAR ANIMALS:

Chironomids, other Ceratopogonidae



<http://www.mfrc.org.au/bugguide/images/dasyheleinaeceratopogonidae.jpg>

MIDGE LARVAE

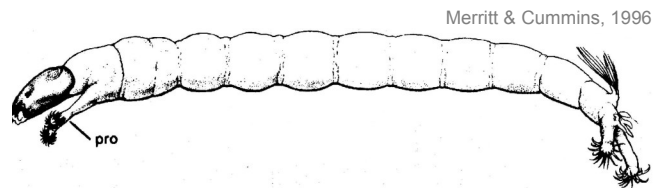
PHYLUM: Arthropoda
CLASS: Insecta
ORDER: Diptera
FAMILY: Chironomidae
SUBFAMILY: Tanypodinae
SPECIES:
N/A

CODE: TANYPO

DESCRIPTION:

-Large head capsule
-Long, pointed head
-Long proleg
-Long, retractable, branched antennae

SIMILAR ANIMALS:
other Chironomids



Merritt & Cummins, 1996



<http://www.sunsite.ualberta.ca/Projects/Bio-DiTRL/t/t40461202.jpg>



<http://www.mfrc.org.au/bugguide/images/dipterachironomidae/tanypodidae.jpg>

MIDGE LARVAE

PHYLUM: Arthropoda

CLASS: Insecta

ORDER: Diptera

FAMILY: Chironomidae

TRIBE: Tanytarsini

SPECIES:

N/A

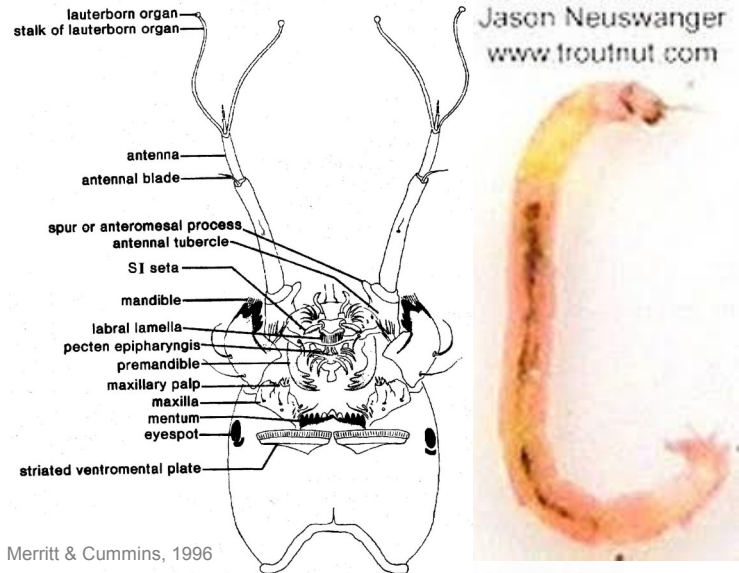
CODE: TANSPP

DESCRIPTION:

- Long, branched antenna
- Blunt head

SIMILAR ANIMALS:

Other Chironomids



Merritt & Cummins, 1996



CRANE FLY LARVAE

PHYLUM: Arthropoda

CLASS: Insecta

ORDER: Diptera

FAMILY: Tipulidae

SPECIES:

N/A

COMMON NAME:

Crane Fly Larvae

CODE: TIPULI

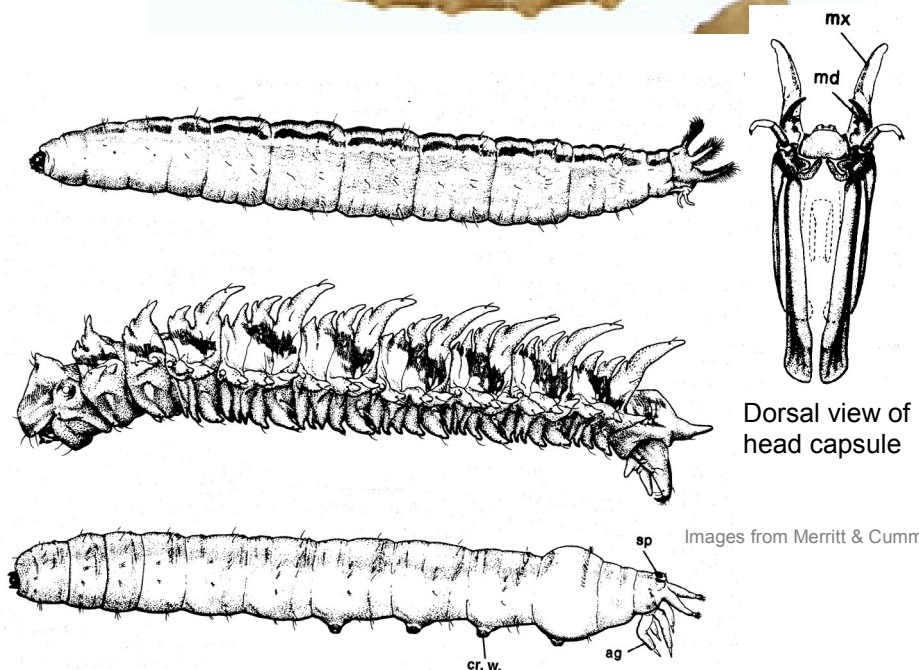
DESCRIPTION:

- Large anal gills
- Mandibles on horizontal axis

SIMILAR ANIMALS:

Ceratopogonidae, Tabanidae

<http://watermonitoring.uwex.edu/images/level1/wav/ecology/Tipulidae.jpg>



Dorsal view of head capsule

Images from Merritt & Cummins, 1996

SOLDIER FLY LARVAE

PHYLUM: Arthropoda

CLASS: Insecta

ORDER: Diptera

FAMILY: Stratiomyidae

SPECIES:

N/A

COMMON NAME: Soldier
Fly Larvae

CODE: STRATI

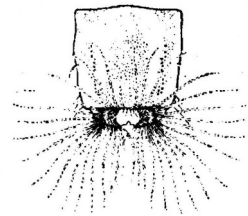
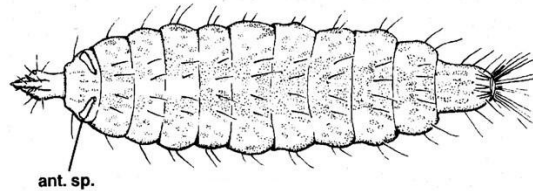
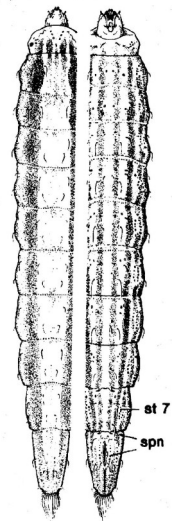
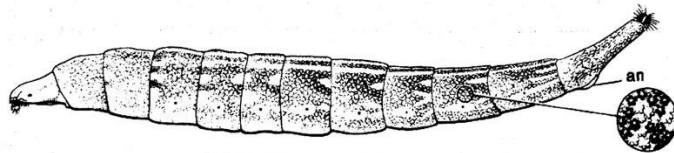
DESCRIPTION:

-See photo

SIMILAR ANIMALS:

Tipulidae, Tabanidae

<http://www.aquatax.ca/diptera/StratiomyidaeLarvae.jpg>



Images from Merritt & Cummins, 1996

HORSE FLY LARVAE

PHYLUM: Arthropoda

CLASS: Insecta

ORDER: Diptera

FAMILY: Tabanidae

SPECIES:

N/A

COMMON NAME: Horse Fly
Larvae

CODE: TABANI

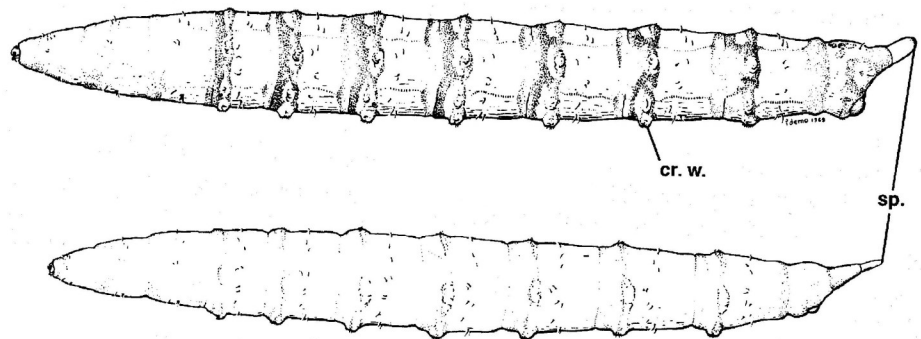
DESCRIPTION:

-Mandibles on vertical axis

SIMILAR ANIMALS:

Tipulidae, Ceratopogonidae

Merritt & Cummins, 1996



<http://www.ru.ac.za/static/departments/zoo/Martin/tabanidae1.jpg>

MOSQUITO LARVAE

PHYLUM: Arthropoda

CLASS: Insecta

ORDER: Diptera

FAMILY: Culicidae

SPECIES:

N/A

COMMON NAME: Mosquito Larvae

CODE: CULICI

DESCRIPTION:

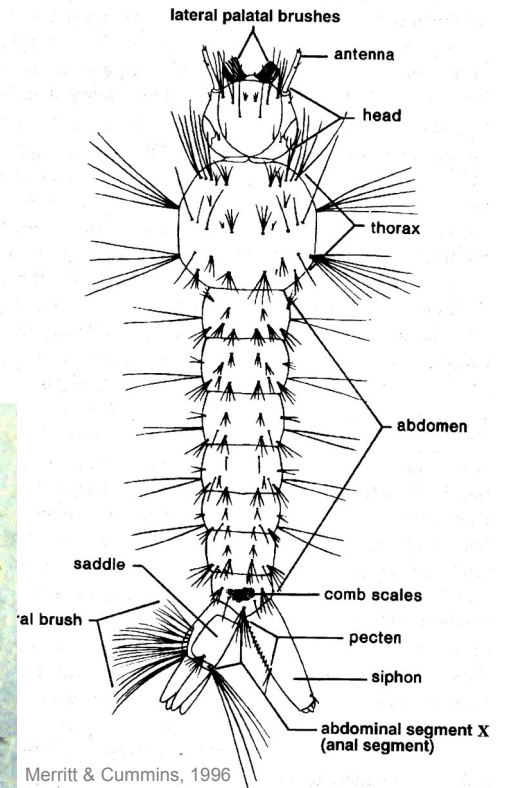
-Segments with numerous setae



http://www.landcareresearch.co.nz/research/biosystematics/invertebrates/invertebratid/images/Mosquito_Larva1.jpg



http://medent.usyd.edu.au/photos/various_larvae.jpg



AQUATIC MITES

PHYLUM: Arthropoda

CLASS: Arachnida

SUB-CLASS: Acari

FAMILY: Acaridae

SPECIES:

N/A

COMMON NAME: Aquatic Mites

CODE: ACARIN

DESCRIPTION:

-Fused cephalothorax and abdomen
-8 legs

SIMILAR ANIMALS:

Spiders



<http://3.bp.blogspot.com/-bZbDbHy6hpY/T2F4Lp6lgFI/AAAAAAAAAE28/0kol6plADh4/s400/Neocarus.jpg>



http://www.fcps.edu/islandcreekes/ecology/Arthropods/Water%20Mite/wolcott_1.jpg



http://upload.wikimedia.org/wikipedia/commons/6/63/Grain_mite_1.JPG

HYDROIDS

PHYLUM: Coelenterata

SPECIES:

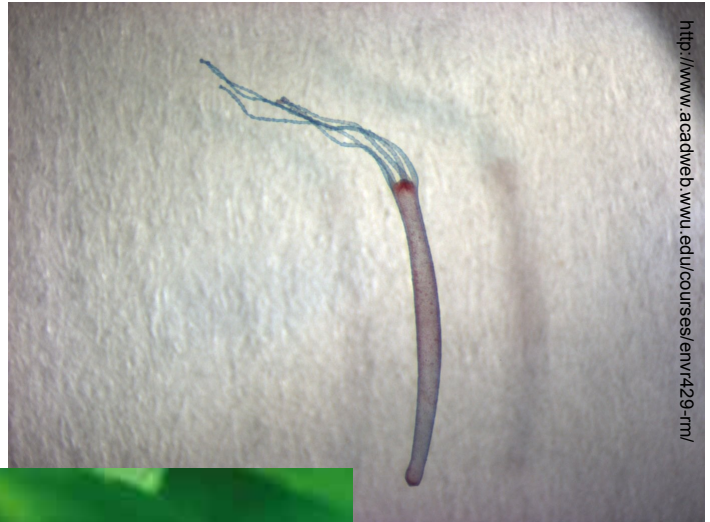
Coelenterata hydra

COMMON NAME: Hydra

CODE: HYDRA

DESCRIPTION:

-Very small anemone-like creatures



ROUND WORMS

PHYLUM: Nematoda

SPECIES:

N/A

COMMON NAME: Roundworm

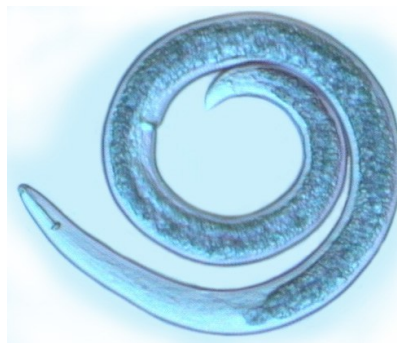
CODE: NEMATO

DESCRIPTION:

- Non-segmented
- Cylindrical
- Ends tapered to a point

SIMILAR ANIMALS:

Oligochaetes



FLATWORMS

PHYLUM: Platyhelminth

SPECIES:

N/A

COMMON NAME: Flatworm

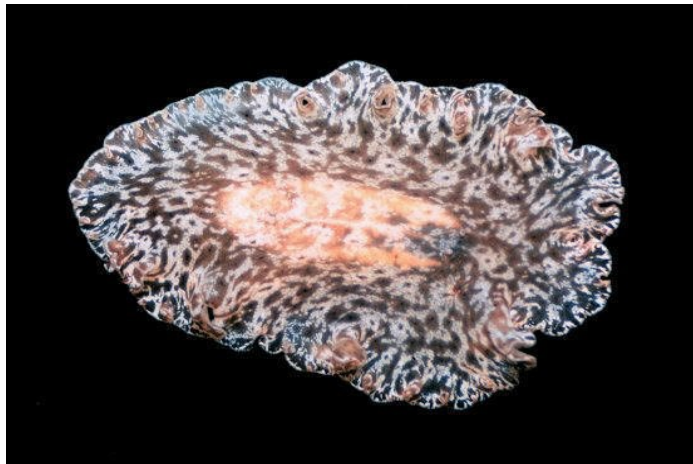
CODE: PLATYH

DESCRIPTION:

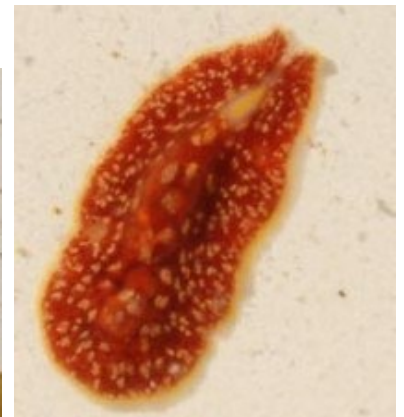
- Thin, flat worms
- Non-segmented; may have eye spots

SIMILAR ANIMALS:

Leeches (segmented, with suckers at each end)



<http://www.personal.psu.edu/users/la/la5001/images/polyclad.jpg>



<http://www.dafni.com/vermes/polyclads.htm>

ROTIFERS

PHYLUM: Rotifera

SPECIES:

N/A

COMMON NAME: Rotifer

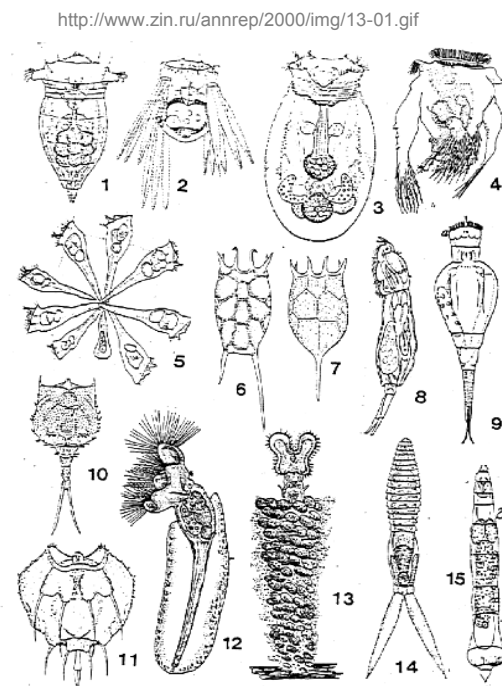
CODE: ROTIFE

DESCRIPTION:

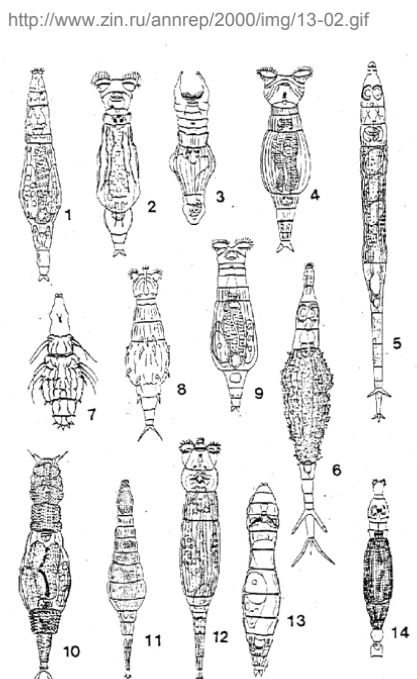
- Microscopic multicellular animals

SIMILAR ANIMALS:

Cladocerans, copepods



<http://www.zin.ru/annrep/2000/img/13-01.gif>



<http://www.zin.ru/annrep/2000/img/13-02.gif>

CLADOCERA

PHYLUM: Arthropoda

CLASS: Branchiopoda

FAMILY: Chydoridae

SPECIES:

N/A

COMMON NAME: Cladoceran

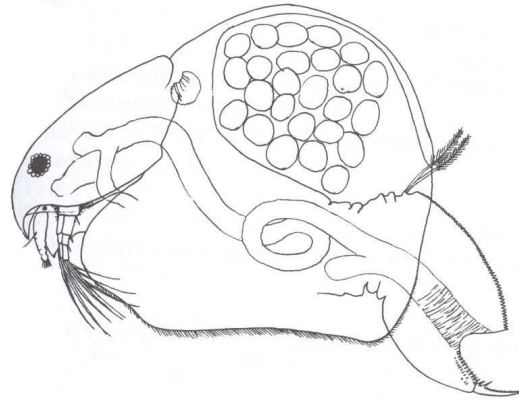
CODE: CHYDOR

DESCRIPTION:

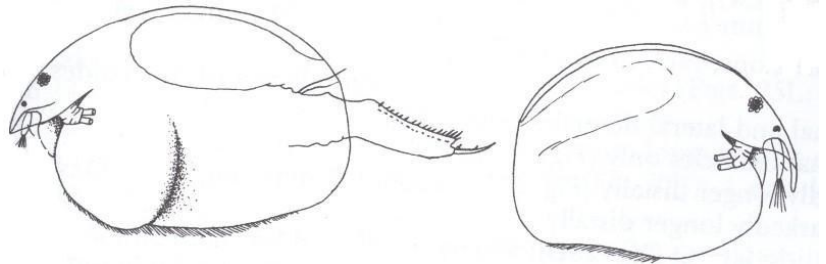
- Both branches of second antenna with three segments
- First antennae at least partly covered by flanges on the side of the head
- Short antennae
- Extended rostrum

SIMILAR ANIMALS:

Other cladocerans



Images from Pennak, 1989



CLADOCERA

PHYLUM: Arthropoda

CLASS: Branchiopoda

FAMILY: Daphniidae

SPECIES:

N/A

COMMON NAME: Cladoceran

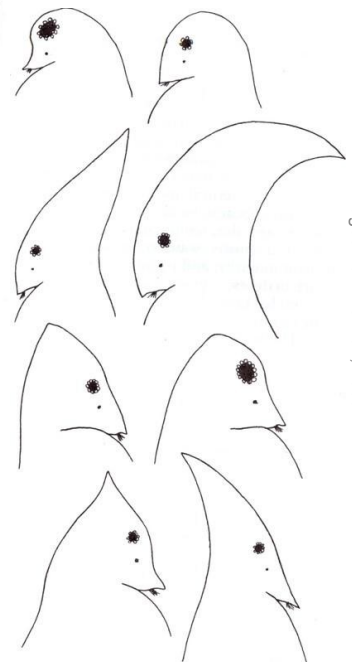
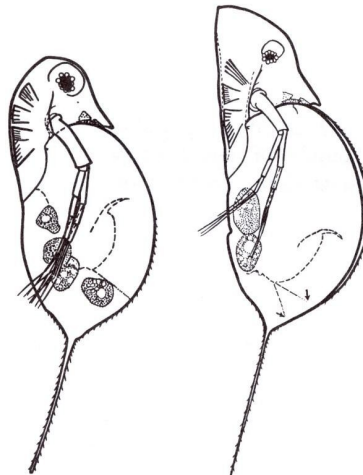
CODE: DAPHNI

DESCRIPTION:

- Planktonic
- First antenna less than three times as long as wide and attached to head near the carapace margin
- Adult daphnia with a tail spine at least four times as long, pointed

SIMILAR ANIMALS:

Other cladocerans



Images from Pennak, 1989

CLADOCERA

PHYLUM: Arthropoda

CLASS: Branchiopoda

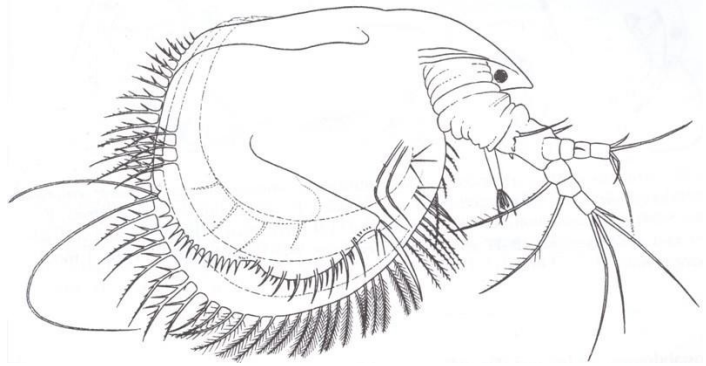
FAMILY: Macrothricidae

SPECIES:

N/A

COMMON NAME: Cladoceran

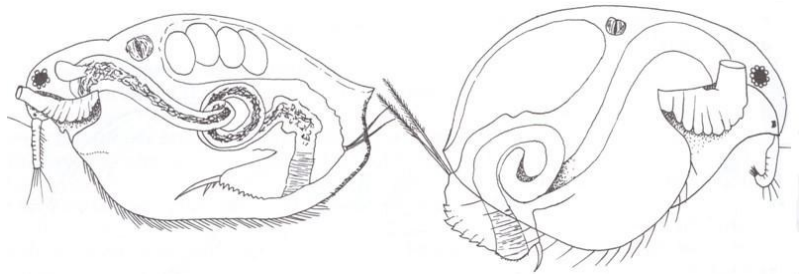
CODE: MACROT



Images from Pennak, 1989

DESCRIPTION:

- First antennae attached to the head just below the compound eye;
- OR if attached posterior to compound eye, then postabdomen without lateral, feathered setae
- Benthic



SIMILAR ANIMALS:

Other cladocerans

CLADOCERA

PHYLUM: Arthropoda

CLASS: Branchiopoda

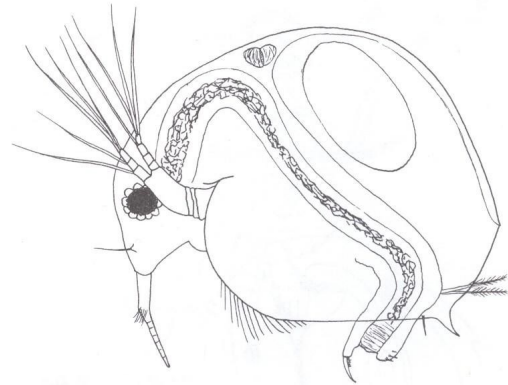
FAMILY: Bosminidae

SPECIES:

N/A

COMMON NAME: Cladoceran

CODE: BOSMIN



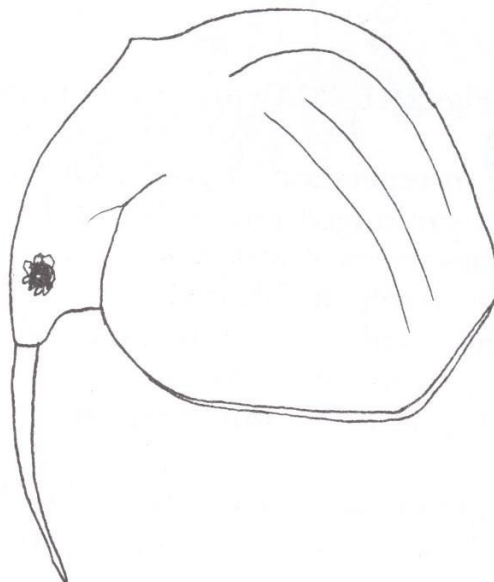
Images from Pennak, 1989

DESCRIPTION:

- See photo

SIMILAR ANIMALS:

Other cladocerans



CTENOPHORA

PHYLUM: Arthropoda

CLASS: Branchiopoda

FAMILY: Sididae

SPECIES:

N/A

COMMON NAME: Cladoceran

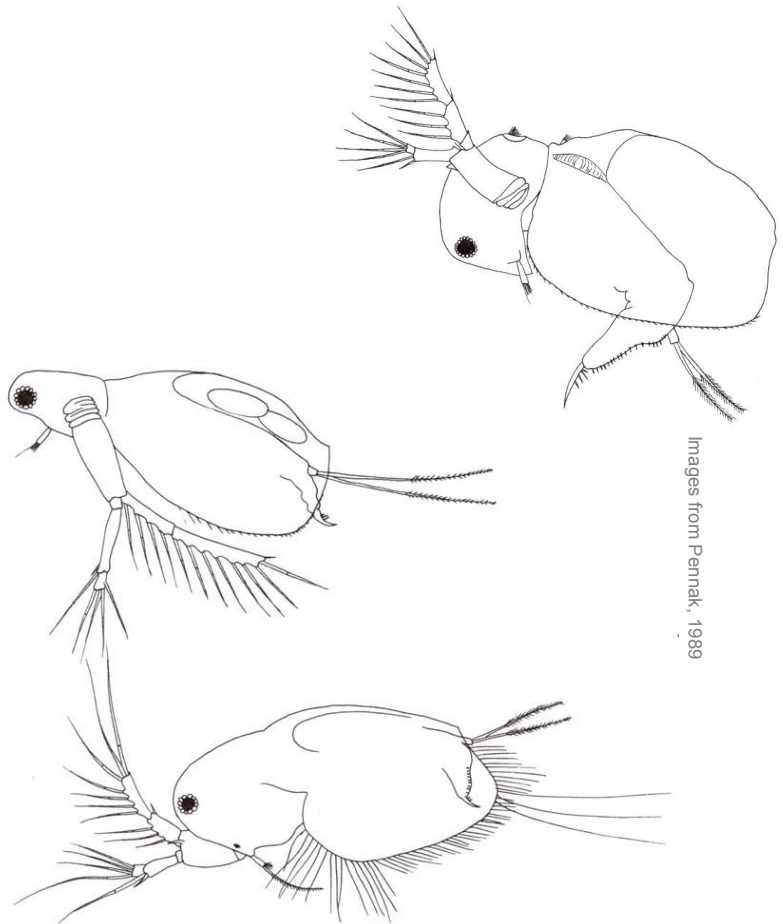
CODE: SIDIDA

DESCRIPTION:

- Anal claw with two or three large basal spines
- Planktonic
- Extra-long antennae
- Count antennae segments, have setae?

SIMILAR ANIMALS:

Copepods, other cladocerans



Images from Pennak, 1989

COPEPODS

PHYLUM: Arthropoda

CLASS: Copepoda

FAMILY: Bosminidae

SPECIES:

Argulus spp.

COMMON NAME: Fish Louse

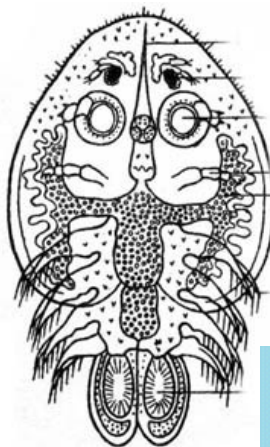
CODE: ARGSP

DESCRIPTION:

- Broad, flattened head disc with two large suckers on ventral side
- Two eye spots

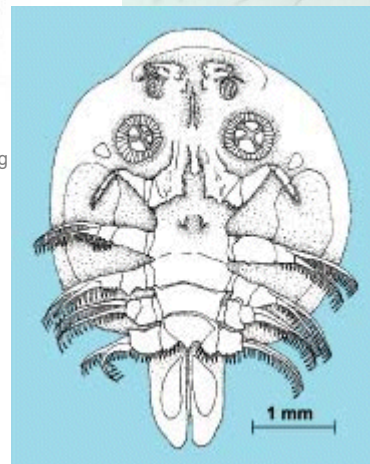
SIMILAR ANIMALS:

Rotifers, Nauplii



<http://ar.geocities.com/acuadanielz/enf/img/argulus.jpg>

http://webstarter.netbenefit.com/users/www.bluroof.co.uk/upload/webfig_532_argulus.jpg



<http://accessscience.com/loadBinary.aspx?alD=5096&filename=093600FG0010.gif>

COPEPODS

PHYLUM: Arthropoda

CLASS: Copepoda

COMMON NAME: Copepod Nauplii

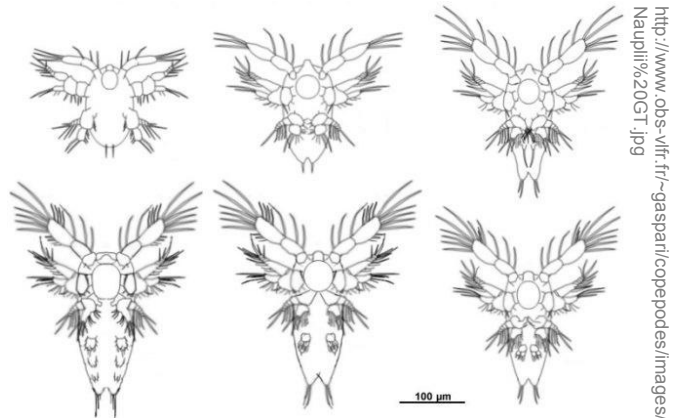
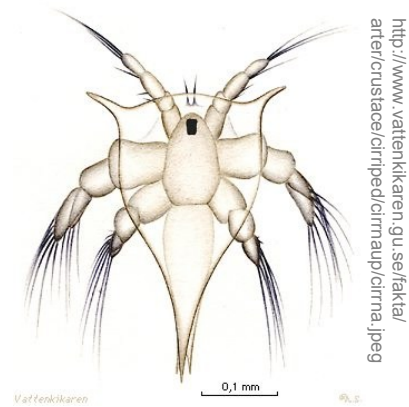
CODE: NAUPLI

DESCRIPTION:

- Copepod larval stages
- Herbivorous
- Often many feathery protrusions

SIMILAR ANIMALS:

Rotifers, Fish Louse (Argulus)



COPEPODS

PHYLUM: Arthropoda

CLASS: Copepoda

SPECIES:

N/A

COMMON NAME: Calanoid

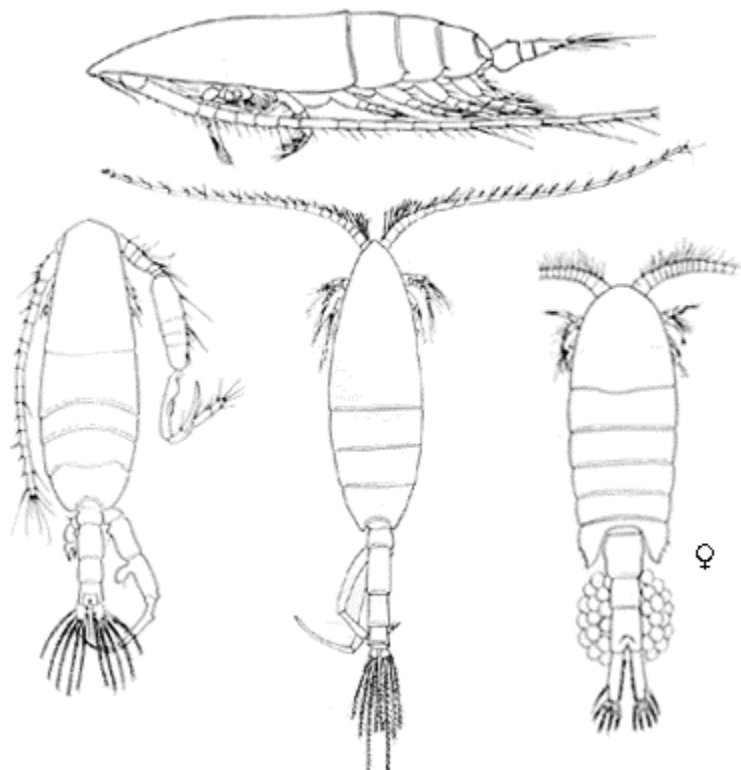
CODE: CALANO

DESCRIPTION:

- Antennae long—nearly same length as body
- Herbivorous

SIMILAR ANIMALS:

Other copepods



COPEPODS

PHYLUM: Arthropoda

CLASS: Copepoda

SPECIES:

N/A

COMMON NAME: Harpacticoid

CODE: HARPAC

DESCRIPTION:

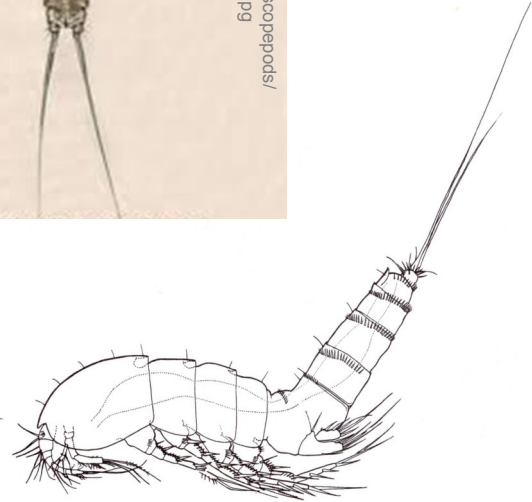
- Body elongate, short antennae (or as some would say, “cheerleader” antennae)
- Parasitic or predaceous

SIMILAR ANIMALS:

Other copepods



Pennak, 1989



COPEPODS

PHYLUM: Arthropoda

CLASS: Copepoda

SPECIES:

N/A

COMMON NAME: Cyclopoid

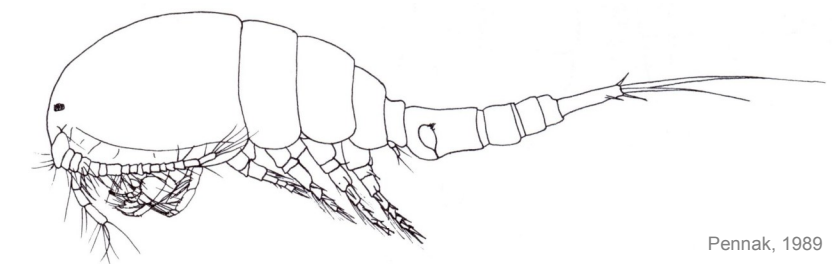
CODE: CYCLOP

DESCRIPTION:

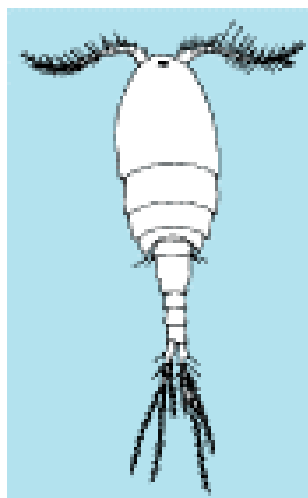
- Antennae short—half of body-length
- Single eye spot near tip of head
- Herbivorous

SIMILAR ANIMALS:

Other copepods



Pennak, 1989



<http://content.answers.com/main/content/img/McGrawHill/Encyclopedia/images/CE160800FG0010.gif>



<http://sfr.c.ufl.edu/planktonweb/mysite/10/Cyclops.jpg>

<http://www.microworldsphotography.com/Galleries/Smaller-Wonders/i-gxG8mjg/1/L/Ostracoda-L.jpg>

OSTRACODS

PHYLUM: Arthropoda

CLASS: Ostracoda

SPECIES:

N/A

COMMON NAME: Ostracod

CODE: OSTRAC

DESCRIPTION:

-Body suspended within an elongate, chitinous carapace

SIMILAR ANIMALS:

Cladocerans



<http://bloccs.xtec.cat/epsavidaalmar/files/2008/03/ostracoda.jpg>



<http://biology.kus.hokkyodai.ac.jp/research.html>

AMPHIPODS

PHYLUM: Arthropoda

CLASS: Crustacea

SUB-CLASS: Peracarida

FAMILY: Hyalellidae

SPECIES:

Hyalella Azteca

COMMON NAME: Freshwater Amphipods; scuds

CODE: AMPHIP

DESCRIPTION:

-Body laterally flattened

-Five pairs of walking legs

SIMILAR ANIMALS:

Sometimes resemble tiny crayfish



<http://www.nilesbio.com/images/categories/C295.jpg>



http://aslo.org/photopost/data/508/64fpod_1_med.jpg



<http://www.killadietos.com/gammarus/01.jpg>

References

- **An Introduction to the Aquatic Insects of North America; 3rd Edition.** 1996. R.W. Merritt and K.W. Cummins. Kendall/Hunt Publishing Company, Dubuque, IA.
- **Fresh-Water Invertebrates of the United States: Protozoa to Mollusca; 3rd Edition.** 1989. Robert W. Pennak. John Wiley and Sons, Inc., New York, NY.
- **Identification Manual for the Dragonfly Larvae of Florida.** 2003. Online edition. Johnny S. Richardson. Florida Dept. of Environmental Protection, Tallahassee, FL.
- **Field Guide to the Freshwater Snails of Florida.** 1984. Online edition. Fred G. Thompson. University of Florida Press, Gainesville, FL.