

# **Invertebrate Identification Guide**

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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/epn\\_mui.jpg](http://canadianbiodiversity.mcgill.ca/data/spp/photos/sponges/epn_mui.jpg)



[http://doris.ffessm.fr/gestionenligne/photos/spongilla\\_lacustris-2.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/splilik/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](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.akvarista.hu/CsigaFan/kep/23180>

## SNAILS

**PHYLUM:** Mollusca

**CLASS:** Gastropoda

**SUB-CLASS:** Prosobrancha

**FAMILY:** Physidae

**SPECIES:**

*(Haitia spp.)*

**COMMON NAME:** Physid Snail

**CODE:** H AISPP

### **DESCRIPTION:**

-Thin-shelled, large oval aperture

-Small spire; nearly transparent

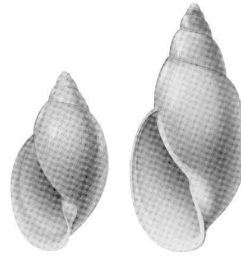
-Left-handed opening

\*\*Record ALL physid snails as

H AISPP\*\*

### **SIMILAR ANIMALS:**

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



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

## SNAILS

**PHYLUM:** Mollusca

**CLASS:** Gastropoda

**SUB-CLASS:** Prosobrancha

**FAMILY:** Planorbidae

**SPECIES:**

*(Planorbella spp.)*

**COMMON NAME:** Planorbid Snail

**CODE:** P LASPP

### **DESCRIPTION:**

-See photo

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



<http://www.fimnh.ufl.edu/malacology/fl-snail/images2/124.jpg>  
[http://www.fimnh.ufl.edu/malacology/fl-snail/snails\\_1.htm](http://www.fimnh.ufl.edu/malacology/fl-snail/snails_1.htm)  
<http://www.fimnh.ufl.edu/malacology/fl-snail/images2/121.jpg>

### **SIMILAR ANIMALS:**

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

## 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.ufi.edu/malacology/fi-snail/images/2/55.jpg>

## SNAILS

**PHYLUM:** Mollusca

**CLASS:** Gastropoda

**SUB-CLASS:** Prosobrancha

**FAMILY:** Hydrobiidae

**SPECIES:**

*Aphaostracon pachynotus*

**COMMON NAME:** Dense Hydrobe

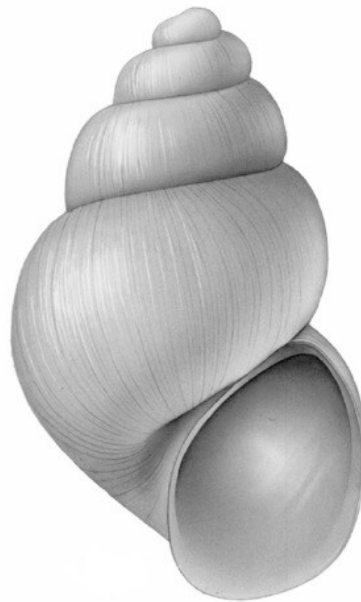
**CODE:** APHPAC

### **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.ufi.edu/malacology/fi-snail/images/2/58.jpg>



## SNAILS

**PHYLUM:** Mollusca

**CLASS:** Gastropoda

**SUB-CLASS:** Prosobrancha

**FAMILY:** Pilidae

**SPECIES:**

*Pomacea paludosa*

**COMMON NAME:** Apple Snail

**CODE:** POMPAL



<http://www.fimnh.uit.edu/malacology/ft-snail/images2/6.jpg>

### **DESCRIPTION:**

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

### **SIMILAR ANIMALS:**

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

## SNAILS

**PHYLUM:** Mollusca

**CLASS:** Gastropoda

**SUB-CLASS:** Prosobrancha

**FAMILY:** Thiariidae

**SPECIES:**

*Melanooides tuberculata*

**COMMON NAME:** Red-rimmed

**Melania**

**CODE:** MELTUB



<http://www.fimnh.uit.edu/malacology/ft-snail/images2/25.jpg>

### **DESCRIPTION:**

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

### **SIMILAR ANIMALS:**

Hydrobes (Cockscomb, Dense)

## LIMPETS

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

*Laevepax pennisulae*

**COMMON NAME:** Peninsula Ancyliid  
**CODE:** LAESPP

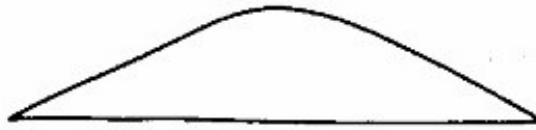
### **DESCRIPTION:**

- Tiny limpets
- Delicate shells, sometimes transparent

### **SIMILAR ANIMALS:**

Fingernail clams (have two shells)

<http://www.flmnh.ufl.edu/malacology/fl-snail/Images2/126.jpg>



<http://www.flmnh.ufl.edu/malacology/fl-snail/Images2/130.jpg>

[http://animaldiversity.ummz.umich.edu/site/resources/jack\\_burch/067.rjb1.jpg/view.html](http://animaldiversity.ummz.umich.edu/site/resources/jack_burch/067.rjb1.jpg/view.html)

## 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.finnh.uit.edu/malacology/fit-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/1/344.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.ihts.uiuc.edu/cbd/museum/naul/page172\\_3.html](http://www.ihts.uiuc.edu/cbd/museum/naul/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>

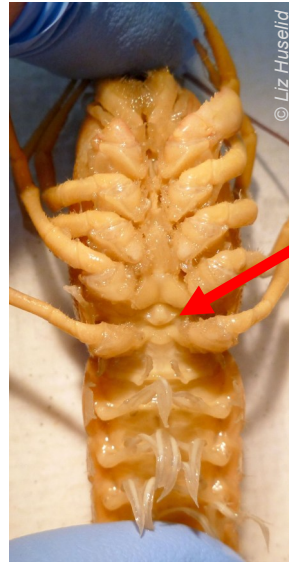
**Right:** Male  
crayfish,  
ventral view

Gonopods



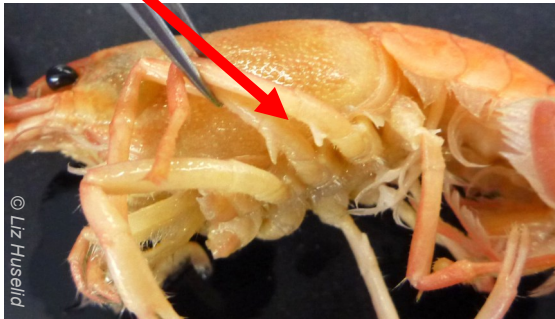
**Left:** Female crayfish,  
ventral view

Annulus ventralis



**Below:** Mature female  
with eggs

**Below:** Mature  
male with "spurs"  
on walking legs



## CRAYFISH

**PHYLUM:** Arthropoda

**CLASS:** Crustacea

**SUB-CLASS:** Eucarida

**FAMILY:** Cambaridae

**SPECIES:**

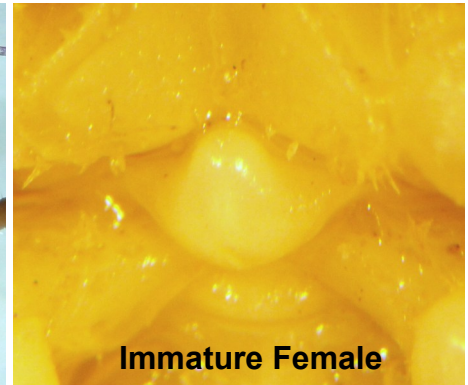
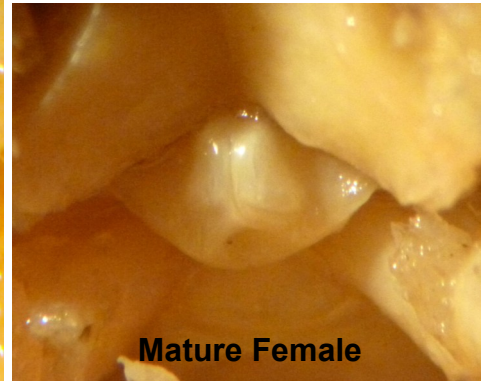
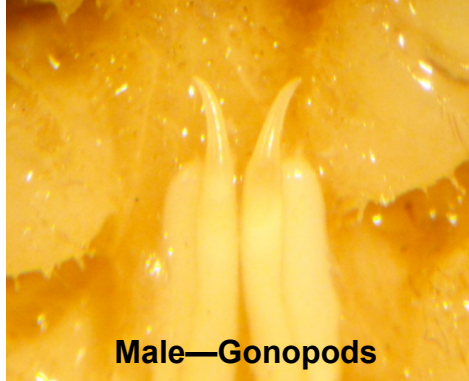
*Procambarus alleni*

**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



## CRAYFISH

**PHYLUM:** Arthropoda

**CLASS:** Crustacea

**SUB-CLASS:** Eucarida

**FAMILY:** Cambaridae

**SPECIES:**

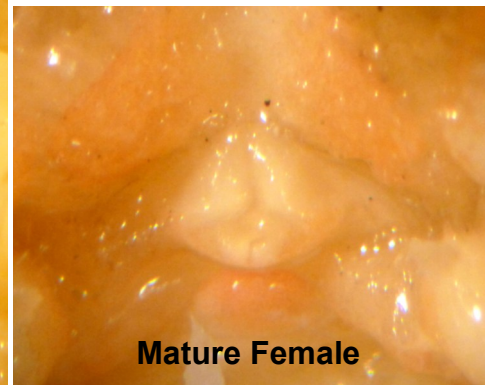
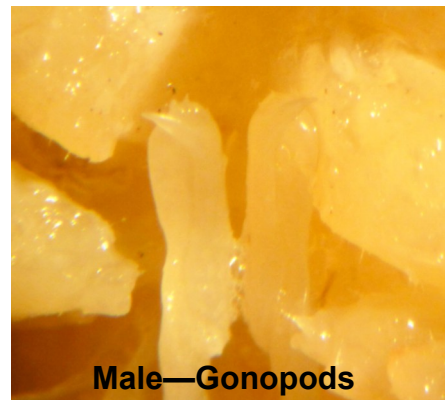
*Procambarus fallax*

**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



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



## SHRIMP

**PHYLUM:** Arthropoda

**CLASS:** Crustacea

**SUB-CLASS:** Eucarida

**FAMILY:** Palaemonidae

**SPECIES:**

*Palaemonetes paludosus*

**COMMON NAME:** Grass Shrimp

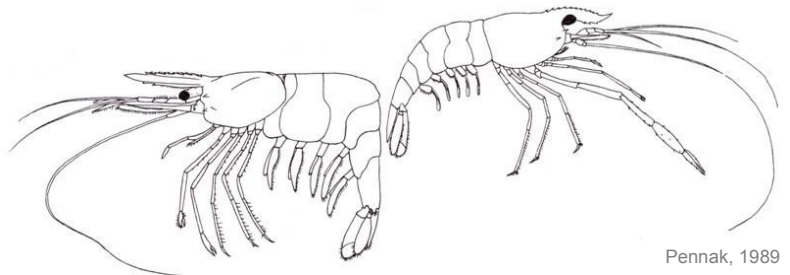
**CODE:** PALPAL

### **DESCRIPTION:**

- Shrimp
- Long antennae
- Females may carry eggs

### **SIMILAR ANIMALS:**

Possum shrimp, small crayfish



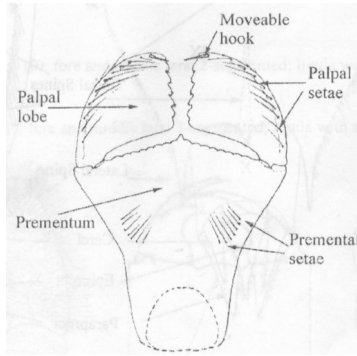
Pennak, 1989



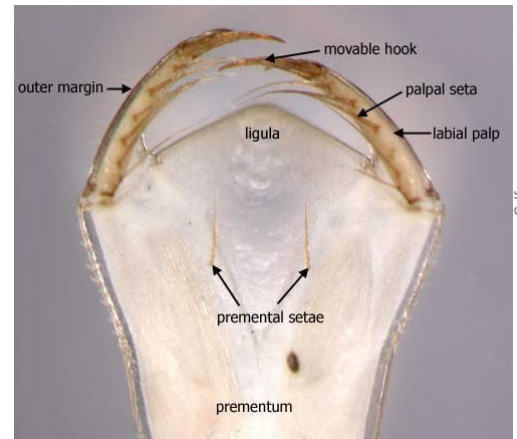
http://www.frdc.com.au/images/287\_11029\_photo.jpg

# 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:

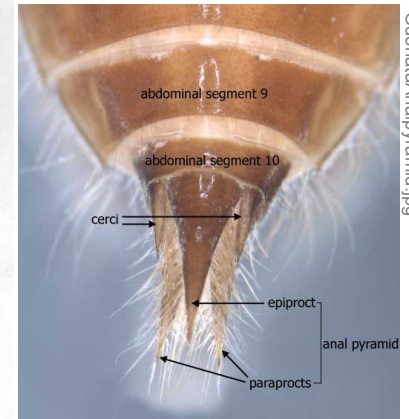
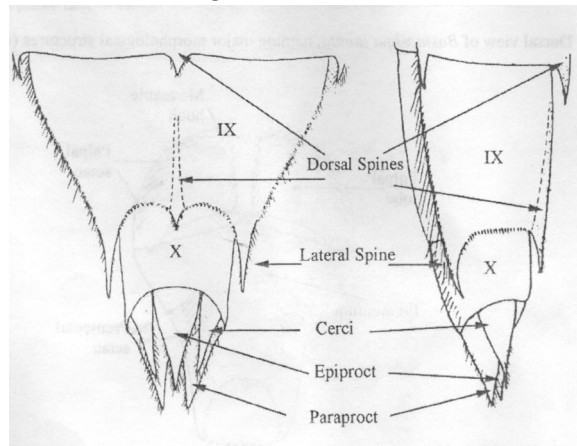


Drawings from Richardson, 2003



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

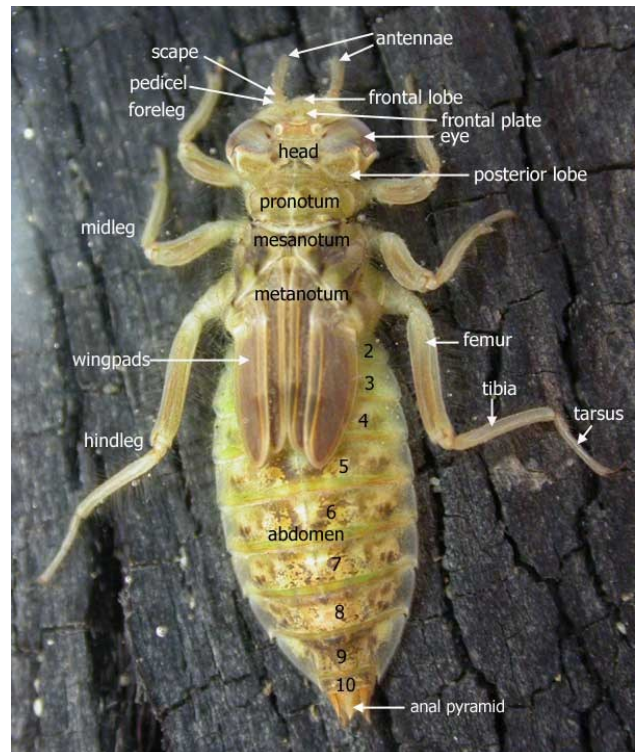
- Premental and palpal setae counts
- Spines on abdominal segments 9 and 10
- Eye shape



<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/odonatlarDorsal.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/dn/gnfly/aeshfam/anjun/anjunr.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 Huseid

# 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

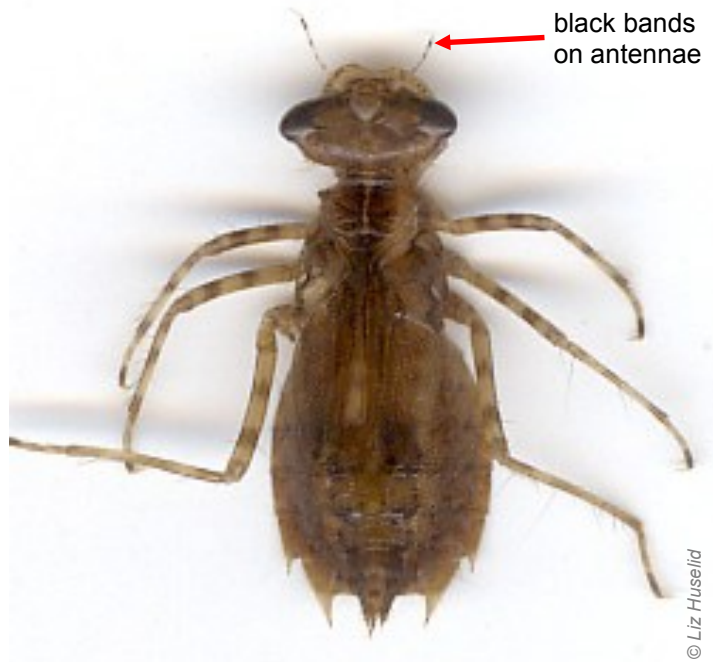
**CODE:** PACLON

### **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 Husell

# Genus Erythemis (ERYSP)

## DRAGONFLY NAIADS

**PHYLUM:** Arthropoda  
**CLASS:** Insecta  
**FAMILY:** Libellulidae

**SPECIES:**

- Erythemis simplicicollis* — **ERYSIM** (most common)
- Erythemis vesiculosa* — **ERYVES**
- Erythemis plebeja* — **ERYPLE**
- Erythemis spp.* — **ERYSP**

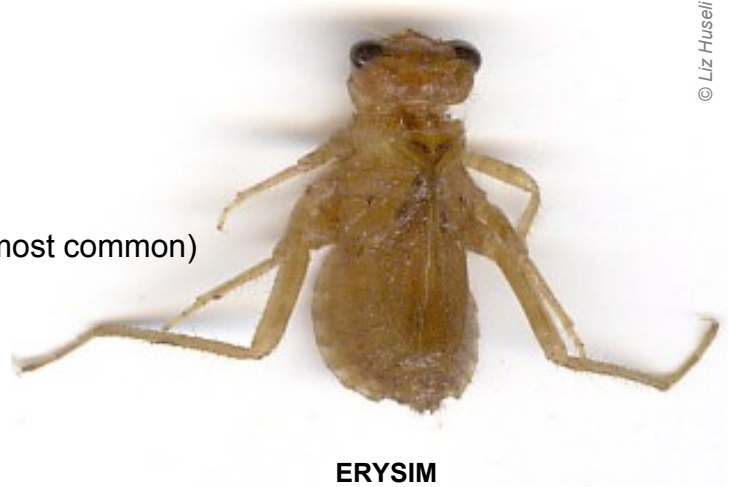
**COMMON NAME:** Pondhawks

**DESCRIPTION:**

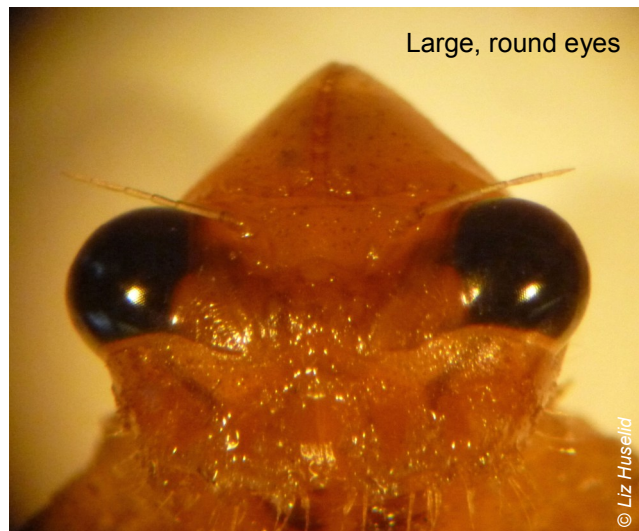
- Large, very round eyes (puppy-dog eyes)
- Smallish in size; abdomen small and rounded
- Lateral spines absent or very small

**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**



© Liz Huselid



© Liz Huselid

# 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:**

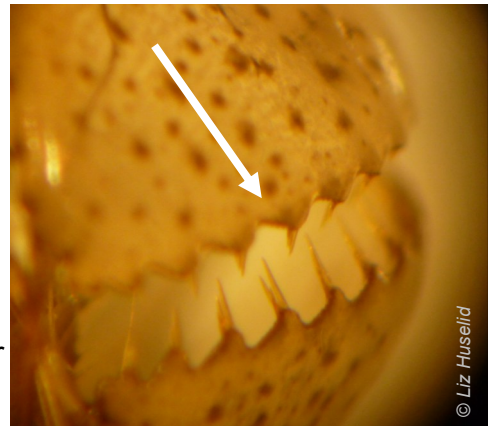
- Often mottled black and brown coloration
- Large, curved serrations on inner margins of palpal lobes
- Abdominal segments 8 and 9 have large, curved lateral spines

**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**



**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:**

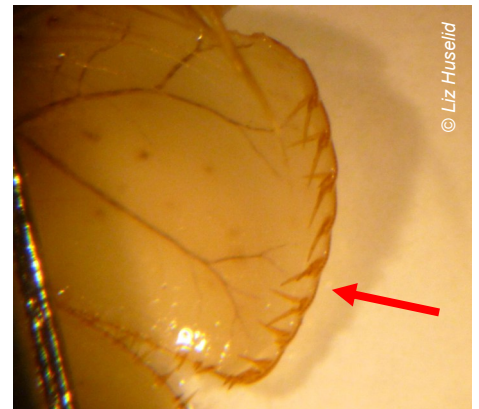
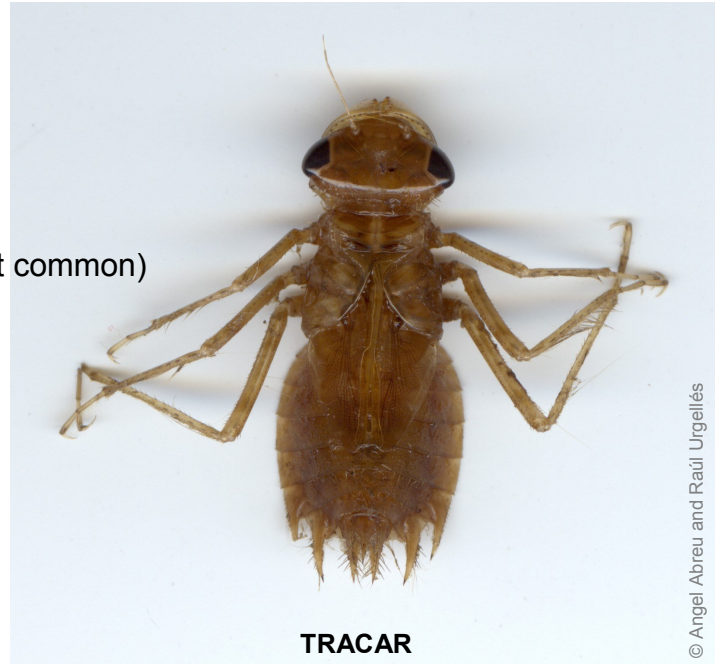
- Triangular inner margin of eye
- Eyes small relative to head size when viewed from above
- Small, low serrations on inner margin of palpal lobes

**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

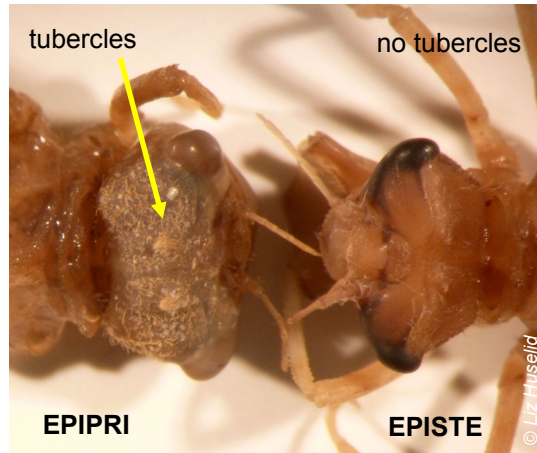


**DRAGONFLY NAIADS**

**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**

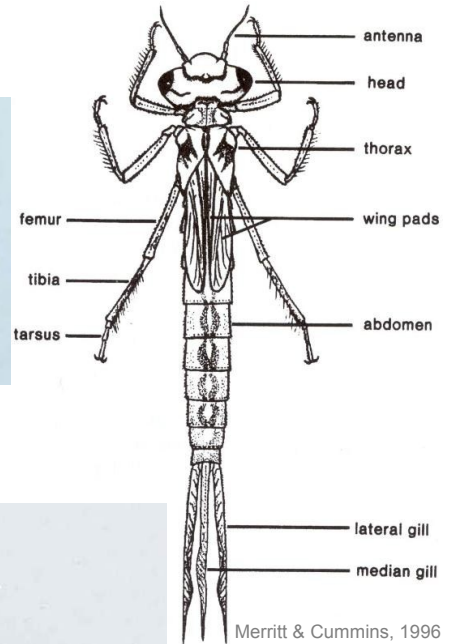
**PHYLUM:** Arthropoda  
**CLASS:** Insecta  
**ORDER:** Odonata  
**FAMILY:** Coenagrionidae  
**SPECIES:**  
 N/A

**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.entomology.umn.edu/midge/WebKey/Coenagrionidae_labium.jpg)



Merritt & Cummins, 1996



<http://www.ru.ac.za/academic/departments/zoento/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/INM/DSC/0004/320/Caenis\\_anceps\\_larva1\\_DSC419.jpg](http://www.discoverlife.org/INM/DSC/0004/320/Caenis_anceps_larva1_DSC419.jpg)



Genus Callibaetis

[http://www.discoverlife.org/INM/DSC/0002/320/Callibaetis\\_ferrugineus\\_male\\_larva1\\_DSC217.jpg](http://www.discoverlife.org/INM/DSC/0002/320/Callibaetis_ferrugineus_male_larva1_DSC217.jpg)

## AQUATIC BUGS

**PHYLUM:** Arthropoda

**CLASS:** Insecta

**FAMILY:** Belostomatidae

**SPECIES:**

*Belostoma sp.*

**COMMON NAME:** Toe Biter

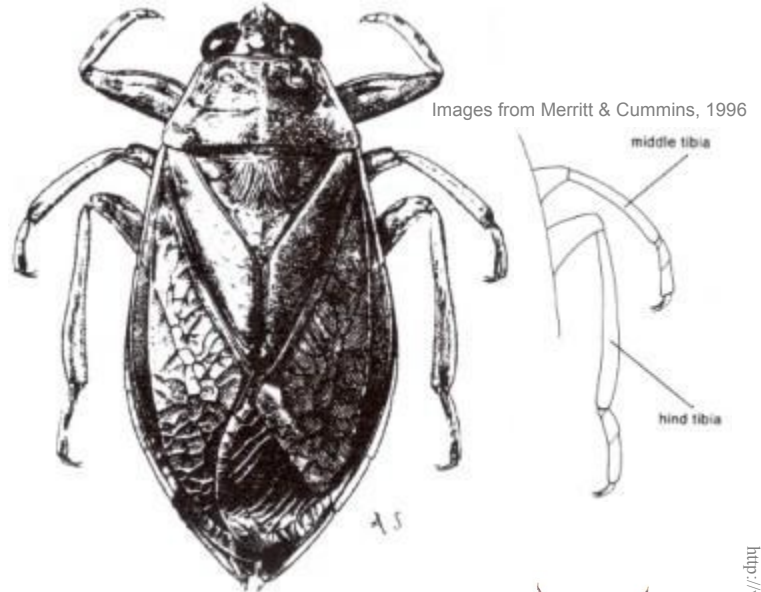
**CODE:** BELSPP

### **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



## AQUATIC BUGS

**PHYLUM:** Arthropoda

**CLASS:** Insecta

**FAMILY:** Belostomatidae

**SPECIES:**

*Lethocerus sp.*

**COMMON NAME:** Giant Water Bug

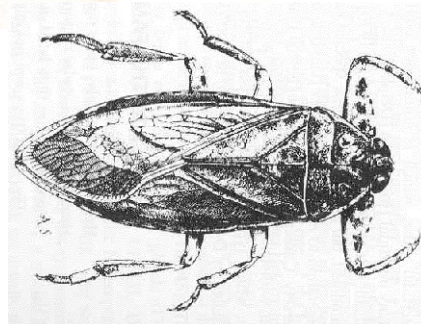
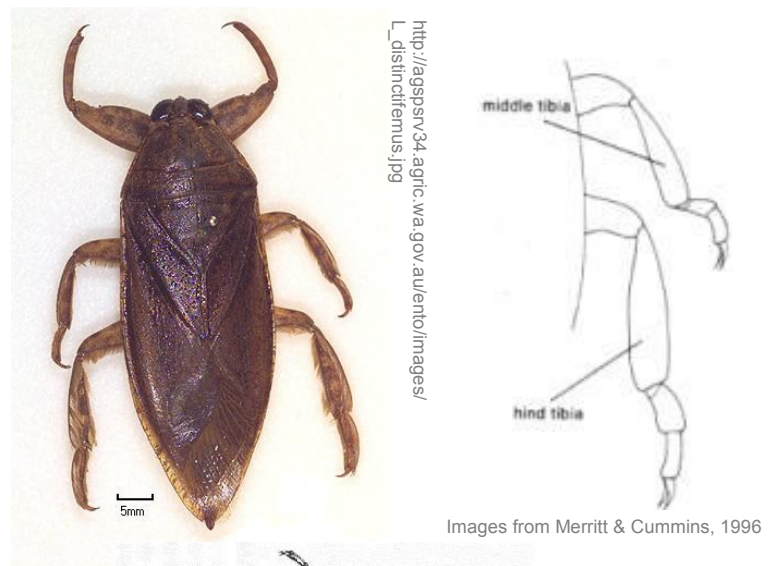
**CODE:** LETSPP

### **DESCRIPTION:**

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

### **SIMILAR ANIMALS:**

Belostoma



## WATER BOATMEN

**PHYLUM:** Arthropoda

**CLASS:** Insecta

**FAMILY:** Corixidae

**SPECIES:**

N/A

**COMMON NAME:** Water Boatmen

**CODE:** CORIXI

### **DESCRIPTION:**

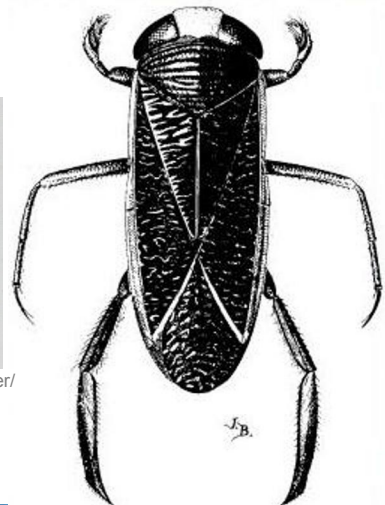
- Beak triangular and short
- Hind legs paddle-like, fringed with setae

### **SIMILAR ANIMALS:**

Aquatic beetles



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



<http://treadwell.fas.uci.edu/insects/0604.JPG>



[http://www.epa.gov/bioiweb1/images/invertebrates/bugs/corixidae\\_vernalpool007\\_web.jpg](http://www.epa.gov/bioiweb1/images/invertebrates/bugs/corixidae_vernalpool007_web.jpg)

## ALLIGATOR FLEA

**PHYLUM:** Arthropoda

**CLASS:** Insecta

**FAMILY:** Naucoridae

**SPECIES:**

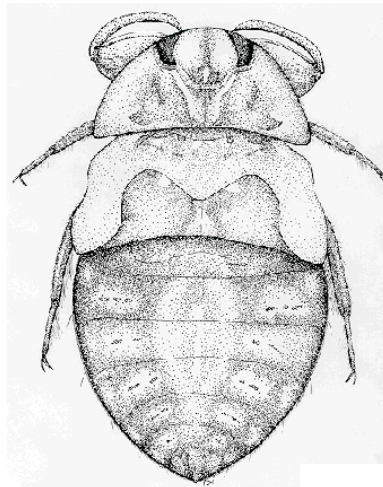
*Pelocoris femoratus*

**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/FOAQYOVQHS9QY0XKT1QLS1QVK9Q1K4KUK6OB0ZKT0ZK2KRRKA0LK002Q9KKKVV0RK 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

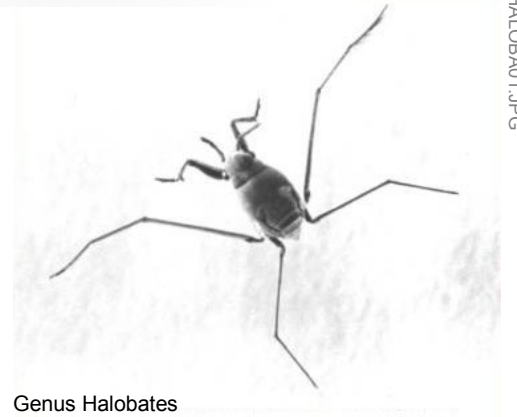


[http://i51.photobucket.com/albums/f396/fit\\_bike/Gerridae-WaterStrider4.jpg](http://i51.photobucket.com/albums/f396/fit_bike/Gerridae-WaterStrider4.jpg)

Genus Gerris



[http://i51.photobucket.com/albums/f396/fit\\_bike/Gerridae-WaterStrider5.jpg](http://i51.photobucket.com/albums/f396/fit_bike/Gerridae-WaterStrider5.jpg)



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

Genus Halobates

## AQUATIC BEETLE ADULT

**PHYLUM:** Arthropoda

**CLASS:** Insecta

**SPECIES:**

N/A

**COMMON NAME:** Adult Aquatic Beetle

**CODE:** COLEOA

### **DESCRIPTION:**

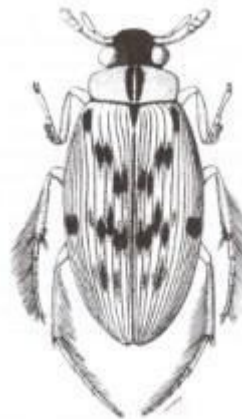
-Beetles

-2-3 segmented antenna

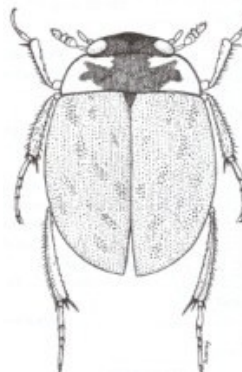
-3 pairs of legs with one or two claws

### **SIMILAR ANIMALS:**

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



Merritt & Cummins, 1996



[http://www.insects.org/entophiles/cole\\_014.html](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](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\\_line.jpg](http://www.flbenthos.org/media/images/product_detail/cybister_larva_line.jpg)



Merritt & Cummins, 1996

## AQUATIC BUGS

**PHYLUM:** Arthropoda

**CLASS:** Insecta

**SPECIES:**

*Miscellaneous Aquatic*

*Bug*

**COMMON NAME:** True Bugs

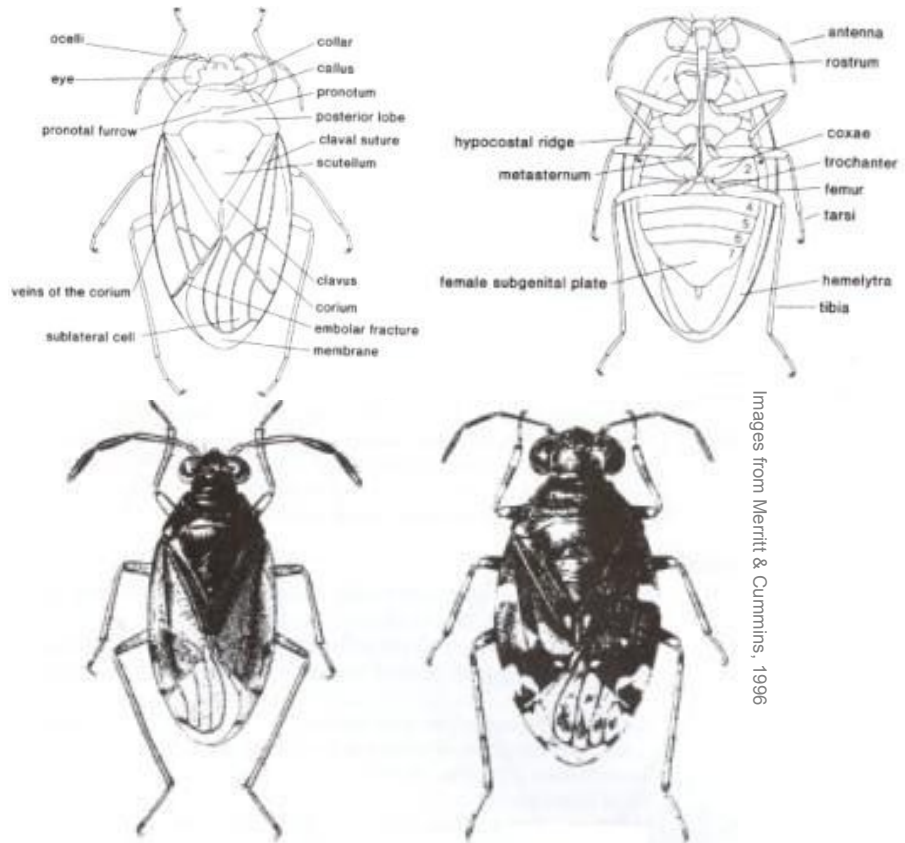
**CODE:** HETERO

### **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:**

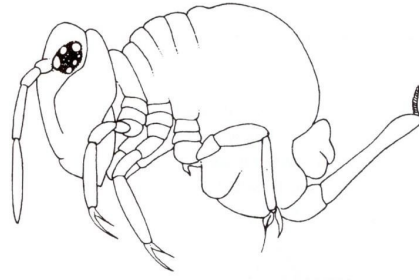
N/A

**COMMON NAME:** Springtail

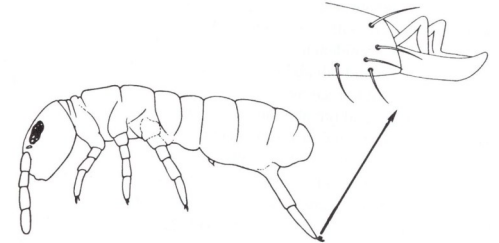
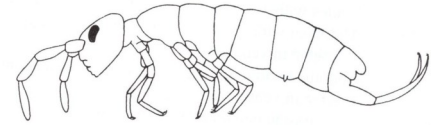
**CODE:** COLLEM

### **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.cais.ncsu.edu/course/en425/library/spoitd/collembola/collembo01a.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.fibenthos.org/media/images/product\\_category/celina\\_larva.JPG](http://www.fibenthos.org/media/images/product_category/celina_larva.JPG)



[http://www.fibenthos.org/media/images/product\\_category/celina\\_larva\\_2.JPG](http://www.fibenthos.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:**

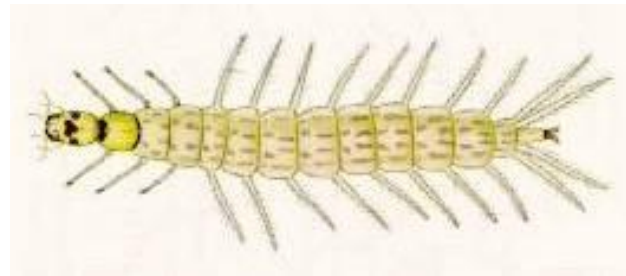
- Abdomen with two pairs of stout, terminal hooks on segment 10
- Abdominal segments 1-9 bearing lateral gills
- Upper eye set in from edge of head > 1/2 eye diameter
- Pronotum and elytron glabrous
- 4-7mm in length
- Elytron with 11 distinct striae

### **SIMILAR ANIMALS:**

- Water scavenger beetle larvae



[http://www.bugsurvey.nsw.gov.au/html/popups/images/gyr\\_wh-be-la\\_col.jpg](http://www.bugsurvey.nsw.gov.au/html/popups/images/gyr_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

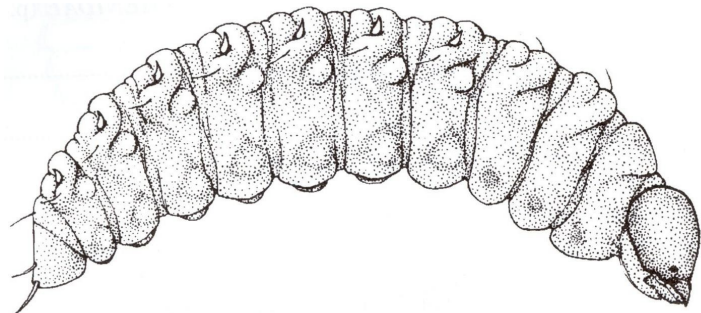
**CODE:** CURCUL

### **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](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:**

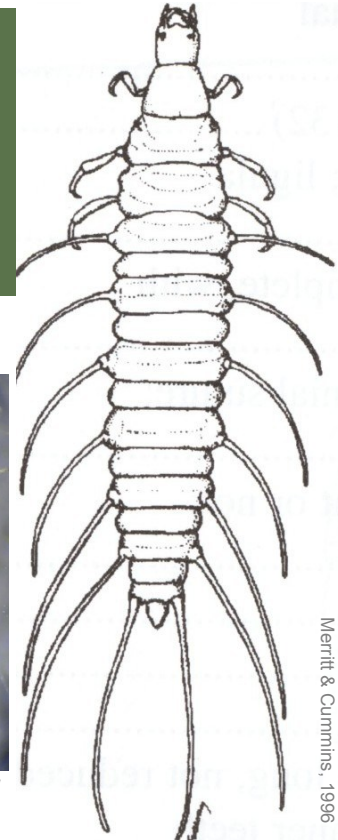
Other beetle larvae



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



[http://www.dfg.ca.gov/abl/images2/berosus\\_larva\\_dorsal.png](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

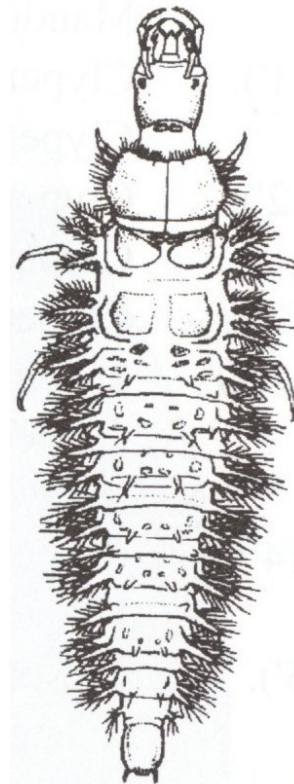
**CODE:** DERSPP

**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

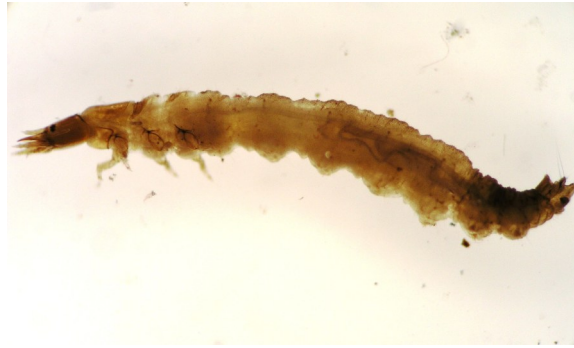
**CODE:** ENOSPP

### **DESCRIPTION:**

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

### **SIMILAR ANIMALS:**

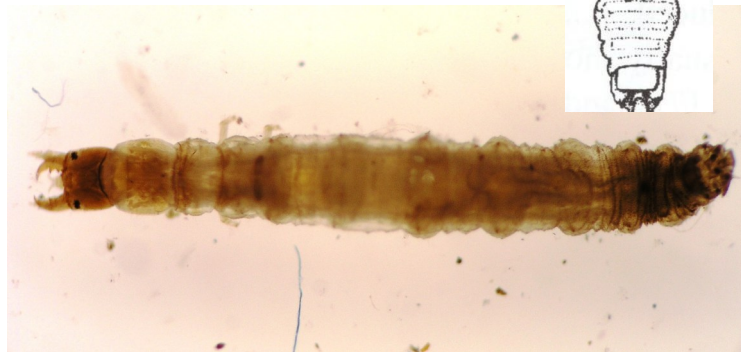
Other beetle larvae



[http://www.flbenthos.org/media/images/product\\_category/enochrus\\_larva\\_lateral.jpg](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](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/Hyphydrus%20sp\\_larvae-300.jpg](http://www.anbg.gov.au/cpbr/WfHC/Dytiscidae/images/Hyphydrus%20sp_larvae-300.jpg)



[http://i.pbase.com/t1/94/339594/4/59403615.IMG\\_3227.jpg](http://i.pbase.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.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_lateral.JPG)



[http://www.fibenthos.org/media/images/product\\_category/hydrocanthus\\_larva\\_dorsal.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:**

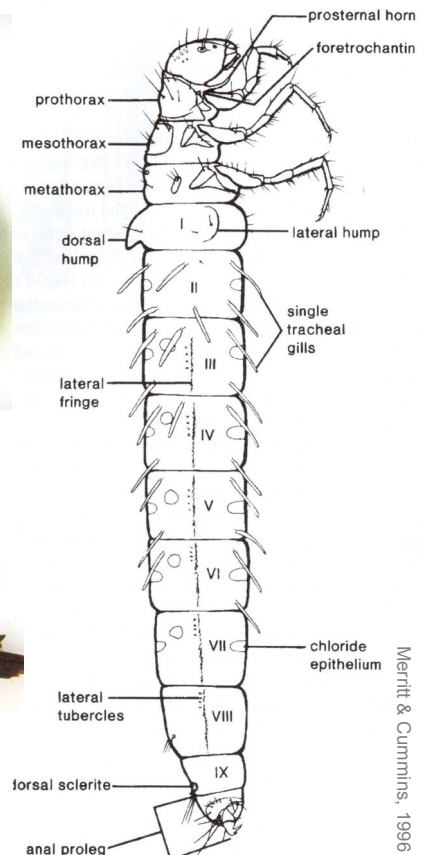
Beetle larvae



[http://www.nwnature.net/macros/efl\\_fall05/images/efl\\_sep05\\_50\\_1.jpg](http://www.nwnature.net/macros/efl_fall05/images/efl_sep05_50_1.jpg)



[http://www.nwnature.net/macros/lena\\_jul06/images/IMG\\_0662.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

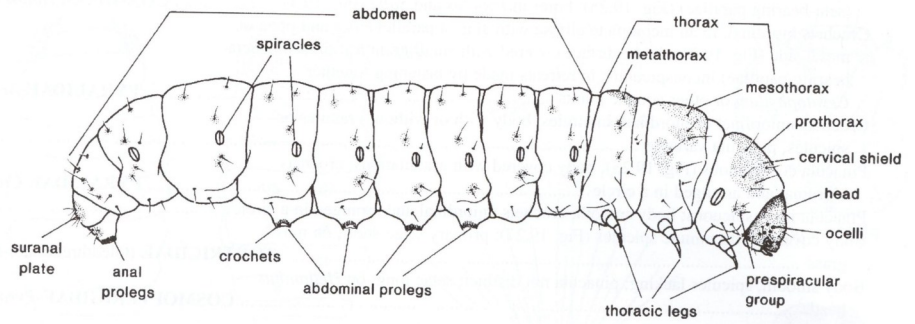
**CODE:** LEPIDO

### **DESCRIPTION:**

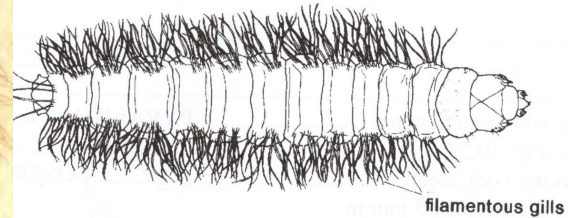
- Caterpillars
- Several sets of prolegs
- May have fur-like gills

### **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

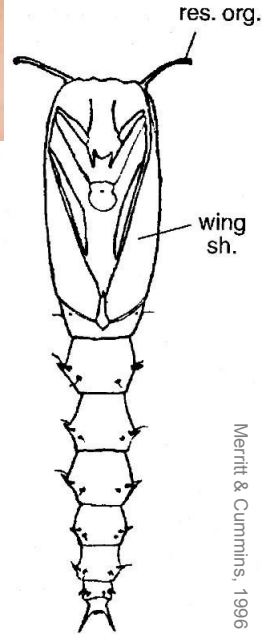


wing sh.

Merritt & Cummins, 1996



[http://www.csuchico.edu/~mmarchetti/FRL/images/Ceratopogonidae\\_pupa.jpg](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*

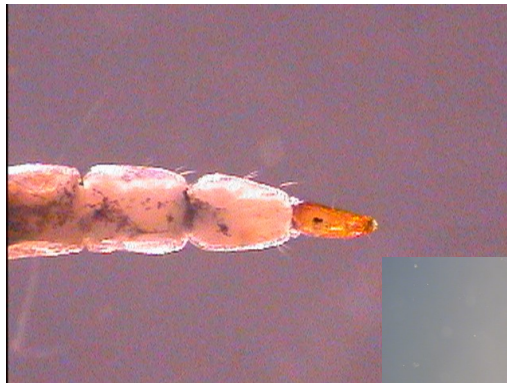
**CODE:** CERATO

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



<http://www.shi.uiowa.edu/services/limnology/macrobenthos/Diptera/Ceratopogonidae/Mallochobolea16x12.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:**

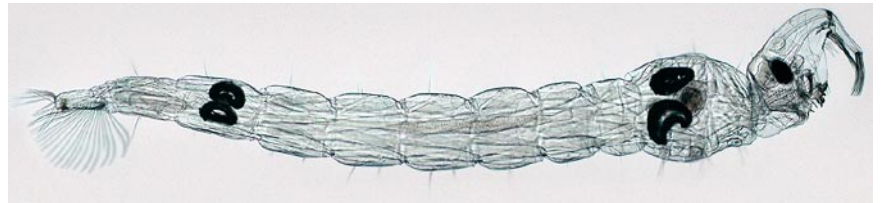
Mosquito larvae



[http://www.gpmatthews.nildram.co.uk/microscopes/pondlife\\_insects.html](http://www.gpmatthews.nildram.co.uk/microscopes/pondlife_insects.html)



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



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

## MIDGE LARVAE

**PHYLUM:** Arthropoda

**CLASS:** Insecta

**ORDER:** Diptera

**FAMILY:** Chironomidae

**SPECIES:**

*Unidentified Midge Larvae*

**CODE:** CHIRON

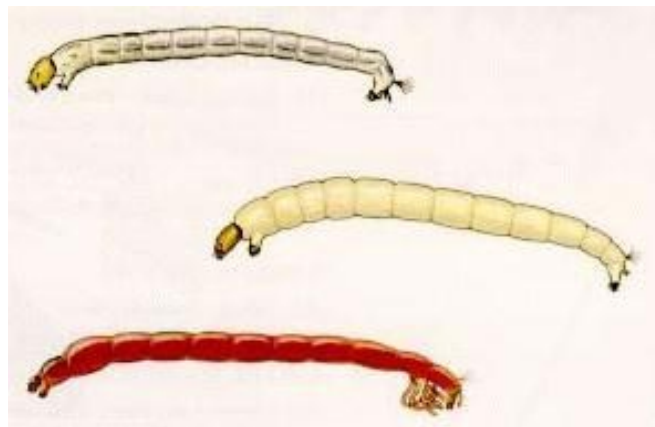
### **DESCRIPTION:**

-Round head

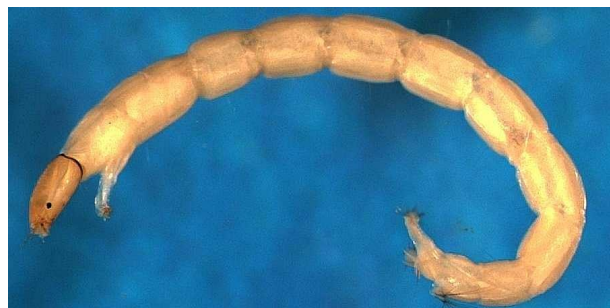
-Short antennae

### **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](http://portal.ncdenr.org/image/image_gallery?uuid=a0517440-6c3b-499f-80d1-187dc91f7260&groupId=38364&t=1318263957871)



[http://www.dfg.ca.gov/abl/images2/dasyhelea\\_habitus.png](http://www.dfg.ca.gov/abl/images2/dasyhelea_habitus.png)

## MIDGE LARVAE

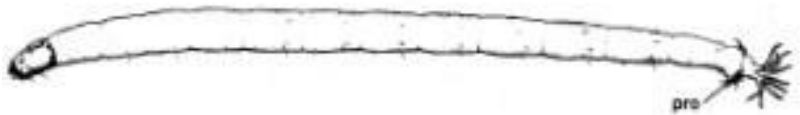
**PHYLUM:** Arthropoda  
**CLASS:** Insecta  
**FAMILY:** Ceratopogonidae  
**ORDER:** Diptera  
**SPECIES:**  
*Dasyhelea sp.*  
**CODE:** DASSPP



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.mdrc.org.au/bugguide/images/dasyheleinaeceratopogonidae.jpg>

## MIDGE LARVAE

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

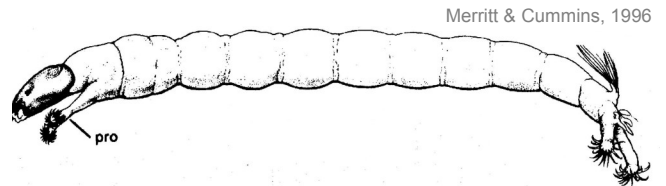
**CODE:** TANYPO

### **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>



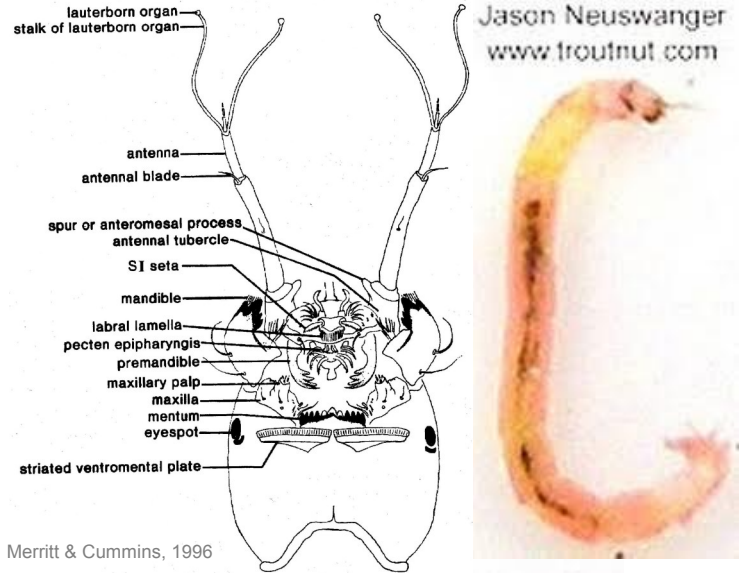
<http://www.mdrc.org.au/bugguide/images/dipterachironomidae/tanypodii.jpg>

**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



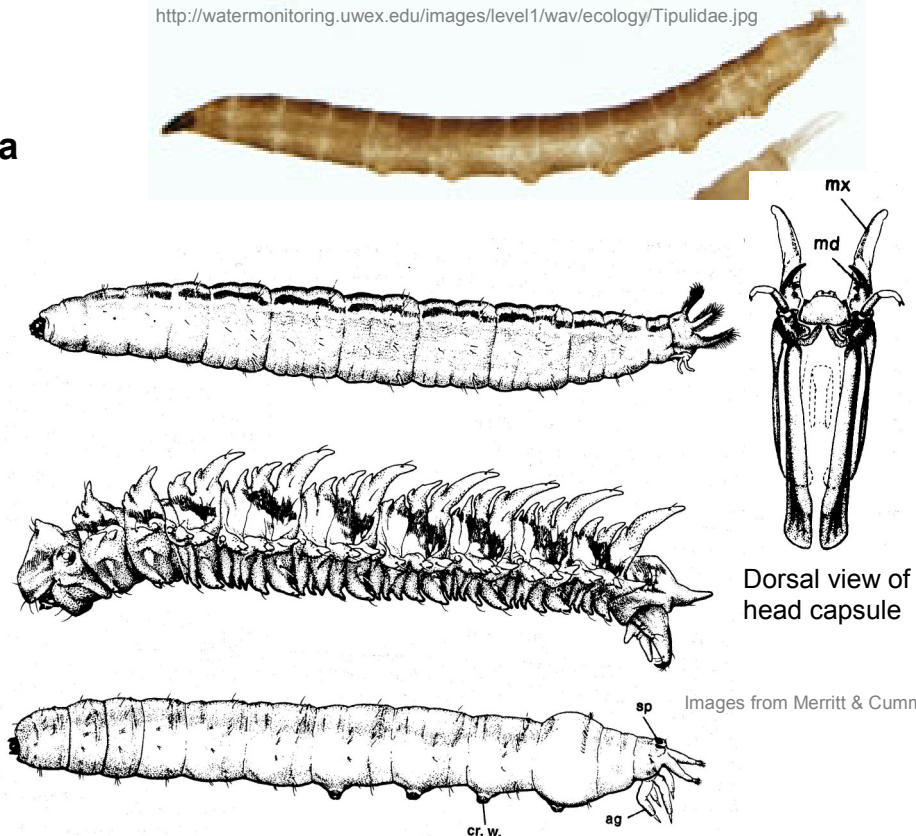
<http://watermonitoring.uwex.edu/images/level1/wav/ecology/Tipulidae.jpg>

**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



Images from Merritt & Cummins, 1996

## SOLDIER FLY LARVAE

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

**PHYLUM:** Arthropoda

**CLASS:** Insecta

**ORDER:** Diptera

**FAMILY:** Stratiomyidae

**SPECIES:**

N/A

**COMMON NAME:** Soldier  
Fly Larvae

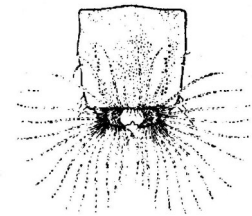
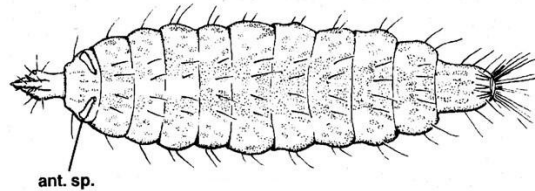
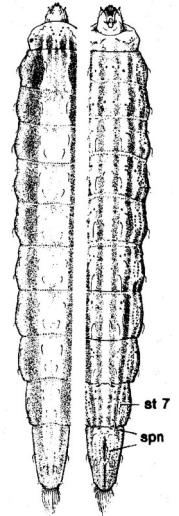
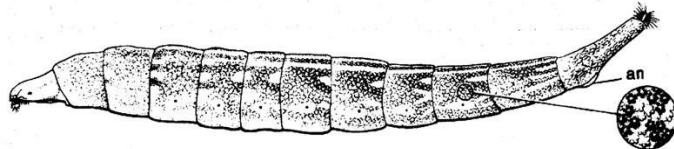
**CODE:** STRATI

**DESCRIPTION:**

-See photo

**SIMILAR ANIMALS:**

Tipulidae, Tabanidae



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

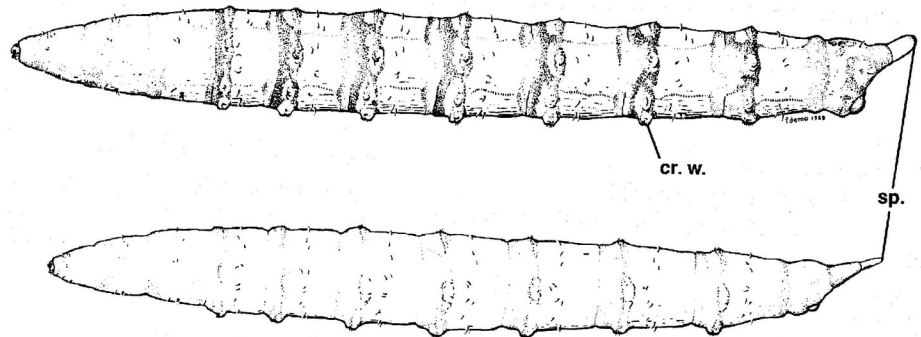
**DESCRIPTION:**

-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

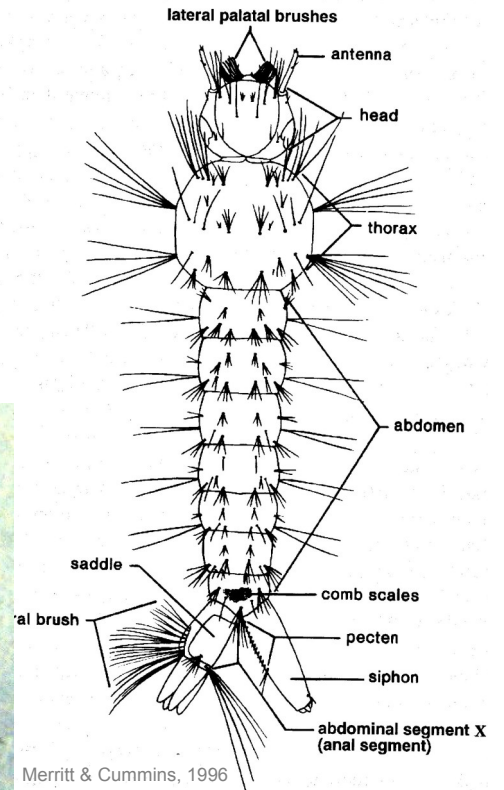
**CODE:** CULICI

**DESCRIPTION:**

-Segments with numerous setae



[http://medent.usyd.edu.au/photos/various\\_larvae.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/-bZbDbHy6hpYT2F4Lp6lgFI/AAAAAAAAAE28/0kol6plADh4/s400/Neoacarus.jpg>



[http://www.fcps.edu/islandcreekes/ecology/Arthropods/Water%20Mite/wolcott\\_1.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](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:**

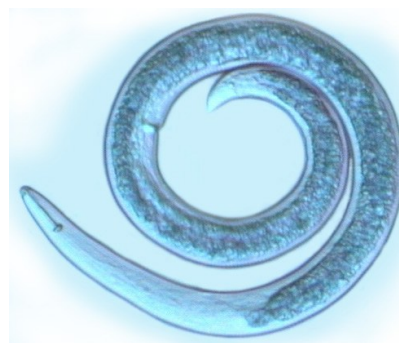
-Non-segmented

-Cylindrical

-Ends tapered to a point

**SIMILAR ANIMALS:**

Oligochaetes



## FLATWORMS

**PHYLUM:** Platyhelminth

**SPECIES:**

N/A

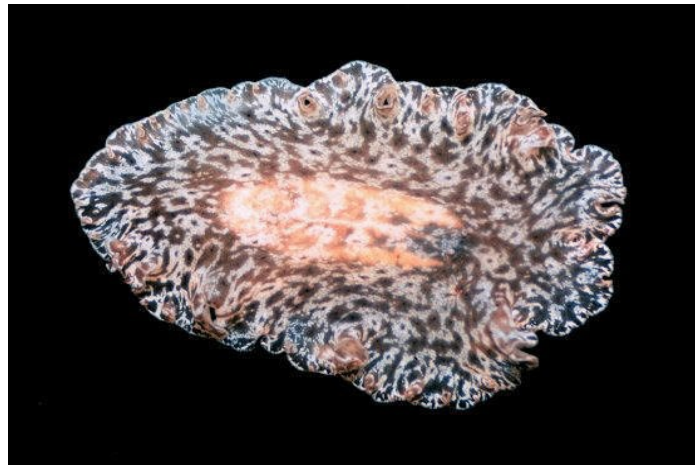
**COMMON NAME:** Flatworm

**CODE:** PLATYH

**DESCRIPTION:**

-Thin, flat worms

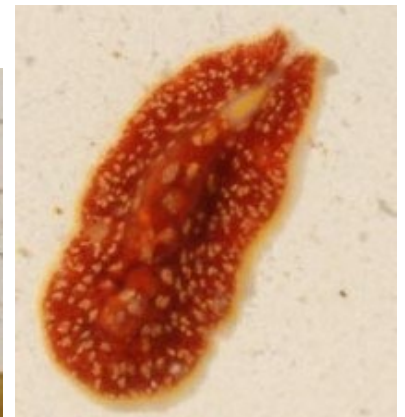
-Non-segmented; may have eye spots



<http://www.personal.psu.edu/users/1a/law5001/images/polyclad.jpg>

**SIMILAR ANIMALS:**

Leeches (segmented, with suckers at each end)



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

## ROTIFERS

**PHYLUM:** Rotifera

**SPECIES:**

N/A

**COMMON NAME:** Rotifer

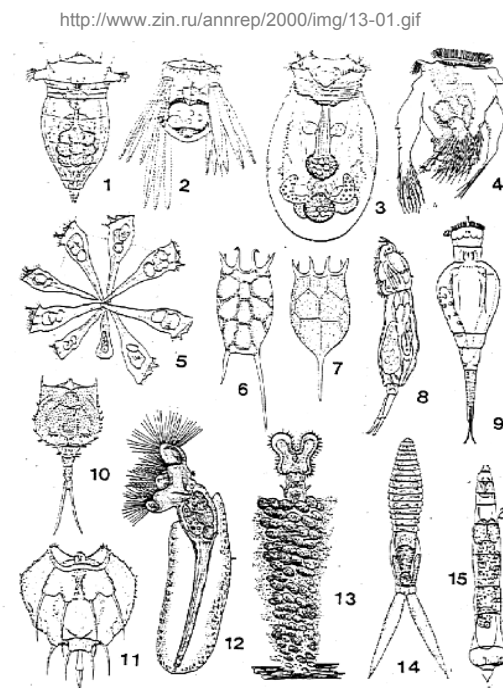
**CODE:** ROTIFE

**DESCRIPTION:**

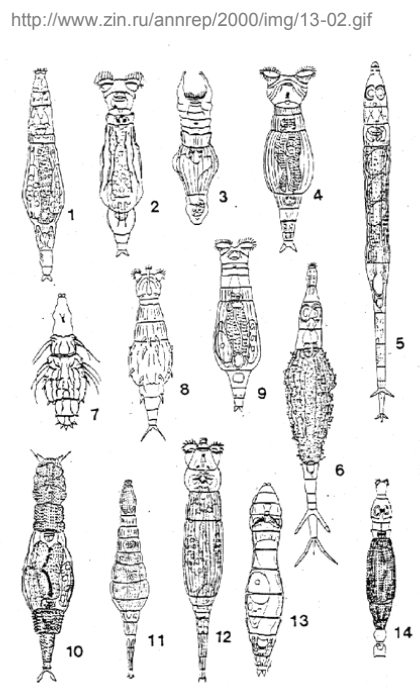
-Microscopic multicellular animals

**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

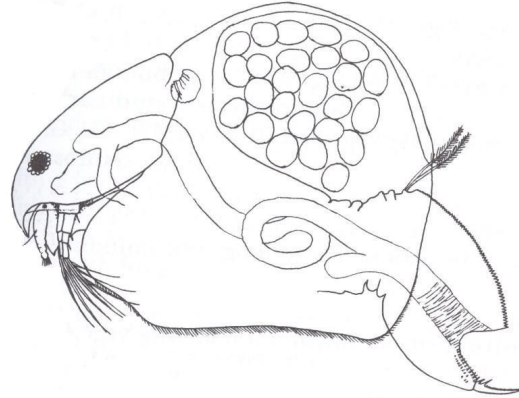
**CODE:** CHYDOR

### **DESCRIPTION:**

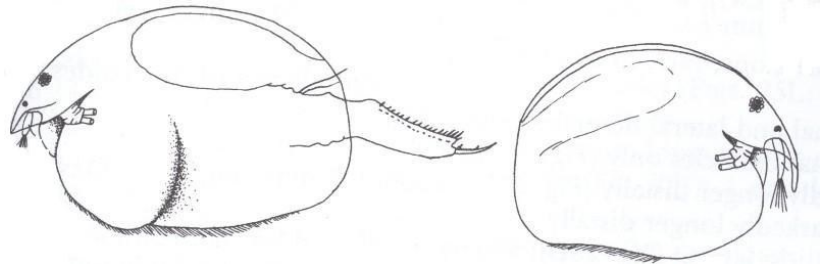
- Both branches of second antenna with three segments
- First antennae at least partly covered by flanges on the side of the head
- Short antennae
- Extended rostrum

### **SIMILAR ANIMALS:**

Other cladocerans



Images from Pennak, 1989



## CLADOCERA

**PHYLUM:** Arthropoda

**CLASS:** Branchiopoda

**FAMILY:** Daphniidae

**SPECIES:**

N/A

**COMMON NAME:** Cladoceran

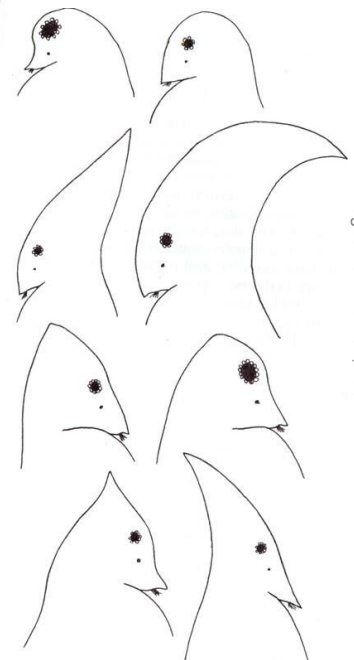
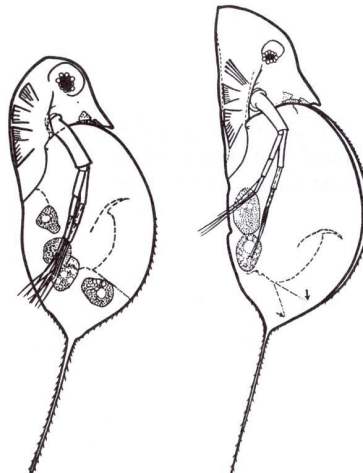
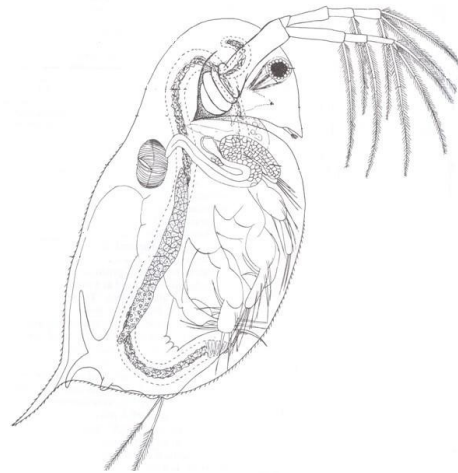
**CODE:** DAPHNI

### **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

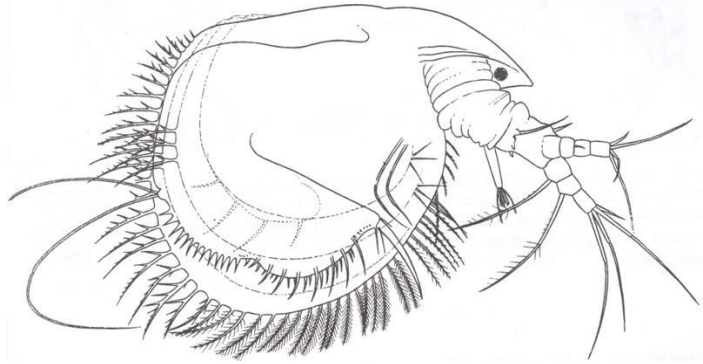
**FAMILY:** Macrothricidae

**SPECIES:**

N/A

**COMMON NAME:** Cladoceran

**CODE:** MACROT



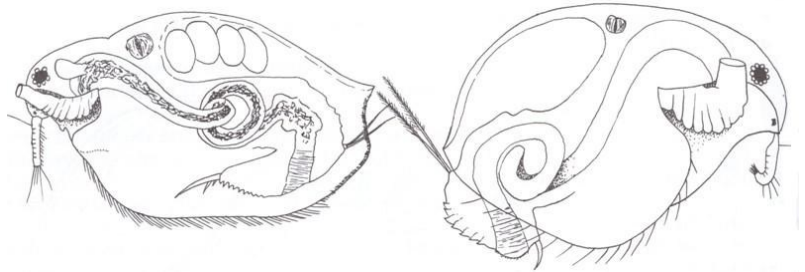
Images from Pennak, 1989

### **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

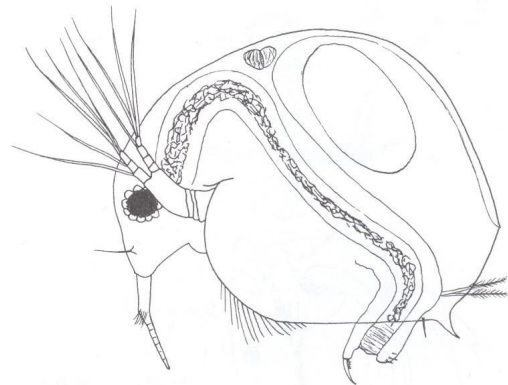
**FAMILY:** Bosminidae

**SPECIES:**

N/A

**COMMON NAME:** Cladoceran

**CODE:** BOSMIN



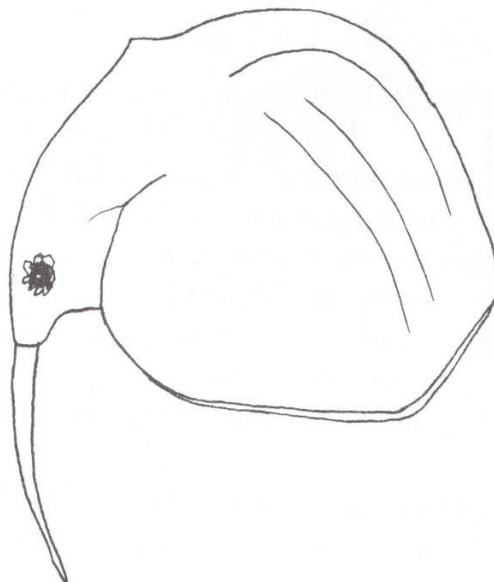
Images from Pennak, 1989

### **DESCRIPTION:**

-See photo

### **SIMILAR ANIMALS:**

Other cladocerans





## CTENOPHORA

**PHYLUM:** Arthropoda

**CLASS:** Branchiopoda

**FAMILY:** Sididae

**SPECIES:**

*N/A*

**COMMON NAME:** Cladoceran

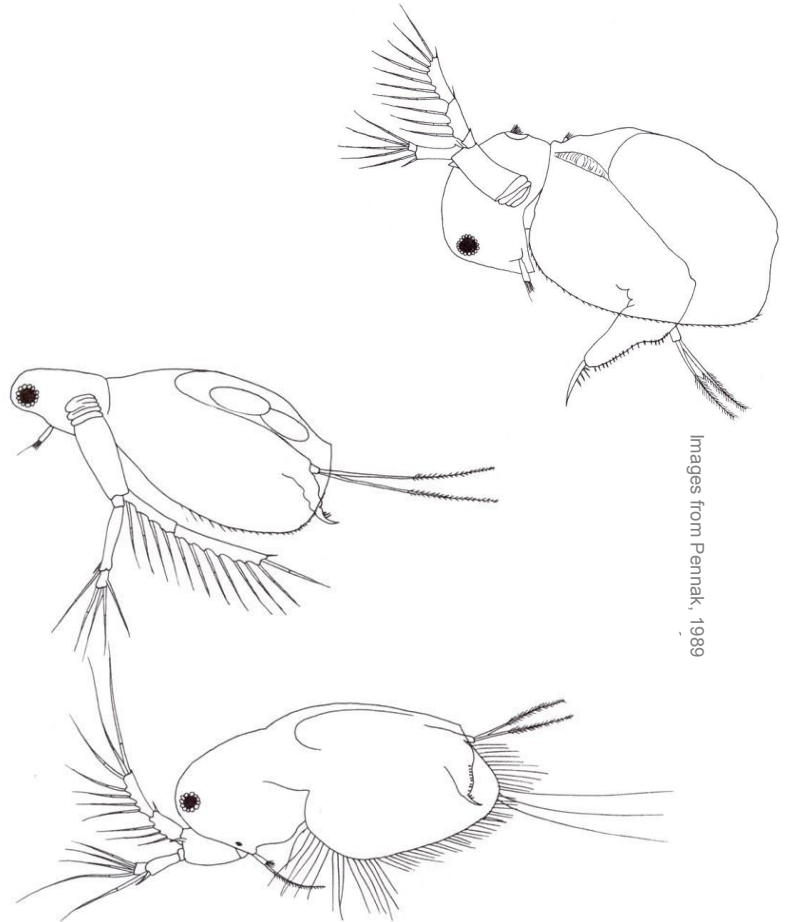
**CODE:** SIDIDA

### **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

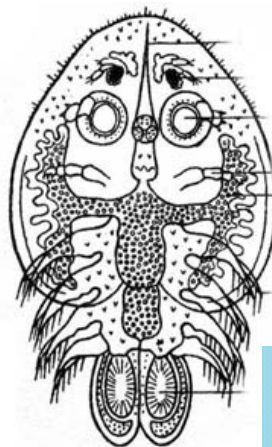
**CODE:** ARGSP

### **DESCRIPTION:**

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

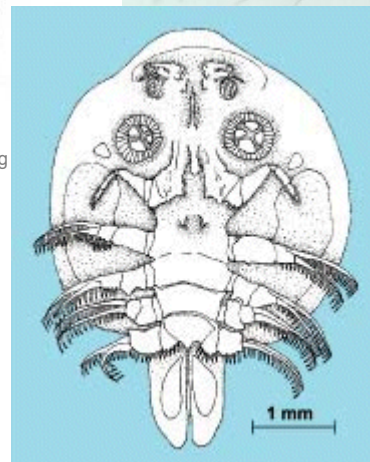
### **SIMILAR ANIMALS:**

Rotifers, Nauplii



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

[http://webstarter.netbenefit.com/users/www.blueroot.co.uk/upload/webfig\\_532\\_argulus.jpg](http://webstarter.netbenefit.com/users/www.blueroot.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

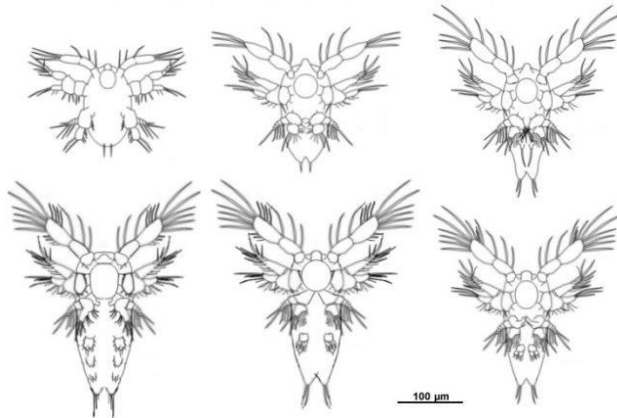
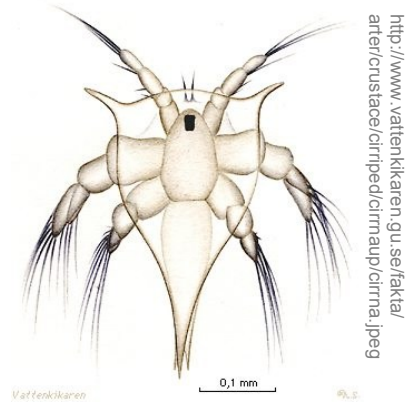
**CODE:** NAUPLI

### **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

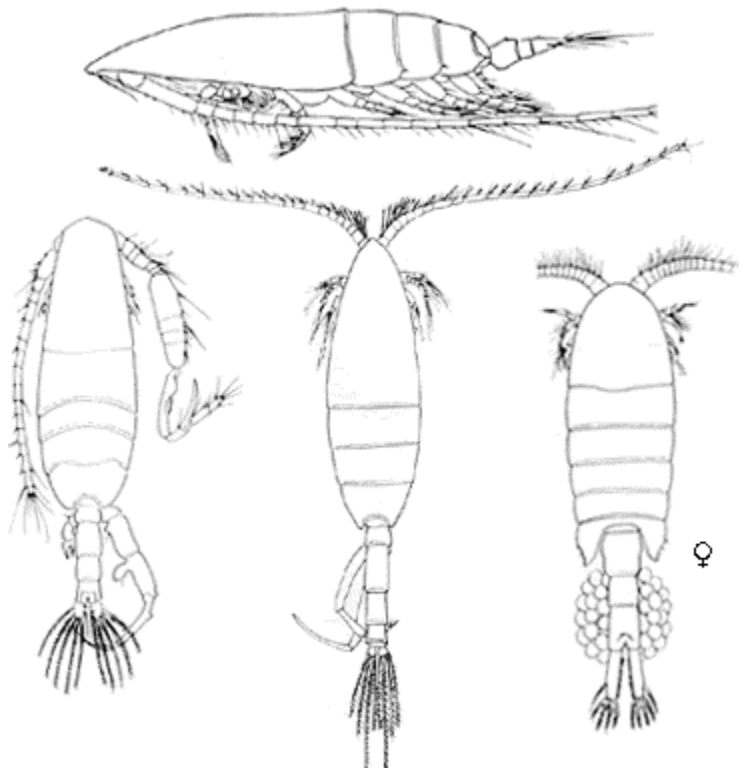
**CODE:** CALANO

### **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

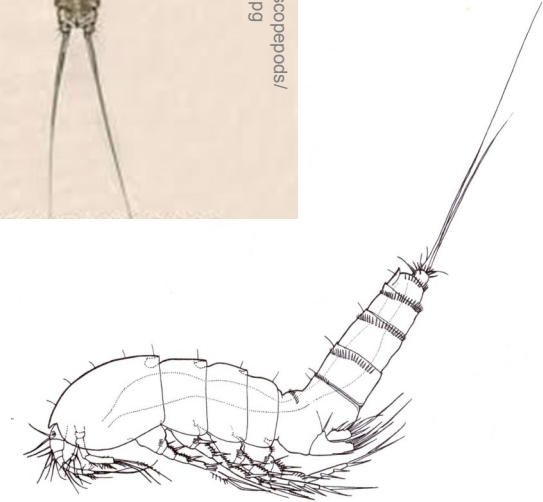
**SIMILAR ANIMALS:**

Other copepods



<http://www.glsr.usgs.gov/greatlakescopepods/Harpacticoid/Key/01a-AarneFpod1.jpg>

Pennak, 1989



## COPEPODS

**PHYLUM:** Arthropoda

**CLASS:** Copepoda

**SPECIES:**

N/A

**COMMON NAME:** Cyclopoid

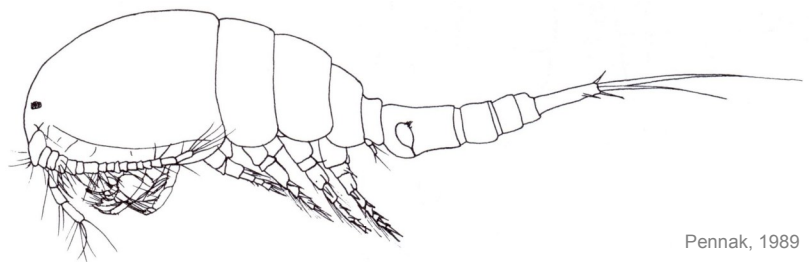
**CODE:** CYCLOP

**DESCRIPTION:**

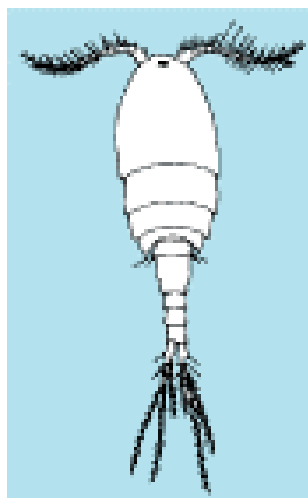
- Antennae short—half of body-length
- Single eye spot near tip of head
- Herbivorous

**SIMILAR ANIMALS:**

Other copepods



Pennak, 1989



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



<http://sfr.c.uff.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://aslo.org/photopost/data/508/64fpod_1_med.jpg)



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

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- **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.