

# Benthic Macroinvertebrates of Michigan



Volunteer Stream  
Monitoring Program

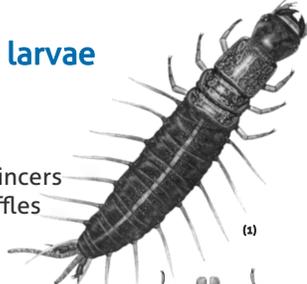
Michigan Streams – Ours to Protect

## Listed from Most to Least Sensitive

### Hellgrammite (dobsonfly) larvae

**Order:** Megaloptera  
**Family:** Corydalidae  
**Size:** 10 - 90 mm

- Lateral appendages and large pincers
- Often found on rocks in swift riffles

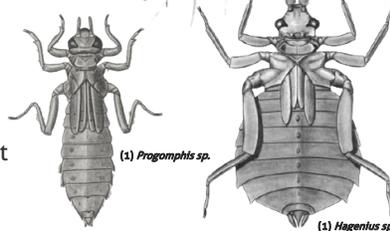


(1)

### Clubtail Dragonfly

**Order:** Odonata  
**Family:** Gomphidae  
**Size:** 20 - 50 mm

- Large oval abdomen
- No external gills
- Ends of antennae robust



(1) *Progomphus sp.*

(1) *Hagenius sp.*

### Sensitive True Flies

**Order:** Diptera

- Highly diverse, includes but not limited to:

#### Water Snipe Fly

**Family:** Athericidae  
**Size:** 10 - 18 mm

- Tapered body, caterpillar-like pro- legs
- Pair of feathery filaments on back end

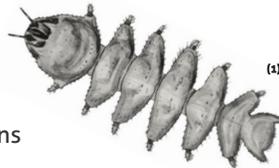


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#### Net-winged Midge

**Family:** Blephariceridae  
**Size:** 4-12 mm

- Flattened form
- Body divided into 7 sections



(1)

#### Dixid Midge

**Family:** Dixidae  
**Size:** 3 - 15 mm

- Fine hairs on end of abdomen
- Pro-legs on first abdomen segment

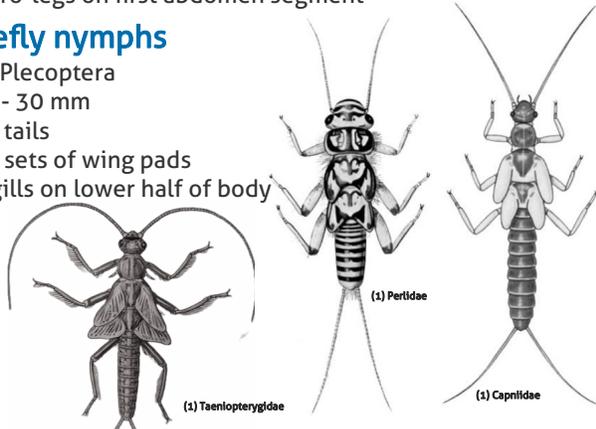


(2)

### Stonefly nymphs

**Order:** Plecoptera  
**Size:** 5 - 30 mm

- Two tails
- Two sets of wing pads
- No gills on lower half of body



(1) *Taeniopterygidae*

(1) *Perlidae*

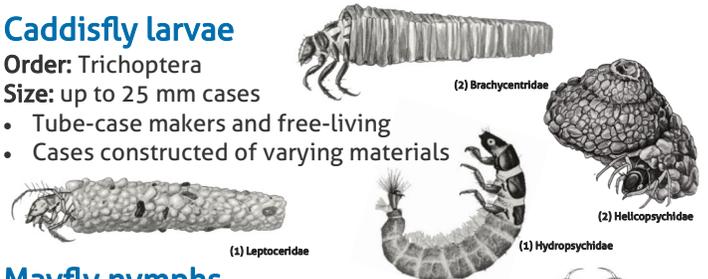
(1) *Capnidae*

### Caddisfly larvae

**Order:** Trichoptera

**Size:** up to 25 mm cases

- Tube-case makers and free-living
- Cases constructed of varying materials



(1) *Leptoceridae*

(2) *Brachycentridae*

(1) *Hydropsychidae*

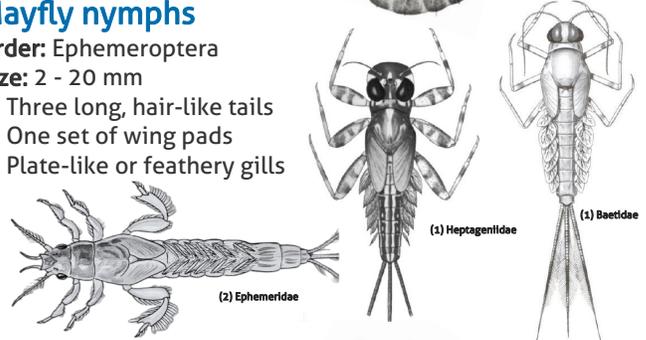
(2) *Hellcopsyichidae*

### Mayfly nymphs

**Order:** Ephemeroptera

**Size:** 2 - 20 mm

- Three long, hair-like tails
- One set of wing pads
- Plate-like or feathery gills



(2) *Ephemeridae*

(1) *Heptageniidae*

(1) *Baetidae*

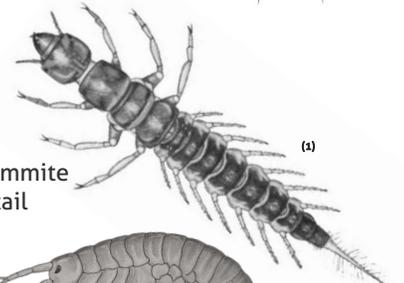
### Alderfly larvae

**Order:** Megaloptera

**Family:** Sialidae

**Size:** 10 - 25 mm

- Lateral appendages
- Looks like a small hellgrammite larva but has a long thin tail



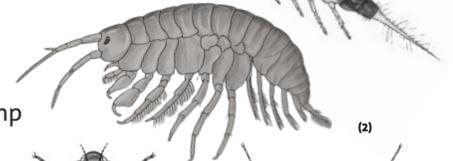
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### Scuds

**Order:** Amphipoda

**Size:** 5 - 20 mm

- Resembles tiny shrimp
- Swim sideways



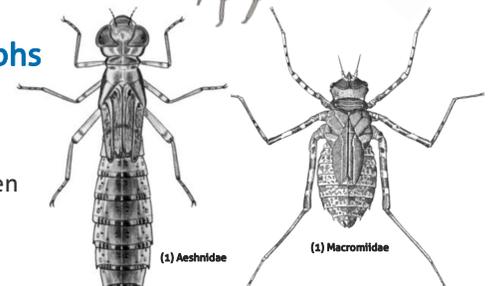
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### Dragonfly nymphs

**Order:** Odonata

**Size:** 10 - 40 mm

- Large eyes
- Long oval abdomen
- No external gills



(1) *Aeshnidae*

(1) *Macromiidae*

### Beetles

**Order:** Coleoptera

**Size:** 1 - 30 mm

- Diverse in appearance
- Adults have hardened bodies, shell-like wings

#### Pictured:

a. Riffle beetle larvae & adult

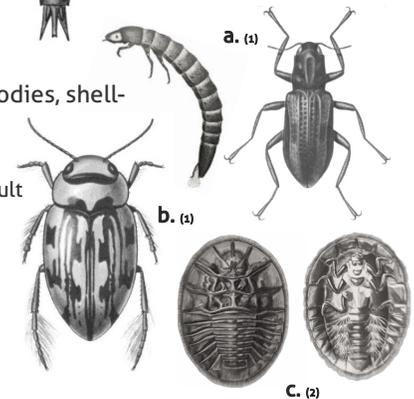
**Family:** Elmidae

b. Diving beetle

**Family:** Dytiscidae

c. Water penny beetle

**Family:** Dytiscidae



a. (1)

b. (1)

c. (2)

Scale in centimeters (Select "Actual Size" as page size when printing PDF for accurate scale)



## Somewhat Sensitive True Flies

**Order:** Diptera

- Highly diverse, includes but not limited to:

### Black fly larvae

**Family:** Simuliidae

**Size:** 3 - 15 mm

- Body bulbous at one end
- Constricted in the middle



### Crane fly larvae

**Family:** Tipulidae

**Size:** 3 - 100 mm

- Plump, caterpillar-like body
- No legs, small lobes at back end



### Midge larvae

**Family:** Chironomidae

**Size:** 2 - 10 mm

- Often small and very slender
- Worm-like at first glance, but segmented

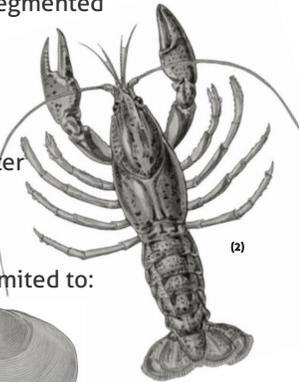


## Crayfish

**Order:** Decapoda

**Size:** up to 15 cm

- Crustacean, resembles small lobster
- Ten legs, two large claws



## Bivalves and Snails

- Highly diverse, includes but not limited to:

### Fingernail Clam

**Class:** Bivalvia

**Size:** 2 - 10 mm

- Thin shells, usually light colored



### Mussels

**Class:** Bivalvia

**Size:** 30 - 250 mm

- Thick shells, usually oblong



### Snails

**Class:** Gastropoda

**Size:** Variable

**Pictured:**

a. Left-handed snail

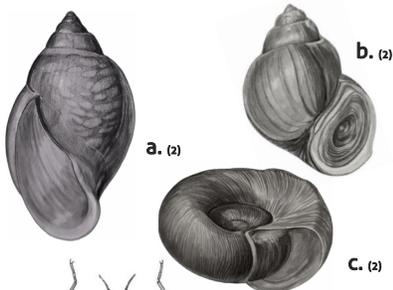
**Family:** Physidae

b. Right-handed snail

**Family:** Viviparidae

b. Planorbid snail

**Family:** Planorbidae

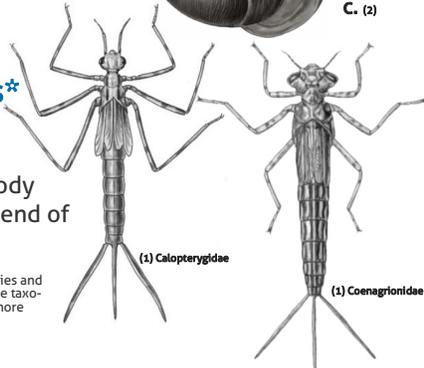


## Damselfly nymphs\*

**Order:** Odonata

**Size:** 13 - 40 mm

- Large eyes, slender body
- Three oar-like gills at end of abdomen



\* To fit the content into the space, Damselflies and True Bugs were switched in the layout. At the taxonomic order level, Damselflies are slightly more tolerant than True Bugs.

## True Bugs\*

**Order:** Hemiptera

- Highly diverse in appearance
- Adults have elongate, sucking mouthparts

**Pictured:**

a. Water Strider

**Family:** Gerridae

b. Back-swimmer

**Family:** Notonectidae

c. Water Boatman

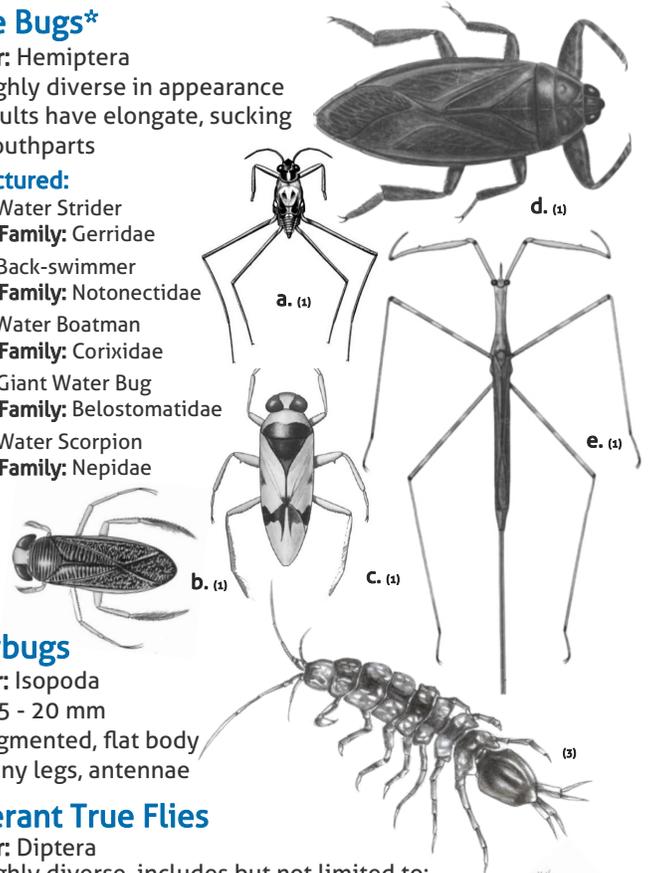
**Family:** Corixidae

d. Giant Water Bug

**Family:** Belostomatidae

e. Water Scorpion

**Family:** Nepidae



## Sowbugs

**Order:** Isopoda

**Size:** 5 - 20 mm

- Segmented, flat body
- Many legs, antennae



## Tolerant True Flies

**Order:** Diptera

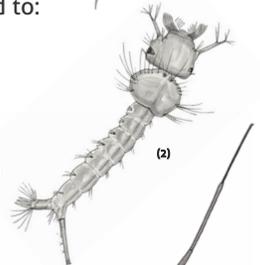
- Highly diverse, includes but not limited to:

### Mosquito

**Family:** Culicidae

**Size:** 4 - 18 mm

- Distinct head separate from thorax
- Brushes on head and sides of mouth



### Rat-tailed Maggot

**Family:** Syrphidae

**Size:** 4 - 16 mm w/o breathing tube

- Body fat, rounded
- Long breathing tube at end of abdomen



### Soldier Fly

**Family:** Stratiomyidae

**Size:** 3 - 50 mm

- Skin rough, leathery
- Thorax much broader than head

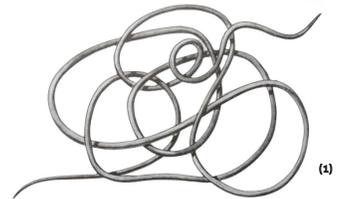


## Aquatic Worms

**Class:** Oligochaeta

**Size:** usually 1 - 30 mm, up to 150 mm

- Can be very thin



## Leeches

**Class:** Hirudinea

**Size:** 1 - 450 mm fully extended

- External striations (stripes)
- Suckers on both ends of the body



Michigan Clean  
Water Corps

### References for Images:

- McCafferty, W.P. 1998. Aquatic Entomology. The Fisherman's and Ecologists Illustrated Guide to Insects and Their Relatives. Science Book International, Boston, MA.
- Voshell, J.R. 2002. A Guide to Common Freshwater Invertebrates of North America. The McDonald & Woodward Publishing Company, Blackburg, VA
- Kate Laramie. 2023. Sowbug. [graphite pencil]. Huron River Watershed Council. Ann Arbor, MI.