

Gilled Snails

Class: Gastropoda

Size: 1/4" - 4"

Tolerance: Sensitive

Gill breathing; therefore, they are more sensitive to low dissolved oxygen than lunged snails

Distinguishing Characteristics:

- Usually opens to the right when the narrow end is pointing upward
- Shell opening covered by a thick plate (operculum)
- When monitoring, do not count empty shells

**Aquatic Worms**

Class: Oligochaeta

Size: Usually 1" but up to 4"

Tolerance: Tolerant

Distinguishing Characteristics:

- Can be very tiny and slender or look similar to earthworms
- No legs, distinct head or any mouthparts
- Segmented body
- Aquatic worms can indicate organic pollution when they dominate the majority of the sample collection

**Leeches**

Class: Hirudinea

Size: 1/2" to 2"

Tolerance: Tolerant

Distinguishing Characteristics:

- Somewhat slimy, soft, segmented body
- Two suckers on the underside of the body, one in the front and one in the rear
- Can be confused with a flatworm, however flatworms have no suckers and leeches have fine lines (annuli) across the body

**Flatworms**

Class: Turbellaria

Size: 1/4" to 2"

Tolerance: Tolerant

Distinguishing Characteristics:

- Body flattened dorsally;
- 2-eyespot present giving the animal a cross-eyed appearance; head usually arrow shaped.

**Aquatic Sow Bugs**

Order: Isopoda

Size: 1/4" - 1/2"

Tolerance: Somewhat sensitive

Distinguishing Characteristics:

- Flat, segmented body
- Has an "armored" appearance
- Seven pairs of legs
- Can be confused with scuds, however they are flattened top to bottom

**Scuds**

Order: Amphipoda

Size: 1/8" to 1/4"

Tolerance: Somewhat sensitive

Distinguishing Characteristics:

- Resemble a small shrimp
- Translucent body with silvery-gray or tan coloration
- Seven pairs of legs
- Unlike sow bugs, scuds are flattened side to side



Black Flies
Order: Diptera
Size: up to 1/4"
Tolerance: Tolerant

Distinguishing Characteristics:

- The body is larger at the rear end similar to the shape of a bowling pin
- The distinct head contains fan-like mouth brushes
- Often curl into a "u" shape when held in your hand

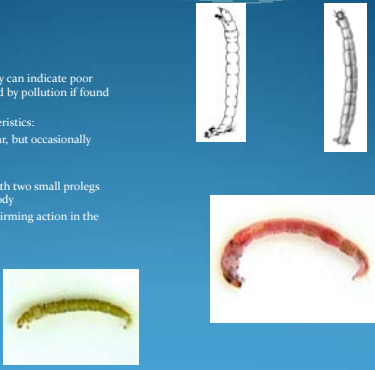


Midge Flies
Order: Diptera
Size: up to 1/2"

Tolerance: Tolerant, they can indicate poor stream health caused by pollution if found in large numbers

Distinguishing Characteristics:

- Often whitish to clear, but occasionally bright red
- Segmented body
- Has distinct head with two small prolegs in the front of the body
- Display a spastic squirming action in the water



Aquatic Snipe Flies
Order: Diptera
Size: 1/4" to 1"
Tolerance: Sensitive

Distinguishing Characteristics:

- Body is pale brown to green color
- Mostly cylindrical, with the front tapering to a cone-shaped point
- Larva have a number of mostly paired caterpillar-like prolegs
- Two stout, pointed tails with feathery hairs at back end

Crane Flies
Order: Diptera
Size: 1/3" to 1/2"

Tolerance: Somewhat sensitive

Distinguishing Characteristics:

- Worm-like plump body
- Can be found in a variety of colors (clear, white, brown, and green)
- Segmented body with finger-like projections (gills) at the back end
- Head is usually pulled back into the front of the body

Dance Flies

Horse Flies



Hellgrammites and Alderflies
Order: Megaloptera
Size: 1/4" to 4"


Tolerance: Somewhat sensitive

Distinguishing Characteristics:

- Stout body with large pinching jaws
- Eight pairs of pointed lateral appendages
- On the rear end of the body a pair of stubby, unjointed legs (prolegs), each with a pair of claws
- Dobsonflies/Hellgrammites have paired cotton-like gill tufts, fishflies lack these
- Fishflies have two short tube-like structures on the tail end

Hellgrammites

Alderflies

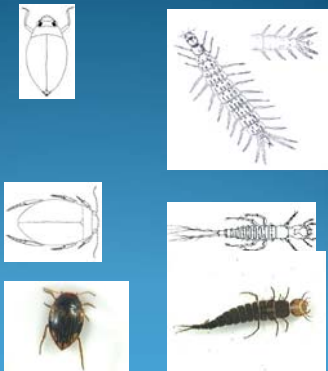


Whirligig Beetle
Order: Coleoptera

Predaceous Diving Beetle
Order: Coleoptera

Adult

Larvae



Water Pennies
Order: Coleoptera
Size: up to 1/2"

Tolerance: Very sensitive

Distinguishing Characteristics:

- Looks like a flat, oval disc
- Plates extend from all sides
- Cannot survive on rocks covered with excessive algae or inorganic sediment

Rifle Beetle
Order: Coleoptera
Size: 1/16" to 1/8"


Tolerance: Sensitive

Distinguishing Characteristics:

- Very small
- Dark colored
- Adult rifle beetle will be found walking on the bottom of the stream
- algae or inorganic sediment

Adult

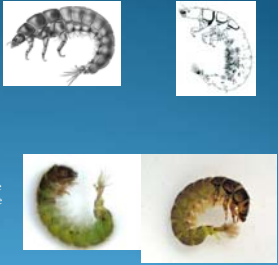
Larvae



Common Net Spinning Caddisflies
 Order: Trichoptera
 Family: Hydropsychidae
 Size: up to 1"
 Tolerance: Somewhat sensitive

Distinguishing Characteristics:

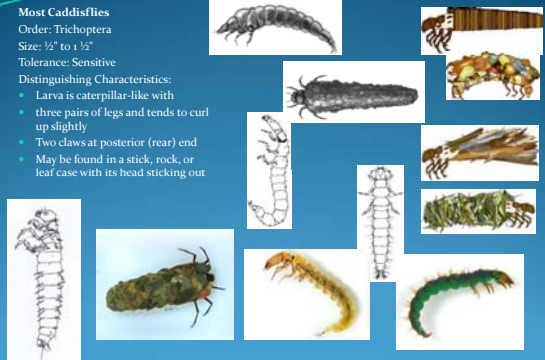
- Body is caterpillar-like with three pairs of legs and is strongly curved
- Dorsal plates (sclerites) on all three thoracic segments
- Branched gills on the ventral surface of the last two thoracic segments and most of the abdominal segments
- Usually have a bristle-like, setal tuft at the end of each anal proleg
- Color varies from bright green to dark brown



Most Caddisflies
 Order: Trichoptera
 Size: 1/2" to 1 1/2"
 Tolerance: Sensitive

Distinguishing Characteristics:

- Larva is caterpillar-like with three pairs of legs and tends to curl up slightly
- Two claws at posterior (rear) end
- May be found in a stick, rock, or leaf case with its head sticking out

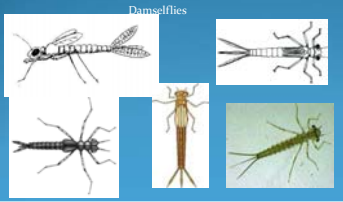


Damselflies and Dragonflies
 Order: Odonata
 Size: 1/2" to 2"
 Tolerance: Somewhat sensitive


Distinguishing Characteristics:

- Both have large eyes, six legs, and a large lower lip that covers much of the bottom of the head
- Damselflies are slender and have three oar-shaped tails (gills)
- Dragonflies have a stocky body without tails

Damselflies



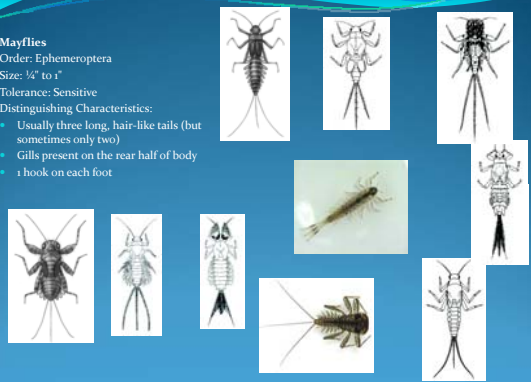
Dragonflies



Mayflies
 Order: Ephemeroptera
 Size: 1/4" to 1"
 Tolerance: Sensitive

Distinguishing Characteristics:

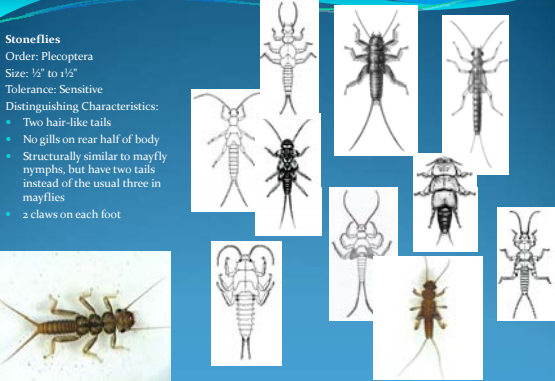
- Usually three long, hair-like tails (but sometimes only two)
- Gills present on the rear half of body
- 1 hook on each foot



Stoneflies
 Order: Plecoptera
 Size: 1/2" to 1 1/2"
 Tolerance: Sensitive


Distinguishing Characteristics:

- Two hair-like tails
- No gills on rear half of body
- Structurally similar to mayfly nymphs, but have two tails instead of the usual three in mayflies
- 2 claws on each foot




Other Non-Benthic Stream Invertebrates


Water Scorpion (Order Hemiptera)




Water Boatman (Order Hemiptera)




Water Mites (Arachnids)



Water Striders (Order Hemiptera)



Backswimmer (Order Hemiptera)



Mosquito Larvae (Order Diptera)

