A Selection of Aquatic Macroinvertebrates of Illinois, USA

Organized by Illinois RiverWatch Taxa Categories

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Line drawings and narrative courtesy of Illinois RiverWatch and Illinois Natural History Survey, Prairie Research Institute of Illinois.

Turbellaria
PLATYHELMINTHES
Flatworms

Oligochaeta
ANNELIDA
Aquatic worms

Hirudinea
ANNELIDA
Leaches

Isopoda:Asellidae
CRUSTACEA
Sowbugs

Amphipoda
CRUSTACEA
Scuds


Extensible jaw

Odonata: Anisoptera
INSECTA
Dragonfly nymphs

Odonata: Calopterigidae
INSECTA
Broad-winged damselflies

Odonata: Coenagrionidae
INSECTA
Narrow-winged damselflies

Megaloptera: Coryalidae
INSECTA
Hellgrammites and Fishflies

Megaloptera:Sialidae
INSECTA
Alderflies

Ephemeroptera:Oligonueridae
INSECTA
Torpedo mayflies

Ephemeroptera :Baetidae
and Siphlonuridae
INSECTA
Swimming mayflies

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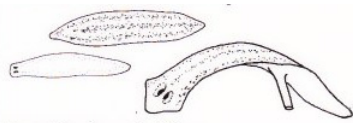
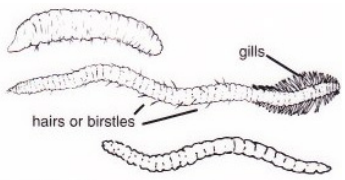
- Soft bodied,flat and non-segmented
- Gray,brown, or black, often mottled striped or spotted.Ventral usually gray
- May have two eyespots on the dorsal surface
- Appearance changes drastically when preserved; body goes gray, specimen curls into a “C” shape
- Specimens are fragile and easily destroyed in handling



Length: 1mm to 30mm

Turbellaria **1**
PLATYHELMINTHES
Flatworms

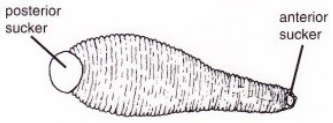
- Soft-bodied, many segments, and elongate
- No distinct head region
- May have bristles, hairs or gills when viewed under the microscope
- Beige to red when alive; gray when preserved
- Often curl into a “curly-Q” when preserved



Length: 5mm to 40mm

Oligochaeta **2**
ANNELIDA
Aquatic worms

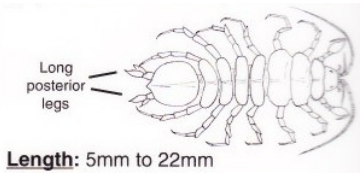
- Segmented worms that are dorso-ventrally flattened (top to bottom)
- Suckers on both ends,on the ventral or bottom side.
- Anterior sucker small or large; posterior sucker always large
- May be solid brown or reddish, or brightly colored and patterned.
- Many turn gray or cream when preserved



Length: 5mm to 40mm (may stretch out in life or contract and curl when preserved).

Hirudinea **3**
ANNELIDA
Leaches

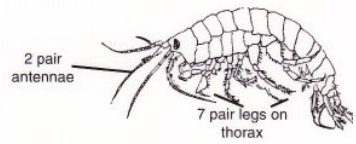
- Crustaceans related to pill bugs
- 7 pairs of legs on thorax; posterior legs longer than anterior legs; grasping claws on first pair of legs
- Six (6) pairs of appendages on abdomen; the last of which projects posteriorly
- Eyes unstalked and body dorso-ventrally flattened
- Brownish and often mottled in life
- Dull cream color when preserved



Length: 5mm to 22mm

Isopoda **4**
CRUSTACEA
Sowbugs

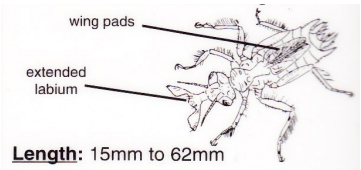
- Shrimp-like crustaceans
- 7 pairs of legs on the thorax; 1st two pairs with grasping claws
- Head with unstalked eyes and two pair of antennae
- Bodies laterally flattened (from side to side); move along the substrate on their sides
- White, gray or cream colored when preserved



Length: 5mm to 21mm

Amphipoda **5**
CRUSTACEA
Scuds

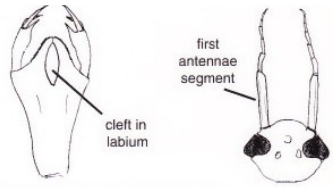
- Nymphs with stout rugged bodies; three pairs of jointed legs; large well developed eyes
- Mask-like labium (lower jaw) that is hinged and often fanged
- Older specimens with distinctive wing pads on the thorax
- Three to five short pointed structures at the end of the abdomen



Length: 15mm to 62mm

Odonata: Anisoptera **6**
INSECTA
Dragonfly nymphs

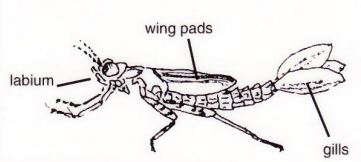
- Nymphs differ from narrow-winged damsel flies by:
- Elongated first segment of the antennae
- Labium (lower lip) with a large, diamond shaped center cleft
- The middle gill filament is shorter than the lateral filaments
- Veins within the gill filaments are not apparent



Length: 30mm to 40mm

Odonata: Calopterigidae **7**
INSECTA
Broad-winged damselflies

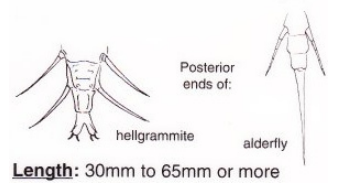
- Nymphs with slender bodies, three pairs of jointed legs, and well developed eyes
- Mask-like labium (lower lip)
- Lower lip is extensible for catching prey
- Distinct win-pads on the thorax
- Three leaf like gills at the end of the abdomen



Length: 10mm to 22mm

Odonata: Coenagrionidae **8**
INSECTA
Narrow-winged damselflies

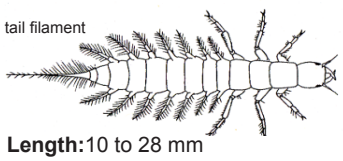
- Elongated dorso-ventrally flattened; three pairs of jointed legs, each with two claws
- Abdomional segments 1-8 have two segmented lateral filaments
- End of last abdominal segment has fleshy , non-jointed prolegs
- Each proleg with a dorsal filament and two claws (hellgrammites) or a single, long filament (alderflies)



Length: 30mm to 65mm or more

Megaloptera: Coryalidae **9**
INSECTA
Hellgrammites and Fishflies

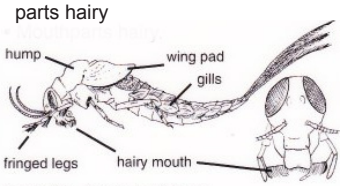
- Abdomen terminates in a single tail filament with setae (hairs)
- 6 to 8 filament on each side of abdomen
- All three thoracic segments are schleratized (hardened)
- Gills are located at the base of each abdominal filament
- Color brownish; dorso-ventrally flattened



Length:10 to 28 mm

Megaloptera: Sialidae **10**
INSECTA
Alderflies

- Three pairs of jointed legs, each with a single claw
- Three tail-like filaments with dense fringe on inside edges
- One pair of wingpads present
- Flat gills with tufts along abdomen
- Thorax extremely hunched and head angle slightly beyond vertical
- Forelegs with dense comb; mouth-parts hairy



Length: 9mm to 17mm

Ephemeroptera: Oligonueridae **11**
INSECTA
Torpedo mayflies

- Three pairs of jointed legs each with a single claw
- Three tail-like filaments
- One pair of wingpads apparent
- Flattened gills along abdomen
- Head vertical with mouthparts pointing downward

Length: 3mm to 14mm

Ephemeroptera: Baetidae and Siphlonuridae **12**
INSECTA
Swimming mayflies

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Ephemeroptera: Heptageniidae
INSECTA
Clinging mayflies

14

Ephemeroptera: Caenidae and Trichorythidae
INSECTA
Crawling mayflies

15

Ephemeroptera:Ephemeridae and Potamanthidae
INSECTA
Burrowing mayflies

16

Ephemeroptera :Baetiscidae
INSECTA
Armored mayflies

17

Ephemeroptera:
INSECTA
Other mayflies
multiple families

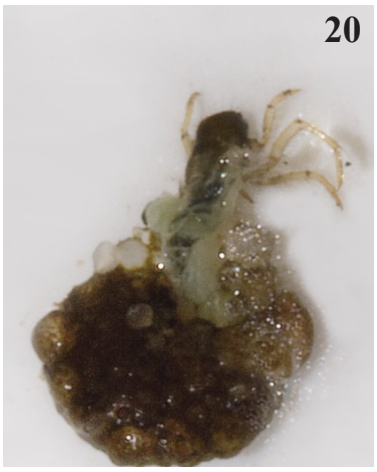
18

Plecoptera
INSECTA
Stoneflies
multiple families

19

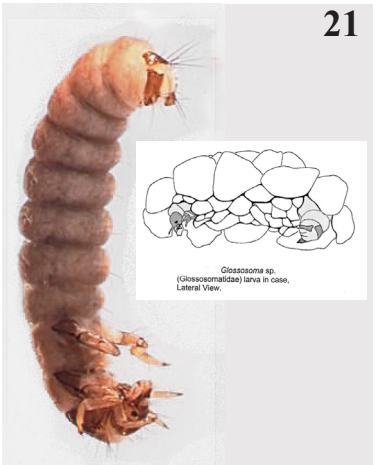
Tricoptera: Hydropsychidae
INSECTA
Hydropsychid caddisflies

20



Tricoptera: Helicopsychidae
INSECTA
Snail-case caddisflies

21



Tricoptera: Glossomatidae
INSECTA
Saddlecase caddisflies

22

Tricoptera
INSECTA
Other caddisflies
multiple families

23

Coleoptera: Elmidae and Dryopidae
INSECTA
Riffle beetles

24

Coleoptera:Elmidae and Dryopidae
INSECTA
Riffle beetles

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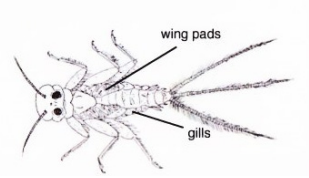
- Three pairs of jointed legs, each with a single claw
- Three tail-like filaments
- One pair of wingpads apparent
- Flattened gills on abdomen
- Body and head dorsoventrally (top to bottom) flattened
- Large eyes on top of head

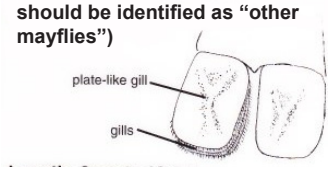


Length: 5mm to 22 mm

13

Ephemeroptera:
Heptageniidae
INSECTA
Clinging mayflies

- Three pairs of jointed legs, each with a single claw;
- Three tail-like filaments
- One pair of wingpads apparent
- Gills hidden under plate-like or triangular gill covers on abdominal segment 2
- **(Caution: if gill covers present on segment 3 or 4, then the nymph should be identified as "other mayflies")**

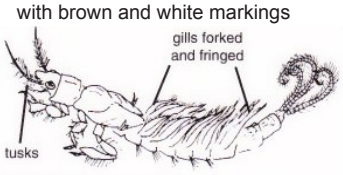


Length: 2mm to 10 mm

14

Ephemeroptera: Caenidae and Trichorythidae
INSECTA
Crawling mayflies

- Three pairs of jointed legs, each with a single claw
- Three tail-like filaments
- One pair of wingpads apparent
- Forked gills along abdomen
- A pair of tusks projecting forward from mouthparts and visible from above
- Body pale cream colored or tan with brown and white markings

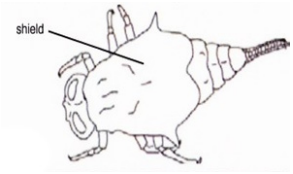


Length: 8mm to 32 mm

15

Ephemeroptera: Ephemeridae and Potamanthidae
INSECTA
Burrowing mayflies

- Three pair of jointed legs, each with a single claw
- 1 pair of wing pads apparent
- Thorax developed into an armor-like shield extending over abdominal segment 5
- Caudal filaments are relatively short and covered with fine hairs



Length: 4mm to 14 mm

16

Ephemeroptera: Baetiscidae
INSECTA
Armored mayflies

Cleft-footed mayflies:
- Similar to swimming mayflies
- Tarsal claws on forelg bifurcated (forked)
- Oval gills on abdominal segments1-7
- Lateral terminal filament with hair on one side; central filmant with hair on both sides

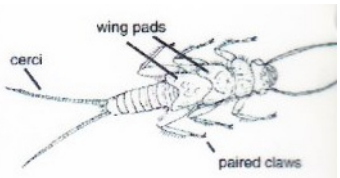
Prong-gilled mayflies:
- Gills on first abdominal segment narrow and finger-like
- Gills on segments 2-7 variable in shape
- Fine hairs on each segment of the terminal filaments

Length: variable: 4 to 16 mm

Ephemeroptera
INSECTA
Other mayflies

17

- Insect nymphs with 3 pairs of jointed legs, each with paired claws
- 2 pairs of wingpads (developing wings) present on thorax
- 2 cerci (tails) on end of abdomen
- No gills along abdomen; some families have gills along thorax

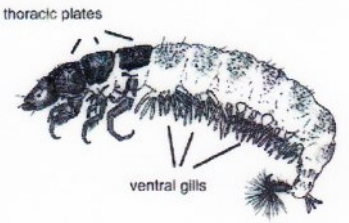


Length: 5mm to 35mm

Plecoptera
INSECTA
Stoneflies

18

- Caddisfly larvae with no case, except when ready to pupate
- Thorax with three hardened plates
- Feathery gills on ventral side of abdomen

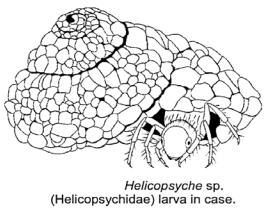


Length: 2mm to 40mm

Tricoptera: Hydropsychidae
INSECTA
Hydropsychid caddisflies

19

- Coiled case in the shape of a snail shell
- Head protrudes from one end
- Extremely small (up to 8mm)
- Light colored and j-shaped larva



Length: to 8mm

Tricoptera: Helicopsychidae
INSECTA
Snail-case caddisflies

20

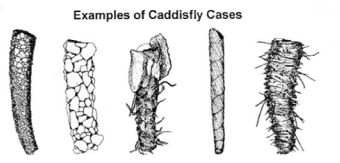
- Caddisfly larva with case resembling a tortise shell(arched on top, flat on the bottom)
- Head protrudes from the anterior of the case;
- end of abdomen protrudes from the rear of the case If larva not attached to case it will have a hardened dorsal plate on the first thoracic segment and the last abdominal segment

- **Length:** 5 to 10 mm

Tricoptera:Glossomatidae
INSECTA
Saddlecase caddisflies

21

- Caddisfly larva look superficially like a grub or catepillar but they have jointed legs
- Hardened head capsule;
- Fleshy abdomen ending in proleg, often with a claw
- 3 pairs of joined llegs
- builds cases of sand, or stones, or twigs



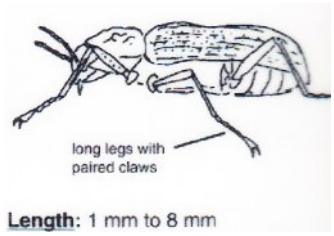
Length: 3 mm to 30 mm

Tricoptera
INSECTA
Other caddisflies

22

Adults

- Small, slightly elongate, hard bodied, dark colored beetle
- May have yellowish markings
- Long legs, each with two large claws



Length: 1 mm to 8 mm

Coleoptera:Elmidae and Dryopidae
INSECTA

23

Larvae

- Dark to tan tube-shaped larvae with leathery appearance
- Three pairs of jointed legs, each with a single claw
- End of abdomen with a trapdoor-like operculum that can close cover over anal gills

Length: 1mm to 10mm

Coleoptera:Elmidae and Dryopidae
INSECTA

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Coleoptera: Gyrinidae
INSECTA
Whirligig beetles

Coleoptera: Gyrinidae
INSECTA
Whirligig beetles

Coleoptera: Psephenidae
INSECTA
Water penny

Diptera: Tipulidae
INSECTA
Craneflies

Diptera: Ceratopogonidae
INSECTA
Biting midges; no-see-ums
larva

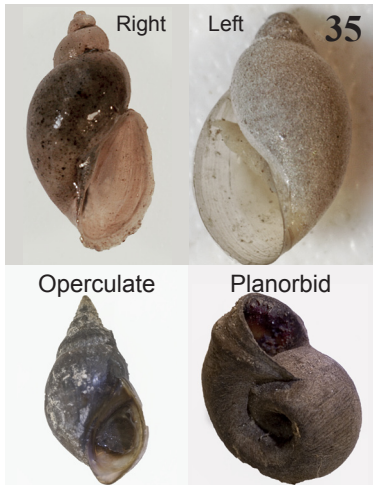
Diptera: Chironomidae
INSECTA
Bloodworm midges
larva

Diptera: Chironomidae
INSECTA
Non-biting midgess

Diptera: Simuliidae
INSECTA
Black flies

Diptera: Athericidae
INSECTA
Snipe flies
larva

Diptera:multiple families
INSECTA
Other flies
larva



Gastropoda: mutiple families
MOLLUSCA
Left-handed, right-handed, operculate, planorbid snails

Gastropoda:Ancylidae
Unionidae: mussels
MOLLUSCA
Limpets

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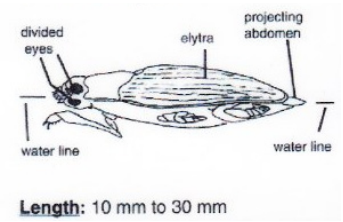
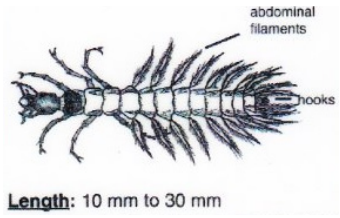
Adult:
- Shiny,black,oval-shaped beetle with abdomen projecting out behind the wing covers
- Eyes divided so that they appear to have two pairs of eyes, one looking up and the other looking down



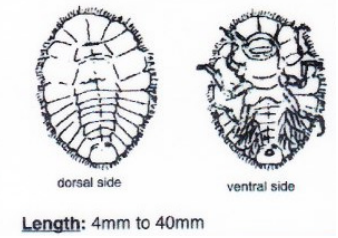
Coleoptera: Gyrinidae **25**
INSECTA
Whirligig beetles
adult

Larvae:
- Long, slender, pale colored larvae with three pairs of segmented legs
- Lateral unsegmented gill filaments on abdomen
- End of abdomen bears tow pair of sickle-shaped hooks



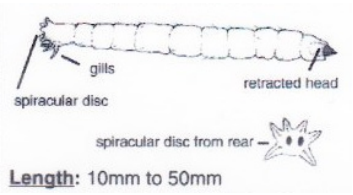
Coleoptera: Gyrinidae **26**
INSECTA
Whirligig beetles
larvae

- Oval, extremely dorsoventrally (top to bottom) flattened
- Mouth parts and three pairs of jointed legs only visible from ventral side
- Five pairs of finely branched gills visible on the ventral side



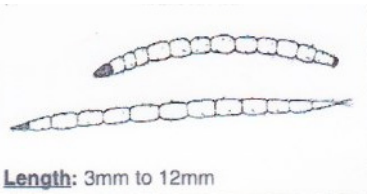
Coleoptera: Psephenidae **27**
INSECTA
Water penny
larvae

- Soft-bodied, elongate fly larvae with heads that are usually retracted into the thorax
- Conspicuous spiracular disc at the posterior end. May be lobed or fringed.
- May have delicate gills on the last abdominal segment
- Colors may be brown to white



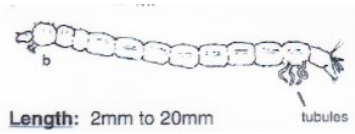
Diptera: Tipulidae **28**
INSECTA
Craneflies
larvae

- Elongate fly with well developed head capsule
- Most are thin and needle-like with no prolegs.
- May have bristles or hooks on the posterior end
- If prolegs are present, unpaired on the first thoracic segment.
- Species with prolegs have lonf conspicuous spines on the body segments



Diptera: Ceratopogonidae **29**
INSECTA
Biting midges; no-see-ums larva

- Bright red midge larvae that fade to brown or gray when preserved in alcohol
- Two pairs of ventral tubules on the 8th abdominal segment
- Hardened head capsule
- Worm-like body

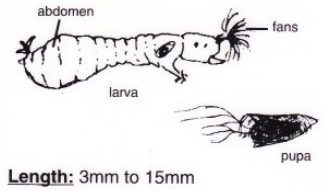


Diptera: Chironomidae **30**
INSECTA
Bloodworm midges larva

Midges:
- Elongated, worm-like fly larvae with well developed head
- Paired prolegs on first thoracic segment and last abdominal segment

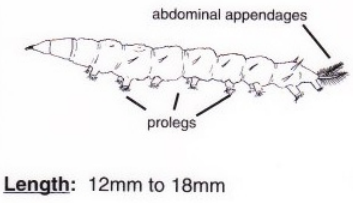
Diptera: Chironomidae **31**
INSECTA
Non-biting midgess larva

- Soft-bodied fly larvae with bulbous, rounded abdomen
- Head well developed, usually with a pair of foldable fans on the anterior end
- Triangular shaped pupa with conspicuous gills originating from the anterior end of the thorax; found in a woven cocoon attached to the substrate



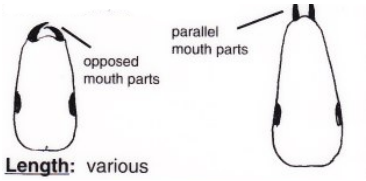
Diptera: Simuliidae **32**
INSECTA
Black flies larva and pupa

- Fly larvae with the last abdominal segment ending in two long fringed appendages
- Abdomen with well developed prolegs
- Head not well developed; mouth parts are parrallel hooks
- Elongate, cylindrical, and slightly flattened; anterior end is tapered



Diptera: Athericidae **33**
INSECTA
Snipe flies

- Usually elongate, worm-like, soft bodies rounded abdomen
- No jointed thoracic legs.May have unjointed prolegs
- May be naked and smooth, or may have tubercles,spines, or scales
- Head may be well developed or vestigial.Mouthparts either opposed and hooked or parallel



Diptera:multiple families **34**
INSECTA
Other flies

Snails: muscular body called a foot, and a shell coiled into a spire
Operculate snails: with a small plate on the upper side of the foot.When snail retracts it seal off the shell

Right handed snails: no operculum, opening of the shell on observors right when the spire is pointed upward

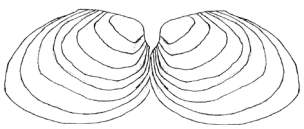
Left-handed snails: no operculum, opening of the shell is on the observors left when the spire is pointed upward

Planorbid snails: have no spire

Gastropoda: mutiple families **35**
MOLLUSCA
Left-handed, right-handed, operculate, planorbid snails

Limpets: uncoiled, very low cone shaped shell 2 to 5 mm

Freshwater mussels
- 2 hinged shells
- 2.5 to 30 cm
- shell highly varaible



Gastropoda:Ancylidae **36**
Unionidae: mussels
MOLLUSCA
Limpets