

# DICHOTOMOUS KEY TO STREAM MACROINVERTEBRATES

(Page 1)

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1. A. Segmented legs.....go to 2  
 B. No segmented legs.....go to 14

2. A. 6 legs.....go to 3  
 B. More than 6 legs.....go to 23

3. A. No wings, or wings not fully developed and do not cover entire body.....go to 4

- B. Wings cover entire body (but not legs), may appear beetle-like.....go to 26



4. A. Body longer than it is wide.....go to 5

- B. Body oval & flat; head & legs concealed beneath body.....**WATER PENNY**

(a type of beetle larva)  
**Order Coleoptera, Family Psephenidae**  
 Feeding Group: SCRAPER

5. A. 2 or 3 distinct hairlike tails; tails not fleshy or hooked, but may be fringed with hairs.....go to 6

- B. Not as above.....go to 7



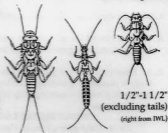
6. A. 2-3 tails; platelike or hairlike gills along sides of abdomen.....**MAYFLY LARVA**

**Order Ephemeroptera**  
 Feeding Group: VARIES\*

(center from IWL)      1/4"-1"  
(excluding tails)

- B. 2 tails; may have hairy gills under thorax.....**STONEFLY LARVA**

**Order Plecoptera**  
 Feeding Group: VARIES\*



1/2"-1 1/2"  
(excluding tails)  
(right from IWL)

\* If feeding group varies, see picture key on pages 135-157 for more information.  
 (All drawings on this page are from McCafferty: *Aquatic Entomology*, except as noted)

## DICHOTOMOUS KEY TO STREAM MACROINVERTEBRATES

(Page 2)

7. A. 3 oar-shaped tails (gills) at *end* of abdomen; no gills along *sides* of abdomen  
.....**DAMSELFLY LARVA**  
Order Odonata, Suborder Zygoptera  
Feeding Group: PREDATOR



1/2"-1"  
(left from IWL)

- B. Not as above.....go to 8

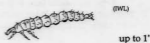
8. A. Fat abdomen; large eyes; mask-like lower lip.....**DRAGONFLY LARVA**  
Order Odonata, Suborder Anisoptera  
Feeding Group: PREDATOR



1/2"-2"

- B. Not as above.....go to 9

9. A. May be hiding in case made of gravel or plant parts; abdomen ends in pair of prolegs which may be hidden by hairs; each proleg has single hook on end, sometimes fused together  
.....**CADDISFLY LARVA**  
Order Trichoptera  
Feeding Group: VARIES\*



(IWL)

up to 1"

- B. Not as above.....go to 10

10. A. Well developed lateral filaments extend from abdominal segments.....go to 11
- B. No lateral filaments along abdomen; body is hardened & stiff; tip of abdomen has small plate-like opening with hooks and filaments.



1/4"-1/2"

- .....**RIFFLE BEETLE LARVA**  
Order Coleoptera, Family Elmidae  
Feeding Group: GATHERER COLLECTOR



\*If feeding group varies, see picture key on page 158-161 for more information  
(all drawings on this page from McCafferty: Aquatic Entomology, except as noted)

**DICHOTOMOUS KEY  
TO STREAM MACROINVERTEBRATES**

(Page 3)

11. A. Fluffy or branched gill tufts under abdomen.....**DOBSONFLY LARVA**  
("Hellgrammite")  
Order Megaloptera, Family Corydalidae  
Feeding Group: PREDATOR



3/4"-4"  
(from IWL)

B. Not as above.....go to 12

12. A. Abdomen ends in single, unforked, long, hairlike tail.....**ALDERFLY LARVA**  
Order Megaloptera, Family Sialidae  
Feeding Group: PREDATOR



up to 1"

B. Not as above.....go to 13

13. A. Abdomen ends in a pair of prolegs, each with 2 hooks.....**FISHFLY LARVA**  
Order Megaloptera, Family Corydalidae  
Feeding Group: PREDATOR



up to 1 1/2"

- B. Not as above; large, obvious mouthparts  
.....**AQUATIC BEETLE LARVA**  
Order Coleoptera  
Feeding Group: PREDATOR



1/4"-1"  
(from IWL)

14. A. Has small but distinct head; body less than 1/2" long.....go to 15

B. Appears not to have a head, although it may be retracted into body.....go to 16

15. A. Body widens at bottom end (bowling pin shaped); may be attached to substrate; dark head.....**BLACK FLY LARVA**  
Order Diptera, Family Simuliidae  
Feeding Group: FILTERER COLLECTOR



larva

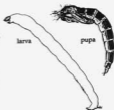
up to 1/2"

pupa

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## DICHOTOMOUS KEY TO STREAM MACROINVERTEBRATES

15. B. Both ends of body about the same width; tiny pair of prolegs under head & at tip of abdomen.....**MIDGE LARVA**  
**Order Diptera, Family Chironomidae**  
 Feeding Group: GATHERER COLLECTOR



up to 1/2"

16. A. Fleishy Caterpillar-like body.....go to 17  
 B. Body not caterpillar-like.....go to 18

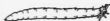
17. A. Two feathered "horns" at back end; caterpillar-like legs  
 .....**WATERSNIPE FLY LARVA**  
**Order Diptera, Family Athericidae**  
 Feeding Group: PREDATOR



1/4"-1"

last segment not swollen -  
SHREDDER

- B. Can be up to 4" long; head not apparent because it is retracted into body; may have fleshy, finger-like extensions at one end  
 .....**CRANEFLY LARVA**  
**Order Diptera, Family Tipulidae**  
 Feeding Group: SHREDDER OR PREDATOR



18. A. Body without hard shell.....go to 19  
 B. Body with hard shell.....go to 21



1/3"-4"

last segment swollen or  
no fingerlike extensions  
- PREDATOR

(all from Cummins)

19. A. Flattened, unsegmented, worm-like body; distinct eye spots; gliding movement.....**PLANARIAN**  
 (Flatworm)



up to 3/4"

(from IWL)

- Class Turbellaria**  
 Feeding Group: PREDATOR or PARASITE



- B. Segmented body.....go to 20

20. A. Flattened body with suckers at each end  
 .....**LEECH**  
**Class Hirudinea**  
 Feeding Group: PREDATOR or PARASITE



1/4"-2"

(bottom figure  
from IWL)

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**DICHOTOMOUS KEY  
TO STREAM MACROINVERTEBRATES**

(page 5)

20. B. Segmented, earthworm-like body  
.....**AQUATIC EARTHWORM**  
Class Oligochaeta  
Feeding Group: GATHERER COLLECTOR



1/4"-2"

21. A. Snail-like.....go to 21

- B. Body enclosed within two hinged shells  
.....**FRESHWATER CLAM or MUSSEL**  
Class Pelecypoda  
Feeding Group: FILTERER COLLECTOR



(both from FWL)

22. A. Has operculum (hard covering used to close the opening).....**GILLED SNAIL**  
Class Gastropoda, Order Prosobranchia  
Feeding Group: SCRAPER



(right from FWL)

- B. No operculum; may be spiral-shaped, limpet-like, or coiled in one plane  
.....**LUNG-BREATHING SNAIL**  
Class Gastropoda, Order Pulmonata  
Feeding Group: SCRAPER



(both from FWL)

23. A. Looks like spider; may be very tiny; has 8 legs.....**AQUATIC MITE**  
Class Arachnida, Order Hydracarina  
Feeding Group: PREDATOR



up to 1/8"

- B. Not as above.....go to 24

24. A. Lobster or shrimp-like.....go to 25

- B. Armadillo shaped body, wider than high; crawls slowly on bottom  
.....**AQUATIC SOWBUG**  
Subphylum Crustacea, Order Isopoda  
Feeding Group: SHREDDER



1/4"-3/4"

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**DICHOTOMOUS KEY  
TO STREAM MACROINVERTEBRATES**

**(Page 6)**

25. A. Looks like tiny shrimp; swims quickly on its side.....**SCUD**  
Subphylum Crustacea, Order Amphipoda  
Feeding Group: SHREDDER



1/4"-1/2"

- B. Looks like small lobster; has 2 large front claws (10 legs total).....**CRAYFISH**  
Subphylum Crustacea, Order Decapoda  
Feeding Group: GATHERER COLLECTOR



up to 6"

26. A. Beetle-like, crawls slowly on bottom  
.....**RIFFLE BEETLE ADULT**  
Order Coleoptera, Family Elmidae  
Feeding Group: SCRAPER or  
GATHERER COLLECTOR



1/4"

- B. Beetle-like, swims quickly.....go to 27

27. A. Wings meet along the midline of back side of body, they do not overlap  
.....**BEETLE ADULT**  
Order Coleoptera  
Feeding Group: MOST ARE PREDATORS



Predaceous Diving Beetle



Whirligig Beetle  
(swims in circular motion on water surface)

up to 1"

27. B. Wings overlap on backside, usually form a visible triangular pattern just below head.....go to 28

28. A. Front legs are shorter than mid and hind legs; propels itself with oar-like strokes,  
.....**WATER BOATMAN**  
Order Hemiptera, Family Corixidae  
Feeding Group: VARIES



up to 3/4"

- B. Similar to backswimmer but swims upside down, on its back  
.....**BACKSWIMMER**  
Order Hemiptera, Family Notonectidae



up to 3/4"

Feeding Group: PREDATOR

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