

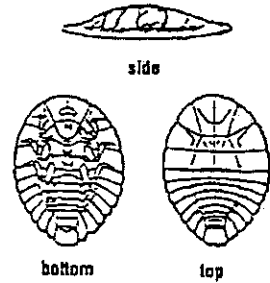
# DICHOTOMOUS KEY TO STREAM MACROINVERTEBRATES

Drawings in this key are from: Merritt-Cummins: *An Introduction to the Aquatic Insects of North America*, Copyright 1977 by Kendall/Hunt Publishing Company; Izaak Walton League of America (IWL); or McCafferty: *Aquatic Entomology*, © 1981 Boston: Jones and Bartlett Publishers. Reprinted with permission.

- 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

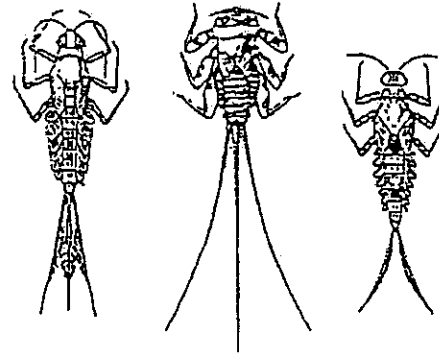
- 3. A. No wings, or wings not fully developed and do not cover entire body.....go to 4
- B. Wings cover entire body (but not legs), may appear beetle-like.....go to 26



- 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**

1/4"  
(excluding tails)  
(all from IWL)

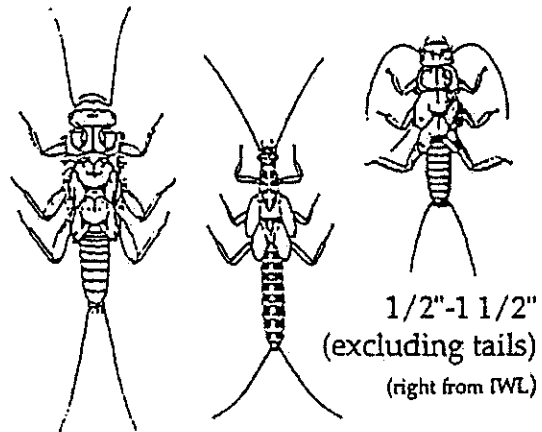
- 5. A. 2 or 3 distinct *hairlike* tails; tails not fleshy or hooked, but may be fringed with hairs.....go to 6
- B. Not as above.....go to 7



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

- 6. A. 2-3 tails; platelike or hairlike gills along sides of abdomen.....**MAYFLY LARVA**  
         Order Ephemeroptera  
         Feeding Group: **VARIES\***

- B. 2 tails; may have hairy gills under thorax.....**STONEFLY LARVA**  
         Order Plecoptera  
         Feeding Group: **VARIES\***



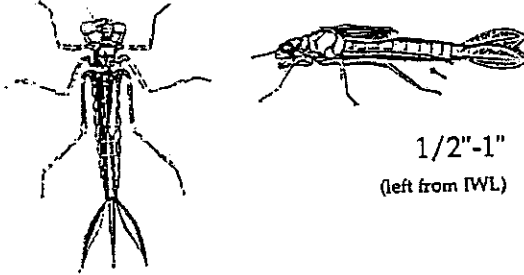
1/2"-1 1/2"  
(excluding tails)  
(right from IWL)

\* If feeding group varies, see picture key on pages 155-157 for more information.  
(All drawings on this page are from McCafferty: *Aquatic Entomology*, except as noted)

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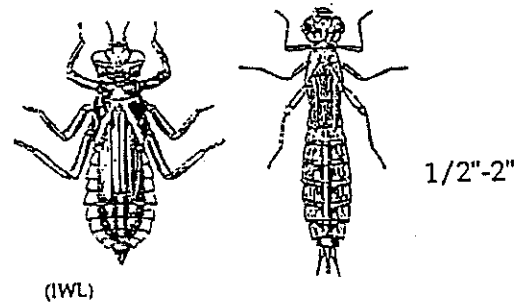
(Page 2)

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



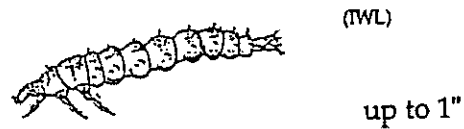
- B. Not as above.....go to 8

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



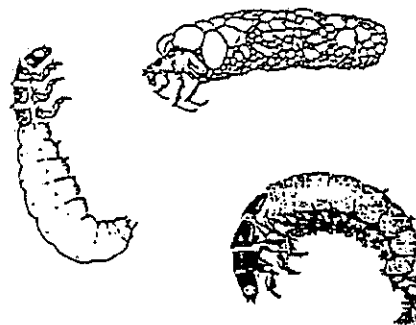
- B. Not as above.....go to 9

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\*



- 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.

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

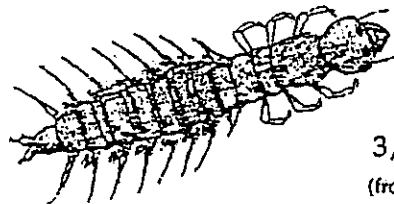


\*If feeding group varies, see picture key on page 158-161 for more information  
(all drawings on this page from McCafferty: *Aquatic Entomology*, except as noted)

DICHOTOMOUS KEY  
TO STREAM MACROINVERTEBRATES

(Page 3)

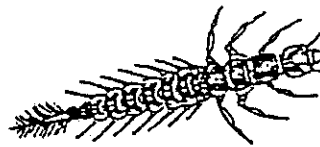
11. A. Fluffy or branched gill tufts under abdomen.....DOBSONFLY LARVA ("Hellgrammite")  
Order Megaloptera, Family Corydalidae  
Feeding Group: PREDATOR



3/4"-4"  
(from IWL)

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

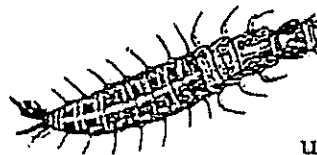
12. A. Abdomen ends in single, unforked, long, hairlike tail....ALDERFLY LARVA  
Order Megaloptera, Family Sialidae  
Feeding Group: PREDATOR



up to 1"

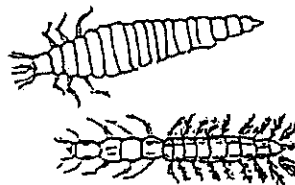
- B. Not as above.....go to 13

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

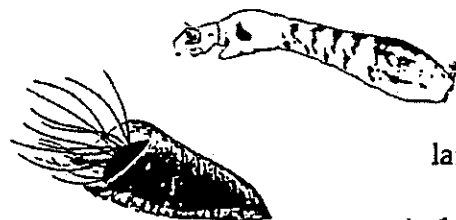


1/4"-1"  
(from IWL)

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



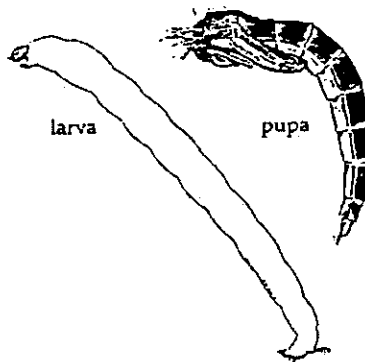
larva

pupa

up to 1/2"

(all drawings on this page from McCafferty: *Aquatic Entomology*, unless otherwise noted)

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. Fleshy Caterpillar-like body.....go to 17  
 B. Body not caterpillar-like.....go to 18

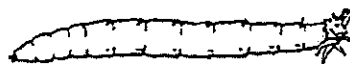
17. A. Two feathered "horns" at back end; caterpillar-like legs  
 .....WATERSNIPE FLY LARVA  
 Order Diptera, Family Athericidae  
 Feeding Group: PREDATOR



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



1/3"-4"

last segment swollen or no fingerlike extensions - PREDATOR  
 (all from Cummins)

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



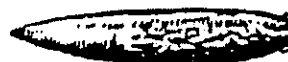
19. A. Flattened, unsegmented, worm-like body; distinct eye spots; gliding movement.....PLANARIAN (Flatworm)  
 Class Turbellaria  
 Feeding Group: PREDATOR or PARASITE



up to 3/4"  
 (from IWL)

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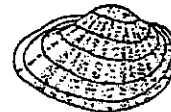
20. B. Segmented, earthworm-like body  
 .....AQUATIC EARTHWORM  
 Class Oligochaeta  
 Feeding Group: GATHERER COLLECTOR



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 IWL)

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



(right from IWL)

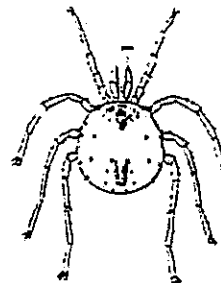


B. No operculum; may be spiral-shaped, limpet-like, or coiled in one plane  
 .....LUNG-BREATHING SNAIL  
 Class Gastropoda, Order Pulmonata  
 Feeding Group: SCRAPER



(both from IWL)

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

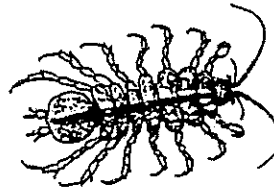


up to 1/8"

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



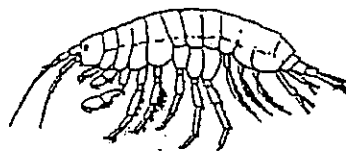
1/4"-3/4"

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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



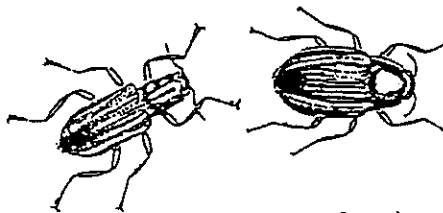
1/4"-1/2"

- 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"

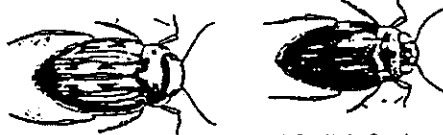
26. A. Beetle-like, crawls slowly on bottom  
.....RIFFLE BEETLE ADULT  
Order Coleoptera, Family Elmidae  
Feeding Group: SCRAPER or  
GATHERER COLLECTOR



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



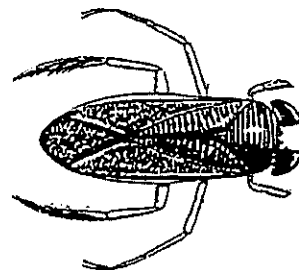
Predaceous Diving Beetle

Whirligig Beetle  
(swims in circular motion on water surface)

up to 1"

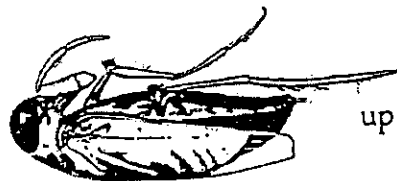
27. B. Wings overlap on backside, usually form a visible triangular pattern just below head.....go to 28

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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