

DICHOTOMOUS KEY TO STREAM MACROINVERTEBRATES

16

Drawings in this key are from: R.W. Merrit and K.W. Cummins, *An Introduction to the Aquatic Insects of North America*, Kendall/Hunt Publishing Company, ©1987; Izaak Walton League of America (IWL), ©1977; or W.Patrick McCafferty, *Aquatic Entomology*, Boston MA: Jones and Bartlett Publishers, Boston, ©1983. Reprinted with permission.

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

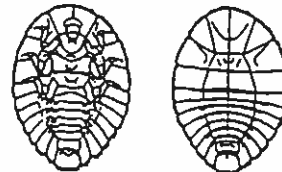
2. A. 6 legs.....go to 3
- B. More than 6 legs.....go to 23

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



side



bottom

top

1/4"
(all from IWL)

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

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

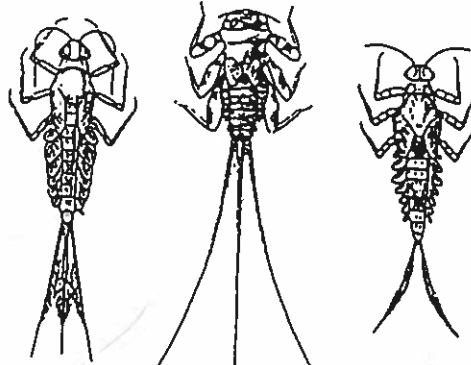
(a type of beetle larva)

Order Coleoptera, Family Psephenidae

Feeding Group: SCRAPER

3

INDEX VALUE



1/4" to 1"
(excluding tails)

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

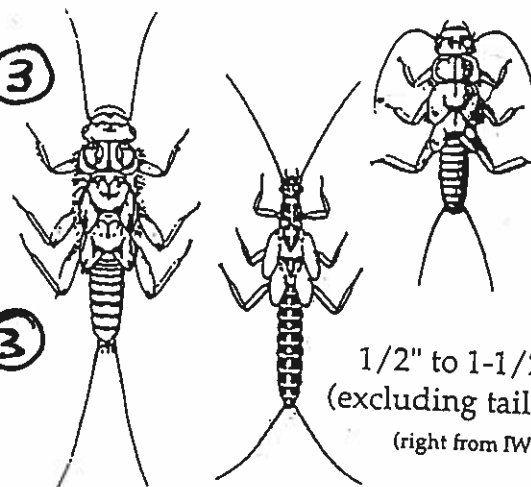
- B. Not as above.....go to 7

6. A. 2-3 tails; platelike or hairlike gills along sides of abdomen; one hook on end of each leg.....**MAYFLY**

LARVA

Order Ephemeroptera
Feeding Group: VARIES*

3



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

- B. 2 tails; may have hairy gills under thorax; 2 hooks on end of each leg

.....**STONEFLY LARVA**

Order Plecoptera
Feeding Group: VARIES*

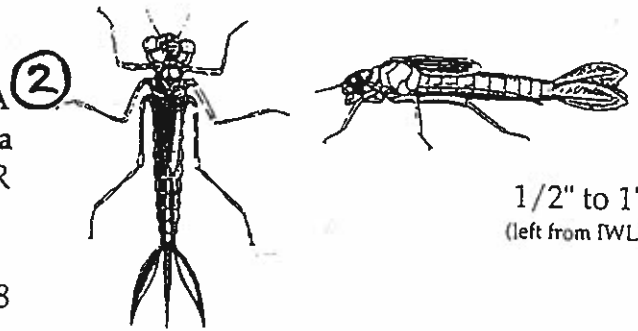
3

* If feeding group varies, see picture key on pages 155-157 for more information.

(All drawings on this page are from W.P. McCafferty, *Aquatic Entomology*, unless otherwise noted.)

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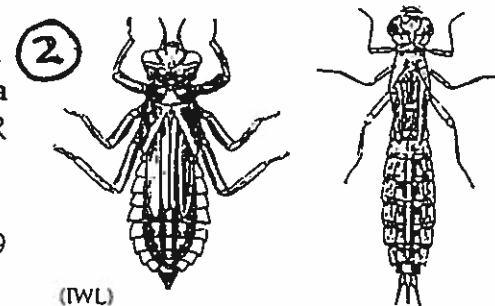
7. A. 3 oar-shaped tails (gills) at *end* of abdomen; no gills along *sides* of abdomen
.....DAMSEFLY LARVA (2)
Order Odonata, Suborder Zygoptera
Feeding Group: PREDATOR



1/2" to 1"
(left from fWL)

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

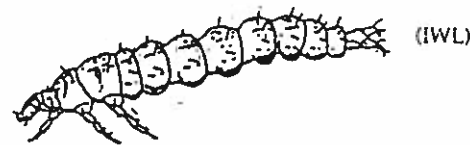
8. A. Fat abdomen; large eyes; mask-like lower lip.....DRAGONFLY LARVA (2)
Order Odonata, Suborder Anisoptera
Feeding Group: PREDATOR



1/2" to 2"

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

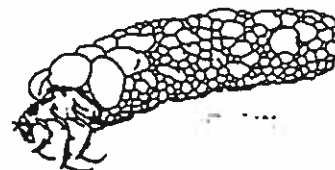
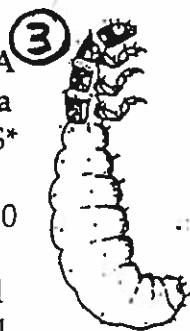
9. A. May be hiding in case made of gravel or plant parts; abdomen ends in pair of prolegs which may be hidden by hairs; each proleg has single hook on end, sometimes fused together; if specimen meets this description, but has well-developed lateral filaments, go to 11



(fWL)

up to 1"

-CADDISFLY LARVA (3)
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 (3)
Order Coleoptera, Family Elmidae
Feeding Group: GATHERER COLLECTOR



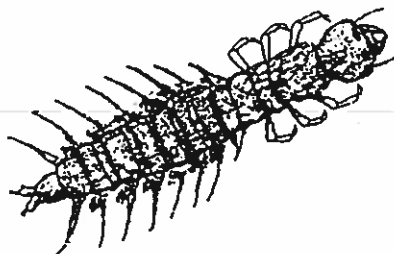
1/4" to 1/2"

* If feeding group varies, see picture key on pages 155-157 for more information.

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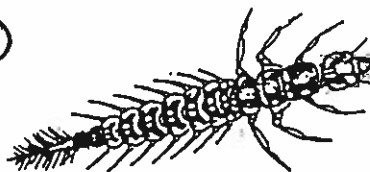
11. A. Fluffy or branched gill tufts under abdomen.....**DOBSONFLY LARVA** ③
("Hellgrammite")
Order Megaloptera, Family Corydalidae
Feeding Group: PREDATOR



3/4" to 4"
(from IWL)

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

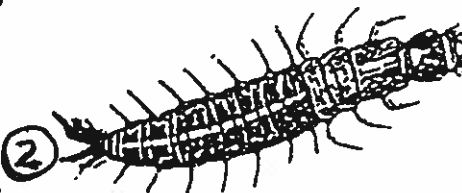
12. A. Abdomen ends in single, unforked, long, hairlike tail....**ALDERFLY LARVA** ②
Order Megaloptera, Family Sialidae
Feeding Group: PREDATOR



up to 1"

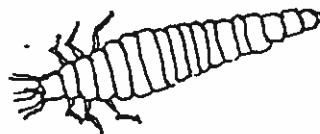
B. Not as above.....go to 13

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



up to 1-1/2"

- B. Not as above; large, obvious mouthparts
.....**AQUATIC BEETLE LARVA** ②
Order Coleoptera
Feeding Group: PREDATOR



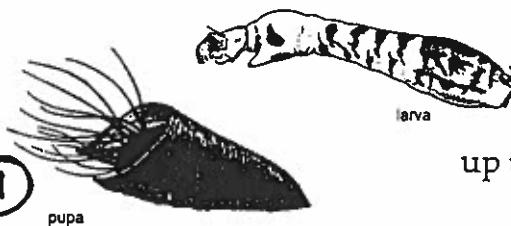
1/4" to 1"
(from IWL)



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** ①
Order Diptera, Family Simuliidae
Feeding Group: FILTERER COLLECTOR



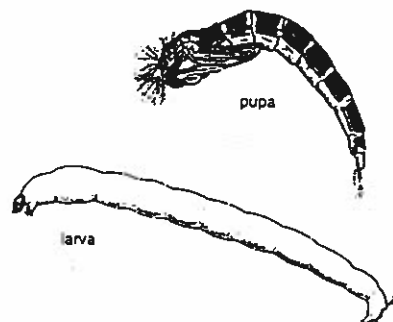
up to 1/2"

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- 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

2



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

2

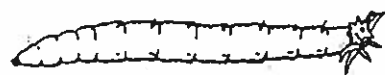


1/4" to 1"

- 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

2



1/3" to 4"
last segment not swollen
- SHREDDER



last segment swollen or no fingerlike extensions
- PREDATOR
(all from Merritt and 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

2



up to 3/4"

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

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

1



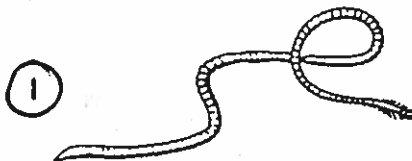
1/4" to 2"
(bottom figure from IWL)



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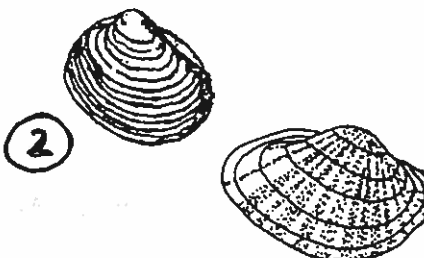
20. B. Segmented, earthworm-like body
AQUATIC EARTHWORM
 Class Oligochaeta
 Feeding Group: GATHERER COLLECTOR



1/4" to 2"

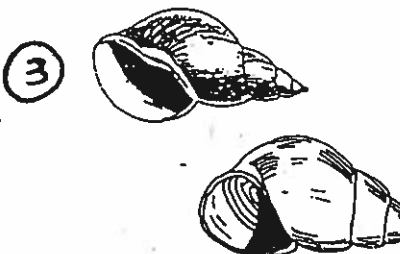
21. A. Snail-like.....go to 22

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



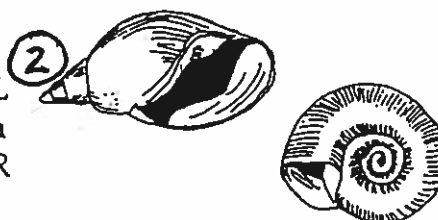
(both from IWL)

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



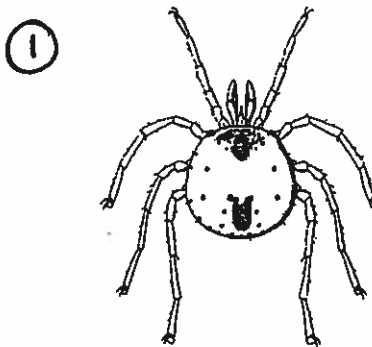
(right from IWL)

- 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

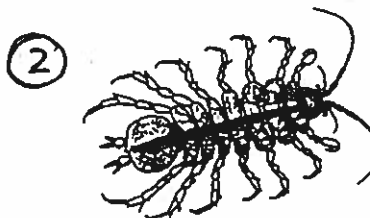


up to 1/8"

- 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" to 3/4"

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25. A. Looks like tiny shrimp; swims quickly on its side.....SCUD (2)
Subphylum Crustacea, Order Amphipoda
Feeding Group: SHREDDER



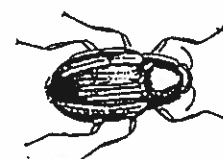
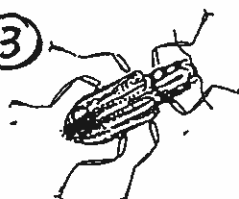
1/4" to 1/2"

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



up to 6"

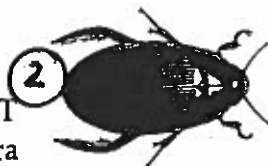
26. A. Beetle-like, crawls slowly on bottomRIFFLE BEETLE ADULT (3)
Order Coleoptera, Family Elmidae
Feeding Group.: SCRAPER or GATHERER COLLECTOR



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 overlapBEETLE ADULT (2)
Order Coleoptera
Feeding Group: MOST ARE PREDATORS



Predaceous Diving Beetle

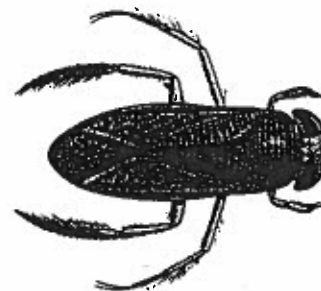


Whirligig Beetle (swims in circular motion on water surface)

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 (2)
Order Hemiptera, Family Corixidae
Feeding Group: VARIES



up to 3/4"

B. Similar to water boatman but swims upside down, on its backBACKSWIMMER (2)
Order Hemiptera, Family Notonectidae



up to 3/4"

Feeding Group: PREDATOR

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