

Stream Monitoring Information Exchange Key to Macroinvertebrates

Beginning with the first pair of descriptions, read each thoroughly. The end of each description has either a name, identifying the organism, or a number, indicating the next couplet to examine. Examine the specimen and decide which description is most appropriate. If the organism is not identified continue to the indicated couplet. Continue until you have identified the organism. If your conclusion does not make sense, try working through the key again. If you are unsure of which option in the couplet to follow, try both and see where you end up and compare results to the picture guide.

1. Animal in case or shell ----- 2
- 1' Animal not in case or shell----- 6

2. Animal in hard coiled shell not constructed from sand or vegetative fragments----- 3
- 2' Animal in a case (may be coiled), constructed of sticks, leaves, sand or gravel -- go to Caddisfly Key

3. Animal in single shell which is spiraled or coiled ----- 4
- 3' Body enclosed within two hinged shells ----- **CLAMS and MUSSELS**

4. Shell rounded, does not spiral up, opening on right ----- **ROUNDED RIGHT FACE SNAIL**
- 4' Shell coiled, spirals up ----- 5

5. When apex is pointed up and the shell faces you, the shell opens on right -----
----- **COILED RIGHT FACE SNAIL**
- 5' When apex is pointed up and the shell faces you, the shell opens on your left. Shell is thin and fragile ----- **COILED LEFT FACE SNAIL**

6. Animal with 6 or more legs (legs jointed, typical of insects)----- 14
- 6' Animal does not exhibit jointed legs, but may have prolegs (nub like appendages)----- 7

7. Animal has does not have a discernable head (head may be retracted in the body) ----- 8
- 7' Animal has a discernable head ----- 11

8. Animal resembling earthworm (no head), long, thin, cream to pink ----- **OLIGOCHAETE**
- 8' Animal not resembling an earthworm, has a thicker body ----- 9

9. Animal flattened with suction disks at both ends ----- **LEECH**
- 9' Animal not as above, has tentacle like appendages at the end of the body ----- 10

10. Insect has a swollen segment at end of body, usually cream colored ----- **FAT HEAD CRANEFLY**
- 10' Insect does not have a swollen segment, usually dark brown ----- **WATERWORM**

11. Animal bowling pin shaped, less than ½” long, single proleg near head, brushes may be visible on the skinny end of body ----- **BLACKFLY LARVAE**
- 11' Animal not as above ----- 12

12. Insect often curved (or C-shaped), distinct head, usually visible prolegs (small non jointed legs) near head and end, body cream, greenish or bright red -----	13
12' Insect with feathery appendages, several sets of prolegs and tapered head -----	WATERSNIPE
13. Insect red -----	RED MIDGE
13' Insect cream or green -----	CHRIONOMID MIDGE
14. Animal with more than six legs -----	15
14' Animal with only 6 legs -----	17
15. Animal with 10 legs, resembles a small lobster, large pinchers at head of body; red, orange, black, green, brown or blue -----	CRAYFISH
15' Animal not as above -----	16
16. Animal resembles a small shrimp, light colored, swims on side, swims quickly -----	SCUD
16' Animal resembles a potato bug, dark colored, crawls more than swims -----	SOWBUG
17. Insect has enlarged shell covering most of body, no tails -----	18
17' Insect not as above, if it has enlarged shell, it also has tails -----	19
18. Insect circular, legs and head only visible from underneath, tan or brown, less than ½" -----	WATER PENNY
18' Insect not as above, looks like an adult beetle, tiny, black -----	ADULT RIFFLE BEETLE
19. Multiple leg-like appendages along abdomen, darkly colored, strong mouth parts -----	20
19' Not as above, without leg-like appendages -----	24
20. Insect with gill tufts along underside of body near appendages -----	HELLGRAMMITE
20' Insect without gill tufts along underside of body -----	21
21. Insect with tails -----	22
21' Insect without tails (may have hooks) -----	PREDATOR BEETLE LARVAE
22. Insect with two short tails -----	23
22' Insect with one long thin tail -----	ALDERFLY
23. Insect dark colored and stout (closely resembles Hellgrammite) -----	FISHFLY
23' Insect lighter colored and somewhat fragile looking -----	PREDATOR BEETLE LARVAE
24. Insect mostly soft and/ or fleshy bodied, possessing legs -----	25
24' Insect not fleshy or soft bodied, possessing legs -----	27
25. Insect with biting mouth parts -----	PREDATOR BEETLE LARVAE
25' Insect without biting mouthparts -----	26

26. Insect body without gills, with triangular keel, all segments same color, usually dark colored, small fuzzy mass at end may be visible, less than 1/2" ----- **RIFFLE BEETLE LARVAE**
- 26' Insect without triangular keel, gills (if present) underneath and alongside abdomen, two hooks at end of body, body white or green, head different color ----- go to Caddisfly Key
27. Insect with 2 or 3 thin tails, usually long ----- 29
- 27' Insect with no long thin tail-like appendages (may have sharp points or 3 blade-like appendages at rear of body. Has an extendable jaw----- 28
28. Stout bodied, tank-like insect, sharp points at end of body, quick crawler, jet locomotion for swimming ----- **DRAGONFLY**
- 28' Legs and body long and thin, fragile in appearance, blade-like appendages at rear of body, generally slow crawler ----- **DAMSELFLY**
29. Insect with two thin tails, two wing pads, no gills on tops or sides of body (sometimes around legs on underside) ----- go to Stonefly Key
- 29' Insect usually with three long thin tails, one wing pad (if two, then rounded gills present along back abdomen), gills along top and/or sides of abdomen ----- go to Mayfly Key

KEY TO CADDISFLIES

1. Insect free-living, not in case ----- 2
- 1' Insect in case (made of leaves, twigs or small minerals) ----- 3
2. Insect with bushy gills under body, often C-shaped, plates on the three body segments behind head, head as wide as body ----- **NET SPINNING CADDIS**
- 2' Insect without gills, head usually more narrow than body, plates only on first segment behind the head ----- **SMALL HEAD CADDIS**
3. Case primarily made of mineral fragments (small rocks or sand) ----- 4
- 3' Case primarily made of organic material (leaves, twigs, moss, but may also include some sand) ---- 6
4. Case coiled resembling snail shell, case made of mineral particles ----- **SAND SNAIL SHELL**
- 4' Case not coiled ----- 5
5. Case saddle shaped, made of small pieces of gravel, not sand, mostly closed (often head exposed on underside) ----- **GRAVEL COFFIN CASE**
- 5' Case not matching any of the above, case made of sand or mineral particles -----
----- **SAND OR MINERAL CASE CADDIS**
6. Case with elongated sticks on sides, extending past rear of case ----- **STICK BAIT CADDIS**
- 6' Case without elongated sticks on sides ----- 7

7. Case square in cross section, made of strips of bark and NOT square pieces of leaves -----
 ----- **SQUARE LOG CABIN CADDIS**
- 7' Case not as above ----- 8
8. Case made of organic material, all other cases without sand particles not fitting above -----
 ----- **VEGETATED CASE CADDIS**
- 8' Case is made of mainly organic material, but includes sand/mineral fragments. Often small and
 fragile ----- **SAND AND STICK CADDIS**

KEY TO MAYFLIES

1. Enlarged spiny shell covering thorax (leg segments) ----- **SPINY TURTLE SHELL MAYFLY**
 1' Insect without enlarged spiny shell over upper body ----- 2
2. Insect flattened, large head with noticeable eye spots, legs thick and in wide stance, 2 or 3 tails, gills
 on side of body ----- **FLATTENED SCRAPER**
 2' Insect not flattened, legs not as above, three tails ----- 3
3. Stout bodied insect, large legs (adapted for digging), tusks on front of head, many feathery gills
 aligned along rear of body ----- **BURROWING MAYFLY**
 3' Insect not as above ----- 4
4. Insect dark colored, wing pad small and often not apparent, thin line extending down length of body,
 brushes on forelegs, sides of body are fairly straight ----- **FILTER MAYFLY**
 4' Insect not as above ----- 5
5. Body ovoid, large wing pad, abdomen flattened and usually as wide as upper body. If abdomen is
 not as wide as the upper body then insect has two large gills directly below the wing pad. Insect with
 or without noticeable spines on the abdomen ----- **SPINY CRAWLER**
 5' Insect with round head and round body, usually has small fan like gills on rear of body (gills are
 sometimes pointed or forked), fragile, 1/2" or less ----- **ROUND HEADED SWIMMER**

KEY TO STONEFLIES

1. Insect resembles cockroach, teardrop shaped, usually brown ----- **ROACH SHREDDER**
 1' Insect not as above ----- 2
2. Body stout and cylindrical, solid dark color, bushy gills under body near legs -**GIANT SHREDDER**
 2' Insect not as above ----- 3
3. Body stout, brown, black or gold colored, many boldly patterned, fast crawlers, many but not all
 have obvious gills under their body near legs. Smaller specimens will have duller colors -----
 -----**QUICK CRAWLING PREDATOR**
 3' Long and thin abdominal segments, little or no patterning, fragile. If specimen is not especially thin,
 fragile looking or light colored then insect has developed, wide wing pads with deep lobes -----
 ----- **FRAGILE DETRITIVORE**