

# SC Adopt-a-Stream Key for Identifying Macroinvertebrates

Small  
Typical  
Largest

The colored bars show the actual size ranges for each macroinvertebrate (not including tails); red - the smallest you will usually find, yellow - the typical size you will come across, and green - the largest you will usually see.

This key works for most common aquatic macroinvertebrates scored for the SC Adopt-a-Stream program. Start with #1. Choose which group of characteristics (1a or 1b) best describes your animal. The number to the right of your choice directs you to the next group of characteristics. Continue to choose and follow the numbers until you reach the name of your animal. Use the pictures to confirm your identification. Some macroinvertebrates are not included in AAS scoring. Size bars are correct when printed on 11x17 paper with narrow margins – use highest print resolution.

- 1a Has true, hardened legs with joints go to 2
- 1b Does not have legs with joints; may have various soft, fleshy leg-like parts go to 13
- 2a Has 6 legs go to 3
- 2b Has more than 6 legs go to 11
- 3a Has no hair-like or feather-like tails (may have fleshy leg-like parts on back end) (Fig. 1) go to 4
- 3b Has 2 hair-like tails or 3 tails shaped like hairs or feathers (can break off) (Fig. 2) go to 6



Fig. 1 No tails



Fig. 2 Two or three tails

- 4a Top surface of abdomen (behind where legs attach) soft and fleshy (Fig. 3) go to 5
- 4b Top surface of abdomen hardened (Fig. 4) go to 8

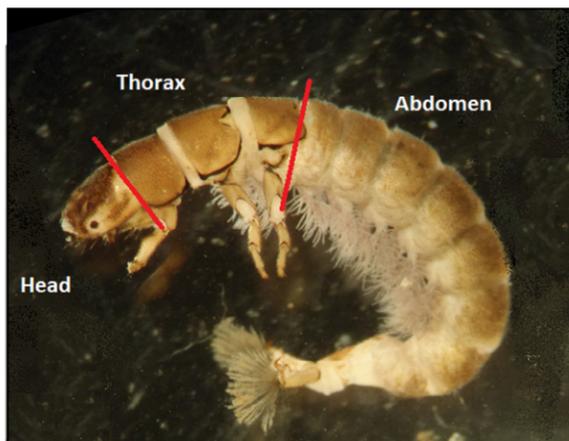


Fig. 3 Fleshy abdomen of common net-spinner



Fig. 4 Hardened abdomen of dragonfly

- 5a A single, long filament extends from each side of each abdominal segment (Fig. 5); dark, sturdy and often large; never has a case; head broad and flat, will bite (small, pale bugs with filaments are likely whirligig beetle larvae not scored in AAS) **Dobsonfly (Hellgrammite)**  
**Fishfly**
- 5b No long filaments extend from sides of abdomen; may have gills under abdomen or may live in a case go to 10



Fig. 5 Dobsonfly (Hellgrammite)/Fishfly



- 6a Three flat-sided, feather-like tails (Fig. 6)
- 6b Tails hair-like

**Damselfly**  
go to 7



Fig. 6 **Damselflies**

- 7a Gills on each side of the abdomen (or on top); most with 3 hair-like tails (rarely with 2) (Fig. 7)
- 7b Two hair-like tails; no gills on sides or top of abdomen (may have gills beneath) (Fig. 8)

**Mayfly**  
**Stonefly**



Fig. 7 **Mayflies**



Fig. 8 **Stoneflies**

- 8a Small, mostly black bugs, that crawl slowly (they do not swim); a very hard shell covers abdomen; body shape not streamlined; legs visible from above; some have yellow markings (Fig. 9)

**Riffle Beetle (adult)**

- 8b Body flattened, almost circular, and divided into many segments; legs hidden beneath; most common in the piedmont and mountains (Fig. 10)

**Water Penny**

- 8c Not as above

go to 9



Fig. 9 **Riffle Beetle (adult)**



Fig. 10 **Water Pennies**



Fig. 11 **Riffle Beetle (larva)**

- 9a Small, elongate body entirely covered by very hard plates; tiny eyes; trapdoor containing gills beneath last segment (Fig. 11)

**Riffle Beetle (larva)**

- 9b Broad abdomen, big eyes; body often large; large flat or cup-shaped mouthparts folded beneath head (Fig. 12)

**Dragonfly**

- 9c Different from 9a or 9b; includes various beetles and true bugs **not counted** in SC AAS scoring



Fig. 12 **Dragonflies** (including flat and cup-shaped mouth parts)

- 10a Thick tufts of gills beneath abdomen; hard plates cover the top of all 3 segments nearest the head (the ones with legs attached); has no portable case (Fig. 13)
- 10b No gills beneath abdomen; the tops of fewer than 3 segments behind the head completely covered by hard plates; some live in a portable case made of pieces of sticks, leaves, roots, or sand while others don't make cases (Figs. 14, 15)

**Common Net-Spinning Caddisfly**

**Caddisfly**



Fig. 13 Common Net-Spinning Caddisflies



Fig. 14 Caddisflies (case makers)

Fig. 15 Caddisflies (without cases)

- 11a Body flattened horizontally; often with a tan or pink color pattern; crawl slowly; back end of body has a single wide flat plate (Fig. 16)
- 11b Body not flattened; no single wide flat plate

**Sowbug**  
go to 12



Fig. 16 Sowbug



Fig. 17 Scud

- 12a Body higher than wide; swim fast, sometimes with body sideways; back end of body tapers almost to a point (Fig. 17)
- 12b Body shaped like a lobster; usually crawl; end of tail flat like a fan (Fig. 18)

**Scud**  
**Crayfish**



Fig. 18 Crayfish

- 13a Has a shell divided into 2 similar halves (Do not count empty shells) (Fig. 19)

**Clams and Mussels**



Fig. 19 Clams and Mussels

13b Has a single shell

go to 14

13c Has no shell

go to 15

14a Shell opening on right when facing you with point up; opening with hardened "door"  
(Do not count empty shells.) (Fig. 20)

**Gilled Snail**

14b Not as above; shell has no hardened "door"; shell may open on left when facing you with point up;  
shell may spiral in one plane having no elevated point; or shell may be shaped like a tiny low cone  
with no spiral at all (Do not count empty shells.) (Fig. 21)

**Lunged Snail**



Fig. 20 **Gilled Snail**



Fig. 21 **Lunged Snail**

15a Head hardened; body tiny (usually less than 1/4 inch long); one fleshy "leg" may be visible near  
head, or it and the head may be too small to see even with a magnifying glass

go to 16

15b No exposed, hardened head; usually larger than 15a

go to 17

16a Tiny, slender, "C"-shaped body; no fan-like brushes on head; sometimes bright red;  
usually seen in your pan either floating on the surface or thrashing in the water (Fig. 24)

**Midge Fly**

16b Tiny, bowling pin-shaped body; may see fan-like brushes on head; typically lay on bottom of pan  
or move slowly like an inchworm, creamy white often mottled with gray or pink (Fig. 25)

**Black Fly**



Fig. 24 **Midge Fly**



Fig. 25 **Black Fly**

17a Small body with fleshy "feet" like a caterpillar; head end pointed; tail end divided into two small fingers;  
uncommon in SC, especially outside the mountains and piedmont (Fig. 26)

**Aquatic Snipe Fly**

17b Plump, grub-like body with (often many) finger-like projections at back end, very common (Fig.27)

**Crane Fly**

17c Body with many segments like an earthworm; no finger-like projections

go to 18



Fig. 26 **Aquatic Snipe Fly**



Fig. 27 **Crane Fly**

18a Has two suckers on underside, one at each end; body at least somewhat flattened (Fig. 28)

**Leech**

18b No suckers; round; looks like a small earthworm (Fig. 29)

**Aquatic Worm**



Fig. 28 **Leech**

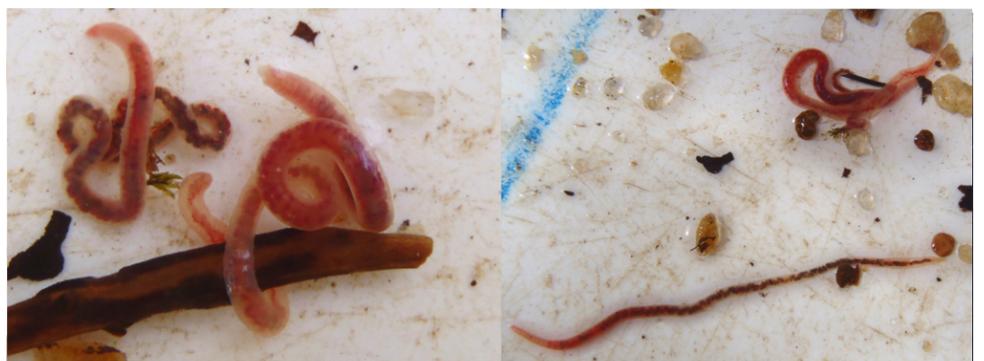


Fig. 29 **Aquatic Worm**