

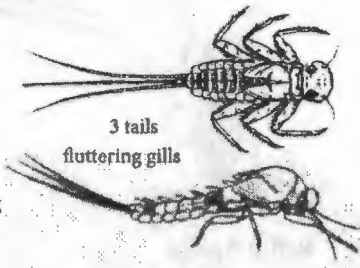
Macroinvertebrate Identification Key

GROUP 1 – Very Intolerant of Pollution



2 tails long antennae

Stonefly Nymph



3 tails fluttering gills

Mayfly Nymph



Riffle Beetle Adult & Larva

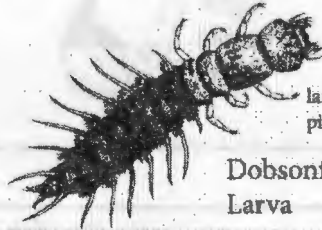
very small & hard shell



makes a case from twigs, rocks, leaves

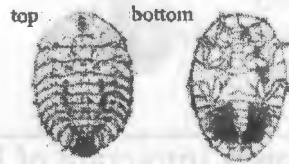


Caddisfly Larva



large head & 2 pinchers

Dobsonfly Larva



top bottom

looks like a suction cup

Water Penny Larva

Right-Handed Snail



must be alive to count

GROUP 2 – Moderately Intolerant of Pollution



3 paddle-like (feathery) tails

Damselfly Nymph



Dragonfly Nymph

no tails large eyes



flattened side-ways & swims on side

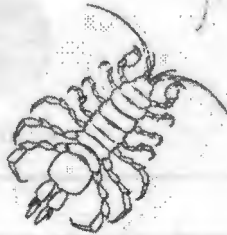
Scud



Crayfish

looks like a mini-lobster

Sowbug



flattened top to bottom (looks like a pill bug)

Cranefly



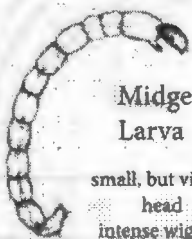
caterpillar-shaped, ringed



Clam/Mussel

must be alive to count

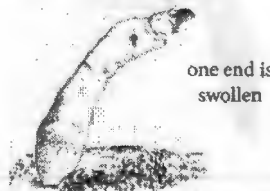
GROUP 3 – Fairly Tolerant of Pollution



Midge Larva
small, but visible head
intense wiggler

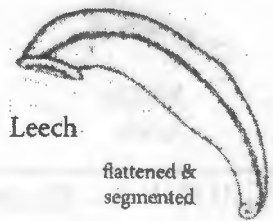


Planaria
2 eye spots & very small



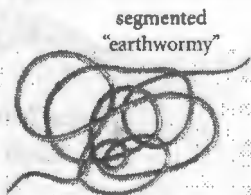
Black Fly Larva

one end is swollen



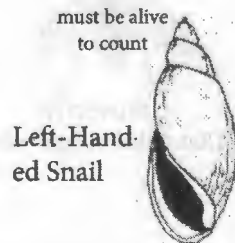
Leech
flattened & segmented

GROUP 4 – Very Tolerant of Pollution



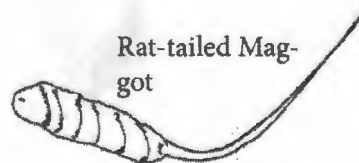
Aquatic Worms

segmented "earthwormy"

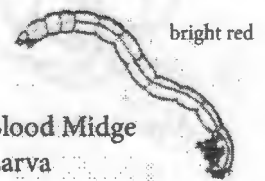


Left-Handed Snail

must be alive to count



Rat-tailed Maggot



Blood Midge Larva

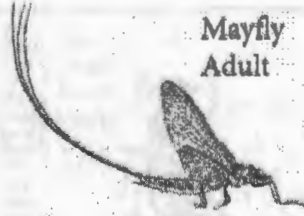
bright red

Macroinvertebrate Adults Key

GROUP 1 - Young are Very Intolerant of Pollution



Stonefly Adult



Mayfly Adult



Riffle Beetle Adult



Caddisfly Adult



Dobsonfly Adult

Water Penny Adult



Right-Handed Snail

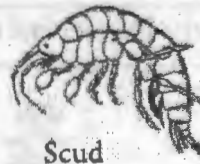
GROUP 2 - Young are Moderately Intolerant of Pollution



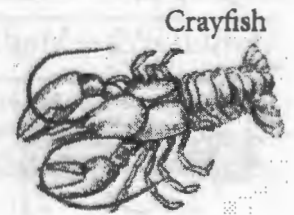
Damselfly Adult



Dragonfly Adult



Scud



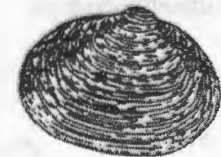
Crayfish



Sowbug



Cranefly Adult

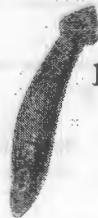


Clam/Mussel

GROUP 3 - Young are Fairly Tolerant of Pollution



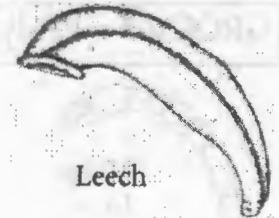
Midge Adult



Planaria

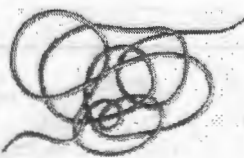


Black Fly Adult



Leech

GROUP 4 - Young are Very Tolerant of Pollution



Aquatic Worms

Left-Handed Snail



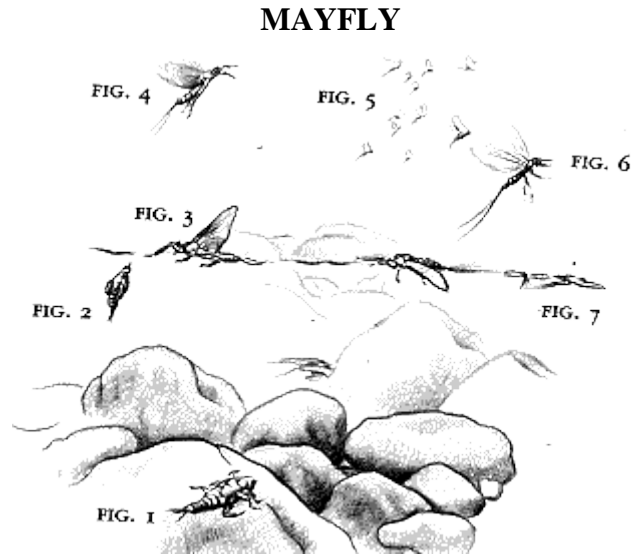
Hoverfly (Rat-tailed maggot adult)



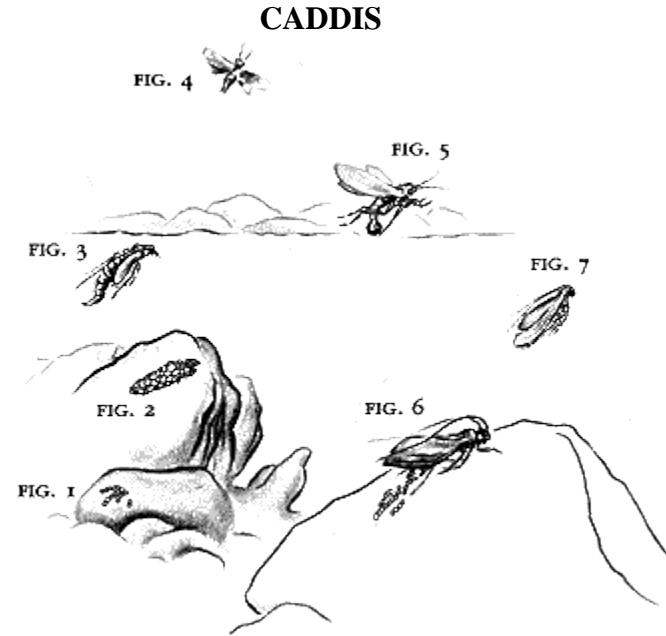
Blood Midge Adult

Mayfly & Caddis Life Cycle

Looking at the caddis and mayfly life cycle in detail.

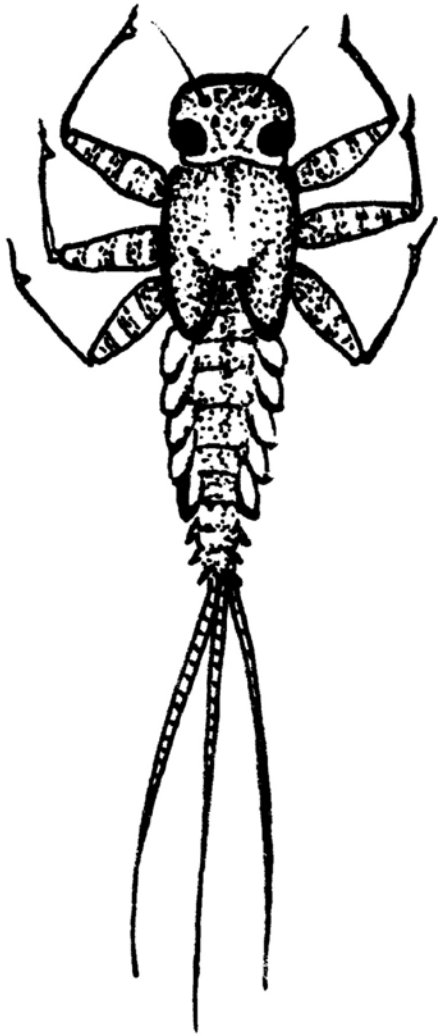


After spending most of its life under water as a nymph (**fig. 1**), a mayfly swims to the surface to hatch. During the swim-up (emerger) stage (**fig.2**). The emerger hatches into a dun (**fig.3**) which, while on the surface is a primary food source for trout. The dun then flies off the water (**fig.4**) to nearby foliage where it undergoes another transformation. When it becomes a spinner (**fig.5**), it will join others and be seen swarming over the surface in mating flights. Some spinner will drop their fertilized eggs, others will touch down on the surface to deposit them (**fig.6**). Finally the act of renewing the species complete, the spinners fall to the surface (**fig.7**) to be eaten in great numbers by the trout.

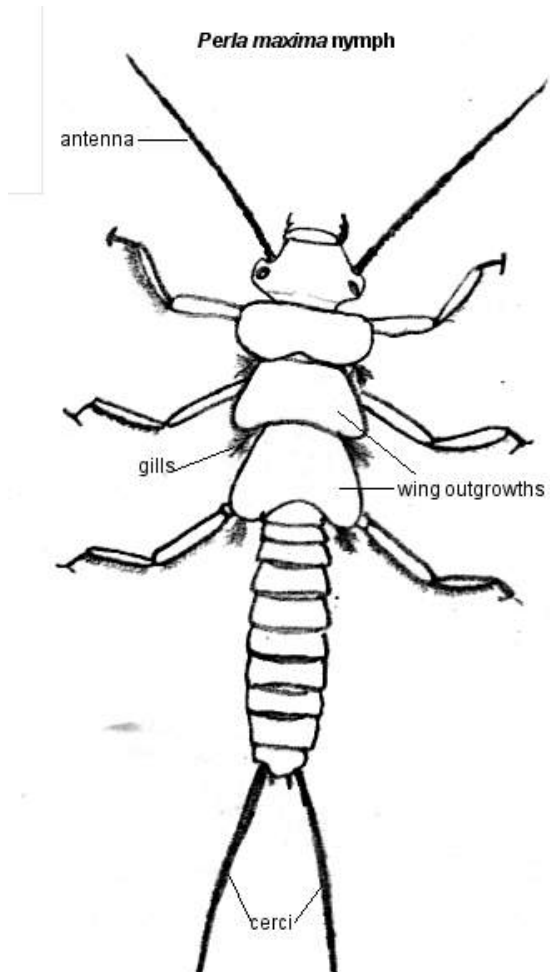


Like the mayfly, the caddis fly begins its life in an egg (**fig.1**). After the egg stage the caddis spends most of its life as a larva, encased in a protective shell it manufactures either of small sticks or pieces of gravel (**fig.2**). When its ready to hatch the caddis swims up as a pupa (**fig.3**) and rides on the flow where it may be taken by a trout if it doesn't escape to a nearby shore as an adult (**fig.4**). When adults have mated, some deposit their eggs on the surface of the river (**fig.5**), while others swim to the bottom (**fig.6**), deposit them and then swim up again (**fig.7**). It is these diving ovipositors that anglers frequently confuse with hatching caddis, because both are usually spotted after swimming up from the bottom.

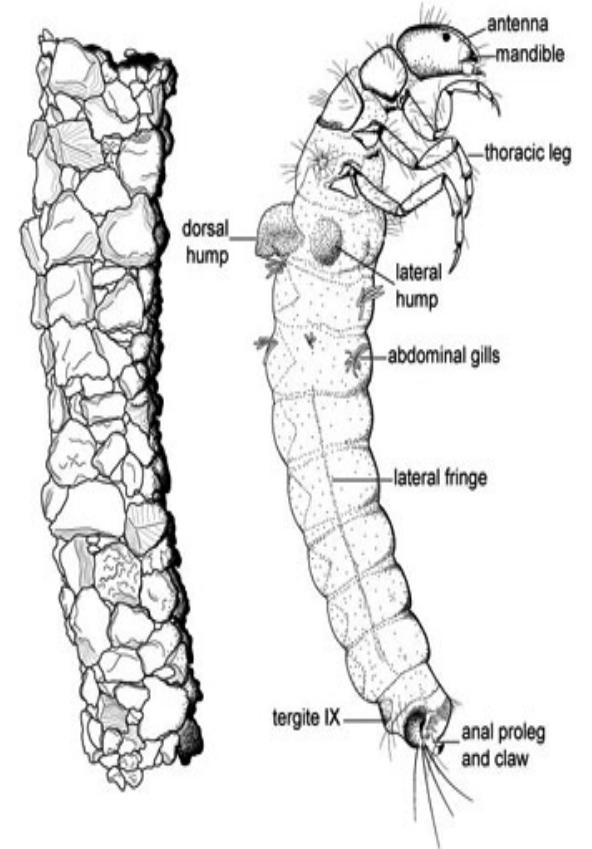
INSECT LARVAE



MAYFLY



STONEFLY



CADDISFLY