

Stream Invertebrate Biology Briefs

Crayfish (Order Decapoda)- omnivores, primary food is decaying vegetation but will eat anything they can subdue; they are predators and collectors (scavengers).

Spiders (Class Arachnids) - Feed by sucking the body fluids from their prey; predators.

Damselflies (Suborder Zygoptera; order Odonata) – Aquatic nymphs hatch from eggs that are laid in the water. Many overwinter as nymphs, which crawl up on vegetation in the spring to emerge as adults. They are predators.

Dragonflies (Infraorder Anisoptera; order Odonata) – Predators of anything smaller-as young larvae they eat mostly zooplankton, and as they grow larger they will eat mayflies and even small fish.

Mayflies (Order Ephemeroptera) – Overwinter as aquatic nymphs. Diet is mostly algae or detritus; mayflies are either collectors or scrapers (76% of the families are collectors, 19% are scrapers, and 5% are predators).

Springtails (Order Collembola) – Feed on detritus, algae, fungi or dead animal matter. They are collectors.

Alderflies (Order Megaloptera) – Aquatic larvae are active predators that feed on aquatic insects, worms, crustaceans, snails and clams. All are predators.

Leeches (Subclass Hirudinea) – Worm-like, soft-bodied organisms with not legs and suckers at either end of the body that attach to hosts and suck fluids from other animals. They are predators (or parasites).

Snails (Class Gastropoda) – Snails scrape algae and other organic matter from ponds substrates. Most snails are scrapers.

Clams and mussels (Class Bivalvia) – Clams & mussels are filter feeders that live on phytoplankton, zooplankton, detritus and bacteria. They are collectors.

Aquatic Earthworms (Order Oligochaeta) – Most eat detritus, algae and bacteria; these are collector-gatherers.

Water Striders (Family Gerridae) – Able to run on the surface, these animals prey on insects that fall on the surface of the water; predators.

Whirligig Beetles (Order Coleoptera) - Beetles that swim on the surface or underwater and are primarily scavengers, or collectors.

Midges (Family Chironomidae)- Collectors that filter organic components of sediment & algae.

Crane Fly (Family Tipulidae)- shredders; break down leaves from trees. (Crane fly from genus *Hexatoma* are engulfer-predators.)

Planaria (Class Turbellaria)- Also called flatworms; predators (scavengers) of soft-bodied invertebrates.

Stonefly (Order Plecoptera)- mainly shredder-detritivores or engulfer-predators; mouthparts determine whether they are shredders or predators. Shredder mouthparts are directed downward and are shaped for cutting and grinding, while predator mouthparts project forward and are very sharp and pointed. Common prey are midges and black flies along with mayflies. Most stonefly are predators.

Caddisfly- case makers (Order Trichoptera)- most caddisflies that construct cases of small stones are shredders of detritus and algae.

Net spinner Caddisfly (Order Trichoptera; Family Hydropsychidae) – Collectors who spin nets to catch fine particles of detritus.

Free-living Caddisflies (Order Trichoptera)- are mostly predators of smaller invertebrates or scavengers.

Scud (Order Amphipoda; also called sideswimmers and amphipods)- Shredders who eat mostly detritus, algae, bacteria, and any recently dead organisms.

Dobsonfly (also called Hellgrammite; Subfamily Corydalidae)- Predators of any small invertebrate.

Pill bugs (Order Isopoda) – Eat a variety of decaying organic matter. Most are collectors.

Blackfly larvae (Family Simuliidae)- Collectors; they hold onto the substrate with tiny hooks and then extend a foldable “fan” into the stream, filtering particles of food (bacteria, detritus, algae) into the fan which is then scraped into its mouth every few seconds.

Water penny beetle (Order Coleoptera) – Flat shaped beetle that often curls up when disturbed, and has a strong grip to allow it to move across surfaces in highly turbid water. Water pennies are scrapers who graze on algae on rocks.

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References:

- Voshell, J.R. 2002. *A Guide to Common Freshwater Invertebrates of North America*. McDonald & Woodward Publishing Company, Virginia.
- Thorpe, J.H. & A.P. Covich. 2010. *Ecology and Classification of North American Freshwater Invertebrates*. Elsevier, Amsterdam.