

# River Ecology

*Important though it is, there's more to a stream than water. A wide variety of plants and animals live along its course. The upper reaches and the broader stretches downstream each have unique species.*



## The Little Ausable River

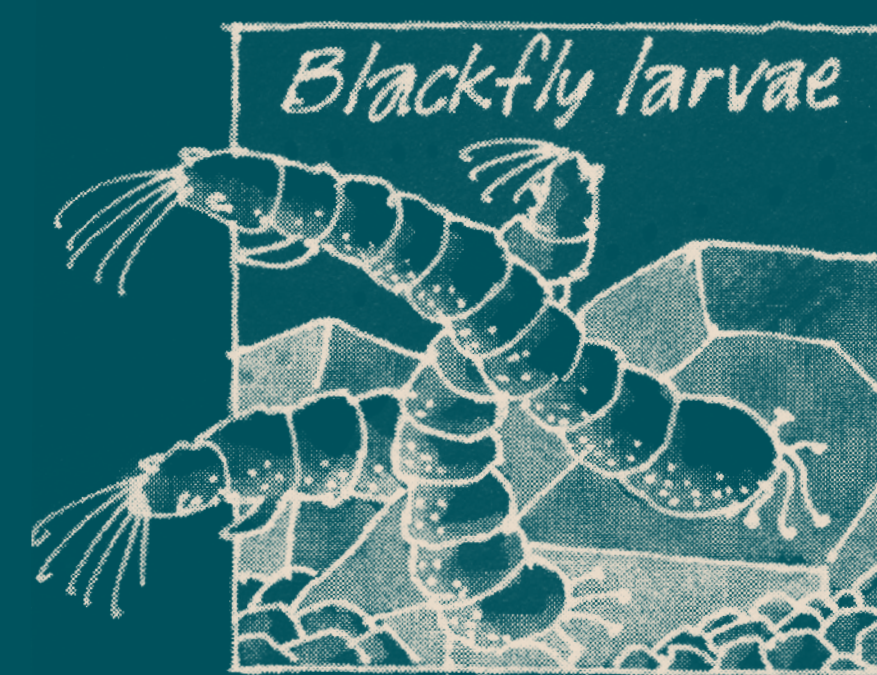
from its source near Buckley Mountain to the western shore of Lake Champlain



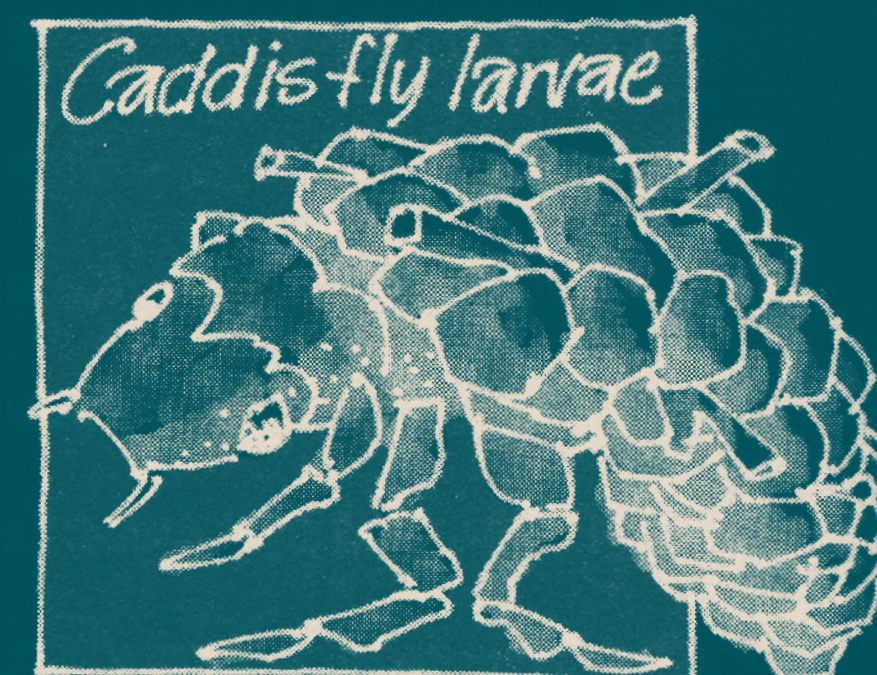
### Head Waters

It's not easy to maintain your grip in a frigid, fast-moving mountain stream. Performing everyday functions like eating, moving, or holding on as the water cascades over rocks and waterfalls is like a mountain climber maneuvering across a rock face in a gale-force wind. The creatures of the headwaters have evolved their own versions of grappling hooks, rappelling ropes, and crampons.

Though living in strong currents is a challenge, it also has its benefits. The churning water mixes oxygen from top to bottom and distributes nutrients from soil runoff and decomposing plants and animals. The headwaters of a stream provide a nourishing habitat for any creature that can buck the current or find a way to avoid it and supplies the entire stream system with nutrients.



Blackfly larvae (those woodland terrorists when they reach adulthood) anchor their bottoms to rocks and capture plankton through feathery filters that sway in the current. If they are torn from their roost, they lasso onto another rock with silken threads before they can be swept away.



Caddisfly larvae make stony caves or stick shelters to protect their soft bodies by cementing together grains of sand or pieces of vegetation. They partially emerge from their handcrafted huts to grab meals of algae and dead leaves. Because these insects thrive in clean, clear water, their presence is used to gauge the water quality of streams.



Other insects, such as stonefly and mayfly nymphs, have evolved streamlined profiles which they secure to rocks by hooks on their feet.



Young brook trout prefer cold, oxygen-rich streams where they feed on immature insects below and adults above the water's surface. Strong, streamlined bodies and powerful tails help them battle the current to reach their spawning grounds upstream.

### Downstream

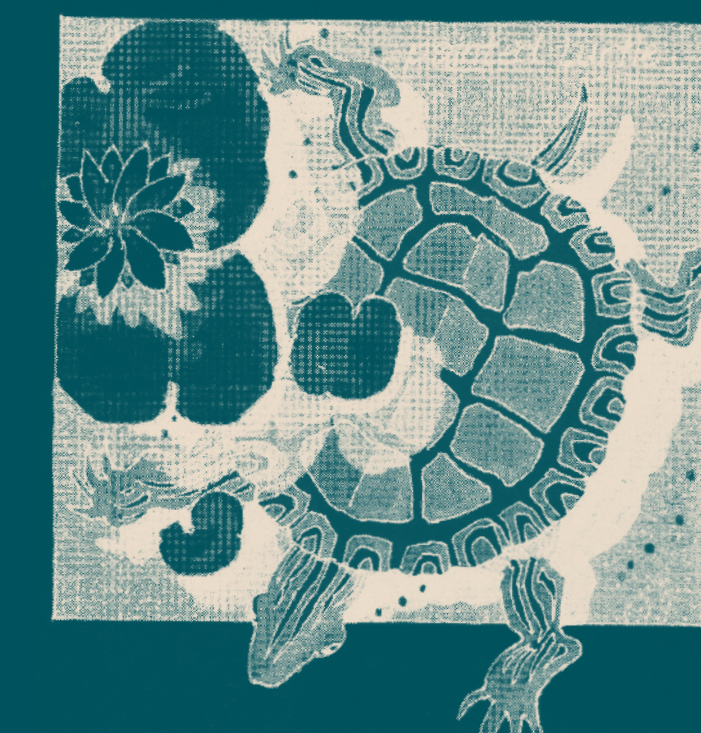
As the slope decreases, so does the speed of the current. Rather than cutting downward, the water spreads out in a broad, meandering course. In these calmer waters you can find a whole community dependent on the interface between air and water, the surface film created by the strong attraction of water molecules called surface tension.



Water striders skim across the film like skaters at an ice rink. Their needlelike mouthparts drain the body fluids of other surface-dwelling insects. In quiet backwaters, mosquito larvae hang upside down, suspended by the surface tension. They suck oxygen from the air through snorkels in their tails. Backswimmers and whirligig beetles grab bubbles of air from the surface and carry them around like miniature SCUBA tanks.



Worms, crayfish, and clams burrow into the mud deposited by the slower-moving current. With fearsome hinged jaws that jut out to capture prey, dragonfly and damselfly nymphs snatch other insects and even small fishes. Fish like bass and perch (which require less oxygen and tolerate warm water better than trout) live quite comfortably in the slower current of the river. But should the oxygen level of the water drop too much, only pollution-tolerant species such as sludge worms can survive.



In the broader stretches of the river, plants creep out from the shoreline to create wetlands. Shallow pools allow pickerel, perch, and salamanders to lay their eggs beyond the reach of deeper water predators while wetland plants provide cover for frogs, turtles, waterfowl, and other animals.