Stream

Vermont Fish and Wildlife Habitat Fact Sheet

The countless rushing streams that wind their narrow ways down sides of mountains, cutting thin channels, are quite young. They are the products of the Ice Age, when glacial rock debris laid new grounds and dammed old drainages, and the melting water in all its volume and force began to carve new channels. These boulder-strewn brooks are in a hurry: geologists speak of them as being "immature" not so much because of their age as for their physical characteristics, yet for the most part, by geological standards they are very young.

Many of our waterfalls are streams that are energetically cutting through rock - these streams are "sawing" their way back into higher elevations. They are shallow, clear, turbulent waters. Beginning cold from the direct runoff of melting snow or newly exposed ground water, they stay cold, for they are shadowed by overhanging trees. In addition, the tumbling waters are well aerated, so the streams are saturated with oxygen. In this rush of water any soils and other eroded material are carried quickly downstream, leaving only the heavier rocks and gravel on the bottom, a composition we see in almost every mountain streambed.

The pathways of streams and rivers, and the vegetated corridors associated with them (collectively known as riparian areas), are acknowledged to be critical for birds and wildlife - not just those that live there, but many that take advantage of the shelter and food in their daily, seasonal, or annual movements.

Plants

The violence of the streams creates vigorous living conditions for any organisms found there. The few plants growing in this environment are small and form mats closely adhering to the rocks, or else they are free-floating. Green algae grow as slippery, tightly knit blankets on rocks, close to the stream surface, in such a way that the rushing water will not strip them away. Several species of diatom - microscopic plants with intricately patterned glass-like shells - and other unicellular algae float in considerable numbers in the waters, even though many are borne away on the currents. Higher on the shaded walls of the waterfalls, moistened by spray, are mosses and liverwort

Plants of the bog have to contend with a gamut of adverse conditions: a sterile "soil," where nutrients are hard to come by, since organic matter is little decomposed; acidic water within the mat; scant oxygen for respiration and growth; direct exposure to the elements, especially in treeless bogs; unsteady footing for roots; and, always, the wetness. In many ways, as said earlier, these conditions are similar to those in the tundra on the mountaintops, and though individual species may differ in these two places, the manner in which their plants handle the problems is much the same. Indeed, two families-sedges and heaths-are among the most prevalent plants in both areas.

Ironically, though water is pervasive in bogs and is essential to their formation and development, it is largely unavailable to bog plants, mostly because of the acidity of the peat waters. The plants have acquired several adaptations that allow them to conserve what water they manage to collect. Sedges have thick, solid stems and narrow-bladed leaves, both of which reduce potential evaporating surfaces. Sphagnum mosses have two types of cells, live ones at the mat surface that manufacture food and absorb water from the rain and air, and dead subsurface ones that act as water-storage vessels. Common heaths-leatherleaf, Labrador tea, bog laurel, bog rosemary, blueberries, cranberries, and others-have tough, woody stems and firm, leathery leaves, both attributes helping to restrict the amount of water passing through the plants to the outside.

Fish

The (insect) larvae of the stream, as well as the airborne adults, are vital food sources for the stream fish, including many of the less conspicuous minnows (species of sculpin, dace, shiner, sucker, darter, and others), as well as the more celebrated native cold-water dweller, the brook trout (or "squaretail"). This fish is a New England native that, with human assistance, has spread to almost all suitable waters of the northern

United States. It is one of the smaller members of the salmon family, averaging a pound or less, although state record to date is 5 pounds 12 ounces (1977). Even at 1 pound it seems large for many of the mountain streams, but it is well made for life in the swift waters, with a smooth, torpedo-shaped body. The species favors clear, cold, neutral-to-slightly-acidic fast-moving waters, and in October it moves upstream to spawn in the shallow gravel beds of headwater streams. There the rushing waters circulate oxygen through the nests (redds), and keep the eggs healthy. The brook trout can, however, also survive in ponds if conditions are right. For example, if beavers dam a mountain stream containing trout, the fish may continue to live in the impounded area if the water remains cool enough and free of silt. In addition to good water quality, brook trout require areas where they can take refuge from predators, as well as lie as in wait for catching their own prey: undercut stream banks, submerged logs, large rocks and boulders, and the like, places well known to trout anglers.

Birds

The stream is home to but a handful of mammals. Mink often live in dens adjacent to streams and readily enter the water for fish. Hikers sometimes see the northern water shrew-big for a shrew, being larger than a mouse-swimming in search of small fish or aquatic insects. This species is perfectly designed for its life in streams, rivers, ponds, and bogs of northern regions: its large hind feet serve as paddles, and its thick, water-repellent fur sheds water and insulates against the cold.

Tracks of deer, weasels, raccoons, skunks, and jumping mice indicate that these animals' regular visits, for food or drink. During summer nights, also, come several species of bats, flying over in search of hovering insects. The tiny, yellowish eastern pipistrel, one of the country's smallest bats at less than a quarter of an ounce, is one of these nocternal hunters.

Excerpted from Charles Johnson’s book
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