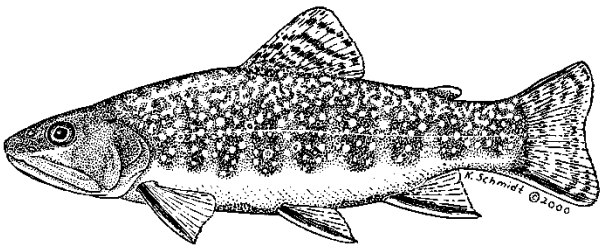
Cool Ravine

A "cool ravine" is a narrow ravine with steep, high, rocky walls flanking a rocky perennial or intermittent stream. The ravine walls are commonly forested with a mixture of hardwoods and conifers, usually including eastern hemlock. Steep ravine walls and conifer trees create an unusually shady, cool, moist microclimate that often supports **plants of more northern affinities.**



Brook trout

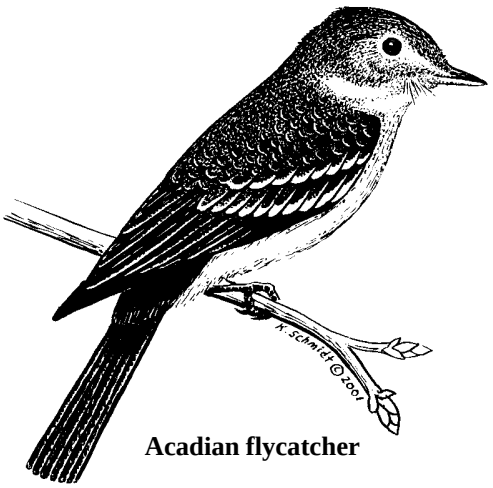
Species of conservation concern

- Regionally rare plants such as American yew, purple cliffbrake, and rusty woodsia
- Northern dusky, northern two-lined, and slimy salamanders
- Rare and uncommon birds such as winter wren, Acadian flycatcher, Blackburnian warbler, and black-throated green warbler
- Woodland jumping mouse, southern redback vole, and eastern small-footed myotis

These are just a few of the species of regional or statewide conservation concern that are known to occur in cool ravine habitats. See Kiviat & Stevens (2001) for a more extensive list.

Typical plants

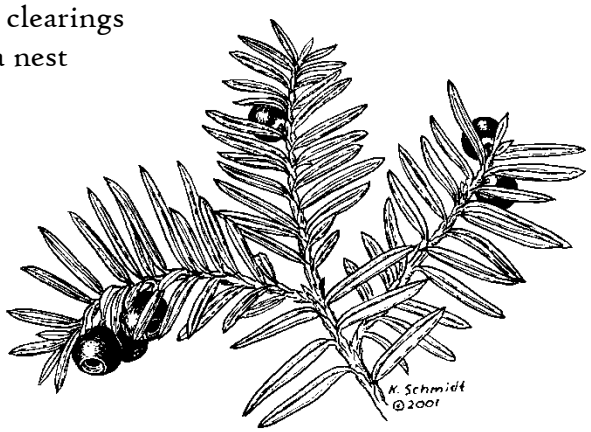
- Eastern hemlock, striped maple, mountain maple, yellow birch
- Red-berried elder, hobblebush, mountain laurel, lowbush blueberry
- Abundant bryophytes (mosses and liverworts)
- Ferns such as common polypody. Ebony spleenwort, walking fern, and purple cliffbrake may be present if the rocks are calcareous.



Acadian flycatcher

Threats to cool ravines

These scenic areas often attract recreational use which can result in **trampling, littering, soil erosion,** and **noise disturbance** to nesting birds and other wildlife. Roads, substantial trails, or other clearings may also allow incursions by the **brown-headed cowbird**, a nest parasite that could pose a significant threat to the nesting success of cool ravine songbirds. Any **clearing of trees and shrubs** could alter the shade-tolerant plant community, cause soil erosion, and lead to **elevated temperatures** in the stream and ravine bank habitats. The ecological importance of cool ravines may be magnified as **global climate change** progresses. The cool, moist conditions of these habitats may provide a temporary haven for plants and animals stressed by general warming trends in this region.



American yew

Conservation Recommendations

- Prevent any disturbance of soils or vegetation on the ravine walls.
- Maintain a large forested area around the ravine to help maintain stream water temperatures, to protect the ravine walls from erosion, and to protect the ravine nesting habitats for songbirds.
- Maintain an undisturbed zone of 650 ft (200 m) horizontal distance from the stream edge. This is the minimum area needed to support a nesting pair of Acadian flycatchers. Within this zone, avoid any new construction of roads or buildings, and any new disturbance of soils or vegetation.
- Maintain quality and quantity of streamwater. This includes maintaining seasonal fluctuations in stream flows, maintaining cool streamwater temperatures, and preventing siltation and other forms of pollution from upstream or upgradient sources.
- Minimize recreational uses during spring through mid-summer to avoid disturbing nesting birds. Design any trails such that access to interior ravine areas is limited.

References

Kiviat, E. and G. Stevens. 2001. Biodiversity assessment manual for the Hudson River estuary corridor. New York State Department of Environmental Conservation, Albany. 508 p.

Robbins, C.S, D.K. Dawson, and B.A. Dowell. 1989. Habitat area requirements of breeding forest birds of the middle Atlantic states. Wildlife Monographs 103:1-34.