Natural History Interpretation of Rugar Woods

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Cavity Nesters

Picoides spp., *Dryocopus pileatus*, *Glaucomys* spp., *Sciurus carolinensis*, and *Tamiasciurus hudsonicus*

Numerous wildlife species find shelter and refuge in cavity holes within living trees and snags. Woodpeckers such as downy (*Picoides pubescens*), hairy (*Picoides villosis*), and the larger, crested, pileated (*Dryocopus pileatus*) excavate holes by pecking tree bark. They also communicate by drumming on trees. Cavities formed by pileated woodpeckers are large and square-shaped, compared to the small, circular holes of the downy and hairy woodpeckers. Flying squirrels (*Glaucomys* spp.) compete with woodpeckers for cavities, while gray squirrels (*Sciurus carolinensis*) and red squirrels (*Tamiasciurus hudsonicus*) inhabit leaf nests (dreys) in the crevices of tree branches.

Northern white cedar

Thuja occidentalis

Northern white cedar (*Thuja occidentalis*) is also known as arborvitae "tree of life", due to its medicinal qualities. This distinctive conifer has scale-like leaves and light brown bark that peels in long strips. This species is commonly found in moist or poorly drained soils. White-tailed deer use dense stands of white cedar as wintering yards. Cone production peaks on trees between 30-80 years of age, and abundant seed crops occur every 2-5 years.

Disturbance

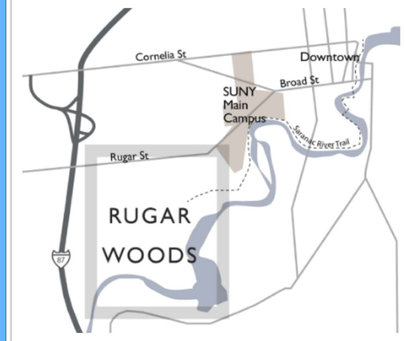
At this site, a disturbance has altered the streamside (riparian) forest by removing mature canopy trees. The resulting forest gap promotes the release of understory species. Following a disturbance (*e.g.*, windfall, ice storm, pest infestation), trees may die but remain standing as snags. Snag trees may not be attractive in appearance, but they support biodiversity in the forest. Many cavity-nesting species move into hollow stems (*e.g.*, porcupine, raccoon, flying squirrel, woodpecker), which provide shelter and resources, including insects and fungi that have also colonized the snag.

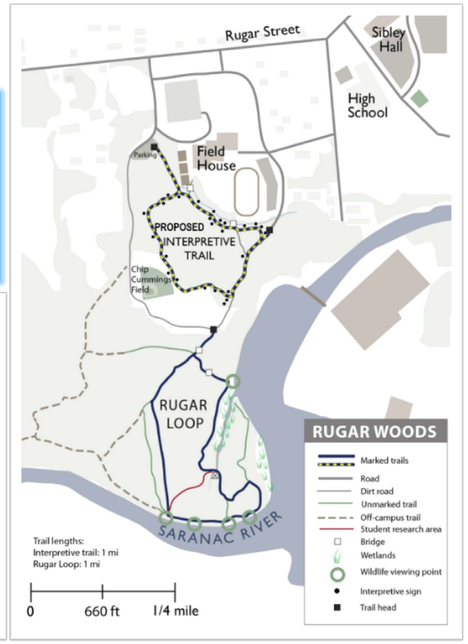
Quaking aspen

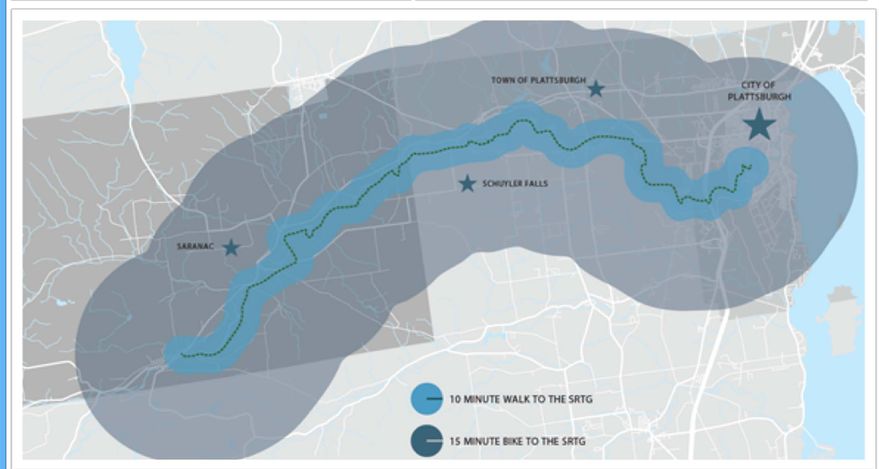
Populus tremuloides

Quaking aspen (*Populus tremuloides*) is an early successional species that is fast growing, short-lived, and common in disturbed areas where openings in the overstory canopy promote high light conditions. Aspen trees have flat petioles (leaf attachments), which cause the leaves to "tremble" in the wind. As aspens age, their bark often changes from the characteristic white color to darker gray. The buds and seeds provide common food resources for numerous birds and mammals including ruffed grouse, white-tailed deer, porcupine, black bear, snowshoe hare, cottontail rabbit, and beaver.

23 interpretive trail signs will be installed along a one mile loop in Rugar Woods







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Scan QR codes on signs to link to the Rugar Woods Interpretive Trail website. The website contains supplemental information about the ecology of Rugar Woods. You may also navigate this website by selecting topics in the Interpretive Trail menu tab.

Rugar Woods is a node of the Saranac River Trail Greenway on the SUNY Plattsburgh campus. It is open to the Plattsburgh community.

Stephanie Gray (2019 Environmental Science) created online interactive interpretation and finalized signage.

Jennifer Krech (2013 Ecology, Biology, Art) painted watercolors.

Joshua Domenico (2011 Ecology) mapped, gained local funding, and developed initial trail interpretation.

Witch hazel

Hamamelis virginiana

Witch hazel (*Hamamelis virginiana*) is easy to identify during the fall because it is one of the only shrub species that produces flowers in October. The teeth along the leaf margins are wavy and uneven at their base. The bark extract has long been used for medicinal purposes. Witch hazel provides food for beaver, white-tailed deer, and various birds. The name of this shrub comes from the myth that witches could use its branches as divining rods to locate groundwater.

Riparian area

Riparian areas are upland sites adjacent to a waterbody (*e.g.*, ponds, lakes, streams, rivers). Species in riparian areas are adapted to periodic flooding. You may see tree features such as wide trunks and pore spaces on stems that allow plant roots to breathe even when submerged. Mid-canopy riparian species might consist of horsetails (*Equisetum* spp.) and wildflowers such as cardinal flower (*Lobelia cardinalis*), trout lily (*Erythronium americanum*), and blue flag iris (*Iris versicolor*).

Common buckthorn

Rhamnus cathartica

The common buckthorn (*Rhamnus cathartica*) was brought to the United States from Europe as an ornamental shrub. Common buckthorn grows well in both full-sun and shaded conditions, and it has spread to forest communities where it outcompetes other mid-canopy species such as dogwoods and raspberries. One can easily identify common buckthorn by the small thorns on its twigs. This species is widely dispersed because birds and mammals eat the dark purple to black fruit.

Dendrochronology

Dendrochronology, or the study of tree rings, uses a process called crossdating to assign specific dates to the annual rings of trees. Annual rings are formed in many tree species as a result of how cells develop throughout the growing season. In the early part of the growing season, cells are typically large and thin walled, giving them a light colored appearance. As the growing season progresses, the cells become smaller and thicker walled, giving them a darker appearance, leaving an obvious signature of between year growth. Dating and measuring tree rings can tell us much about the life of a tree and the environment in which it has grown. Depending on where the tree is growing, variation in tree ring width can be an indicator of temperature, precipitation, insect and disease outbreaks, and competition with other trees. Dendrochronology has many applications in fields such as climatology, archaeology, and ecology.

Dogwood

Cornus rugosa and *Cornus alterniflora*

Growth forms of dogwood are highly variable, ranging from understory shrubs to canopy trees. Dogwoods also grow in a wide variety of habitats, including wetlands, fields, and forests. Here, in this pine-dominated forest, dogwood species often germinate in the understory where canopy gaps form. Dogwood can gain an advantage in regeneration, when released from the light restriction of a closed canopy. As a result, roundleaf dogwood (*Cornus rugosa*) and alternate-leaved dogwood (*Cornus alternifolia*) outcompete germinating pine seedlings.

Oaks

Quercus rubra and *Quercus alba*

Oaks are foundational tree species, as they provide sources of hard mast (acorns). Acorns provide energy and nutrients to numerous wildlife species including mice, chipmunk, white-tailed deer, turkey, ruffed grouse, and black bear. Two common oak species in this region are red oak (*Quercus rubra*) and white oak (*Quercus alba*) with pointed and rounded lobes, respectively.