Watercourses, Wetlands, and Wildlife in your Woodlot

Peter Austin-Smith Jr.
Biodiversity Stewardship Coordinator
Wildlife Division, NS DLF
Central Woodland Conference

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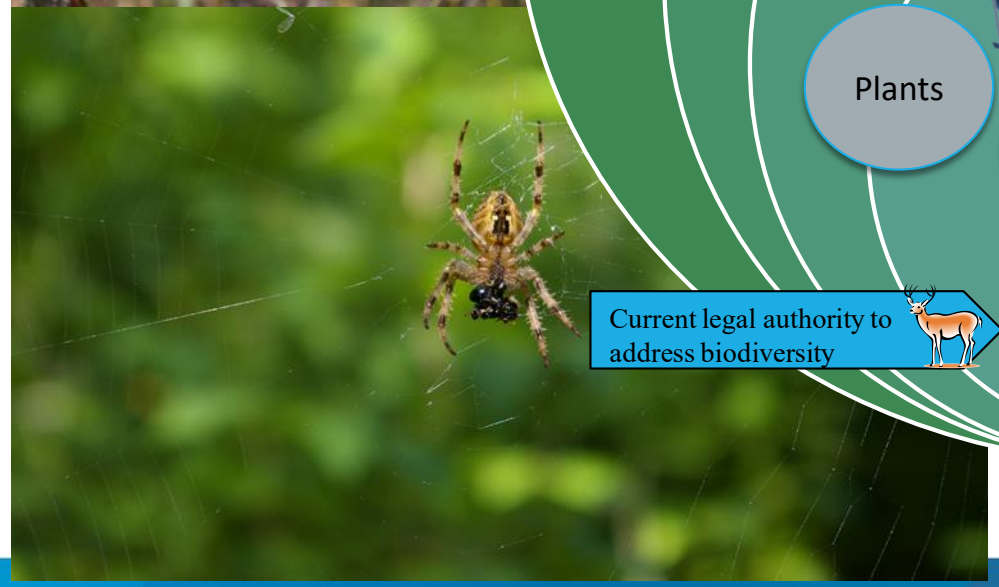


Biodiversity

Ecosystems

Ecological Goods and Services

Species and Populations

Plants

Invertebrates

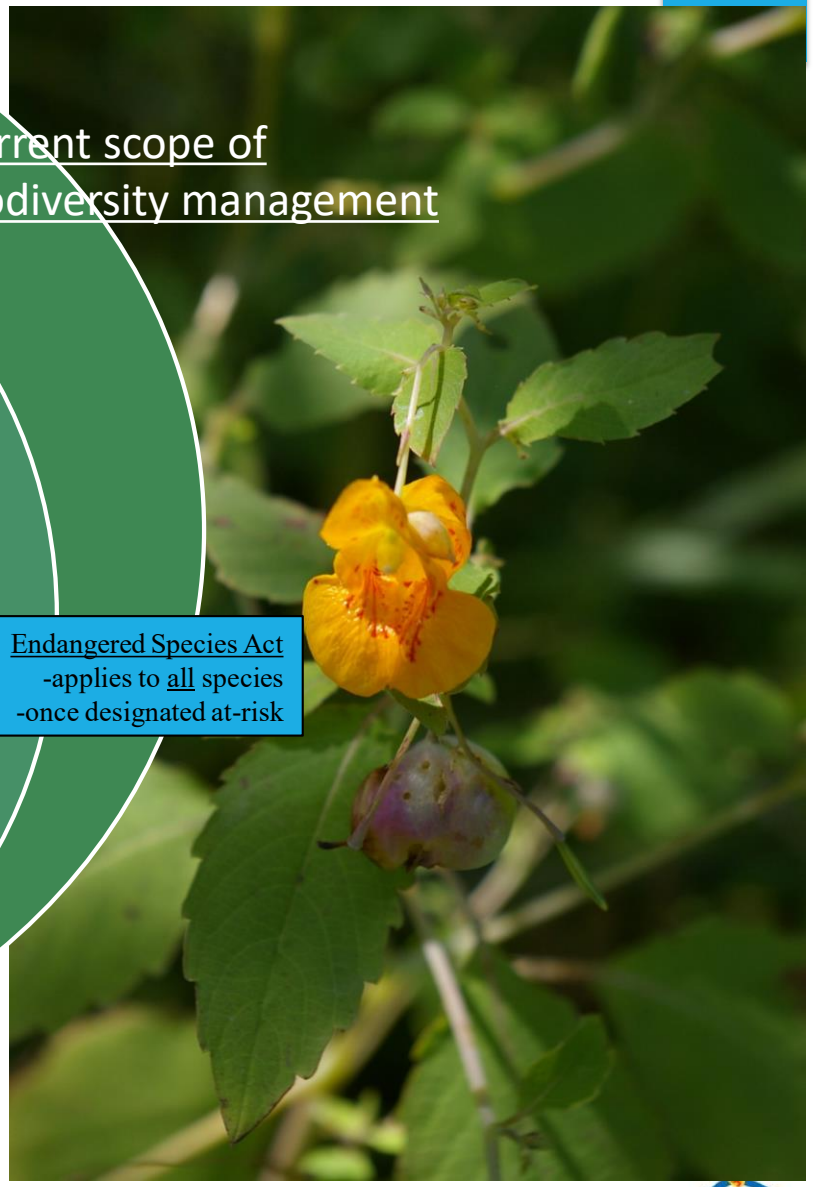
Bacteria & fungi

Wildlife-vertebrates only

Current legal authority to address biodiversity

Current scope of biodiversity management

Endangered Species Act
-applies to all species
-once designated at-risk



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Biodiversity Act

- biodiversity is essential to healthy and productive ecosystems and is therefore essential to human well-being;

- the conservation and sustainable use of biodiversity is interconnected with sustainable prosperity, a healthy environment, vibrant thriving communities and a strong competitive economy;

- biodiversity and its sustainable uses are valued by Nova Scotians as important parts of the environment, heritage and economy of Nova Scotia;

- an ecosystem approach that involves the integrated management of land, water and living organisms, promotes conservation and sustainable use of biodiversity and recognizes that humans are an integral part of ecosystems will strengthen land-use planning and natural resources management;

- necessitates co-operation and collaboration among all sectors and is therefore a shared responsibility of all levels of government, non-government organizations, the private sector, the Mi'kmaq of Nova Scotia and all other Nova Scotians;

Stewardship

The responsible use and conservation of natural resources in a way that takes full and balanced account of the interests of society, future generations, and other species.

Biodiversity must be managed for the benefit of present and future generations, which is in keeping with the Mi'kmaq concept of **Netukulimk**, defined by the Mi'kmaq as the use of the natural bounty provided by the Creator for the self-support and well-being of the individual and the community by achieving adequate standards of community nutrition and economic well-being without jeopardizing the integrity, diversity or productivity of our environment.

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Species at Risk in Nova Scotia

Species at risk include any plant, animal, or other organism that is seriously at risk of extinction.

- 71 Species at risk as of 2017
- NS Endangered Species Act (ESA)
- SARA (Federal SAR Act)

Status Category	Definition
Endangered	a species facing imminent extirpation or extinction
Threatened	a species likely to become endangered if limiting factors are not reversed
Vulnerable	a species of special concern because of characteristics that make it particularly sensitive to human activities or natural events
Extirpated	a species that no longer exists in the wild in the Province but exists in the wild outside the Province
Extinct	a species that no longer exists

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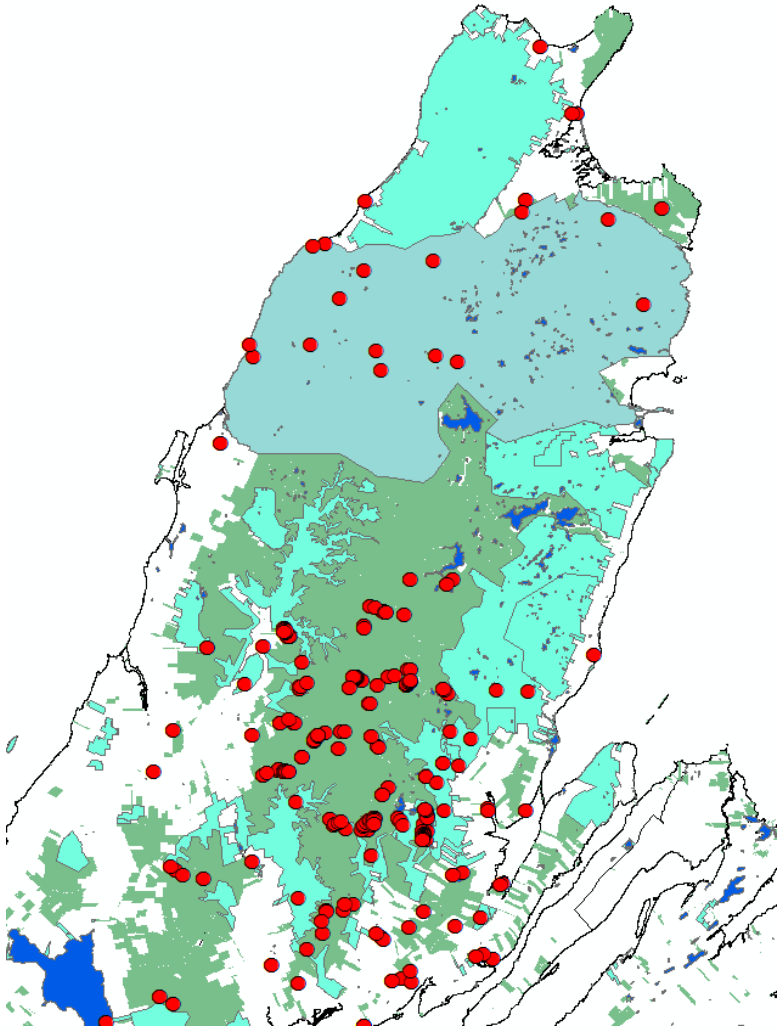
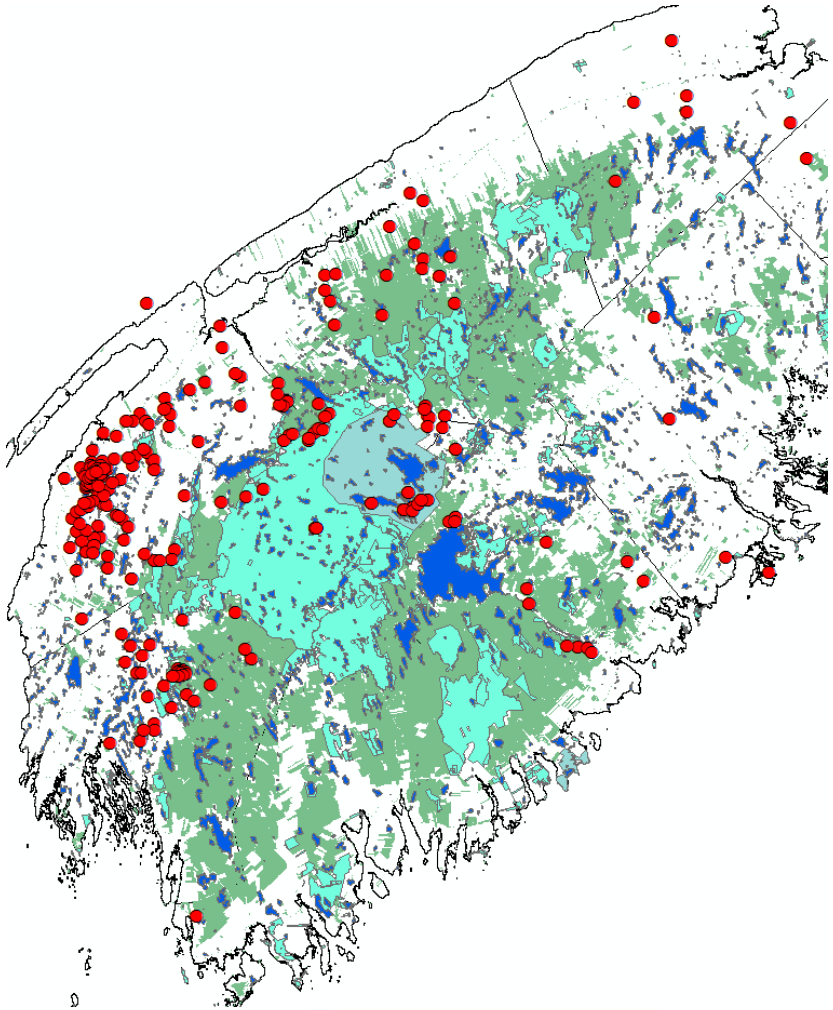
American Marten





Seeps and Springs

Places where groundwater escapes through the forest floor and saturates or floods the soil for part of the growing season.

Seeps - originate near breaks in the slope, and may return underground further down slope.

Springs - originate as small pools that remain above ground year-round and may spill out as small streams downslope from the pool.

Both can remain unfrozen for long periods during the winter because of the warming effect of groundwater, which stays above freezing all year.

Photo: DNR (Peter Neily)

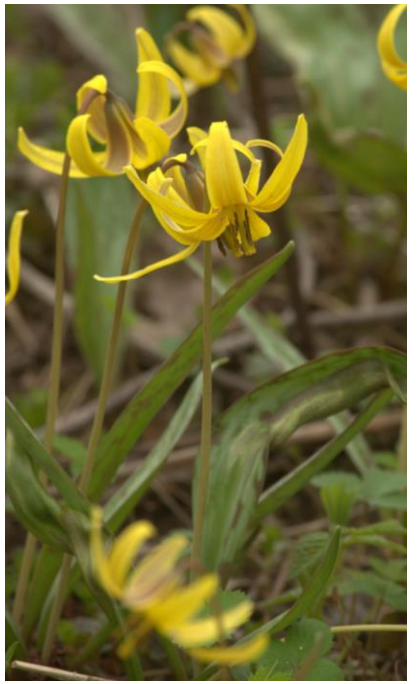
plants associated with rich hardwood seepages

Seeps and Springs

Seepages discovered during pre-treatment assessment (PTA) should be marked and identified on harvest plans. Lay out roads and wood extraction trails during times of the year when seeps and springs are most visible.

Vernal Pools

Vernal pools are small, shallow wetlands without permanent inlet or outlet streams. They are critical habitat for amphibians and other wildlife species. Usually well shaded by overstory vegetation, vernal pools are characterized by a seasonal cycle of flooding and drying. They are deepest in the spring and often reflood in the fall after drying out most summers. Viable vernal pools usually retain water for at least two months.



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Vernal Pools

Vernal pools lack fish, which are predators. Their absence allows other wildlife species, such as salamanders, to survive and feed on the multitude of other organisms that inhabit vernal pools.

It is best to identify the boundaries of vernal pools in the spring when they are in a fully flooded state. Mark the perimeter to ensure identification during times of the year when they are more difficult to detect.

Vernal pools and seeps

Seepages discovered during pre-treatment assessment (PTA) should be marked and identified on harvest plans. Lay out roads and wood extraction trails during times of the year when seeps and springs are most visible.

- Avoid operating heavy equipment where ground disturbance could lead to rutting, soil compaction or soil runoff near identified springs and seeps.
- Utilize properly sized culverts and portable crossings where groundwater flow cannot be avoided, and place them downstream of springs, if possible.
- Avoid disturbing the ground upslope of seeps and springs.
- Maintain adjacent forest cover to help protect the ecology of these special areas. Where consistent with forest management guides, favour the selection harvesting method when working close to seeps and springs.

Beaver ponds

A flooded ecosystem created by the construction of a dam(s) by beaver. The dams regulate water flow, keeping constant water levels during times of little precipitation and providing winter water depths which will not freeze to the bottom. Beaver sustain themselves on the bark of cached branches and logs, usually submerged in holding areas close to lodges and dens.

Photo: Rob Fraser, Ducks Unlimited Canada

beaver ponds contribute to ecosystem richness and biodiversity:

- Dead standing trees that are used as snags and cavity trees.
- Increased habitat diversity including new habitat for wetland wildlife including muskrat, mink, otter and fish.
- Good foraging habitat for insect eaters such as bats and fly-catchers.
- Feeding areas for wading birds.

Beaver ponds

For some woodland owners, the presence of beaver and their activities are a nuisance. Beaver can plug culverts with branches and mud, flood access roads, damage timber, and use roads as bases for new dams.

- Maintain biodiversity features created by beaver ponds and adjacent meadows.
- Design and locate new roads and crossings to minimize potential for attracting beavers. Reduce crossings and avoid small or multiple culverts in favour of a single, large culvert.
- Install appropriate water-control systems where flooding is anticipated to limit damage to access roads and standing timber.
- **Except under permit, it is a violation of the NS Wildlife Act to disturb or damage the den or dam of a beaver.**

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Treed Wetlands

Treed wetlands often occur in headwater areas, and have intermittent streams flowing through them. As a result they are often important for maintaining baseflow in streams, flood and erosion control, retention of particulates/contaminants, and carbon storage. Typically, wetlands on mineral soils are called swamps and those on deep organic soils are peatlands. Softwood sites are usually nutrient poor and acidic. The forest floor tends to be dominated by sphagnum mosses (in peatlands) and ferns (in swamps)

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Treed Wetlands

Shallow rooting on wet sites increases the vulnerability of trees to windthrow. Wind also creates frequent small gap disturbances on these sites, resulting in hummocks where uprooted trees have decomposed.

Treed wetlands are sensitive sites that may be easily damaged during forest operations. It is important to plan sufficiently before starting harvesting work or access road construction close to these areas.

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Watercourses and Riparian Zones

The riparian zone (the area along a watercourse) is one of the most important and fragile wildlife habitats. Watercourses are defined as “the bed and shore of a river, stream, lake, creek, pond, marsh, estuary or salt-water body that contains water for at least part of each year.

The riparian zone provides water, food and cover for many species of wildlife including amphibians, waterfowl and semi-aquatic mammals, and is preferred by many larger wildlife species as a travel corridor.

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Watercourses and Riparian Zones

No forestry operator shall conduct any activity that would result in sediment being deposited in the watercourse.

Trees and large branches that are accidentally felled into watercourses should be left, as removal may cause more damage.

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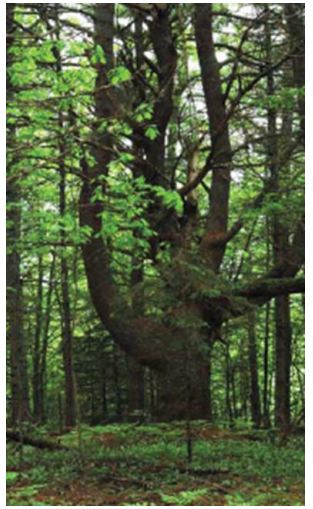
Other Features

Main photo: DNR (Eugene Quigley); Inset : CNS (Len Wagg)

Photo: DNR (Eugene Quigley)



Main Photo: CNS (Len Wagg); Inset: DNR (Eugene Quigley)

Photo: Mark Elderkin

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