Nova Scotia Power's Outstanding Natural Areas: A Land Conservation Proposal

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NOVA SCOTIA NATURE TRUST

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Executive Summary

Nova Scotia Power has a unique opportunity to make a significant contribution to Nova Scotia's natural heritage through the protection of four outstanding natural areas. Four Nova Scotia Power properties have been identified as being high priority conservation sites of provincial significance: Falls Lake Tract (Moses Mountain), Hants County; Green Point, Halifax County; the Gaspereau Ravine, Kings County and Bag Lake, Lunenburg County.

The Nova Scotia Nature Trust has carried out biological assessments of each of these properties, and based on our results, recommends formal protection of all four properties by conservation easement or by donation. The enclosed Nature Trust booklet "*Land Conservation - Options for Corporate Landowners*" provides a detailed description of conservation easements and other options available for lands that NS Power may like to protect.

The Falls Lake Tract is a 416-hectare Nova Scotia Power property along the Avon River. The site has several old and unique forest stands, including an extensive stand of Red Oak on the slopes of Moses Mountain. The property is also one of the last sizable wilderness areas in Hants County, with significant wildlife habitat, rare lichen communities, and spectacular scenery.

Green Point is a 20-hectare island owned by NS Power on Big Indian Lake. The island has Red Spruce stands in excess of 100 years old, with the structural diversity and dominant tree species approaching that of old growth conditions.

NS Power owns two contiguous properties totaling 390 hectares in the Gaspereau Ravine. This property has many significant and unique habitats, including sheer cliffs, talus slopes, forested intervales, mixed Acadian forest, a rich herbaceous forest floor and stands of old growth Eastern Hemlock, White Pine and Red Spruce. The Ravine is a significant winter roost for Bald Eagles, home to a number of rare plants as well as the rare Wood Turtle, and is considered prime habitat for several rare mammals. The Gaspereau River has a small but troubled population of Atlantic Salmon, and is well known for its commercial Alewife fishery. Much is known about the Gaspereau property, due to its proximity to Acadia University and Wolfville, as reflected in its detailed report.

The fourth property is a 20-hectare old growth forest stand located between Bag and Mill Lakes on the Avon River. This stand is one of the very few true old growth forest stands left in the province, with Eastern Hemlock, Yellow Birch and Sugar Maple in excess of 300 years old.

Protecting these areas would be an excellent way to reinforce and enhance NS Power's goodwill within the immediate and greater community, while providing outstanding lands for future generations to enjoy. It provides an opportunity for NS Power to serve as a role model for other landowners. As well, many of the protection options offer potential tax advantages for the company.

Falls Lake Tract
(Moses Mountain and surrounding area)

Introduction

The NS Power property near Mill Section, Hants County (PID#45061363), called "the Falls Lake Tract", is 416 hectares in size, and has several dams, a powerhouse, a reservoir, and other NS Power infrastructure along the Avon River (Figure 1). This site is well known by local residents, who selected it as an area they would like to see protected (during the NS Department of Natural Resources Integrated Resource Management planning process, as well as during a NS Nature Trust Hants County public meeting).

Features of Conservation Interest

This property has been identified by scientists as a unique and important natural area, with old/unique forests, significant wildlife habitat, rare lichen communities, spectacular scenery, and uncharacteristically high elevation, creating microclimate conditions similar to those of the Cape Breton Highlands.

Old forest site: There are a number of interesting forest types on this property. The first is located in a west-facing ravine down to the old riverbed of the Avon River, north of the east-west power corridor and west of the road to MacDonald Pond from Highway 14 (Figure 2). This site is dominated by species typical of old forests, including White Pine, Eastern Hemlock, Red Spruce and Red Oak. These tree species are long-lived, with lifespans of 200+ years. While this particular forest is not yet old enough to be considered true old growth, which is generally greater than 150 years old, many of the characteristics of provincially rare old forests are present, including:

- ◊ *many big trees, alive and dead,*
- ◊ *presence of long-lived tree species, such as hemlock, white pine, and red spruce,*
- ◊ *a multi-layered forest,*
- ◊ *cool shaded forest floor, and*
- ◊ *nesting holes in trees.*

The site supports at least three lichen species that are typical of older undisturbed habitat, including *Platismatia tuckermanii*, *Hypogymnia tubulosa*, and *Usnea longissima* (a long form of old man's beard, now uncommon in NS due to the destruction of old growth forests) (see attached photos).

This site has some of the last remaining tracts of old forest not just in Hants County, but in mainland Nova Scotia. Today, old growth forests are a rarity in Nova Scotia. In fact, *less than 1%* (0.6%) of our forests are over 100 years old. The significance of old forests in Nova Scotia is outlined in the enclosed brochure "Old Growth Forests".

Unique oak forest: The second significant forest type at Mill Section is an extensive stand of predominantly Red Oak, with some American Beech, Red Maple, White Ash, Yellow and White Birch, Witch-Hazel and Ironwood on the eastern slopes of Moses Mountain and the slopes of the adjoining hills (Figure 2). The ground is littered by glacial erratics, covered by a thick carpet of sphagnum mosses, and dissected by an unusual number of small streams and seeps (see attached photos). Overall, tree diversity is low, with Red Oak the dominant species, but lichen diversity is high, with one rock supporting at least

six species of *Cladonia*. There was a severe fire in this area in 1917, resulting in the dominance of Red Oak (often regenerated by fire). The stand is roughly 80 years old, and if left alone, will become a rare example of old growth Red Oak forest in Nova Scotia. The dominance of Red Oak on this boulder-covered terrain makes this a unique and unusual site, and an outstanding feature of the South Mountain Rolling Plain Natural Landscape.

Wildlife: Until recently, a small herd of Moose were known to occur in this area, which is very unusual for this part of the province. Bobcat, Bear, and White-tailed Deer have also been observed repeatedly on the property. A pair of Bald Eagles have nested on the site for many years, as well as a pair of Osprey. A local owl expert, Bernard Forsythe, indicated the site is prime habitat for Barred and Saw-whet Owls. A family of Barred Owls have been observed feeding on moths drawn to a light near the powerhouse. Barred Owls require large partly-hollowed trees (typically greater than 125 years old) for nesting, thereby indicating the presence of old-growth in close proximity to the dam.

Edge effects and forest fragmentation: This property is one of the last sizable wilderness areas in Hants County, and appears to be serving as a refuge for species that require large areas of undisturbed forest cover. Buffers around protected areas add greatly to the integrity and conservation values of the core area by reducing 'edge effects'. Edge effects include increased light, temperature and wind speeds, decreased humidity, and greater contact with humans as well as aggressive edge species. The net result is increased stress on interior forest species, forcing them to either withdraw further into the stand, find residence elsewhere, or be eliminated. Songbirds in particular are affected by increased predation from edge species such as American Crows, Blue Jays, and Brown-headed Cowbirds.

Edge effects can be measured up to 2 kilometres into a stand, but are more generally seen within the first few hundred metres. Various researchers have recommended leaving buffers from 92 metres to 170 metres wide to protect a priority 'core' area from edge effects.

In Nova Scotia, there are many species vulnerable to the fragmentation of large unbroken tracts of forest into smaller isolated parcels. Highways, clearcuts, power and pipeline corridors, and urban and other developments all contribute to forest fragmentation. Species that are vulnerable to this type of forest degradation include songbirds, like the Ovenbird, Black-and-white Warbler, Northern Parula Warbler, and Northern Waterthrush; bird's-of-prey, including the Northern Goshawk and Red-shouldered Hawk; mammals, like the Pine Marten, Lynx, Bear, Moose, and Fisher; reptiles like the Wood Turtle; and amphibians like the Blue-spotted and Eastern Redback Salamander.Amphibians are influenced by microclimatic changes near edges, as well as by the resulting changes in plant and insect populations. Various birds-of-prey and mammals tend to be susceptible to loss of forest habitat, as well as to the increased risk of human disturbance near edges, and the genetic isolation from other populations.

Protected Areas: Protection of this property would contribute significantly to the provincial protected areas system by providing the only example of a hardwood slope within the province's largest natural landscape unit, the South Mountain Rolling Plain. The goal of the provincial protected areas system is to preserve a representative portion of each of the 80 natural landscape units in the province. Achieving this goal would ensure that the natural ecological processes characteristic of each landscape are protected. The need to protect this particular site is all the more important due to the habitat destruction in the surrounding areas, including cottage development, subdivisions, a potential ski hill, and forest clearcutting.

Recommendations For Protection

The areas coloured by dark green in Figure 3 encompass both the unique Red Oak stands and the older stand of Eastern Hemlock, White Pine and Red Spruce along the Avon River spillway. The dark green area is considered to be of the greatest priority for protection. The adjoining areas in light green are considered less important because they are less ecologically significant. However, from a biological perspective, they would add greatly to the conservation values of the primary area by providing a 'buffer', and by creating a more sizable wilderness area.

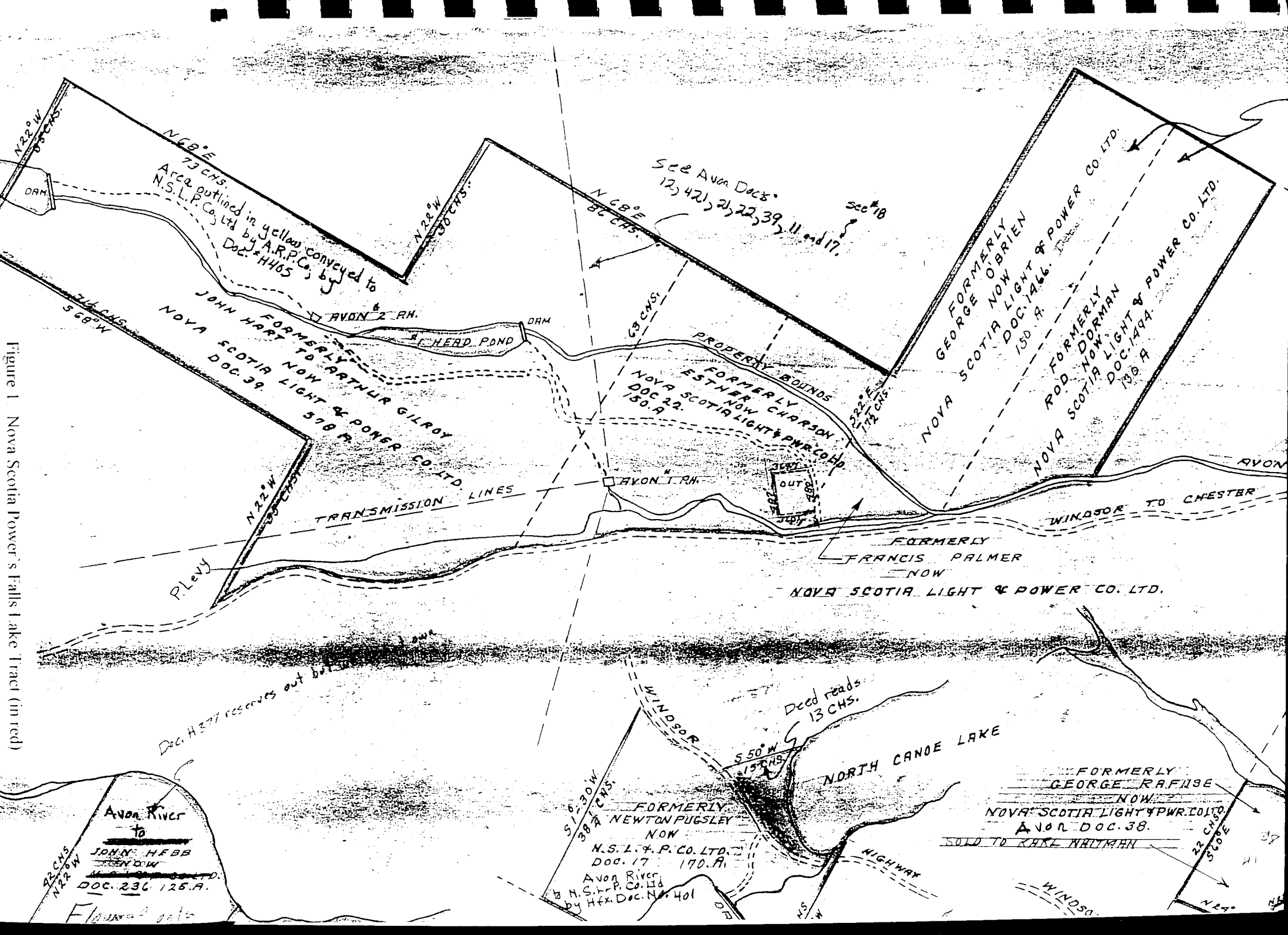


Figure 1 Nova Scotia Power's Falls Lake Tract (in red)

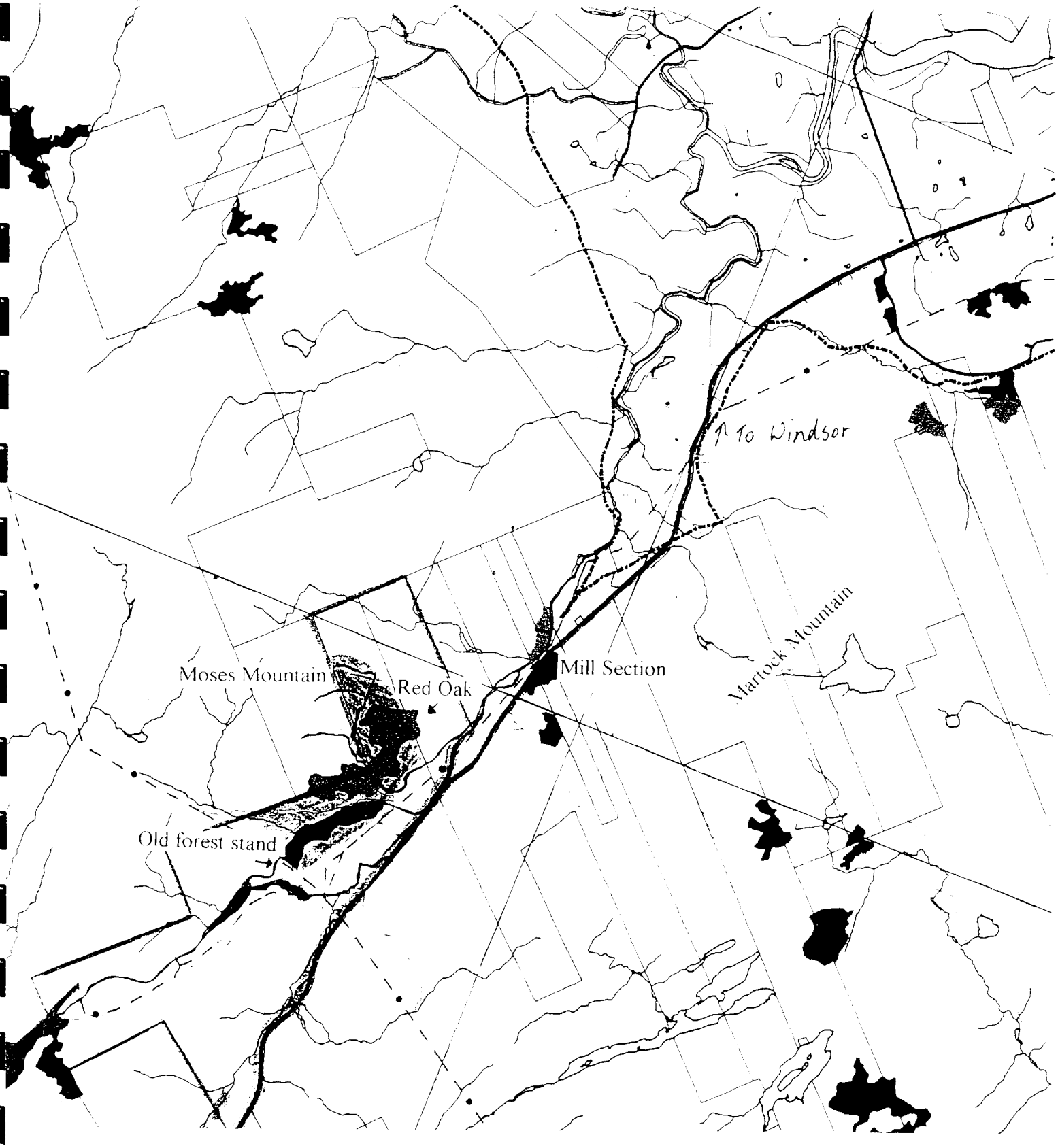


Figure 2 Old/Unique forest stands

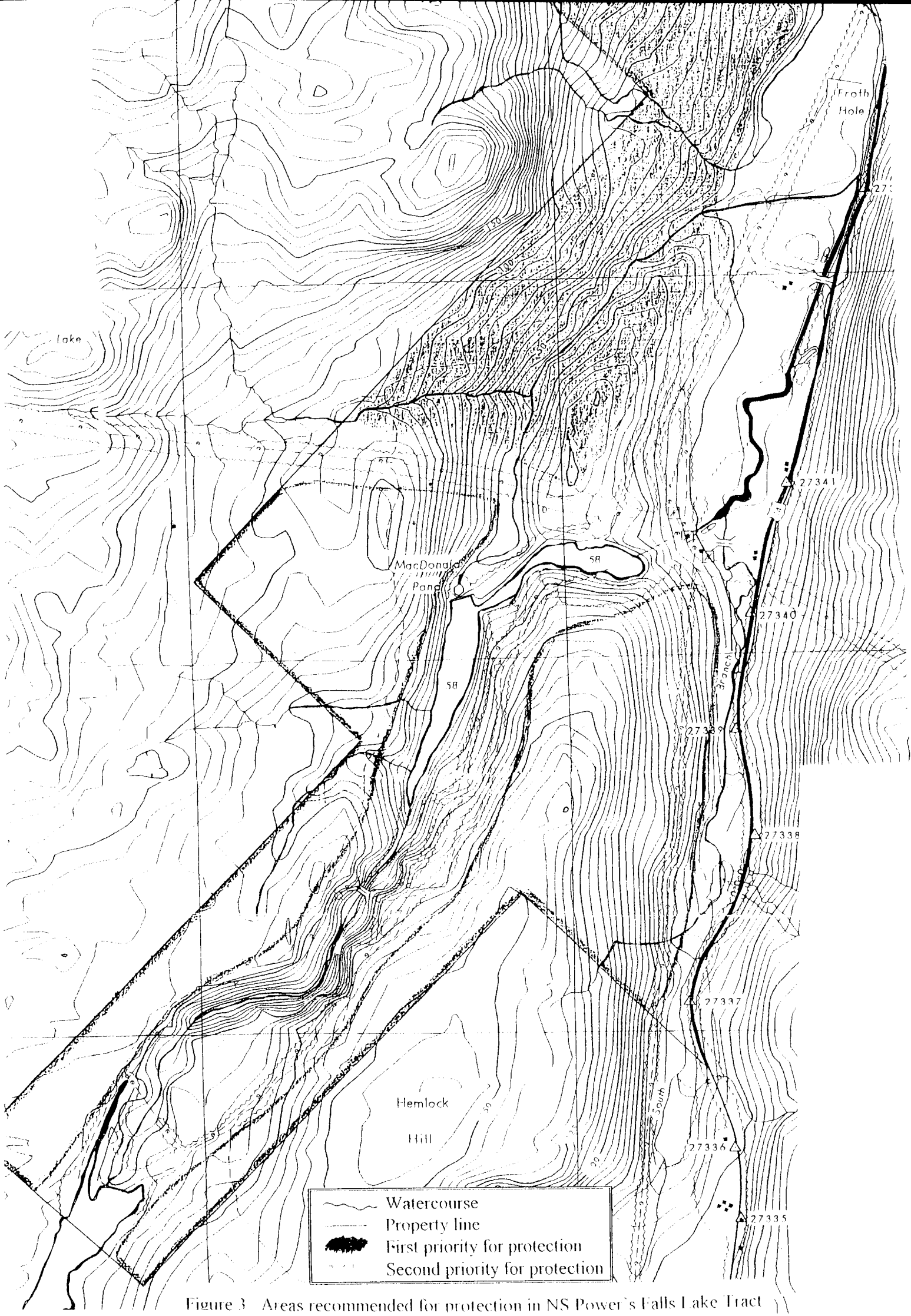
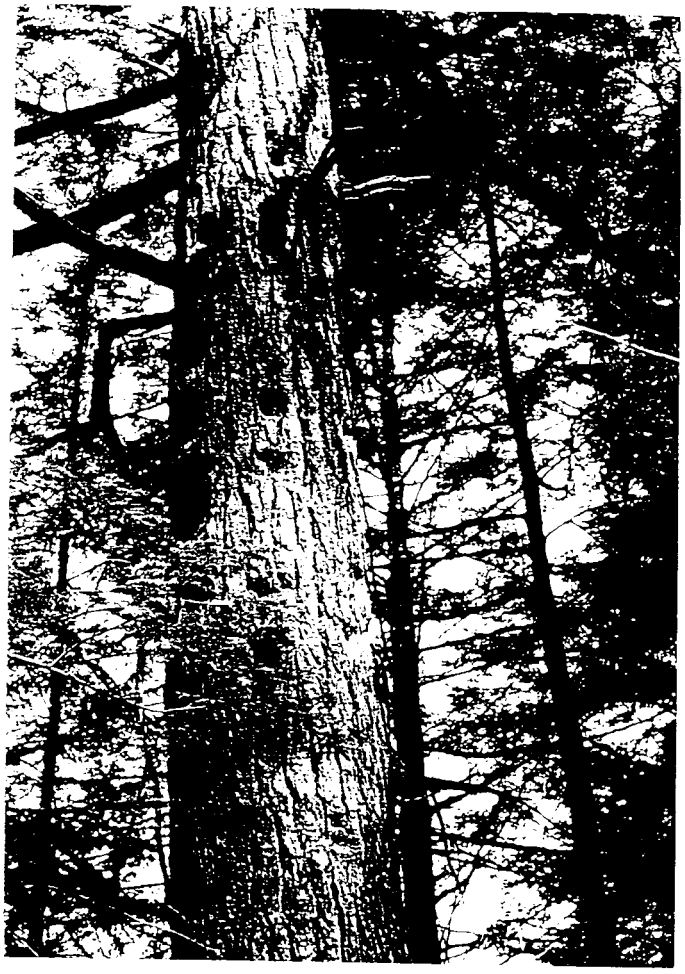
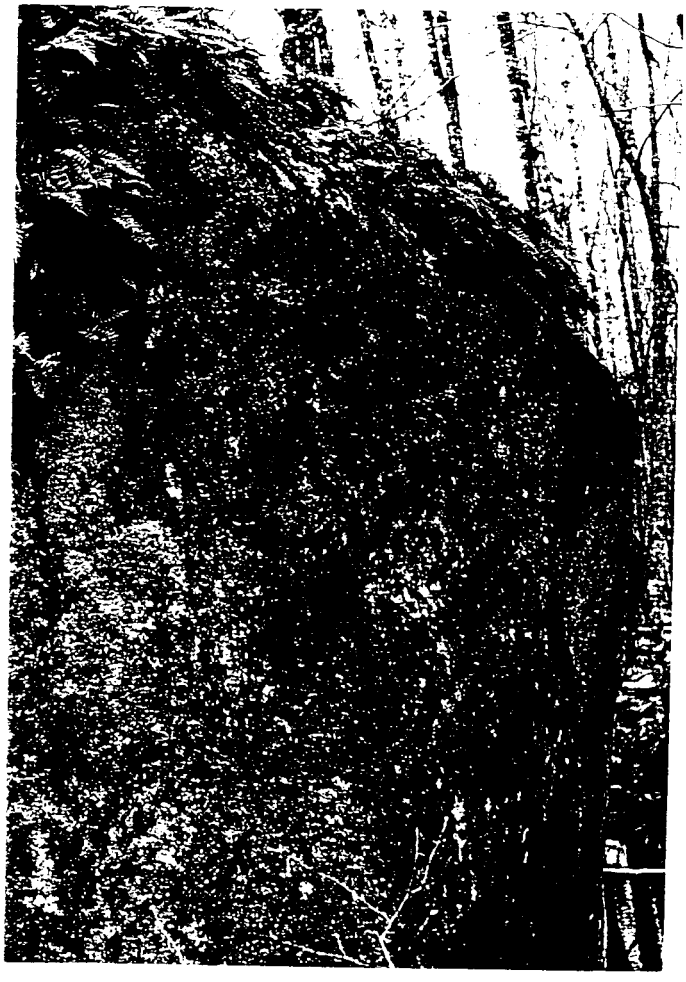


Figure 3 Areas recommended for protection in NS Power's Falls Lake Tract

Old hemlock with pileated woodpecker cavities. This is prime habitat for cavity-nesting birds. Avon River spillway. →

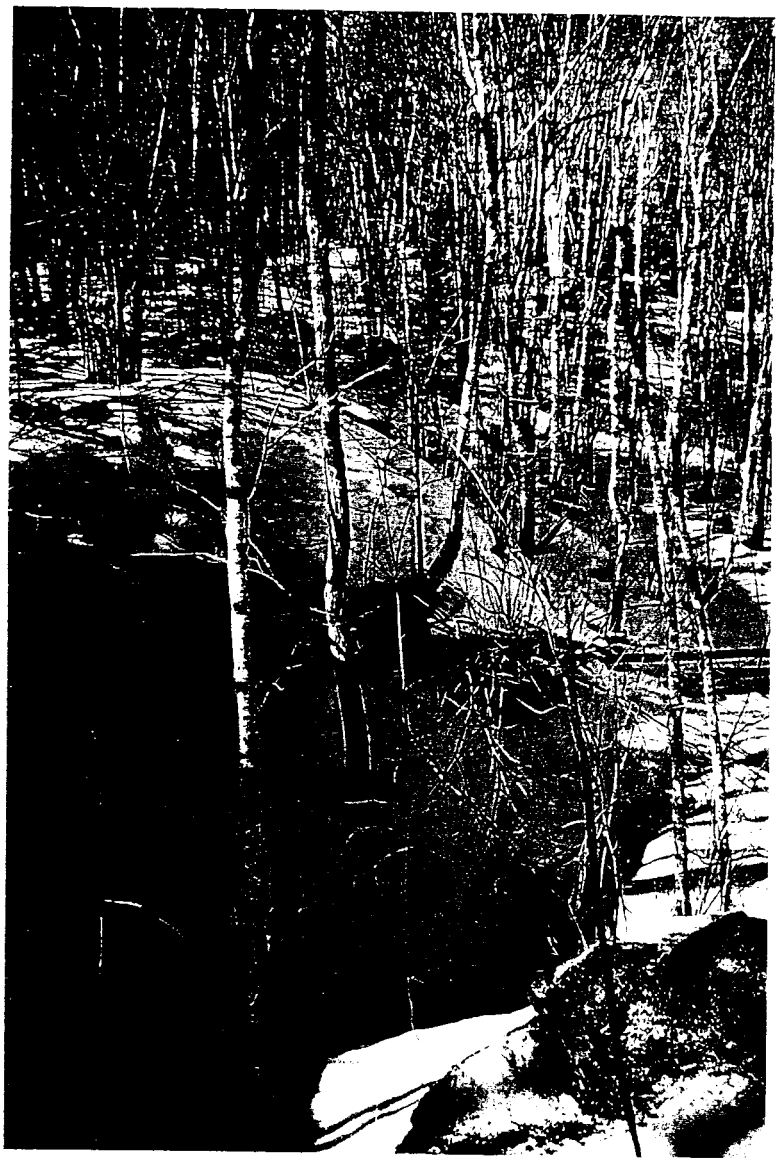


↑ White ash amongst glacial erratics and oaks on the slopes of Moses Mountain.



Large boulder erratic with a diverse cover of lichens, ferns and mosses. Moses Mountain. →

Red Oak stand on Moses Mountain →



↑ Seep and headwater stream
on Moses Mountain

Healthy growth of lung lichen →
on ash tree, Moses Mountain

Green Point

Introduction

Green Point is a 20-hectare seasonal island at the southeast end of Big Indian Lake, north of St. Margaret's Bay, Halifax County (Figure 4). This NS Power property (PID# 40020943) is isolated from the mainland by an extensive marsh (Figure 5).

Features of Conservation Interest

Green Point has some tall Red Spruce stands, intermixed in places with Eastern Hemlock, Yellow Birch, and Maple (see attached photos). The oldest and most intact forest stands are on the northern and eastern sides of the island, with the forest canopy reaching heights of 18-25 metres, and diameters of 39.5-63.00 cm. One large-sized White Pine is 30 metres high and 86.5 cm in diameter at breast height (DBH). Several tree cores and tree ring counts indicated that the Red Spruce range in age from 90-120 years. While this is not yet old enough to be considered true old growth, which is generally greater than 150 years old, many of the characteristics of provincially rare old forests are present, including:

- *many big trees, alive and dead*
- *presence of long-lived tree species, such as red spruce, hemlock, and yellow birch*
- *a multi-layered forest*
- *cool shaded forest floor*
- *nesting holes in trees*

This forest could be characterized as an 'immature' old growth forest, with the species and structural diversity approaching that of old growth conditions. The stands on the eastern portion of the island also have a number of large hardwood snags (standing dead trees) riddled with cavity holes, and some smaller-sized red spruce snags (see attached photos). There are a variety of different age classes, from large-sized trees to saplings, creating a structurally diverse forest environment. However, one of the essential characteristics of true old growth is lacking: large dead tree trunks and limbs lying on the forest floor in various stages of decay.

Camps: There are roughly 10 or so camps on this island leased from NS Power. There are a number of ATV trails on the island, as well as cutting of hardwoods for firewood. In fact, some of the hardwood stands on the northwest side of the island, as well as on the ridge in the middle of the island, have been significantly degraded by indiscriminate firewood cutting (see photos). In addition, a fair number of large-sized Red Spruce and Eastern Hemlock have been cut to make clearings for cabins.

Recommendations For Protection

The Nova Scotia Nature Trust recommends that NS Power place a conservation easement on this island, or consider donating this property to the Nature Trust. In addition, given the unique qualities of this island, the Nature Trust recommends that any further firewood cutting and forest clearing for cabins be terminated before there is further disruption of the old forest stands on this island.