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.

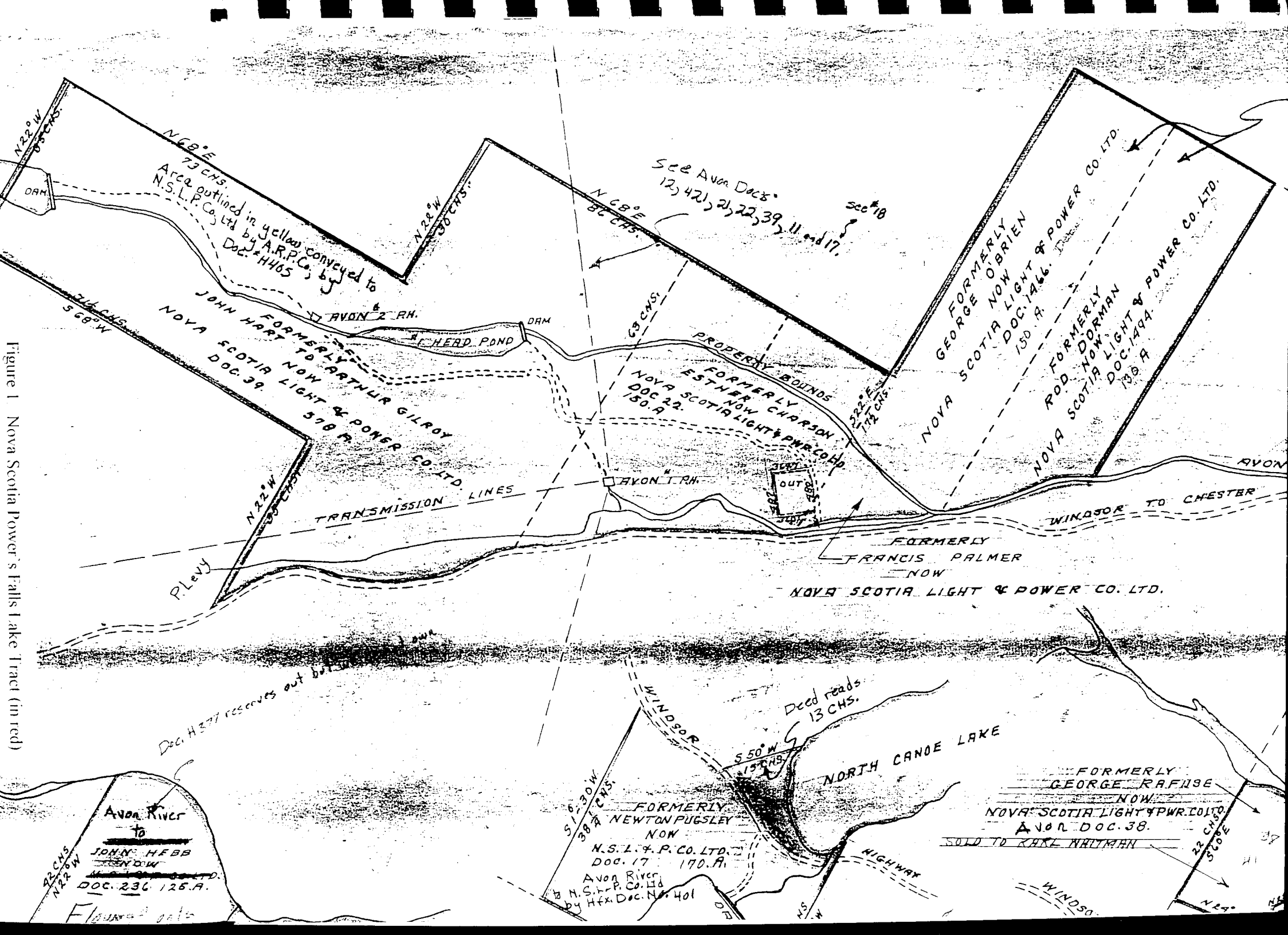


Figure 1 Nova Scotia Power's Falls Lake Tract (in red)

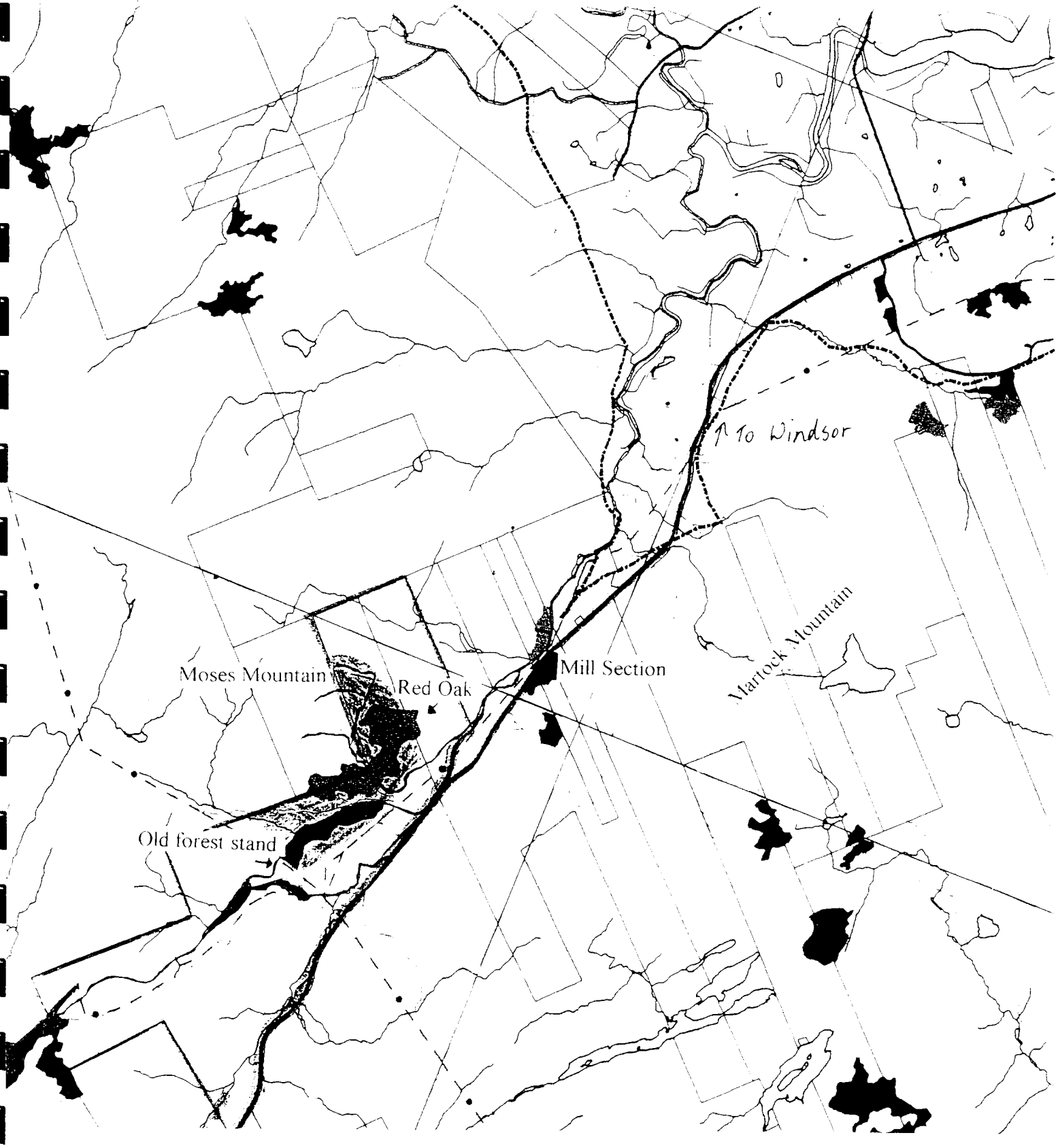


Figure 2 Old/Unique forest stands

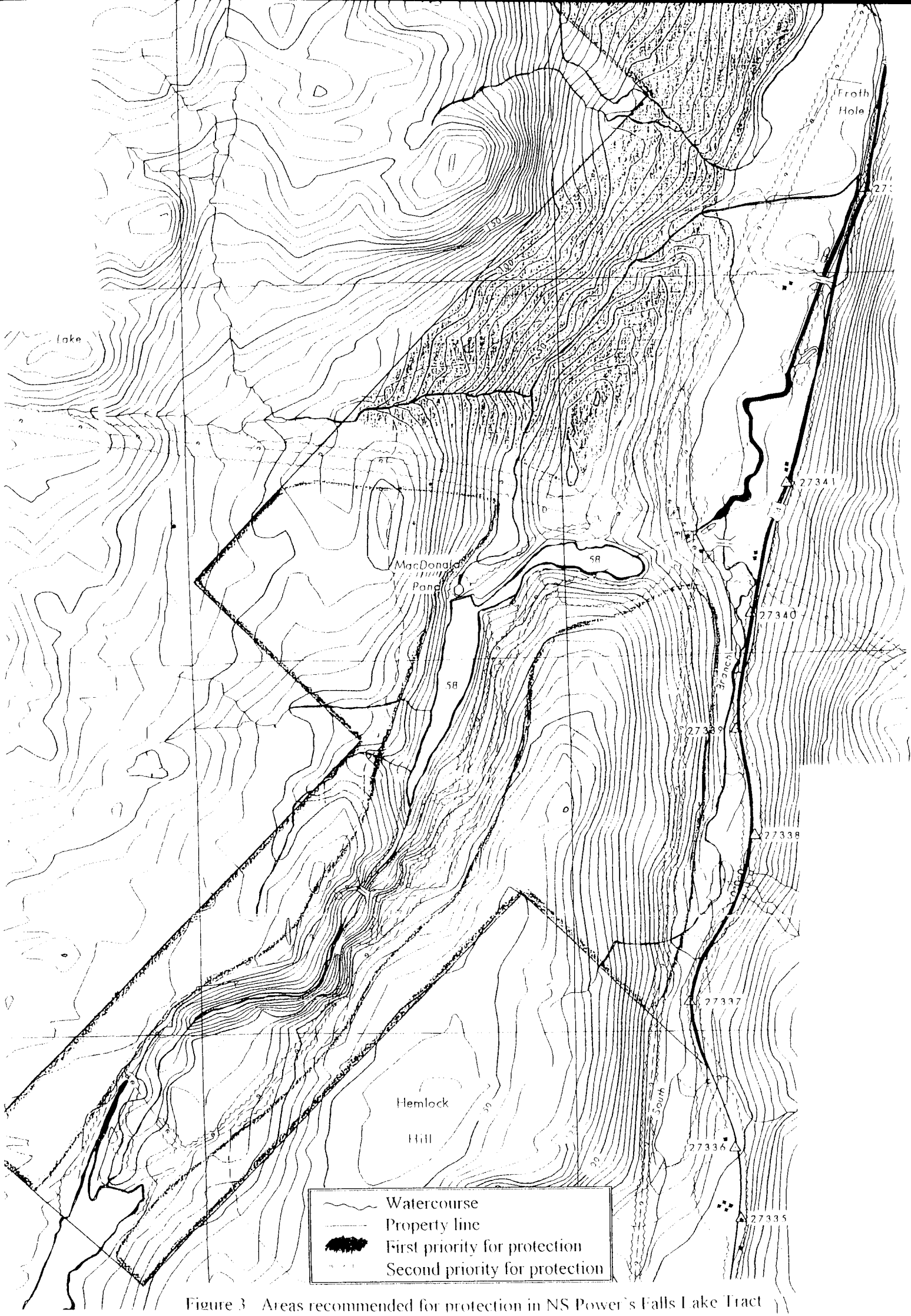
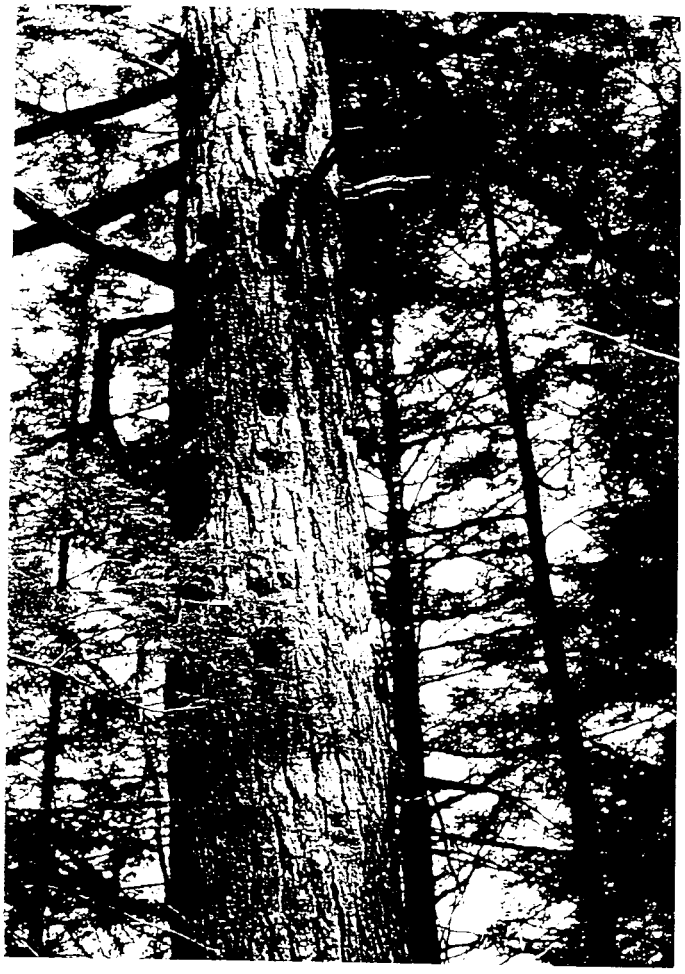
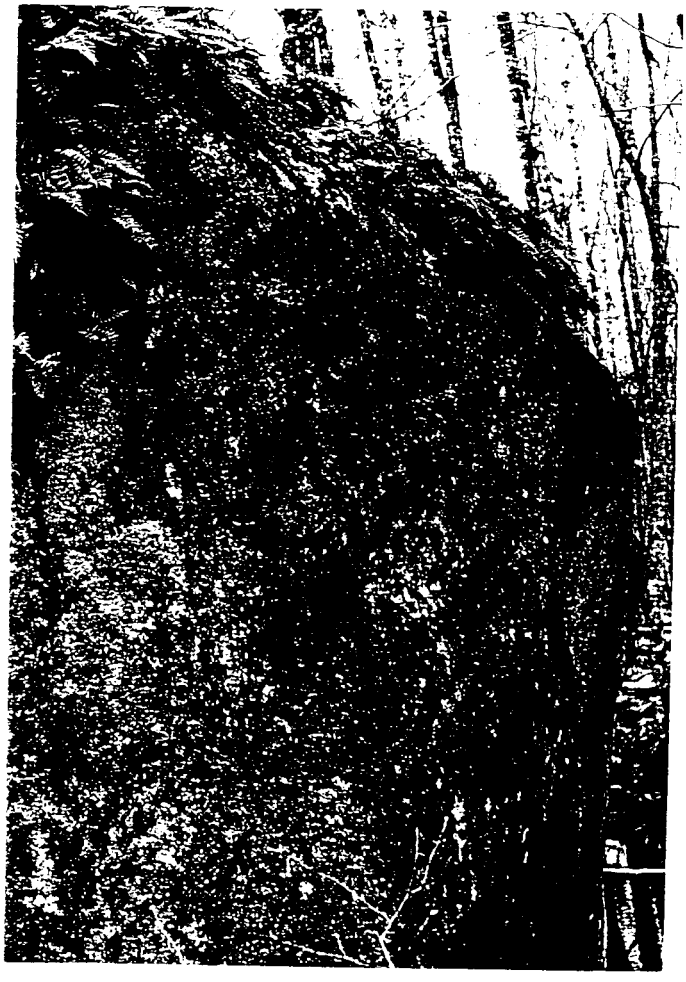


Figure 3 Areas recommended for protection in NS Power's Falls Lake Tract

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

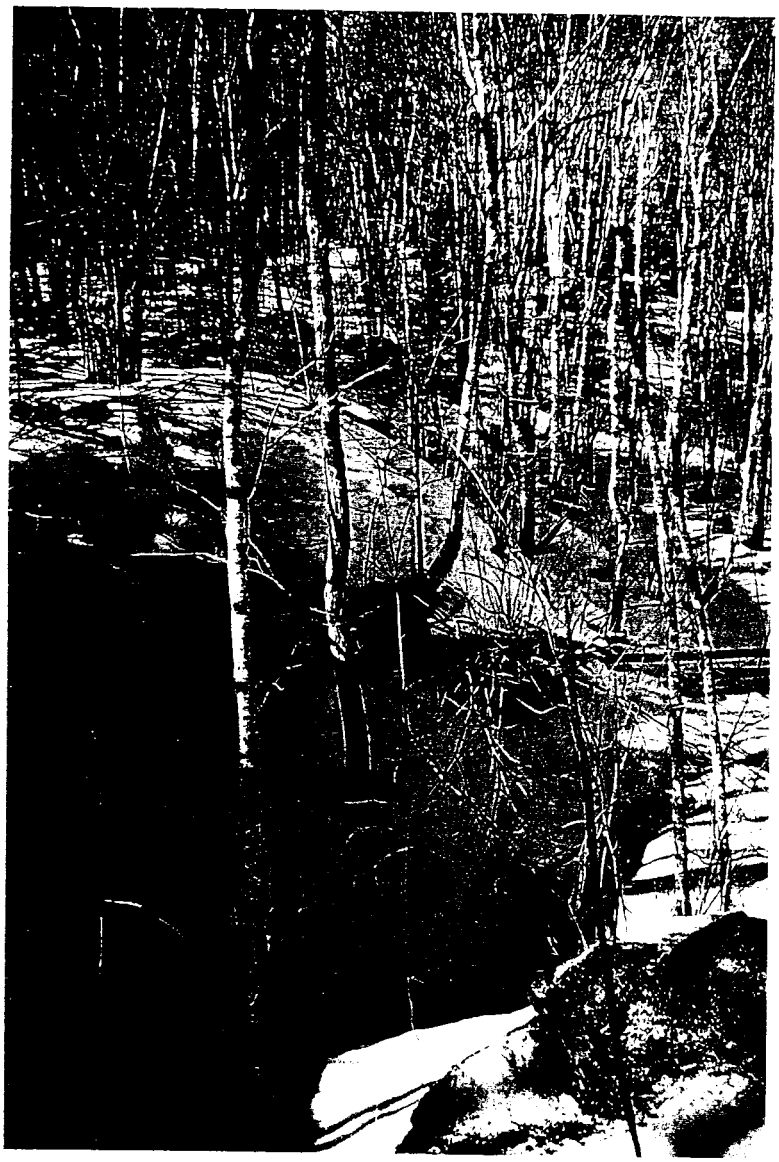


↑ White ash amongst glacial erratics and oaks on the slopes of Moses Mountain.



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.

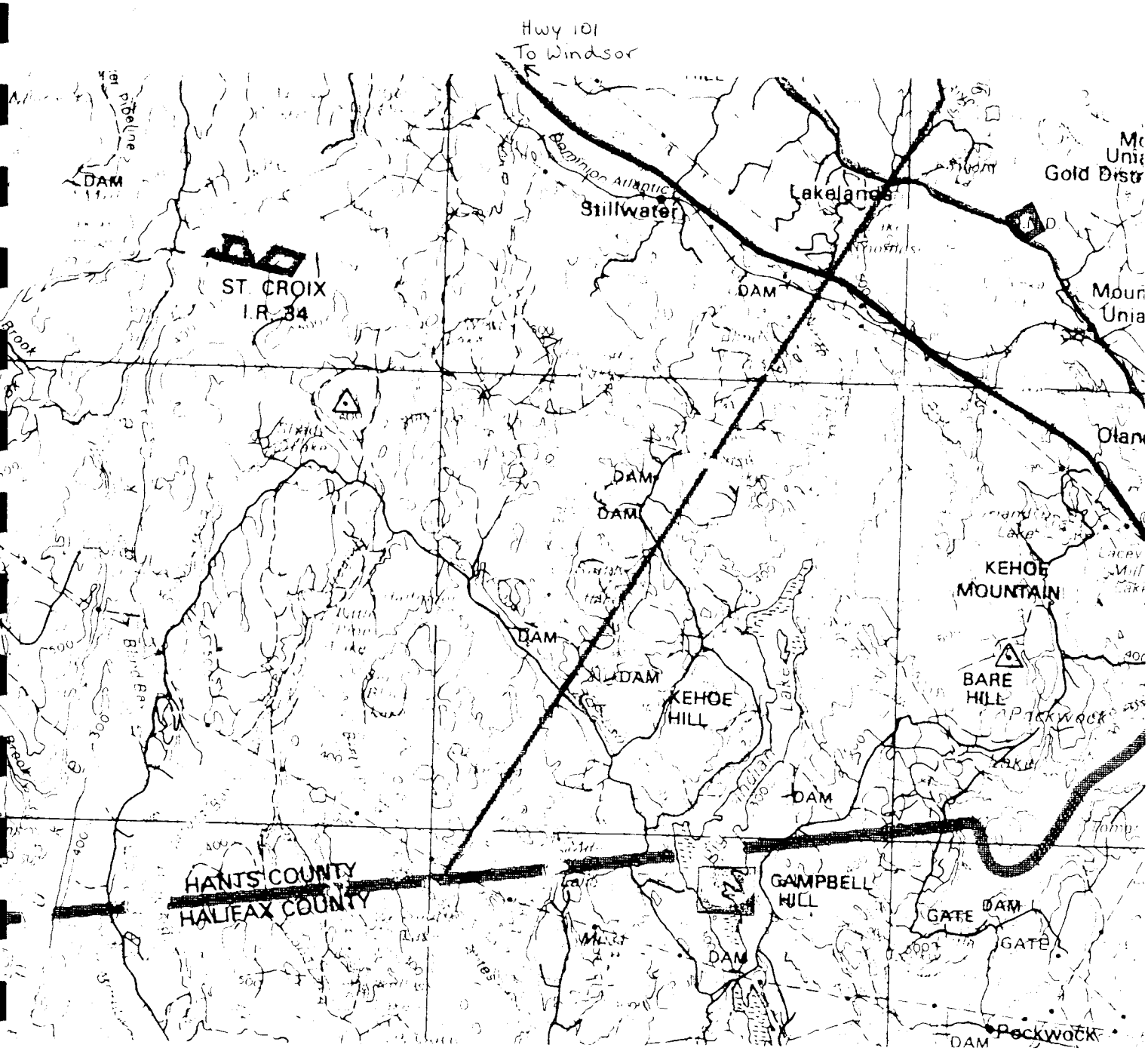


Figure 4 Area of interest (in green) on Big Indian Lake

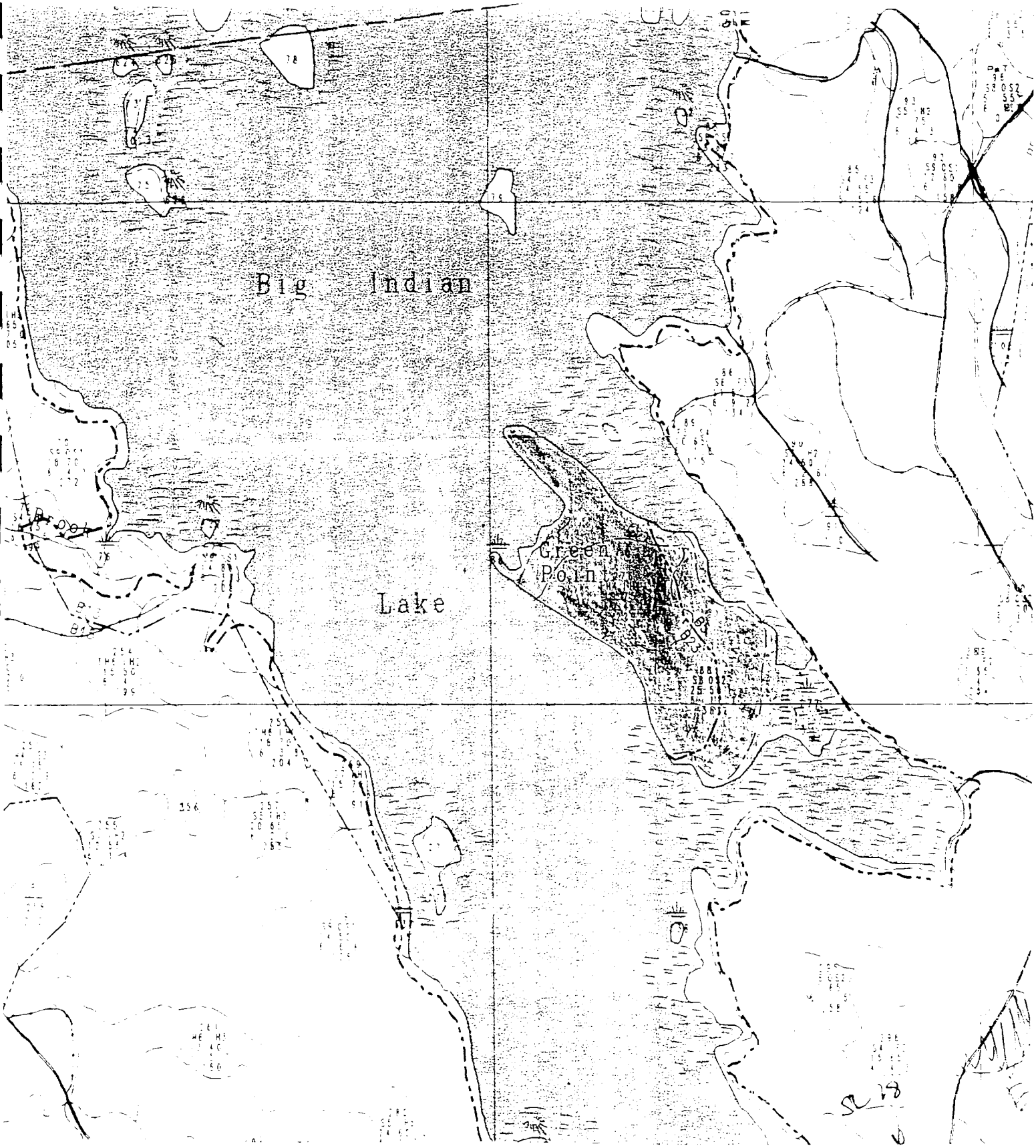
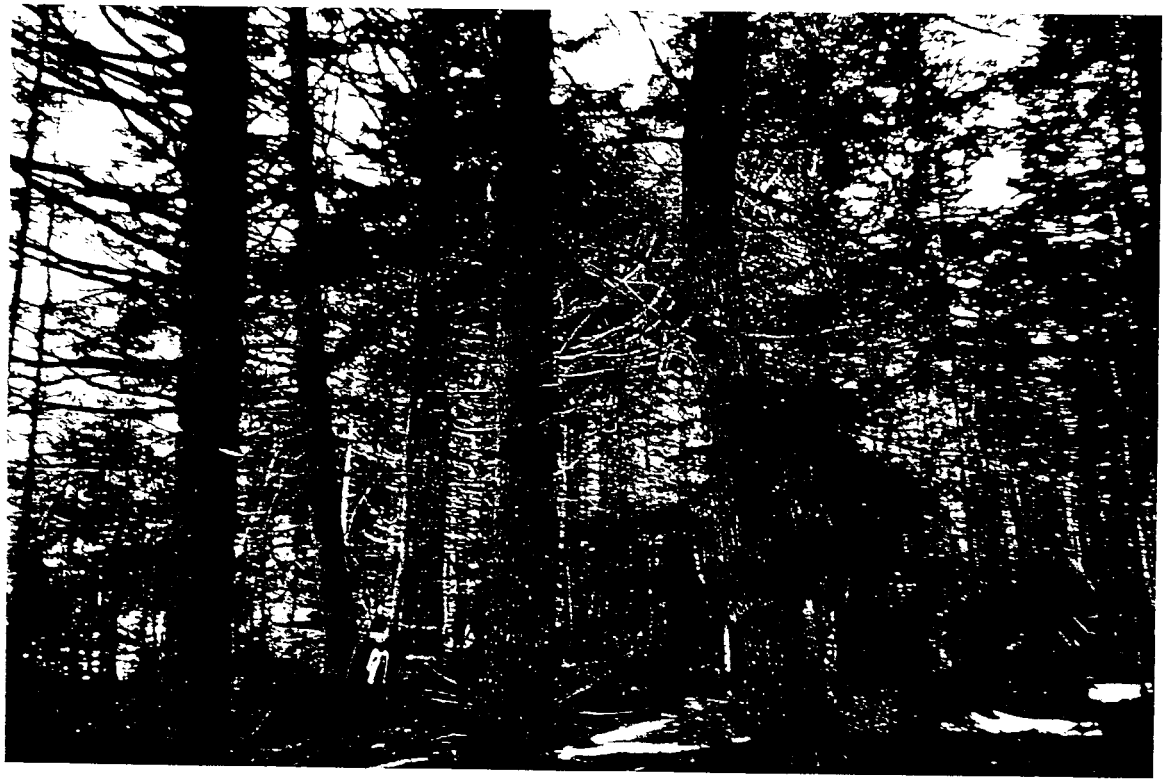


Figure 5 Green Point, Big Indian Lake

Old forest stand with large live and dead trees. Green Point, Big Indian Lake



Old forest with hemlock and red spruce. Green Point, Big Indian Lake

Large, ancient yellow birch. Green Point, Big Indian Lake

Tree stumps at centre of island. "Cutting for firewood"

Gaspereau Ravine

Introduction

The Nova Scotia Power property along the Gaspereau River is roughly 390 hectares in size, and includes two contiguous parcels of land (PIDs #55323430 & 55323448) (Figure 6). The site was visited on April 12, 2000 by George Alliston of the Nova Scotia Nature Trust's Kings County Regional Working Group, Larry Bogan of the Blomidon Naturalists Society, Reg Newell of the Department of Natural Resources, Scott Cook of Kings County Wildlife Association, and Minga O'Brien of the Nova Scotia Nature Trust. This report is based on the findings of that visit, as well as on interviews, letters, reports and other documentation collected by naturalists and biologists who have traveled and studied the Gaspereau Ravine between White Rocks and Gaspereau Lake for the past number of decades.

This report builds upon prior efforts by the Kings County Wildlife Association, Blomidon Naturalist Society, and the Department of Natural Resources to have this land protected. Scott Cook, with the Kings County Wildlife Association, negotiated a "no cut" policy with NS Power in order to maintain water quality for the small and declining population of Atlantic Salmon that spawn in the Gaspereau River. A trail building and maintenance project was also initiated in 1992 by the Kings County Wildlife Association and the Blomidon Naturalist Society in order to develop and upgrade a public walking path along the River. The provincial Youth Corps, assisted by NS Power personnel and with financial assistance from the Kings County Wildlife Association, carried out the work. In 1995, the Blomidon Naturalist Society was approached by NS Power about managing the ten kilometer trail through the river valley. In the same year, the regional DNR biologist submitted a report on this property to Tony Duke, the manager of the Wildlife Division, who sent the report to NS Power with a recommendation that the property be protected with a conservation easement.

Since that time, the Blomidon Naturalist Society applied and were successful in becoming a designated Conservation Society under the provincial conservation easement legislation. This gave them the legal right to hold a conservation easement. However, the NS Power property along the Gaspereau is not surveyed, and efforts to place an easement on it came to a standstill when the cost of a survey was revealed. In April, 2000, the Nova Scotia Nature Trust was asked by their Kings County Regional Working Group, the Blomidon Naturalists Society (BNS), and the Kings County Wildlife Association to include the Gaspereau River property in its proposal to NS Power. The large number of letters of support from a wide variety of organizations, with mandates ranging from local to international, outline the significance of this property, and attest to the broad public support for its protection.

Features of Conservation Interest

The property in question is part of the Gaspereau Ravine, which extends southwest of White Rock about three quarters of the distance to Gaspereau Lake (Figure 7). This property includes sheer cliffs and banks, talus slopes, intervales, mixed Acadian forest, a rich herbaceous forest floor, and stands of 200-year-old+ Eastern Hemlock, White Pine and Red Spruce (see attached photos). A trail along the river is used for hiking and biking.

Over the past several centuries, this area has been modified by logging practices, power generation and damming, settlement, and some limited road and trail building.

Birds: The Gaspereau Ravine is an important winter roost and year-round feeding area for Bald Eagles. More than 100 eagles are known to roost in the old forest stands in the ravine during the winter. Mature and immature eagles have been observed feeding year-round along the river. Four known nesting pairs of eagles are in close proximity to the Ravine, and there may also be an undetected eagle nest in the old forest stands along the vault. Fish populations using the river, in particular the runs of Alewives, are likely an important source of food during the critical nesting period.

The old forest stands in the ravine are excellent breeding habitat not just for Bald Eagles but also for the Northern Goshawk. Peter MacDonald, a regional biologist with the Department of Natural Resources, found the remains of an old goshawk nest in 1995. Goshawks are uncommon in the province, and their prime nesting habitat - older hardwood and softwood forest - is rapidly disappearing with the clearcutting of many of the last remaining large-sized stands of older forests in the province (see attached photos).

Other birds-of-prey known to breed in the ravine include Red-tailed and Sharp-shinned hawks, and Barred Owls. Bernard Forsythe, a local naturalist, has erected two nest boxes in the ravine. One is used by a pair of Barred Owls, and the other by Common Mergansers or Wood Ducks. The occupation of these nest boxes by Barred Owls, Common Mergansers and Wood Ducks is significant because normally these birds would be nesting in tree cavities - holes in large-sized dead and dying trees. Their use of nest boxes indicates the paucity of large-sized snags in the forest, which is a common outcome of past logging practices.

Local naturalists have observed up to five Wood Ducks at a time on the Gaspereau River (see Bird List in Appendix). Overhunting in the past and loss of nesting habitat have resulted in very significant declines in Wood Duck populations, such that they are now considered rare to locally uncommon in the summer. Coupled with their particular nesting requirements - hollow trees in proximity to fresh water - it is significant that these rare and beautiful birds breed along the Gaspereau.

The uncommon and reclusive Northern Saw-whet Owl has been observed in the Ravine in the winter and spring. They are known to inhabit wooded areas remote from settlement, and to nest in old flicker nests in hollow trees. No nests have yet been confirmed in the Ravine, but given their reclusive and nocturnal nature, it is highly likely Saw-whet Owls are nesting there, but that their nests have not been found.

Another notable bird known to the Gaspereau Ravine is the Northern Waterthrush. Over the past five years, a local naturalist has conducted annual censuses of territorial Northern Waterthrushes along a 4km section of the hiking trail, and has found between 8 and 12 territories in any given year. The Northern Waterthrush has very specific nesting habitat requirements - under brush piles in wooded areas immediately adjacent to streams and rivers. It is also one of approximately 20 avian species that are highly sensitive to forest fragmentation, and whose optimal habitat is large unbroken tracts of forestland greater than 1000 hectares in size (Robbins et al. 1989). Others include the Red-eyed Vireo, Ovenbird, Veery, Northern Parula Warbler, Black-and-white

Warbler, Canada Warbler, the uncommon Black-throated Blue Warbler and the Pileated Woodpecker, all of which either breed and/or migrate through the Gaspereau Ravine. As noted in the MacDonald Pond report, forest fragmentation is playing havoc with bird and other species that require large undisturbed tracts of forestland.

Another notable resident of the Gaspereau Ravine is the Yellow-bellied Flycatcher. This ground nester has very particular habitat requirements - the nests are usually well concealed in the mossy bank of a cool, well-shaded woodland stream, or among the roots of an upturned tree in wet, well-shaded coniferous or mixed woods.

Fish: Prior to the construction of five hydro dams, the Gaspereau River was considered to be one of the best Atlantic Salmon rivers in the province. By 1999, only 43 adult salmon returned to the river. Similar trends have been observed throughout the Bay of Fundy, with many of the historically important salmon rivers devoid of Atlantic Salmon. The Inner Bay of Fundy stocks are now considered endangered by the Department of Fisheries and Oceans.

The Gaspereau is one of the only Inner Bay of Fundy rivers with a spring run of Atlantic Salmon; and it is believed that the salmon of the Gaspereau are genetically unique. Salmon need cool well-oxygenated water, clean gravel beds free of silt, and deep pools. The Gaspereau River provides all of these, and is therefore one of the few rivers left in the province with relatively good salmon habitat.

The Gaspereau River is also well-known for a number of other fish, the most notable of which is the 'Gaspereau' or 'Alewife'. The river supports an Alewife stock of up to 2 million fish that is both commercially viable and extremely important ecologically. Every spring and early summer, Alewives run the river in the thousands. Other anadromous fish, like American Shad, Rainbow Smelt, and Striped Bass, use the lower parts of the river. American Eels migrate past the dams to the upper reaches of the watershed. Brook Trout are year-round residents of the middle and upper portions of the river, while the lower reaches support Tommycod, Striped Bass, Sturgeon, and Flounder.

Amphibians and reptiles: In addition to many common amphibian and reptile species, there are two notable species of reptiles and one species of amphibian known to the Gaspereau Ravine. The Northern Ringneck snake is more common to southwestern Nova Scotia, and is uncommon in King's County. This snake inhabits deciduous and mixed forests, with ample quantities of decomposing wood, near shores of ponds, lakes and streams.

The Wood Turtle has also been documented in the Gaspereau Ravine. This is unusual, as the Wood Turtle is not usually found west of Windsor. Wood turtles inhabit slow-moving, meandering, intervale streams, and are listed by COSEWIC (Committee on the Status of Endangered Wildlife in Canada) as vulnerable in Canada.

The Eastern Redback Salamander is common in all regions of Nova Scotia, but like the Waterthrush and the Yellow-bellied Flycatcher, it inhabits rich, diverse older forests with ample quantities of large woody debris. The Redback Salamander remains concealed during the day

under rocks and loose bark, and within moist decaying stumps and logs. During the night, it feeds on a variety of invertebrates associated with the humus, leaf and needle litter and decaying wood on the forest floor. This salamander is thought to be sensitive to changes in the forest canopy brought about by forest harvesting.

Plants: The Gaspereau Ravine is well-known for its rare and uncommon flora (see Plant List in Appendix). The Broad-leaved Twayblade orchid, or *Listera convallarioides*, is rare in the Annapolis Valley, and the Gaspereau Ravine is the only known location for this orchid in King's County. Approximately 75 individuals occur in one isolated location in the Ravine.

The largest colony of the Tall White Northern Bog-orchid (*Platanthera dilatata*) ever found by local orchid expert, Bernard Forsythe, was in the Gaspereau Ravine. Mr. Forsythe found 1000 plants in one of the river's many floodplains.

Another provincial rarity, Pointed-leaved Tick-trefoil (*Desmodium glutinosum*) is found from three locations in the province, with the Gaspereau Ravine as one of these three. The Tick-trefoil is found in rich deciduous woods or intervales.

Swamp Milkweed (*Asclepias incarnata*), another rarity in Nova Scotia, grows in swamps, wet thickets and along shorelines, and has been documented in the Gaspereau Ravine. The Swamp Milkweed is a very important source of food to Monarch butterflies.

Other notable species include False Pimpernel (*Lindernia dubia*), considered rare in NS, and Yellow Violet (*Viola pubescens*), which is typical in an increasingly uncommon ecosystem - intervales and rich deciduous hardwood forests. The Gaspereau Ravine is also the only known location in the region for Rattlesnake Fern, which has a scattered distribution across the province, and is found in rich deciduous woods and calcareous slopes.

Canada Yew (*Taxus canadensis*) is very abundant in the Gaspereau Ravine. This plant occurs in cool damp woods, ravines, climax coniferous forest, and wooded swamps (see attached photo).

The rock outcroppings and talus slopes of the Gaspereau Ravine are significant features in Nova Scotia. Due to their inaccessibility, these habitats have remained undisturbed and host a variety of unusual lichens, mosses, liverworts, ferns and flowering plants.

Mammals: The Gaspereau Ravine is thought to be appropriate habitat for two rare mammal species, the Gaspé (or 'Long-tailed') Shrew and the Southern Flying Squirrel. No thorough studies have yet been conducted to detect their presence. In 1985, Southern Flying Squirrels were found in similar habitat downstream from this site. Southern Flying Squirrels are listed by COSEWIC as vulnerable in Canada; and in Nova Scotia, they have only been found in two locations: Kejimkujik National Park, and Eastern King's County. The combination of mixed hardwood stands, talus slopes, and proximity to water suggest this area may be ideal habitat for the Gaspé Shrew. The Nova Scotia Department of Natural Resources carried out preliminary field inventories for the Gaspé Shrew in 1998. The Gaspé Shrew is also listed by COSEWIC as vulnerable in Canada.

Other notable mammals of the Gaspereau ravine include the Water Shrew - an important predator found in the Gaspereau river system, as well as Mink and Otter.

Old forests: Another significant component of this property are the old forest stands scattered throughout the ravine. Stands of two hundred and twenty year old Eastern Hemlock and Red Spruce were found along the sides of the ravine (see attached photo). The hemlock were of medium size, and in terms of age, relatively young. Few large-sized snags or pieces of woody debris were noted, indicating this stand is still developing some of the essential characteristics of old growth forests. Along the vault, and in fissures, there are Yellow Birch, White Pine and Eastern Hemlock in excess of 200 years old. One particularly large hemlock was 0.83m in diameter.

As outlined above, there are numerous plants and animals that prefer or require the habitat provided by mature hardwood, coniferous or mixed forests. Often, they may need the rich soils, and cool moist environment of an old forest. Or, they may require large quantities of decomposing trees for food, cover and reproduction. Perhaps they nest or hibernate in the large hollow cavities of dead trees. The significance of old forests in Nova Scotia is outlined in the enclosed brochure "Old Growth Forests".

Recommendations for Protection

The NS Power property that includes the Gaspereau Ravine is much-loved by naturalists, fishermen, hunters and recreationalists. With its numerous unique features and extraordinary biodiversity, this area is one of the most significant places in King's County, as well as in the province. The ravine is all the more important as it is a relatively undisturbed area in the midst of a region that has been extensively disturbed by human activities.

Protecting this property by conservation easement would secure a long, continuous corridor of intact forest, interspersed with older hardwood and softwood stands, that could form part of a link with the Cloud Lake protected area in the southwestern portion of the county, and the extensive Crown lands in between. The Gaspereau Ravine is part of Natural Landscape 3, the South Mountain Slope, which has no representation in the current provincial protected areas network.

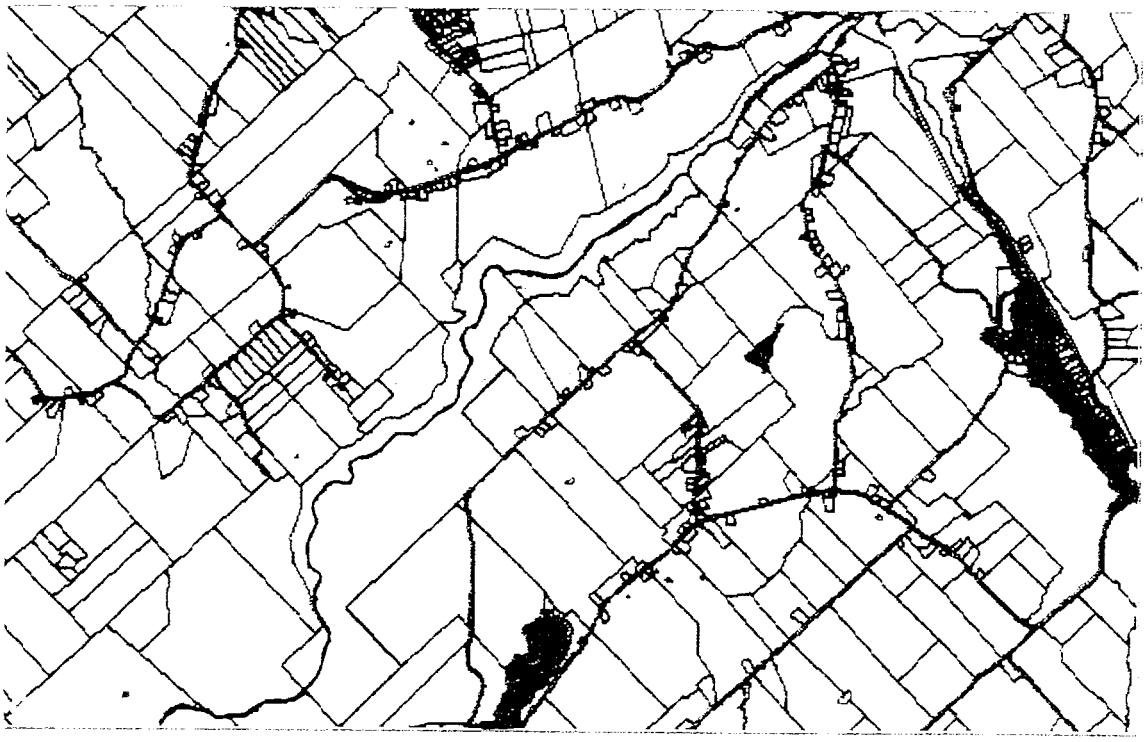


Figure 6 Nova Scotia Power properties (in yellow) along the Gaspereau River

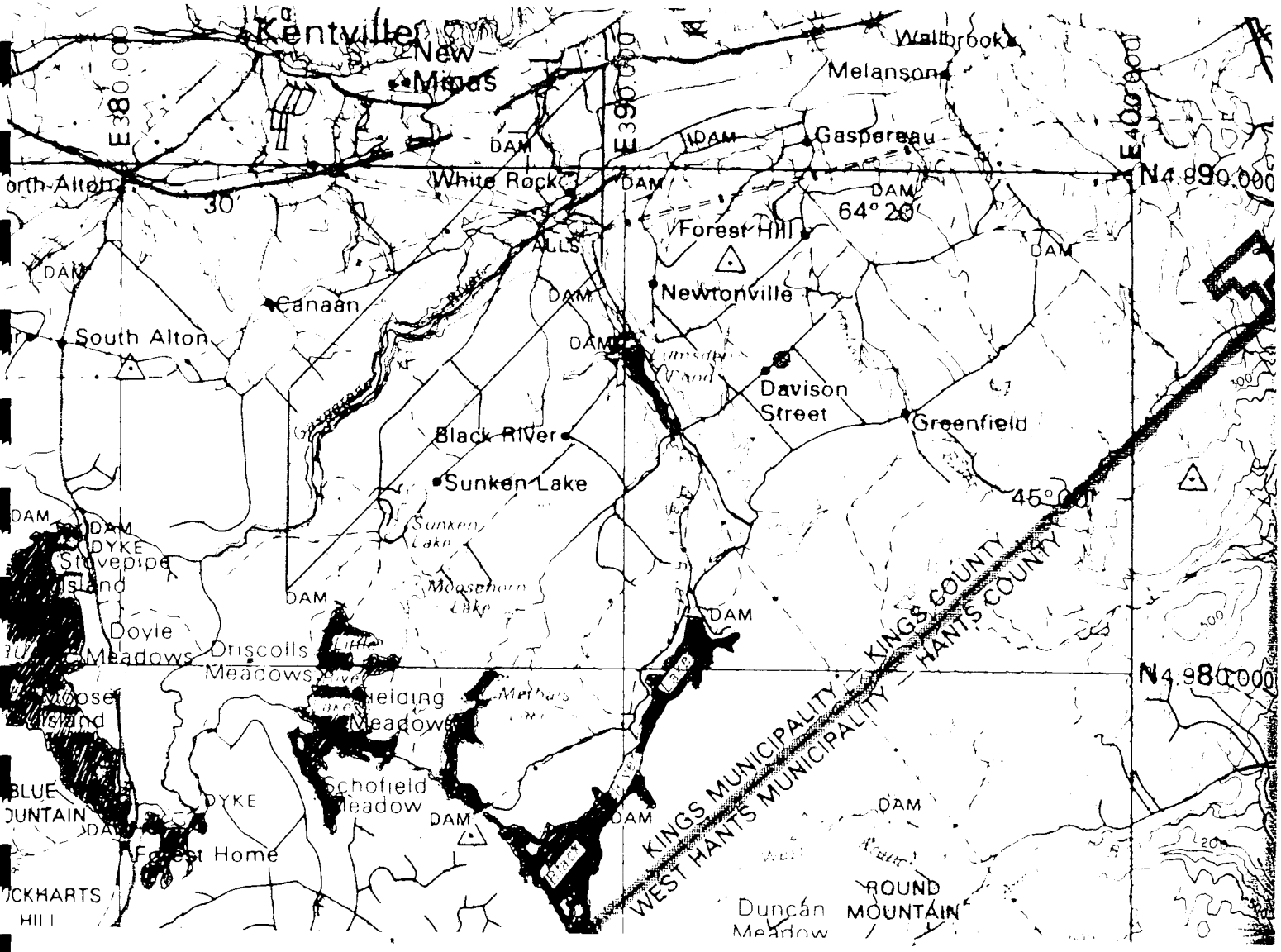


Figure 7 Area of interest (in green) along the Gaspereau River, southwest of White Rock

Large old hemlocks along the Gaspereau River trail.

Large population of Canada Yew along the Gaspereau River trail.

Two-hundred to two-hundred-and-fifty year old hemlock and red spruce stands along the Gaspereau Ravine.

Steep wooded hillsides, talus slopes and sheer cliffs characterize the Gaspereau Ravine.

Bag Lake

Introduction

The NS Power property referred to as 'Bag Lake' is a 20-hectare forested area between Bag and Mill Lakes, along the Avon River system (Figures 8&9).

Features of Conservation Interest

Despite its small size, this area is one of the better Old Growth Forest sites in the province. Eastern Hemlocks in excess of 350 years are dominant and fairly abundant in the stand. As well, 200-300-year-old Yellow Birch and Sugar Maple are regularly interspersed throughout the stand. Large fallen trees are common on the forest floor (see attached photos). An assessment of fallen trees and forest floor development suggests that this forest has been largely undisturbed for 500-600 years. For additional information on the significance of old growth forests in Nova Scotia, please see the enclosed Nature Trust publication "Old Growth Forests".

Other notable features of this forest site include an unusual mossy-appearing liverwort carpeting the forest floor, old growth associated lichen, an owl nesting cavity and numerous other smaller nesting cavities in dead standing trees. The thick cushion of debris and liverworts covering the forest floor appears to be used extensively by small mammals for tunneling.

Recommendations For Protection

The NS Nature Trust recommends long-term protection of this site through a donation or an easement. This is even more important now that forest stands on either side of the road up to this property have been or were in the process of being clearcut at the time of the site visit (June, 1999). By protecting this area, Nova Scotia Power would be helping to conserve the less than 1 % of remaining Nova Scotia forests that are old growth.

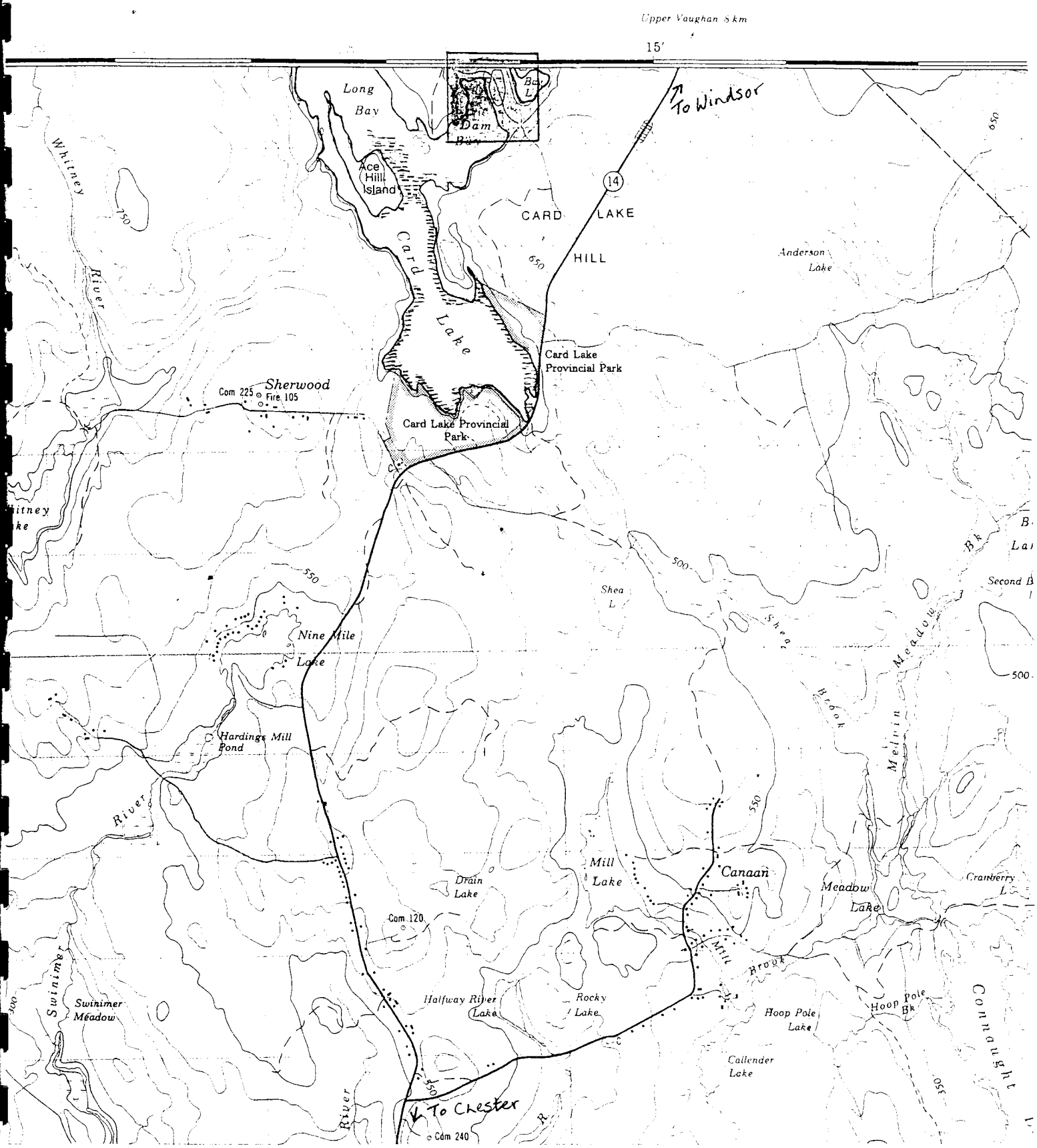


Figure 8 Area of interest (in green) between Bag Lake and Dam Bay

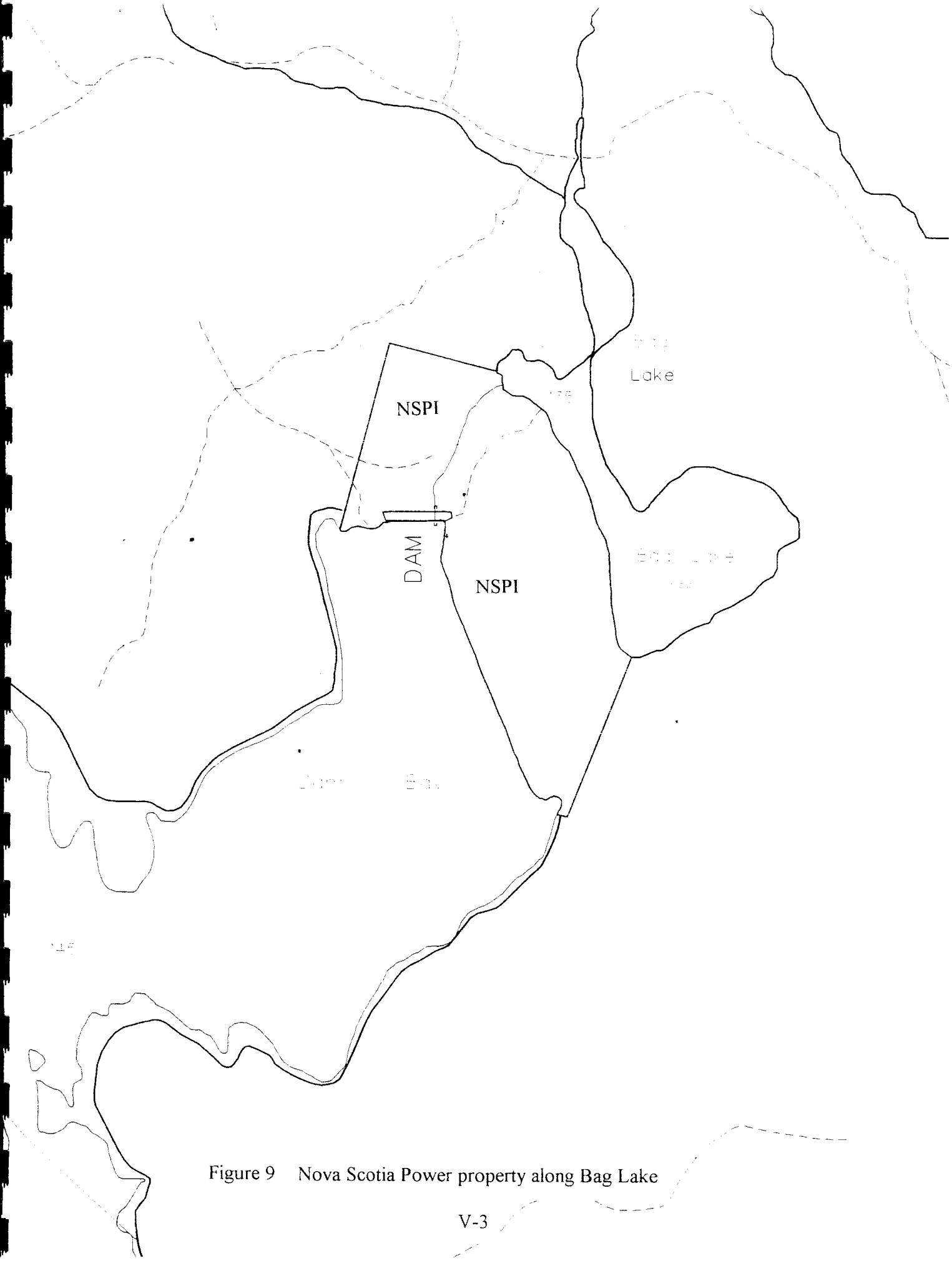


Figure 9 Nova Scotia Power property along Bag Lake

Many large-sized hemlocks, and a lush and diverse forest floor. Bag Lake.

Large fallen tree on forest floor - a characteristic of old growth forests. Bag Lake.

Appendix 1:

Bird List
Mammal List
Plant List

BIRD SPECIES LIST

for

GASPEREAU RIVER TRAIL above the WHITE ROCK BRIDGE

SPECIES	RESIDENT STATUS	MAXIMUM SEEN OR SINGING PER DAY
Great Blue Heron	Boot Island	
Wood Duck	R	5
American Black Duck	R	
Mallard	R	2
Common Merganser	R	11
Osprey	-	1
Bald Eagle	?	35-45
Red-tailed Hawk	R	
Ruffed Grouse	R	
Spotted Sandpiper	R	
American Woodcock	-	1
Mourning Dove	R	
Barred Owl	R	1
Ruby-throated Hummingbird	R	
Belted Kingfisher	R	2
Downy Woodpecker	CR	
Hairy Woodpecker	CR	
Northern Flicker	R	
Pileated Woodpecker	R	1
Eastern Wood Peewee	CR	7
Yellow-bellied Flycatcher	R	
Least Flycatcher	R	
Eastern Phoebe	R	
Tree Swallow	R?	
Barn Swallow	-	
Blue Jay	CR	
American Crow	R	
Common Raven	R	
Black-capped Chickadee	CR	
Red-breasted Nuthatch	R	
White-breasted Nuthatch	R?	
Brown Creeper	R	
Winter Wren	R	4
Golden-crowned Kinglet	R	
Ruby-crowned Kinglet	R	

Veery		R	4
Hermit Thrush		R	4
Wood Thrush		-	1
American Robin		CR	
Gray Catbird		R	
European Starling		R?	
Solitary Vireo		CR	
Red-eyed Vireo		CR	9
Tennessee Warbler		-	
Nashville Warbler		-	
Northern Parula		CR	14
Chestnut-sided Warbler		?	
Magnolia Warbler		R	
Black-throated Blue Warbler		R?	1
Yellow-rumped Warbler		R	
Black-throated Green Warbler		CR	10
Blackburnian Warbler	CR		8
Palm Warbler		-	1
Blackpoll Warbler		-	2
Black & White Warbler		CR	
American Redstart		R	
Ovenbird		CR	9
Northern Waterthrush		CR	12
Mourning Warbler		?	1
Common Yellowthroat		R	
Canada Warbler		-	1
Rose-breasted Grosbeak		R	
Song Sparrow		R	
Swamp Sparrow		?	1
White-throated Sparrow		R	
Dark-eyed Junco		CR	
Common Grackle		?	
Purple Finch		?	
Pine Siskin		R?	
American Goldfinch		-	

RESIDENT STATUS

R = Breed along the Gaspereau River Trail (Valley), based on frequency of sightings, singing, local bird knowledge, input from Bernard Forsythe.

CR = Most Common Residents, Breed, believed present at close to territorial capacity.

R? = Probably Breed, at least occasionally.

? = Possibly Breed

\- = Migrants, Casuals

Rick Whitman Ph.D.
RR#2, White Rock, NS B0P 1X0

May 22, 2000.

MAMMAL SPECIES LIST
for
GASPEREAU RIVER TRAIL above the WHITE ROCK BRIDGE

White-tailed Deer
Red Fox
American Mink
Woodchuck
Beaver
Porcupine
Raccoon
Red Squirrel

Rick Whitman Ph.D.
RR#2, White Rock, NS B0P 1X0

May 22, 2000.

GASPEREAU RIVER VALLEY UPSTREAM FROM THE WHITE ROCK BRIDGE

Plant Species (R.E. & R.B. Newell)

Ferns

Athyrium filix-femina	Lady Fern
Botrychium virginianum	Rattlesnake Fern
Dennstaedtia punctilobula	Hay-scented Fern
Dryopteris campyloptera	Mountain Wood-fern
Dryopteris carthusiana	Spinulose Wood-fern
Dryopteris intermedia	Evergreen Wood-fern
Dryopteris marginalis	Marginal Wood-fern
Matteuccia struthiopteris	Ostrich Fern
Onoclea sensibilis	Sensitive Fern
Osmunda cinnamomea	Cinnamon Fern
Osmunda regalis	Royal Fern
Phegopteris connectilis	Beech Fern
Polystichum acrostichoides	Christmas Fern
Thelypteris noveboracensis	New York Fern
Thelypteris palustris	Marsh Fern

Mosses

Lycopodium	Clubmoss

Other Non-flowering Plants

Equisetum scirpoides	Dwarf Scouring Rush
Equisetum sylvaticum	Woodland Horsetail

Trees & Shrubs

Acer rubrum	Red Maple
Acer saccharum	Sugar Maple
Acer spicatum	Mountain Maple
Alnus spp	Alders
Amelanchier spp	Shadbush
Betula alleghaniensis	Yellow Birch
Betula papyrifera	White Birch
Cornus alternifolia	Alternate-leaved Dogwood
Corylus cornuta	Beaked Hazelnut
Crataegus spp	Hawthorn
Diervilla lonicera	Bush-honeysuckle
Fagus grandifolia	Beech
Fraxinus americana	White Ash

GASPEREAU RIVER VALLEY UPSTREAM FROM THE WHITE ROCK BRIDGE

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Fagus grandifolia	Beech
Fraxinus americana	White Ash

Hamamelis virginiana	Witch-hazel
Lonicera canadensis	Fly-honeysuckle
Ostrya virginiana	Ironwood (Hop-hornbeam)
Pinus strobus	White Pine
Rhus radicans	Poison Ivy
Rubus allegheniensis	Common Blackberry
Salix spp	Willows
Taxus canadensis	American Yew
Tsuga canadensis	Hemlock
Viburnum alnifolium	Hobblebush

Wildflowers

Actaea rubra	Red Baneberry
Agropyron trachycaulum	Slender Wheat-grass
Amphicarpa bracteata	Hog-peanut
Antennaria neglecta	Field Pussy-toes
Apios americana	Ground-nut
Apocynum androsaemifolium	Dogbane
Aralia nudicaulis	Wild Sarsaparilla
Arctium minus	Burdock
Arenaria lateriflora	Blunt-leaved Sandwort
Argimonia gryposepala	Agrimony
Arisaema triphyllum	Jack-in-the-pulpit
Asclepias incarnata **	Swamp Milkweed
Aster acuminatus	Wood Aster
Aster lateriflorus	Aster
Aster macrophyllus	Big-leaved Aster
Aster umbellatus	Tall White Aster
Barbarea vulgaris	Yellow Rocket
Brachyelytrum erectum	Long-awned Wood-grass
Bromus ciliatus	Fringed brome-grass
Cardamine pensylvanica	Bitter Cress
Carex deweyana	Sedge
Carex gracillima	Sedge
Carex scabrata	Sedge
Carex torta	Sedge
Chelone glabra	White Turtlehead
Chrysoplenium americanum	Golden Saxifrage
Circaea	Enchanter's Nightshade
Clematis virginiana	Virgin's Bower

Clintonia borealis	Clintonia (Bluebead)
Convolvulus	Bindweed
Corallorhiza trifida	Early Coralroot
Dentaria diphylla	Toothwort
Desmodium glutinosum **	Pointed-leaved Tick-trefoil
Eupatorium	Joe-pye-weed
Epipactis helleborine	Helleborine
Fragaria vesca var. americana forma landonii ***	Thin-leaved Wild Strawberry
Galium asprellum	Rough Bedstraw
Geum laciniatum	Rough Avens
Geum macrophyllum	Large-leaved Avens
Hieracium paniculatum	Panicled Hawkweed
Hydocotyle americana	Marsh Pennywort
Hypericum	St. John's Wort
Impatiens capensis	Spotted Touch-me-not (Jewelweed)
Iris versicolor	Blue Flag
Lactuca biennis	Tall Blue Lettuce
Lindernia dubia **	False Pimpernel
Listera convallarioides **	Broad-leaved Twayblade
Lycopus	Bugleweed
Lysimachia terrestris	Swamp Candle
Maianthemum canadense	Wild Lily-of-the-valley
Mentha arvensis	Field Mint
Monotropia uniflora	Indian Pipe
Myosotis	Forget-me-not
Orobanche uniflora	Broom-rape
Osmorhiza chilensis	Tapering Sweet Cicely
Oxalis	Wood-sorrel
Petasites palmatus	Sweet Coltsfoot
Platanthera dilatata	Tall White Bog-orchid
Platanthera hyperborea	Tall Leafy Green Orchid
Poa palustris	Fowl Meadow-grass
Polygonatum pubescens	Solomon's Seal
Polygonum cilinode	Fringed Bindweed
Prenanthes	White Lettuce (Rattlesnake-root)
Pyrola	Wintergreen (Shinleaf)

Ranunculus abortivus	Small-flowered Crowfoot
Ranunculus recurvatus	Hooked Crowfoot
Ranunculus reptans	Creeping Spearwort
Ribes?	
Sanicula marilandica	Black Snakeroot
Satureja vulgaris	Basil (Calamint)
Scutellaria galericulata	Skullcap
Sedum telephium	Live-forever
Sium sauve	Water Parsnip
Smilacina racemosa	False Solomon's Seal
Solanum dulcamara	Bittersweet
Solidago flexicaulis	Zigzag Goldenrod
Stellaria calycantha	Northern Starwort
Streptopus amplexifolius	Green Twisted Stalk
Streptopus roseus	Rose Twisted Stalk
Thalictrum polygonum	Meadow-rue
Trientalis borealis	Star Flower
Trillium cernuum	Nodding Trillium
Trillium erectus	Purple Trillium
Trillium undulatum	Painted Trillium
Veronica officinalis	Common Speedwell
Viola conspersa	Dog Violet
Viola eriocarpa	Yellow Violet

Note: ** Rare
*** Of special significance

As well there were species belonging to the families: Ulmaceae, Myricaceae, and Ericacaea

Appendix 2:

Letters of Support for Protecting These Sites

Nova Scotia Federation of Anglers and Hunters
Federation of Nova Scotia Naturalists
Nova Scotia Bird Society
Department of Environment, Protected Areas Division
Wildlife Habitat Advocates
Blomidon Naturalists Society
Black River Lake Association
Kings County Wildlife Association
Atlantic Salmon Federation
Centre for Wildlife and Conservation Biology, Acadia University
Peter MacDonald, Nova Scotia Department of Natural Resources
Lloyd Duncanson, letter to the editor

NOVA SCOTIA FEDERATION OF ANGLERS AND HUNTERS

P.O. Box 654, Halifax, N.S B3J 2T3
Telephone and Fax: (902) 423-6793
Email. tr.NSWF@chebucto.ns.ca

June 26, 2000

Minga O'Brien,
Nova Scotia Nature Trust
Box 2202, Halifax,
NS B3J 3C4

Dear Ms. O'Brien:

Thank you for forwarding information regarding lands owned by Nova Scotia Power Inc. with significant ecological features that should be afforded some protection from development. After reading over this material I put it on the agenda for the June 17th Directors Meeting of the 32 clubs that comprise our N.S. Federation of Anglers and Hunters.

It was the unanimous wish of the Directors of the Nova Scotia Federation of Anglers and Hunters to support your efforts to protect lands along the Gaspereau River, the Mill Section of Moses Mountain, Bag Lake and Green Point.

We hope that NSPI will look favourably upon your proposals. Please keep me informed of the outcome of your efforts on behalf of the NSNT, and the reply of this utility. Any results would be published in our Nova Outdoors magazine.

With all good wishes

Bob Bancroft

Bob Bancroft
President,
N.S. Federation of Anglers and Hunters

cc. T. Rodgers

FEDERATION OF NOVA SCOTIA NATURALISTS
c/o N.S. Museum of Natural History
1747 Summer Street
Halifax, Nova Scotia B3H 3A6

27th May 2000

Nova Scotia Power Inc.,
Halifax, Nova Scotia

Re: Protection of significant forested sites

The Federation of Nova Scotia Naturalists represents eleven groups of "nature lovers" in various parts of Nova Scotia, such as the Nova Scotia Bird Society, the Nova Scotia Wild Flora Society, the Halifax Field Naturalists, the Cape Breton Naturalists, and the Tusket River Environmental Protection Association. The combined membership of these groups is well over one thousand.

The Federation enthusiastically supports the proposal of the Nova Scotia Nature Trust that Nova Scotia Power Inc. improve the legal protection of its ecologically significant forested properties. The rapid loss of mature forests in Nova Scotia is a serious concern for the health of Nova Scotia's irreplaceable natural heritage, and improved protection of Nova Scotia Power's forested areas will therefore be an imporant contribution to guaranteeing that future generations in this province will still be able to enjoy the many benefits provided today by the province's biodiversity heritage.

The Nova Scotia Nature Trust is a well respected organization whose assessments of ecological value are based strongly in conservation science. The Federation of Nova Scotia Naturalists is confident that the following proposals are well made.

The forest of Nova Scotia Power's 416 hectare property at Mill Section, Moses Mountain, protects slopes from erosion into the Avon River. If the forest were removed, severe erosion would impede the efficiency of the hydro-electric facility, and for this reason forest patches have been protected. In order to ensure that these unusual mature forests, which provide rare habitat for species such as Barred Owl and several lichens that rely on ancient trees, it will be beneficial for Nova Scotia Power to apply a legal mechanism to guarantee that the site will remain undisturbed. This will both ensure the protection of utilitarian values desirable to N.S. Power, and the protection of natural values of interest to the Federation of Nova Scotia Naturalists.

Although smaller than the sites in the Mill Section, the 20 hectare N.S. Power property at Bag Lake is also ecologically valuable for its rarity. Ancient trees have now become very rare in Nova Scotia, and the species they support are therefore also rare. The Bag Lake property is an excellent example, being a tiny remnant of what was once a great ancient forest. With both softwood and hardwood trees of 300 years or more in age, this remnant is unique and deserves stronger legal protection.

It is difficult to find examples of old forests near Halifax, and thus the Nova Scotia Power property at Big Indian Lake near St. Margaret's Bay is specially valuable. While not technically an "old growth forest", this 20 hectare patch of forest is well on its way to obtaining that state and is of special interest to naturalists in the urban region of Halifax. It needs to be said, perhaps, that nature lovers do not need to visit a property to appreciate its value. That homes are provided for species that are loved is value in itself.

Just as the N.S. Power properties at Big Indian Lake are valued by naturalists in Halifax, so the N.S. Power properties on the Gaspereau River are of interest to naturalists in the Annapolis Valley who belong to the Blomidon Naturalists Society, one of the Federation of Nova Scotia Naturalist 's most active groups. The Federation is aware that the Blomidon Naturalists Society has written separately with respect to this property, and we fully support their position.

The Federation of Nova Scotia Naturalists is very pleased with the initiative taken by the Nova Scotia Nature Trust in approaching Nova Scotia Power regarding improving the protection of forested properties of significant ecological value. We hope Nova Scotia Power will respond favourably and take account of the best interests of the wild species that rely on the retention of old trees and forests, as well as the best interests of future generations of Nova Scotians.

Sincerely,

Martin Willison

President, Federation of Nova Scotia Naturalists

NOVA SCOTIA

Department of the Environment
Protected Areas Division

R.R. # 1, Belmont
Colchester County
N.S. B0M 1C0

Phone: (902) 662-3030
Fax: (902) 662-2160
File Number:

May 29, 2000

To whom it may concern,

The Nova Scotia Nature Trust plays a valuable role in land conservation and biodiversity protection in Nova Scotia by working with private landowners to protect ecologically significant areas on their lands.

Regarding properties belonging to Nova Scotia Power that the Nature Trust has identified for potential conservation, protection of these properties would be a significant contribution to protected areas objectives for the province. The MacDonald Pond and Gaspereau River sites are not only outstanding natural areas which incorporate a number of now-rare natural features such as old forests, but are of sufficient size to contribute to provincial landscape representation objectives. The Bag Lake and Green Point sites, while smaller, also would protect outstanding areas of old forest, which have become extremely rare and fragmented in the province. The protection of remaining old forests is critical to maintaining the province's native biodiversity, since species and processes of old forests often differ from those of modified or younger communities and ecosystems.

These areas have previously been identified as part of the Department of the Environment - Protected Areas Division's Inventory of Areas of Natural Significance, primarily for their suspected old or unique forest value. The outstanding values of these sites have been field-verified by the Nova Scotia Nature Trust, and would be considered worthy candidates for protection.

Sincerely,

David MacKinnon
Ecological Planner

WILDLIFE HABITAT ADVOCATES

P O Box 3162 • Windsor, N S • B 0 N 2 T 0 • (9 0 2) 7 5 7 - 2 4 6 9

PROTECTION FOR THE MILL SECTION SITE, HANTS COUNTY

The Wildlife Habitat Advocates is a registered non-profit organization dedicated to creating, enhancing, maintaining and protecting quality wildlife habitat.

Since January of 1994 this organization has been vigorously applying it's mandate in an effort to ensure the beauty and viability of the wild habitats of Nova Scotia. One of the outstanding sites in Hants County that should be preserved and protected is the Mill Section site surrounding MacDonald Pond off highway 14. The wide diversity of plant and animal species encountered at this location is reason enough to have a protection plan in place. Coupled with the rugged and terrain and old forests of Hemlock, Red Oak, Red Spruce and White Pine which provide invaluable nesting habitat for myriad feathered species, the Mill Section site deserves to be at the top of any list being considered for a protection plan.

Advocate members frequent this unique Hants County wilderness often and value the opportunities it provides for hiking and sight-seeing. Bernard Forsythe, an Advocate and well known bird expert, visits the Mill Section to observe and band owls of various species and often reports sightings of these beautiful birds. Reported sightings of Piliated Woodpeckers in the Mill Section area further indicates the importance of this particular habitat, as these birds require large parcels of second and old growth timber for successful nesting, food and cover.

Hopefully this very unique and beautiful area of Hants County can receive the protection it so obviously deserves so that those who come after us may appreciate what so many now take for granted.

Darrell Brown, President
Wildlife Habitat Advocates

May 2000

BLOMIDON
NATURALISTS
SOCIETY

BOX 127, WOLFVILLE
NOVA SCOTIA B0P 1X0

8 May 2000

Minga O'Brien
Nova Scotia Nature Trust
P.O. Box 2202
Halifax NS B3J 3C4

Dear Ms. O'Brien,

The Blomidon Naturalists Society (BNS) fully supports the Nova Scotia Nature Trust's initiative to have the Nova Scotia Power properties in the Gaspereau River Valley, upstream from White Rock, legally protected. During its tenure, Nova Scotia Power has been a commendable steward of these lands. It is, however, most desirable that lands as ecologically important as these receive formal protection for the future.

Several years ago the BNS compiled a list of "special places" in Kings County. Ranking near the top of this list was this portion of the Gaspereau River Valley. The importance of this area lies in its numerous unique features and extraordinary biodiversity. It is a relatively undisturbed area in the midst of a region that has been extensively disturbed by human activities.

The river itself, the intervales, the cliffs, talus slopes and steep valley slopes, the mixed Acadian forest with its extremely rich herbaceous layer and the stands of old growth conifers support not only the representative flora and fauna of these areas but also include a number of rare and uncommon species/populations. Rare plants found in this area included swamp milkweed, pointed-leaved tick trefoil, false pimpernel and broad-leaved twayblade.

The river is the spawning ground of the only spring run population of Atlantic salmon in the inner Bay of Fundy. The river also supports an alewife stock of up to two million fish that is both commercially viable and extremely important ecologically. The old growth forests are a major roosting area for the bald eagles that winter in the eastern Annapolis Valley. These forests also provide potential nesting areas for bald eagles and northern goshawk. The wood turtle has been documented in this area. Appropriate habitats for such rare mammal species as Gaspe shrews and southern flying squirrels are present but thorough studies to detect their presence have not been conducted.

This portion of the Gaspereau Valley provides a long, continuous corridor of mature forest that could form part of a link with Kings County's only extensive Crown lands and protected area in the southwestern portion of the county. This portion of the valley also provides excellent recreational opportunities for naturalists, hikers, hunters and fishermen. The lower reaches of the river afford opportunities for the more timid and the upstream areas for the more adventuresome.

The securement of this ecologically diverse area would be a significant contribution to conservation, not only in Kings County, but also in Nova Scotia. The Blomidon Naturalists Society would be pleased to work with the NSNT, NS Power, Kings County Wildlife Association and other interested groups in any way we can to assure the success of this initiative.

Best regards,

Merritt Gibson
President
Blomidon Naturalists Society

May 22, 2000

Minga O'Brien
Nova Scotia Nature Trust
P.O. Box 2202
Halifax, Nova Scotia
B3J 3C4

Dear Ms. O'Brien,

The Black River Lake Association (BRLA) supports the Nova Scotia Nature Trust's undertaking to have old Gaspereau River bed and adjacent lands of Nova Scotia Power above White Rock legally protected. The lack of development activity on these lands during their ownership by Nova Scotia Power has contributed greatly to the area's importance as an ecological core within Gaspereau River Valley. Formal legal protection however, would ensure that this legacy of mature forests habitats and rich diversity of species remains intact for future generations to enjoy.

While the river, vault, cliffs and slopes provide habitat for many unique species of flora and fauna, the continuity of the ecosystem is of paramount importance for maintaining stable hydrology, migration corridors for animals and connectivity with other habitats in the Gaspereau Valley and South Mountain slopes. Preliminary field inventories were undertaken by the Nova Scotia Department of Natural Resources in the summer of 1998 to assess the potential of the area for Gaspe Shrew. A small population of Southern Flying Squirrel was found near the vault in 1985 and another population in similar habitat to the forests in the vault at Elderkin Brook in 1998. Both Gaspe Shrew and Southern Flying Squirrels are listed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as Vulnerable in Canada. By definition a Vulnerable species is one that is: "...sensitive to human activities or natural events." Several species of rare plants, insects and the Wood Turtle (Vulnerable in Canada) are also known to occur here.

The old Gaspereau river bed provides important spawning habitat for gaspereau, trout and Atlantic Salmon, the latter of which has suffered serious population declines in the Inner Bay of Fundy over the last century. On the Gaspereau River, Atlantic Salmon have been reduced to less than 20 adult breeding fish. The Department of Fisheries and Oceans considers the Inner Bay stocks as "Endangered" and the species is listed as "RED" under the Nova Scotia Department of Natural Resources General Status Assessment.

With increasing development pressures and urban sprawl on the lands adjacent to the old Gaspereau River bed on the plateau above and also upstream at Gaspereau River Lake; now more than ever before there is an urgent need to formally recognize and protect this important habitat and the species found therein. The Black River Lake Association would welcome the opportunity to work with the Nova Scotia Nature Trust, Nova Scotia Power and other interested groups in moving this important initiative forward.

Sincerely:

Arnold Forsythe
President, Black River Lake Association

April 27 / 00

Kings County Wildlife Association

Phone - Fax 902 542-2661 Estab. - 1926

Minga O'Brien
N.S. Nature Trust
Halifax, N.S.

Re: Nature Trail - Gaspereau River, Kings Co. N.S.

Dear Minga;

This purpose of this letter is to indicate to you that my Association does support any effort to protect the water quality, fish habitat and environment, in the area mentioned above.

This area is a very important to, not only our Atlantic Salmon conservation program on the Gaspereau River but for many other reasons, one being the significant importance of this area as a roosting area, in the winter, for Bald Eagles.

As you are aware there are no restrictions in this area pertaining to hunting, trapping and fishing and KCWA would resist any effort to change the use of this area for other than the above mentioned reasons. Hunting , trapping and fishing are seldom the cause of environmental damage and many areas that are now found to be pristine have been used for these activities for many years. This cannot be said for many other undertaking.

I wish you well with this effort and if I can be of further assistance please contact me.

D. Scott Cook

President, KCWA

D. S. Cook

Atlantic Salmon Federation

Lewis Hinks
Regional Director - Nova Scotia
P.O. Box 359
Chester, NS
B0J 1J0
Phone & Fax: (902) 275 3407
Email: lhinks@auracom.com

May 17, 2000

Minga O'Brien
Nova Scotia Nature Trust
P.O. Box 2202
Halifax, NS
B3J 3C4

Dear Minga,

The Atlantic Salmon Federation is very much in support of the Nature Trust in its efforts to protect wilderness areas in the Gaspereau River system.

The Gaspereau River has historically been an important salmon river in Nova Scotia. This river is different in that it has a summer run of salmon while most Inner Bay of Fundy Rivers have a fall run of salmon. As well, it is believed that the Gaspereau River has a genetically unique strain of salmon.

Atlantic salmon populations are at an all time low and Bay of Fundy Rivers have been most hit by this decline. Complete loss of river specific stocks in the Bay of Fundy is a real possibility.

Our affiliate, the Kings County Wildlife Association has been extremely active in protecting the salmon stocks of the Gaspereau River by operating a fish counting facility, conducting population enhancement activities, environmental monitoring as well as lobbying government and industry to protect this river.

The area in question on the Gaspereau is an important spawning area for Atlantic salmon and protection of this area is vital to any efforts to restore the Gaspereau River's Atlantic salmon population.

I wish you every success in your efforts.

Yours in Conservation,

Lewis Hinks
Regional Director

Cc: Bill Taylor, President ASF
George Ferguson , President NSSA
Scott Cook, Kings County Wildlife Association

CENTRE FOR WILDLIFE AND
CONSERVATION BIOLOGY

June 26, 2000

Minga O'Brien
Nova Scotia Nature Trust
P.O. Box 2202
Halifax NS B3J 3C4

FAX 902 429 5263

Dear Ms. O'Brien;

The Centre for Wildlife and Conservation Biology at Acadia University strongly endorses the Nova Scotia Nature Trust's initiative to legally protect the Nova Scotia Power properties in the Gaspereau River Valley upstream from White Rock. Nova Scotia Power has shown real foresight in looking after these lands to date. Formal protection would insure that this continues in perpetuity.

It is widely recognized that the Gaspereau River Valley supports particularly rich biodiversity. The value of the remaining undisturbed portions is underscored by the intense development pressure present in the region. In addition to supporting a representative biota of a range of habitats, the Valley also contains a number of rare plant and animal species, including some with national COSEWIC ranking, such as the Wood Turtle. As well, the presence of additional rare species is suspected but yet unconfirmed. These include two mammals, the Long-tailed Shrew and the Southern Flying Squirrel. The latter has been observed just downstream from the site and is undoubtedly present in this portion of the Valley as well. The river itself supports a huge alewife run, as well as the only spring run population of Atlantic salmon in the inner Bay of Fundy.

This land also serves as a corridor of mature forest that facilitates movement of forest fauna and flora. Such movements become increasingly important as organisms are challenged by environmental change. This problem is exacerbated by increasing fragmentation of the landscape in this region.

Protecting this ecologically important site has both local and regional benefit. Our Centre is happy to contribute to this effort, and is willing to work with the NSNT, NS Power, Kings County Wildlife Association and other interested groups in pursuit of this goal.

Sincerely,

Tom Herman
Co-director, Centre for Wildlife and Conservation Biology
Head of Biology

Acadia University Wolfville, Nova Scotia, Canada, B0P 1X0 Tel: (902) 585-1695 Fax: (902) 585-1059

Nova Scotia
Department of
Natural Resources

WILDLIFE DIVISION
136 Exhibition Street
Kentville, N. S.
B4N 4E5

June 26, 1995

Mary Beth Benedict
Nova Scotia Power,
P.O.Box 910,
Halifax, N.S.
B3J 2W5

Dear Mary Beth,

Please find enclosed a report from Peter MacDonald, the Department's Western Regional Biologist, concerning the Nova Scotia Power property along the Gaspereau River. Peter's report summarizes the findings of field trips by several Department staff this spring between Gaspereau Lake and the Hells Gate Power Plant. The area has many qualities that make it a significant natural area including rare plants, mammals and birds, unusually large concentrations of bald eagles and stands of large old growth trees.

Maintaining the natural features and wilderness character of this area, especially since it is so close to human development, would be a significant contribution to the protection of Nova Scotia's biodiversity. If Nova Scotia Power allowed protection of the area through some type of conservation agreement, it would maintain the plant and animals communities for the benefit of many future generations of Nova Scotians.

I have spoken with the presidents of both the Kings County Wildlife Association and the Blomidon Naturalists Society to investigate the possibility of joint participation in a Conservation Easement with Nova Scotia Power. They were both very interested and will be meeting with their members to consider the possibility further. I feel a conservation easement would allow the greatest flexibility for Nova Scotia Power while involving the local conservation clubs would give the community a sense of ownership which would aid in monitoring and protection of the site.

I would be pleased to meet with you to discuss any options you may have in mind. For further information about the Conservation Easements Act, please feel free to contact the Department's solicitor, Margaret MacDonald, 424-4177, P.O. Box 698, Halifax, B3J 2T9. She has extensive background material on the Act which may be helpful.

Yours truly,

A.P. Duke, Manager
Terrestrial Habitat
cc: Roy Bishop
Margaret MacDonald
Peter MacDonald
Barry Sabean
Derrick Salsman

Department of
Natural Resources

MEMORANDUM

From: Peter MacDonald

To: Tony Duke

Subject: **N.S.P.C. Gaspereau River Property**

Date: June 16, 1995

I would like to provide some comments regarding the interest expressed by staff of Nova Scotia Power in pursuing a stewardship agreement to recognize and protect the natural importance of their property along the Gaspereau River in Kings County. While information on the flora of the area is available, some additional trips to the site were required to get a better idea of its importance to wildlife. Further to our initial meeting and site visit with NSPC representatives on May 19, I visited the ravine and walked several kilometres of the river with Mark Elderkin and Lawrence Benjamin on May 26. We also examined the area by helicopter on June 14.

The ravine is probably best known as one of several important night roosting sites for wintering Bald Eagles, which have dramatically increased their numbers in Eastern Kings County in recent winters. While it has been difficult to get a handle on actual numbers, it is apparent that a large portion of our wintering eagles (400-500 at peak) utilize the Gaspereau River for this purpose. Along with the abundant food source available at a number of locations, roosting sites are critical features which make Eastern Kings County attractive to Bald Eagles in winter.

Use of the river by Bald Eagles also extends beyond the winter. We observed a number of eagles (adult and immature) on our May 26 visit, and found evidence of feeding activity along the river, presumably tied in to the spring run of Gaspereau. On the June 14 flight, from the eastern end of White Rock Pond to Gaspereau Lake, we observed 22 eagles (7 adults and 15 immatures) along the river, and likely missed a number as well. This area is within easy reach of several known nesting pairs of bald eagles, and may well provide an important source of food during the critical nesting period. The presence of immatures as well as adult eagles suggests the river may also support a number of non-breeding birds. This is new information for us, and I suspect that many of these birds may be the progeny of local nests, which have increased in recent years in response to a probable province-wide population increase and local food availability. In addition to Gaspereau, the river also supports runs of American Eels, which may also be utilized in spring and late summer by eagles and other raptors, including Barred Owls (observed in the area)

Although we did not detect any nests on the flight, there is also a strong potential for eagle breeding activity, with excellent nesting habitat available along the vault. The Northern Goshawk, a species for which there is currently some concern in Nova Scotia, is also likely present. Mature hardwood and softwood trees of preferred species are abundant adjacent to the river and along the vault, and the remains of an old goshawk nest were found on May 26.

The forest cover along the vault is particularly impressive with its predominance of Hemlock, White Pine and Yellow Birch. Some of these trees are likely in excess of 200 years of age. There is considerable evidence of woodpecker activity, and a number of existing and future cavity trees. Along both sides of the vault this cover is frequently interrupted by smaller fissures, dominated by mature Yellow Birch, extending down to the river. The habitat within these fissures is strikingly similar to where Southern Flying Squirrels have been found in Kings County, not far from this property, so there is obviously a strong potential for this species to occur here. Southern Flying Squirrels are listed by COSEWIC as vulnerable in Canada, and in the Atlantic Provinces have been found at only two locations: Kejimkujik National Park and Eastern Kings County. These are apparently disjunct populations long isolated from the southern populations, and very little is known about them.

The area has also been known historically for its rare and uncommon flora. The occurrence of many interesting species here has been documented by David Erskine in 1948, and more recently by Ruth Newell, who has noted the potential for the discovery of more species here. The plant list includes unusual species like Broad-lipped Twayblade and Pointed-leaved Tick-trefoil. Plant species lists and other information on flora of the area are available if you do not have them.

Along the sides of the vault are numerous rock outcroppings and talus slopes, considered to be significant habitats in Nova Scotia, particularly for a number of species of lichens, mosses, liverworts, ferns and flowering plants. Because of their inaccessibility, rocks on the talus slopes have remained undisturbed and exhibit a variety of lichen species. The combination of talus slopes, mixed wood and hardwood stands, and proximity to water, suggests the possible occurrence of Gaspe Shrews and/or Longtail Shrews. Also of interest are the moss covered shale outcroppings with loose viable topsoil. These tend to be in closed canopy situations and support some interesting plant species, including Maidenhair Fern, reported initially by Erskine but not identified in recent years. There is an obvious need for further inventory work to improve our information base, but it is also apparent that the sensitivity and importance of these habitats should be stressed in any potential agreement.

This is an opportunity to protect a long and continuous corridor of mature and older hardwood and softwood forest with a number of significant features. As an important forested riparian habitat alone, this area supports a rich and diverse abundance of wildlife, including many observed as well as potential bird species, a wide variety of mammals, reptiles,

amphibians, fish, insects and flora. Add to that the variety of other habitats and feeding opportunities discussed above with their associated common, uncommon and rare species, and it is apparent that this portion of the Gaspereau River corridor is a significant wildlife area for Nova Scotia. I recommend that we pursue and/or encourage an agreement to address the future protection of this corridor.

As to the extent of the area which should be addressed under an agreement, the property containing the steep ravine would be the most significant and critical area to protect. However, even as the terrain becomes flatter moving upstream toward the Gaspereau River, there is a significant area of relatively undisturbed natural beauty with potential for a variety of wildlife. About half of the bald eagles seen on June 14 were in this area, and there was evidence of beaver activity. Some important plant species have also been located here. Thus, an agreement which addressed the protection of the corridor extending from the Hells Gate power plant to the dam at Gaspereau Lake would be most desirable. Ideally, the agreement would be in the form of a conservation easement, carried out through the Conservation Easements Act.

Although the importance of the area as bald eagle habitat should certainly be high profile, I think that a broad approach should be taken and that all aspects of the area be emphasized in a conservation agreement, particularly since so many unique features exist in one site. The early involvement of interest groups like the Blomidon Naturalists Society and the Kings County Wildllife Association would also be advantageous to help improve our inventory data or even act as designated conservation organizations to be directly involved in the agreement, as you have suggested.

Please let me know if I can be of any further assistance.

Peter MacDonald
Wildlife Biologist

Is this beginning of the end for an enduring gem?

I was born and raised in the Village of Gaspereau, in the beautiful Gaspereau Valley, beside the delightful little river that gives its name to both the Village and the Valley.

The Gaspereau River was so named by the early French settlers of this district for the swarms of silvery herring-like fish that annually enter this river on the way to the headwaters to spawn and then return to sea from whence they came. Although these fish are perhaps the best known and most numerous of the fishes of this river, they are only one of the several species of fish that use this remarkably rich waterway to perpetuate their numbers.

The first fishes seen to enter the river in the spring of the year are the smelts. These tasty little fish move up from salt water about the middle of April each year. It is possible to guess the time of their arrival within a few days their migration is so dependable. The smelts spawn right in the river and then return to the sea.

Next to be seen in their thousands are the schools of gaspereaux, or alewives or as the Micmac termed them, the "kiyak". As long as humans have lived near this river this fish has been the most sought after for its value as an abundant source of food.

Along with the runs of gaspereaux come the shad. This run is not so numerous and though a larger version of the gaspereaux, it's not plentiful enough to be of great commercial value.

Following these two species, and sometimes mixed in with them, are the ever-decreasing runs of Atlantic salmon. Like the smaller gaspereaux, this marvellous fish runs far upstream to spawn in the upper reaches of the watershed.

Individually, this is the most valuable of our native fishes, and is in drastic decline throughout its range. The Gaspereau River still maintains a small population of this endangered fish.

In the latter part of June, the striped sea bass enters this river in limited numbers to provide a unique angling experience at the head of the tide.

Along with these anadramous species, the river supports a resident population of speckled trout, some of which may go to sea and return to spawn. The lower reaches of the river, where the salt incoming tide mixes with the sweet river water, provides habitat for several common salt water species as eels, tommycod, and flounders.

I am now in my 70th year and in my lifetime I have seen many changes in this little river. In my time the natural flow and course of these waters have been drastically altered by the works of man. We have seen the virtual closing-off of the original course of the river as it leaves Gaspereau Lake and where it cascaded down a spectacular ravine to the Valley floor.

Commentary

This main flow has been diverted in to the Black River system (a tributary) in order to take advantage of the steep fall of these waters off the South Mountain. This rapid drop encouraged the early development of sawmills and grist mills and lately, the intensive use of this water for the generation of electric power.

Over time, and within my memory, there has been the construction of five hydro-electric generation stations on the Gaspereau system. Added to this violent and drastic upheaval of the watershed has been the construction of massive dams, powerhouses, canals, water control structures, and all the apparatus of modern water power production. In an effort to permit passage of some fish and stop passage of others, fish ladders and screens have been installed to further confuse and discourage spawning runs.

All of these changes have impacted negatively on the quality of the fish habitat to a marked degree. When one considers all that we have done to this river, it is amazing that there are any fish left in the Gaspereau at all.

Down in the Valley those living along the river - early aboriginal, Acadian or recent settler - have developed ingenious methods to trap and process the gaspereaux. Over the years this river has given up untold thousands of barrels of fish to be shipped to the Carribean, where this fish is considered a delicacy. Elaborate nets and frames and large rock barriers in the river are built to better capture as many of the annu migration to minimize the impact on the fish and the riv environment. But human greed and public apathy have se some terrible acts of destruction in the name of commerc fishing in this river. Overzealous netters break these laws the time, either through ignorance or callous disregard of t consequences of their actions. It is sad indeed to see tho who stand most to gain from the river's fishes damaging t very habitat that brings the fish to the river and determin its future.

I have witnessed myself what happens when the Pow

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...during gem

From Page 35

Corp. that controls the flow of water in the river, drops the flow to a trickle to enable the commercial netters to enter the river with their heavy equipment. They (the netters) then proceed to dislodge rocks and to tear up the river bottom to build their rock walls and net structures. All this activity occurs when the water level is very low and silt and mud cloud the river for hundreds of yards downstream. This destruction more often than not takes place during the smelt spawning run in April.

I have seen the exposed river rocks white with smelt spawns, drying and dying by the millions in the sun. Any eggs not thus exposed are surely choked and destroyed by the activity of the machinery in this delicate environment.

The Gaspereau River is a fragile jewel of priceless worth to every resident of the Gaspereau Valley and indeed to every Nova Scotian and Canadian.

When lax fisheries officers watch bulldozers tear up the bottom of this river in efforts to make a better trap for fish, when netters ignore the minimal laws and do anything to maximize their "take", when farmers and others allow effluent and garbage into the river, when the generation of power comes first and the welfare of the fish comes last, and when citizens don't care enough to question these unlawful acts, then it is that I see the beginning of the end for this little gem of a river.

Mankind seems bent on the destruction of this great asset. Nature renews and repairs if given a chance. The wondrous migrations of so many species of fishes are worth far more than we will ever know until, sadly, they won't be there in the spring and the water will be lifeless and we will be the poorer for it forever.

In my lifetime, I have been nurtured and continually renewed by my love of this river. I have enjoyed its many charms, from the forested lakes of is headwaters to the tidal waters at its mouth. Here we truly have a miracle of Creation. It would be a blasphemy to allow it to be further harmed by careless indifference.

Let us watch out for the welfare of the Gaspereau River. This delicate gift of Nature is ours to care for. Let's do just that.

Lloyd A. Duncanson

NOVA SCOTIA BIRD SOCIETY

Incorporated 1957

c/o Nova Scotia Museum
1747 Summer St.
Halifax, Nova Scotia
B3H 3A6

Nova Scotia Nature Trust
PO Box 2202
Halifax, N.S., B3J 3C4
Attention: Minga O'Brien

May 23, 2000

Dear Ms. O'Brien:

We strongly support the Nova Scotia Nature Trust's proposal to Nova Scotia Power to protect four sites which are ecologically significant to their communities as well as to the province. These areas include Mill Section/Moses Mountain, Bag Lake, Green Point, and property along the Gaspereau River.

As a Society, our activities are centered on the observation and study of the bird life of this province and the preservation of habitat. These properties provide significant habitat for our many bird species. Habitats are becoming increasingly fragmented and it is crucial to secure the conservation of these important biodiverse areas.

The Nova Scotia Bird Society represents over 450 members across the province.

Please contact our Society if we can provide further support regarding your proposal to Nova Scotia Power.

Sincerely,

Gisele d'Entremont

Gisele d'Entremont, President