Chapter 5: Discussion

5-1 Overview of Ecology

The ecology of the Shelburne Barrens was shaped by a combination of Pleistocene glaciation, extensive fires, and because it is underlain by three distinct geological formations: the South Mountain Batholith granites in the north; the Goldenville Formation greywackes of the Meguma Group across the middle, and the Halifax Formation slates of the Meguma Group in the south (fig. 2-4). This has resulted in the formation of diverse landscape features and a mosaic of plant and animal communities.

The Shelburne Barrens includes portions of two of the 80 Natural Landscapes of Nova Scotia, delineated by the NSDNR during development of the Systems Plan for Protected Areas (NSDNR, 1997c). The northern portion of the study site is contained within the Shelburne River Plain, and the southern section within the Lake Rossignol landscape (see section 2-1). The boundary between these natural landscapes roughly corresponds to the boundary between the two theme regions set by Davis and Brown in 1996; the Flintstone Barrens is in the northern section of the study area, and the Mersey Meadows region encompasses the southern portion of the study area. Although useful for a general description of the area, these divisions are at too small of a scale to be useful in the interpretation of the Shelburne Barren ecosystems.

The more detailed approach taken by Mailman (1975), in describing the Tobeatic Wilderness Management Area, gives a much more precise delineation to the ecosystems of the region. The landscape system boundaries for Mailman's division of the region closely correspond to those determined in this study. The boundaries of the Sand Lake Barren and Semi-Barren regions are slightly different, and this could be due to a number

of factors. Mailman used two variables in his study of the area that were not used in this study; soil type and accessibility. Vegetation was the number one factor used in this study to delineate systems boundaries. As well, it is likely that some of the features of the site have become altered since Mailman's study was completed, 24 years ago. Similarities in vegetation description between this study and Mailman's study, particularly of the barren lands, suggest that regeneration of these areas is slow, since there have been few changes to the ecosystems in the last 24 years.

Both this study and that of Mailman show the surface waters in the Shelburne Barrens to be brown and acidic, with low levels of conductivity. This corresponds to waters with low productivity.

The reports which were made by Strang in the late 1960's and early 1970's are less useful and possibly less reliable than Mailman's report. The purpose of Strang's studies was to access the potential of the barren lands in southwestern Nova Scotia for timber production. In this realm, Strang would have been more concerned with the potential economic benefits which could be achieved through plantations, and less so with the importance of the region's ecosystems and biodiversity.

The 1:10,000 airphotos which were used for the initial portion of the study were taken in 1988, these being the most recent for this area of the province. Although on a small scale these airphotos correspond to what was seen during the ground survey, some differences were noted between the photographs and the current vegetation of the site. In particular, some areas noted on the airphotos as being lichen dominated had succeeded to a heath and small shrub community. As well, some of the small trails which are evident on the airphotos had begun to regenerate, although they were still at a very early stage of

succession. Alders had grown in along the edges, and some lichens, mosses and a few herbaceous plants had begun to establish themselves in the centre of the trails. The rate of regeneration of these trails is slow.

Particularly in the Semi-Barren system, saplings and young trees are becoming a dominant feature of the site. This suggests that the area has the potential to succeed to a forested ecosystem. Regeneration in the area is slow, however, likely due in part to the extensive Ornstein iron pan. The climate, or a lack of precipitation, are not likely limiting factors in forest succession of this region (Strang, 1971). The strong southwestern winds may contribute to stress of the plants, particularly in the Flintstone Barren system. This upland system is underlain by the South Mountain Batholith granite, which was not eroded as substantially as the softer Meguma Group strata (Roland, 1982). The barren lands in this region are more exposed because of this.

In none of the studies of the area do the authors discuss the presence of old forests or coastal plain flora. The discovery of these areas is extremely significant, as they are both rare entities in Nova Scotia. Less than 0.6% of Nova Scotia's forests are greater than 100 years old (Lynds and LeDuc, 1995). The presence of beaches were only discussed in NSDNR's 1984 report on the establishment of Indian Field Provincial Park Reserve, and in this in terms of their recreation potential. Natural beaches are uncommon in Nova Scotia, and are often home to rare plants when found in the southwest interior. The presence of these is also significant. This study was also the first survey of fauna in the area, that was found. This is despite the area having one of best moose populations in Nova Scotia (Davis and Brown, 1996).

5-2 Fulfillment of Special Places criteria

5-2-1 Introduction

The Special Places Act was passed in June, 1980 to preserve and protect ecological sites of importance within Nova Scotia (DNR, 1997b). Protection of nature reserves, one of the three types of sites protected by the Act, falls under this legislation. In order for the Shelburne Barrens to be considered a good candidate for a Special Place, it must fill the criteria for designation.

5-2-2 Fulfillment of Special Place criteria

Criteria 1: Is the site suitable for scientific research and educational purposes?

The Shelburne Barrens contains examples of a diverse range of ecosystems and landscape features. The majority of the area is accessible by car, boat or foot, making it an ideal site for scientific research.

The site is more than 40km from the nearest town centre, Shelburne, making it difficult for establishment of an educational program in this area.

Criteria 2: Is the site representative of the natural ecosystems within the Province?

The Shelburne Barrens contains two of the provinces 'natural landscapes'; the Shelburne River Plain and the Lake Rossignol landscape. Designation of this site as a nature reserve will protect representative areas of both of these landscapes, as well as the ecotones and processes which link them together. These links may not be protected if site designation occurs only at the natural landscape level (Beazley, 1998).

Criteria 3: Does the site serve as an example of an ecosystem which has been modified by man but that offers an opportunity to study the natural recovery of this ecosystem from such modification?

Much of the study site has been modified through anthropogenic impacts, in particular the northern and eastern sections of the Shelburne Barrens. Modification of the Flintstone Barrens is largely due to the extensive fires which have swept the region numerous times in the past. The area near Clamshell and Horseshoe Lakes has been modified due to recreation, such as camping, fishing, and ATV use. The construction of a highway through the study area also has modified the site.

The Shelburne Barrens offer a good opportunity to study the natural recovery of the region, for two main reasons: it is accessible; and, multiple studies have been done on the site. Having plenty of background data on the area is helpful in long-term research of the site's regeneration. According to MacLean (1975), the site is "ideal for further studies on the genesis and history of the great barrens" (p.19).

Criteria 4: Does the site contain rare or endangered plants or animals in their native habitat?

The site contains shoreline habitat which could be home to species of rare plants, in particular coastal plain flora. At least four rare plants are located in the area, all of them within the boundaries of Indian Fields Provincial Park Reserve.

Table 5-1: Rare Plants of the Shelburne Barrens

Aster undulatas (Wavy leaved aster)
Euthamia galetorum (rare Goldenrod; endemic to NS (Roland, 1998))
Myriophyllum farwellii (Water-milfoil)
Spiranthes casei (Case's ladies'-tresses)
Spiranthes ochroleuca (Yellow ladies'-tresses)
(MacKinnon, 1999)

Table 5-2: Rare plants potentially occurring in the Shelburne Barrens

Decodon verticuillatus var. *laevicatus* (Water-willow)
Panicum longifolium (Panic grass)

Rhexia virginica (Meadow beauty)
Utricularia gibba (Bladderwort)
Utricularia subulata (Bladderwort)
(Pronych and Wilson, 1993)

Table 5-3: Rare/endangered amphibians and reptiles potentially occurring in the Shelburne Barrens

Thamnophis sauritis septentrionalis (Northern ribbon snake)
Emydoidea blandingi (Blandings turtle)
(Gilhen, 1984)

Criteria 5: Does the site provide educational or research field areas for the long-term study of natural changes and balancing forces in undisturbed ecosystems?

The southwestern portion of the study area appears to have undergone little disturbance. It contains old forests and coastal plain flora, both of which are uncommon in Nova Scotia, particularly in areas that have been disturbed. It is a good site for research of these rare plant communities. The background work which has been done on the area will aid in the development of a long-term research project.

Criteria 6: Will protection of the site promote understanding among people of the province of the scientific, educational, and cultural values represented by the establishment of a Special Place?

The Shelburne Barrens area is well known to the local people of the region. Parts of the area are under stress due to anthropogenic impacts, and protection of this area could aid in the education of these people about these impacts. It would provide them with an opportunity to appreciate the natural beauty of the surrounding landscape, and educate them as to how to maintain its integrity.

5-2-3 Significant Features of the Shelburne Barrens

Table 5-4: Outstanding Values in the Shelburne Barrens

- Chain of eight freshwater, shallow lakes, one of which is spring fed.
- Presence of natural sand beaches on three lakes.
- Contains many uncommon landscape features, such as a glacial outwash plain, and forested floodplains.
- Part of the largest in tact fire barren on undesignated Crown land (Davis and Brown, 1996).
- Contains a diverse array of ecosystems, including various barren types, forested regions, and freshwater habitat.
- Contains many stands of mature deciduous forests, using the criteria set out by Lynds and LeDuc, 1995. These are stands of Nova Scotia climax species: yellow birch, American beech, and sugar maple.
- Contains stands of mature coniferous forests, using the criteria set out by Lynds and LeDuc, 1995. These are stands of Nova Scotia's climax species: white pine, Eastern hemlock.
- Contains stands of old forest, using the size criteria set out by Lynds and LeDuc, 1995. These stands are predominantly Eastern hemlock dominated, with some white pine present. These stands are more diverse, and have a more stable plant and animal community than younger forests.
- Connected with the Tobeatic Wilderness Area (TWA), and indirectly to Kejimkujik National Park; designation would make it part of the largest protected region in Nova Scotia (Beazley, 1998).
- Corridor for the moose population of southwestern Nova Scotia, connecting the TWA population to the smaller satellite population to the south (Miller, 1997).
- The Mersey Meadows system (southern end of the study area) contains the largest concentration of bogs in Nova Scotia (Davis and Brown, 1996). Bogs serve to purify waters, regulate water supply, and are habitat for rare plants (Ross, 1991).
- Shoreline and wetland habitat for rare coastal plain flora.

Coastal plain flora are rare plants found in the infertile wetlands of southwestern Nova Scotia, where the populations are disjucnt from their main range on the Eastern coast of the United States (Wisheu *et al.*, 1994). They are particularly vulnerable to anthropogenic impacts. According to Wisheu and Keddy (1994), there are four factors which can cause disturbance or destruction to these plants: changes in water levels, eutrophication of waters, invasion of habitat by exotics, and human induced destruction of habitats, through recreation and ATV usage. Coastal plain flora are slow growing, and slow to recover. They are not likely to regenerate after large disturbances, as they are often under-represented in seed banks.

5-3 Environmental Impacts of Development

5-3-1 Potential environmental impacts of kaolinite mining

Introduction

There are negative environmental effects associated with any form of mining, due to the intrusive and massive nature of the operation (Ripley, 1996). The impacts are specific to both the type of mining used and the nature of the particular mine site. This section discusses the potential environmental impacts which may be caused by mining of kaolinite in the Flintstone Rock area of the Shelburne Barrens. The extent of the impacts will largely depend on the size of the operation, as well as the measures taken to abate environmental damage.

> *"It is impossible for an industry such as china clay (kaolinite) to undertake its operations without having a significant impact on the environment."*

This statement was taken from a report made for ECC by the Department of the Environment, England (Baldry, 1992).

Environmental impacts associated with exploration

There were ten exploration pits, each of $5m^2$, seen in the Flintstone Rock area. The pits had not revegetated, and were covered with loose rock and 'rock flour', making them susceptible to erosion by wind and water. The rock particles can be transported into local surface waters, where they can cause an increase in sedimentation and turbidity.

CAG Ent. drilled at least nine holes into the bedrock in the vicinity of the Tobeatic Shear Zone (Appendix C). The bedrock is highly fractured in this area, allowing for the movement of groundwater at considerable depths (Duncan *et al.*, 1982). This can cause contamination of groundwater over large areas (Ripley *et al*., 1996).

Access to exploration sites required the use of large equipment, which had driven over the vegetation, destroying plant life, fragmenting habitat, and likely compacting the soil. This compaction of the soil makes it difficult for plants to root, and impedes water movement, resulting in slow regrowth of vegetation (Ripley, *et al.*, 1996).

Environmental impacts associated with mining

Noise

If CAG Ent. uses the same techniques as ECC Int., the extraction and processing will be operating 24 hours a day. A large amount of noise pollution will be created by blasting of the bedrock, movement of large vehicles, and operation of the processing plants. Both the lack of tree cover and the elevation of the Flintstone Barrens, where the mining claims are staked, will likely result in noise pollution traveling large distances (Ripley *et al.*, 1996). This would cause disturbance to the homes in the area, as well as

wildlife, which is “known to be negatively affected by mining noises” (Ripley *et al.*, 1996, p. 84).

Dust

Large amounts of dust are created during the mining process, which is picked up from the site due to wind and water erosion (see section 1-7-4-2). These particles can physically and mechanically affect plants, through abrasion, the clogging of stomata, or coating the cuticle and disrupting transpiration. Ripley (1996) states that the deposition of mine dust from rain or the fall out of dry particles can deleteriously affect the growth of vegetation. Mine dust in the atmosphere and on the vegetation can also affect the fauna, but further research is required to determine the details of these effects.

Watering of the quarry site to control the dust levels will add significantly to water usage, as well as increasing the particulate matter entering the hydrosphere.

Surface disturbance

The on site disturbance to the area involves the removal of vast areas of vegetation and soil. The large pit, waste rock piles and infrastructure will fragment the habitat and act as a barrier to the movement of animals. This can be particularly significant for wide ranging species which live in the region, such as moose and deer. The moose population of the Tobeatic Wilderness Area could become isolated from the satellite population to the south, having potential negative effects on the survival of the small population, such as an increase in inbreeding (Miller, 1997).

Reclaimation

Reclaimation of such a mining operation would be extremely difficult, due to the large size of the pit and the infrastructure which has been built up around the site.

Removal of the roads and building would also cause further noise pollution in an already disturbed region of wilderness.

Revegetation of the mine site would be difficult. Sources of topsoil are not be readily available in the Shelburne Barren region, which is characterized by thin, nutrient-poor soils (see chapter 4). Primary succession on the waste rocks would be slow, due to the low nutrient levels and high winds on the exposed landscape. Without assistance, the mine area would not be able to support tree growth for at least 100 years (ECC, 1995). It would take 30 years for heath to become established, another 10 years for small shrubs, and a further 10 years after that for plants such as rhododendron to grow on the land (ECC, 1995).

Reclaimation seems to be a wonderful answer to a serious problem. But it has many problems of its own. Plantations of vegetation result in a homogenous ecosystem, and do not allow for natural floral variations over the landscape. Since the vegetation would be different than the surrounding areas, this could act as a barrier to animal movements. With no tree cover, large animals, such as the deer and moose populations which now inhabit the area, may not be able to utilize the area. An area with little habitat variation would not be conducive to a diverse faunal assemblage.

In order for plantations to take, early successional and opportunistic species would have to be used. According to White *et al.* (1993), the introduction of opportunistic plants could have the potential to invade into surrounding habitats, and displace the native vegetation. If non-native vegetation is used, this can also cause serious problems in terms of exotic intrusions.

Hydrosphere

Large amounts of ground and surface water would be disturbed or contaminated in the production of a kaolinite mine in the Shelburne Barrens region. The zone of alteration in the Tobeatic Shear Zone is highly fractured, to a depth of at least 120m (Duncan *et al.*1982). The pumping of groundwater from the bedrock will decrease the water table, driving the flow of groundwater towards the pit (Wilson, 1999). Alteration of groundwater flow can affect areas downgradient from the mine which would otherwise be naturally recharged. This includes any springs, streams and lakes which are within the watershed, such as the chain of lakes at the southern end of the Shelburne Barrens. Figure 4-10 shows a map of the study area, overlain with watersheds and the mining claim area. The mining claims lie across portions of three watersheds, containing three rivers which feed into four lakes at the southern end. All of these would potentially be affected by mining operations in the Flintstone Rock area.

The water which would naturally flow from many sources is channeled into a stream to be discharged, altering the water flow patterns. If mining were to occur over the entire mineral claim area currently held by CAG Ent., the pit would intercept three south flowing rivers, disrupting flow patterns. Water volumes would no longer be solely dependent on the rates of precipitation and weather patterns, but would be controlled by the release of water from the mine. This has the potential to affect water levels and stream velocity, which would alter erosion rates in the stream bed. Nutrient transport down the streams would also be affected.

An increase in the volume of water in the streams would raise the water levels, and may flood the rocky shorelines and beaches of the streams and the lakes they feed

into. This would decrease the amount of shoreline habitat, which is home to many plants, such as rare coastal plain flora.

Sediment, mainly clay and mica, from escaping liquid would settle out in local water ways, "severely coating the flora and fauna, causing oxygen starvation and a loss of photosynthesis" (Harris, 1999). The sediment is harmful to benthic communities and plankton, and can decrease the reproductive capability of fish, and alter species composition of both plant and animal assemblages (Ripley *et al.*,1996). During processing, some of the particles are coated with chemicals to make them hydrophobic, and these would then float on the top of the water column, scattering the incoming light, which would reduce its intensity and hence primary productivity (Thurlow, 1992; Ripley *et al.*,1996). These particles have a slow rate of settling, due to their structure and density, and will remain in suspension in the water column for long periods of time (Thurlow, 1992). Suspended solids in high concentration are also known to abrade the gills of fish and cause mortality (Mandell, 1999).

Chemicals are added during many stages in the refining process. They are added for flocculation, which increases the sizes of the particles by clumping; for flotation, by making the sediments hydrophobic (see above); for bleaching of the kaolinite for brightness; and as pH balancers through the addition of acids for flocculation (Harris, 1999; Thurlow, 1992). Alteration of the water quality, such as through pH reduction, can increase the solubility of metals and other elements which would otherwise be inert as sediment (Ripley *et al.*,1996). The high acidity of the precipitation in the area, as well as the surface and likely ground water will also act on the metals in the rocks (Freedman, 1995). The Meguma rocks which underlie the southern portion of the study site have

little or no buffering capacity against pH reductions, making them highly susceptible to acid perterbations (Davis and Brown, 1996). The thin, coarse till and soil in the region has low filtering capacity, increasing the probability of groundwater contamination (Davis and Brown, 1996).

The production of a pit and large piles of broken waste rock increases the surface area which the waters can act on, resulting in a higher concentration of metals and particles in the mine water (Ripley *et al.*1996). Metals can be taken up and metabolized by plants and animals, resulting in bioaccumulation in higher trophic levels, which will negatively affect the reproductive capacity of these animals (Ripley *et al.*1996).

Both temperature and density of surface and groundwaters can be affected by water quality changes (Ripley *et al.*1996). The waters released from the processing plant have an elevated temperature, as do some of the escaping mine waters. This is due to the processing, as well as the chemical and elements present, such as uranium. Uranium and other radioactive elements are found in large quantities in the South Mountain Batholith, where the mining claims lie (see section 2-2-6). According to Mandell (1999), temperature increases in groundwaters can increase the potential of the waters to dissolve metals and minerals in the rocks, resulting in a high concentration of these substances. Elevated temperatures in surface waters can disrupt the timing of fish reproductive cycles, as well as increase the primary productivity of the waters. Both of these effects would disrupt stable biological relationships, and could result in structural or species changes in surface waters.

Temperature and density changes can alter the timing of turnover in the lakes, normally occurring in spring and again in fall, which helps mix the nutrients and gases

within the waters (Ripley *et al.*1996). This turnover will also stir up any small particulates which have been deposited on the bottom, such as clays and mica (Ripley *et al.*,1996). This will increase the turbidity of the waters again, and possibly reintroduce toxins to the water column. Settling of the particles to the bottom of the streams and lakes then, is only temporary.

During reclaimation of the site large amounts of fertilizers are required to initiate plant growth. These fertilizers are easily leached due to the high permeability of the sand and crushed rock, which can then enter into the water column. The Shelburne Barrens region is characterized by water bodies with low levels of nutrients (see chapter 2). Freedman (1995) states that the addition of these fertilizers would increase the primary productivity of the surface waters, which can lead to eutrophication. This could cause elimination of whole groups of species that are typical of the infertile wetlands in the study area, as they are outcompeted by faster growing invasive plants (Wisheu *et al.*, 1994; Keddy, 1994). The Shelburne Barrens lakes are naturally oligotrophic and this change in productivity could result in changes in algal species composition and an increased growth of vascular plants, which can then affect higher trophic levels. The lakes in the region are extremely shallow, which make them "vulnerable to the development of an extremely productive or hypertrophic condition" (Freedman, 1995, p.189). Eutrophication would degrade the water quality, and have negative impacts on aquatic communities.

Table 5-5: Summary of potential environmental impacts of kaolinite mining

- Excessive noise pollution from blasting, traffic, and processing plants, running 24 hours a day. This can disturb wildlife, as well as the homes in the area.

- Introduction of large quantities of dust into the atmosphere, negatively affecting the growth of plants.
- Fragmentation of habitat and creating barriers to animal movement, through: creation of large, open pits; large waste rock piles; infrastructure; and, traffic.
- Waste rock to product ratios of 8:1.
- Direct influence on three sub-watersheds, and four lakes in the Shelburne Barrens
- Increase in the quantity of waters entering the stream beds, increasing erosion capabilities, and flooding habitat of coastal plain flora.
- Regulation of the stream flow over the year, therefore not allowing for natural variations.
- Introduction of suspended solids into surface waters, disrupting habitats, biota and flora.
- Alteration of water quality, disrupting biological relationships and aquatic life, such as: introduction of toxins; changes in pH; and, changes in ionic metal concentrations.
- Difficult reclaimation of site.
- Reclaimation introducing fertilizers into surface waters, causing eutrophication and displacing coastal plain flora.
- Plantations of homogenous vegetation, possibly with species that are not native to the area.
- Potential for exotic intrusives to invade.

5-3-2 Environmental impacts associated with other anthropogenic activities

The development of trails and Highway 203 fragment habitat, and act as a barrier to the movement of animals such as moose and deer (Beazley, 1998). Development has also led to the introduction of exotic invasive plant species, such as scotch broom and pearly everlast. According to White and Keddy (1993), scotch broom is “one of five invasive alien plants that have had a major impact on natural ecosystems in Canada” (p.85). This and other invasives establish themselves on sandy roadsides, barrens and

open woods, having the greatest impact in areas that have experienced landscape modification. Any further development in the area would only serve to increase the abundance of these types of plants, which could lead to instability in the natural plant communities, leaving them more vulnerable to other invasions.

ATV use has been extensive in the area, with trails reaching from the Indian Fields system through the TWA to Kejimkujik National Park. This has been particularly destructive to the wetland habitats along the Roseway River floodplain. Wetlands dominated by *Ledum* sp., which are common to the Shelburne Barrens, are especially vulnerable, as these are slow to regenerate (Ross, 1991). Continual ATV impacts can compact the soils, diminishing the ability of plants to establish themselves (Ross, 1991).

5-4 Summary

The Shelburne Barrens is a unique and diverse piece of wilderness, containing a unique ecosystem mosaic of bogs, barren lands, and old forests. It holds the headwaters of the Clyde River system, as well as many shallow lakes and streams. Many of the outstanding values in the Shelburne Barrens are contained within the southern region of the site, in Indian Fields Provincial Park Reserve (fig. 2-1). The central component of this area is the chain of eight lakes which run through it. The presence of these lakes acted to protect the surrounding vegetation from the extensive fires which have swept through southwestern Nova Scotia over the last few centuries, allowing for the development of old forests. The shorelines of these lakes are also habitat for rare coastal plain flora, at least one species of which is endemic to the province. Wisheu *et al.*(1994), state that conservation of coastal plain flora will require the protection of the plants'

habitat. "Efforts towards preservation of the coastal plain species should make habitat conservation a priority" (p.223).

Protection of these outstanding values requires the protection of the lakes which are at the heart of the area. In order to protect these lakes, the boundaries for the Shelburne Barrens as a Special Place must include the watersheds which feed into these lakes. "Drawing natural region boundaries at scales that encompass landscape features such as...watersheds provides a suitable framework to plan for individual protected areas" (Hummel, 1995, p.3).

5-5 Conclusion and Recommendations

5-5-1 Conclusion

The Shelburne Barrens fits all of the criteria for designation as a nature reserve under the Special Places Protection Act. It was listed as top priority for protection by the Nova Scotia Museum in 1991, and has been a candidate site for 25 years. With only 27% of the land mass of Nova Scotia owned by the government, and continual pressure for developments of these lands, the province must choose to act if it plans on fulfilling its 12% promise. The province cannot afford to lose one of its last large pieces of wilderness.

5-5-2 Recommendations

- Uphold the moratorium on development in candidate ecological reserves, and do not renew CAG Enterprises mineral claims for May of 1999.
- Put in place interim measures to protect all candidate protected sites until their status is decided.

- Make the Minerals and Energy Branch of the Department of Natural Resources recognize candidate protected sites.

- Purchase private lands or enter into land stewardships with private land owners of candidate sites.

- Increase the rate of site designation, while undesignated Crown Lands still exist.

- Integrate protected areas into larger management strategies to ensure adequate protection of lands and reduce conflicts.

- Discourage recreational use of the Shelburne Barrens, in particular the use of ATV's.

- Designate the Shelburne Barrens as a Special Place immediately.