

A Survey of the Shelburne Barrens Candidate Nature  
Reserve, and the Environmental Impacts of Kaolinite Mining

by

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Submitted in partial fulfillment of the requirements for the  
degree of Combined Honours Bachelor of Science  
in Biology and Earth Sciences

at

Dalhousie University  
Halifax, Nova Scotia  
April 6<sup>th</sup>, 1999

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*To Theresa Metcalfe*

*Here's to a celebration of life.*

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## **Abstract**

The Shelburne Barrens candidate Nature Reserve is located in the interior of southwestern Nova Scotia. The site was chosen for protection in for its unique ecology, and suitability for scientific research into regeneration of a natural area from severe disturbance. Mineral licenses have been granted in a portion of the site, despite its status as a candidate protected area. This study was conducted to survey the site, and determine its importance as a protected area under the Special Places Protection act. As well, the study looked at the potential environmental impacts of kaolinite mine development.

Airphoto interpretation and field inspection were used to determine the ecological characteristics of the site, and to identify unique or otherwise significant features. Water samples were taken, and floral and faunal species lists were created.

The site was divided into five landscape systems, characterized by landscape, vegetation, and hydrology. Drainage is to the south, into a chain of shallow, brown freshwater lakes. Mine development in the mineral claim region would intercept three rivers which feed into the shallow, freshwater lakes at the southern end of the study area. Mining would disturb the aquatic habitats, fragment habitat, and act as a barrier to animal movements.

The Shelburne Barrens fits the criteria for designation under the Special Places Protection Act. Among the significant features noted, were patches of old growth forest, rare coastal plain flora, and habitat which may be suitable for some of Nova Scotia's endangered species. In order to protect the significant features of the site, mineral licenses must not be renewed. The rate of protected area designation must be increased in order that the last few wilderness sites in Nova Scotia are not lost to development.

## **List of Abbreviations**

<b>ATV:</b>	All-terrain vehicle
<b>ECC:</b>	English China Clay's International Ltd.
<b>IBP:</b>	International Biological Program
<b>IBP-CT:</b>	International Biological Program, Conservation of Terrestrial Communities Subcommittee
<b>IFPPR:</b>	Indian Fields Provincial Park Reserve
<b>IRM:</b>	Integrated Resource Management plan
<b>JCB:</b>	Jim Campbells Barren
<b>NSDNR:</b>	Nova Scotia Department of Natural Resources
<b>SMB:</b>	South Mountain Batholith
<b>TSZ:</b>	Tobeatic Shear Zone
<b>TWA:</b>	Tobeatic Wilderness Area
<b>TWMA:</b>	Tobeatic Wilderness Management Area

## Definitions

**Drumlin:** A smooth, glacially streamlined hill that is elongate in the direction of ice movement. Drumlins are generally composed of till.

**Erratic:** A large boulder carried by glacial ice to an area far removed from its point of origin.

**Esker:** A long, narrow, sinuous ridge of stratified glacial drift deposited by a stream flowing beneath a glacier in a tunnel or in a subglacial stream bed.

**Granite:** A coarse grained igneous rock, formed from magma at considerable depth. South Mountain Batholith is primarily granite.

**Graywacke:** An impure sandstone consisting of rock fragments and grains of quartz and feldspar in a matrix of clay-size particles.

**Ground moraine:** Glacial deposits that cover an area formerly occupied by a glacier; they typically produce a landscape of low, gently rolling hills.

**Hydrothermal fluid:** Mineral rich high-temperature groundwater that circulates at depth.

**Magma:** A mobile silicate melt, which can contain suspended crystals and dissolved gases as well as liquid.

**Ornstein iron pan:** Clay horizon within the soil formed by compaction and deposition of leached minerals and organics from the overlying soil.

**Shale:** A fine-grained clastic sedimentary rock formed by consolidation of clay and mud.

**Slate:** A fine-grained metamorphic rock with a characteristic type of foliation (slaty cleavage), resulting from the parallel arrangement of microscopic platy minerals, such as mica and chlorite.

**Till:** Unsorted and unstratified glacial deposit.

## **Acknowledgments**

I would like to thank Dr. Willison for his time and support. Also to Dr. Mueke, for his patience through the crazy computer days. Thank you to Dave MacKinnon, and the rest of the staff in Belmont, for the time, information, and helicopter ride. Thank you to Brian Fisher and the DNR staff at Founders Square. Thank you Leslie Fraser for taking the time to help out with the birding. Thank you to my other field helpers. I must also thank Shane for all of the time and effort put into the maps. I would have been lost without you. Thanks Chris, for introducing me to such a wonderful area of Nova Scotia . Thanks to my family, for your love from a distance! And thank you Mike, for your endless source of support and patience.

I am grateful to the Sara Lawson Scholarship fund for the financial support of this project, and the opportunity it gave me to do my own field research.