

Executive Summary

The study area is located on the Canadian Shield and includes the Muskoka River watershed and the northern portion of the Black and Severn River watersheds that are on the Canadian Shield. These areas contain many distinctive natural features that support a variety of flora, fauna and important ecological functions. The area is also an attractive location for people because of the vast number of pristine rivers, lakes, forests and other natural features located in close proximity to major cities. Current trends in population growth and increasing development pressures are threatening the integrity and resiliency of these natural areas. On the other hand, these circumstances present a great opportunity to proactively protect natural features within the watersheds that are still in exceptional condition and continue to support necessary ecosystem functions.

This report focuses on the aquatic component of the Watershed Inventory Project and is a companion report to the terrestrial report completed in 2007. In 2005, the Watershed Inventory Project (the Inventory) was initiated. The Inventory was undertaken collaboratively by the Muskoka Heritage Foundation, Muskoka Watershed Council, District Municipality of Muskoka, and Ontario Ministry of Natural Resources. In 2007 Fisheries and Oceans Canada joined the collaborative for the development of the aquatic component. The purpose of the Inventory is to identify ecologically significant areas using the best available datasets as well as to identify where there is a lack of existing protection for significant areas on both Crown and private land. It also identifies whether or not these significant areas are connected across the landscape. The Inventory uses a transparent, ecology-based methodology produced by the Nature Conservancy of Canada and the Ontario Ministry of Natural Resources who are leaders in defining and conserving significant areas based on best available ecological principles.

The results of the Inventory are intended for natural heritage planning, conservation, and restoration efforts of the collaborative project members and in the following manner:

1. The Muskoka Heritage Foundation, through the Muskoka Heritage Trust, will be able to establish priority areas for potential acquisition or remediation and therefore use limited resources efficiently.
2. The District Municipality of Muskoka will be able to use this information as background to a natural heritage strategy that will identify core natural areas and connecting systems and recommend levels of protection.
3. The Ontario Ministry of Natural Resources will be able to use the findings to assist with natural heritage planning on crown land throughout the watershed and add new information to the provincial database.
4. The Muskoka Watershed Council will be able to report the changes in the sustainability of natural areas and address watershed health through the Muskoka Watershed Report Card.
5. Along with the Muskoka Heritage Foundation, the Watershed Council will be able to use the products generated from the Inventory to develop education and stewardship programs.
6. Fisheries and Oceans Canada will be able to use the findings to assist with fish management activities.
7. All six collaborative members will continue to work together to promote the need for protected areas and to encourage stewardship and education for natural heritage on both Crown and patent land in order to maintain and enhance a logical and continuous natural system.

This report provides information on the methodology and rationale behind the criteria, indicators and scores used for the Inventory, as summarized below. It is a supplement to the Aquatic Inventory Final Report.

Methodology for the Inventory was developed and carried out to attain the following three goals:

1. Identify unique terrestrial ecosystems
2. Identify areas of high ecological importance

3. Identify stresses on ecosystems and process

To meet these goals, five criteria were considered:

1. representation
2. ecological function
3. diversity
4. special features; and
5. condition

In a GIS (geographic information system) environment, the five criteria were applied using the best available data to represent the objectives of the Inventory. The criteria were based on ecological principles of ecosystem health, which included:

1. Representing some portion of each distinct aquatic ecological system types
2. Representing features that support ecological function
3. The significance of diversity
4. The importance of special features; and
5. Considering the stresses on ecosystem health

Each criterion encompassed objectives by which natural features were evaluated. The objectives included identifying the following:

1. Natural areas that exhibit high degrees of integrity and resiliency
2. Wetlands
3. Riparian areas
4. Recharge areas
5. Habitat diversity
6. Species occurrences
7. Wildlife habitat; and
8. Condition or quality of natural areas

Each objective was represented by GIS datasets, or indicators, which were scored accordingly. A higher score identified the feature as being valued for sustaining an ecosystem, while a low score represented the feature as not contributing to a healthy, functioning natural system. As well, each criterion was weighted based on their relative importance or significance to the overall score: ecological function represented 60% of the total score, diversity represented 5%, special features represented 15%, and condition represented 20% of the total score. The representation criterion was not given a score because it was used to identify ecological systems on which the other criteria were evaluated. All scored criteria were then amalgamated and produced a final scored dataset for the study area.